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Table with 5 columns: APPLICATION NO., FILING DATE, FIRST NAMED INVENTOR, ATTORNEY DOCKET NO., CONFIRMATION NO. Includes rows for application details, examiner name (WEBB, WALTER E), art unit (1612), and notification date (11/15/2017).

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Patent No. 9724541
Issued Date: 08 August, 2017
Appl. No: 12/418,927
Filed.: 06 April 2009

PART (A) RESPONSE FOR CERTIFICATES OF CORRECTION

This is a decision on the Certificate of Correction request filed .

The request for issuance of Certificate of Correction for the above-identified correction(s) under the provisions of 37 CFR 1.322 and/or 1.323 is hereby:

(Check one)

Approved Approved in Part Denied

Comments:

PART (B) PETITION UNDER 37 CFR 1.324 OR 37 CFR 1.48

This is a decision on the petition filed 18 October 2017 to correct inventorship under 37 CFR 1.324.

This is a decision on the request under 37 CFR 1.48, petition filed . In view of the fact that the patent has already issued, the request under 37 CFR 1.48 has been treated as a petition to correct inventorship under 37 CFR 1.324.

The petition is hereby: Granted Dismissed

Comment:

The patented filed is being forwarded to Certificate of Corrections Branch for issuance of a certificate naming only the actual inventor or inventors.

/FREDERICK KRASS/
Supervisory Patent Examiner, Art Unit 1612
Technology Center 1600
Phone: (571)272-0580

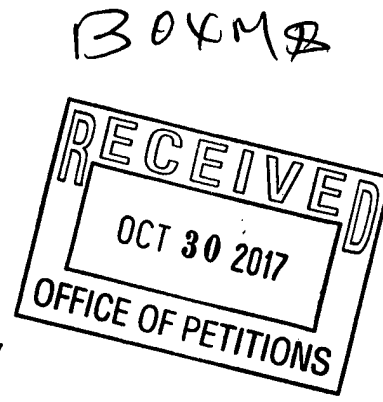
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Office of Publishing
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Dear USPTO,

10/2017

Thank you for allowing the patent "Dental Cleaning and polishing composition comprising Diamond Particles" application #12/418,927 which was filed April, 2009 and granted August 8, 2017. The publication number is US9724541 B2. I Lisa Marie Kao who is listed as inventor/ assignee would like to add Dr. Franklin Garcia Godoy to the patent as a con inventor and an assignee. I have his statement enclosed in this letter and check for \$130.00 to add him under section 37CFR-1.324 and section B 120.B CFR which is explained in his statement why he is being added.

Thank you. Please note my mailing address has been changed. I no longer live at 1228 West Avenue #1214, Miami FL or NYC address. My NEW address is 1050 Brickell Avenue #416, Miami Fl 33131. I know there are maintenance fees for issued patents so please send all future bills to the above address.

Thank you,
Lisa M Kao

USPTO
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2017 OCT 23 PM 4:37

October 11, 2017

USPTO Office of Publishing
Director of Patents - Assignee To Whom It May Concern

Re: Dental Cleaning and Polishing Composition Comprising of Diamond Particles
Patent application # 12/418/927

I Dr Franklin Garcia Godoy, currently residing at 8915 Doe Trail Cove South, Cordova, TN 38018, USA, would like to be added as co-inventor and assignee on patent application #12/418/927 with Lisa Marie Kao.

I did all the clinical research and helped with formulating the toothpaste.

Sincerely,



Franklin García-Godoy, DDS, MS, PhD, PhD

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Patents Application Grant

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Dental cleaning and polishing composition comprising diamond particles

US 9724541 B2

ABSTRACT

A new whitening dentifrice suitable for use with porcelain veneers and dental work as well as with natural tooth enamel comprising diamond particles is disclosed.

DESCRIPTION

BACKGROUND OF THE INVENTION

Dentifrices are used to clean, bleach, whiten, and otherwise treat the teeth and gums. Generally, the active ingredients in a dentifrice are contained within a carrier.

For an abrasive, most toothpaste comprises various types of silica to debride and physically scrub the external surface of the teeth. This scrubbing action removes the organic film (i.e. the pellicle), formed of salivary proteins which covers the teeth and which is known to become stained and discolored by foods, such as coffee, tea and berries, as well as, by tobacco smoke, cationic antibacterials, and chromogenic bacteria. Such physical removal of the stained pellicle is a simple and effective means of removing the undesirable surface staining and discoloration which occurs daily. Further, such physical removal of the pellicle also removes plaque bacteria on the pellicle surface.

The carrier can be a paste (i.e., toothpaste) or a gel (i.e., brushing gels and bleaching gels) or an equivalent vehicle suitable for oral use. The dentifrice can be dispensed onto a brushing device or, in some cases, onto a tray, stint or mouth guard, and then the dental surfaces are brushed or polished for a sufficient period of time. "Gels" are thickened by a gelling agent that hydrogen bonds a dispersion medium to produce a semisolid, transparent, jelly-like material. In contrast, "pastes" are thickened by the addition of fillers. However, the line between gels and pastes is not always clear. Furthermore, sometimes dentifrices that are opaque and/or contain one or more abrasive fillers are labeled pastes, even if they exhibit gel-like properties. Therefore, in describing the present invention, the term "dentifrice" will be used to clearly indicate that both gels and pastes are embraced.

In dental polishing compositions, such as disclosed in prior U.S. Pat. Nos. 4,702,905; 4,528,180, 4,705,680 and 4,814,160, combinations of such ingredients are disclosed and are directed to dental creams, pastes and gels which incorporate the well-known cleaning or polishing components such as water-insoluble alkaline earth metal salts or similar agents.

These cleaning compositions are useful and satisfactory for manual brushing of

Publication number US9724541 B2
Publication type Grant
Application number US 12/418,927
Publication date Aug 8, 2017
Filing date Apr 6, 2009
Priority date Apr 6, 2009
Also published as US20100254915
Inventors Lisa Marie Kao
Original Assignee Lisa Marie Kao
Export Citation BiBTeX, EndNote, RefMan
 Patent Citations (23), Classifications (6)
External Links: USPTO, USPTO Assignment, Espacenet

CLAIMS

The invention claimed is:

1. A dentifrice or polish composition consisting essentially of:

- (a) an orally acceptable vehicle;
- (b) diamond particles disposed within the orally acceptable vehicle;
- (c) a humectant and a binder disposed within the vehicle; and,
- (d) sodium fluoride and xylitol also disposed within the vehicle;

wherein the composition is effective for whitening teeth having porcelain surfaces and suitable for application to teeth in the oral cavity;

wherein the diamond particles constitute about 0.01 to about 0.02 percent by weight of the composition, and have a size range of about 0.03 μm to about 0.07 μm in diameter.

2. The dentifrice or polish of claim 1, wherein the humectant is selected from the group consisting of: glycerin, sorbitol, propylene glycol, polyethylene glycol, xylitol, maltitol, lactitol and trehalose, in a concentration of about 30% to 70% by weight of the composition.

3. The dentifrice or polish composition of claim 1, wherein the binder is selected from the group consisting of: xanthan gum and other gums, sodium alginate, sodium carboxymethylcellulose, carrageenan, xanthan gum, sodium polyacrylate, hydroxyethyl cellulose, hydroxypropyl cellulose, pectin, tragacanth gum, arabic gum, gual gum, karaya gum, locust bean gum, gellan gum, tamarind gum, Psyllium seed gum, polyvinyl alcohol, sodium chondroitin sulfate, and methoxyethylene-maleic anhydride copolymer.

4. The dentifrice or polish composition of claim 1, wherein said

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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/418,927	08/08/2017	9724541	7105-002U	9522

29973 7590 07/19/2017
CRGO LAW
ATTN: STEVEN M. GREENBERG, ESQ.
7900 Glades Road
SUITE 520
BOCA RATON, FL 33434

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment is 0 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site <http://pair.uspto.gov> for additional applicants):

Lisa Marie Kao, Miami Beach, FL;

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STAP
 JUN 28 2017
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M

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

29973 7590 05/24/2017
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 7900 Glades Road
 SUITE 520
 BOCA RATON, FL 33434

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

LISA M KAO	(Depositor's name)
<i>Lisa M Kao</i>	(Signature)
6/25/17	(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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12/418,927 04/06/2009 Lisa Marie Kao 7105-002U 9522

TITLE OF INVENTION: DENTAL CLEANING AND POLISHING COMPOSITION COMPRISING DIAMOND PARTICLES

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
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nonprovisional SMALL \$480 \$0 \$0 \$480 08/24/2017

EXAMINER	ART UNIT	CLASS-SUBCLASS
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WEBB, WALTER E 1612 424-401000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).
 Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
 "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required.

2. For printing on the patent front page, list
 (1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
 (2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.
 1 STEVEN Greenberg
 2 CRGO LAW
 3

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE: LISA Marie Kao
 (B) RESIDENCE: (CITY and STATE OR COUNTRY): 1228 WEST AVE. #12K, Miami FL 33139

Please check the appropriate assignee category or categories (will not be printed on the patent): Individual Corporation or other private group entity Government

4a. The following fee(s) are submitted:

- Issue Fee
- Publication Fee (No small entity discount permitted)
- Advance Order - # of Copies _____

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

- A check is enclosed.
- Payment by credit card. Form PTO-2038 is attached.
- The director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- Applicant certifying micro entity status. See 37 CFR 1.29
- Applicant asserting small entity status. See 37 CFR 1.27
- Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature *Lisa M Kao*
 Typed or printed name LISA M. KAO

Date 6/25/17
 Registration No. 06/29/2017 HWJONG2 00000014 12418927
 01 EP-2531 AAD, RR 00



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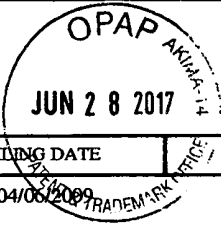


Table with 5 columns: APPLICATION NO., FILING DATE, FIRST NAMED INVENTOR, ATTORNEY DOCKET NO., CONFIRMATION NO.

12/418,927

04/06/2009

Lisa Marie Kao

7105-002U

9522

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7590

05/24/2017

CRGO LAW

ATTN: STEVEN M. GREENBERG, ESQ.

7900 Glades Road

SUITE 520

BOCA RATON, FL 33434

EXAMINER

WEBB, WALTER E

ART UNIT

PAPER NUMBER

1612

DATE MAILED: 05/24/2017

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.



Lisa Marie Kao <lisamariekao@gmail.com>

7105-002U NOTICE OF ALLOWANCE RECEIVED - Issue Fee due NO LATER THAN August 24th

Steven Greenberg <sgreenberg@crgolaw.com>
To: Lisa Marie Kao CEO Myntsmile <Lisamariekao@myntsmile.com>
Cc: Sarah Scott <sscott@crgolaw.com>

Wed, May 24, 2017 at 11:09 AM

Lisa,


As expected, your patent application has been allowed. In order to issue the patent application into an issued patent, you will be required to pay the issue fee and return the attached as indicated.

We are happy to do so for you--I believe the fixed fee is \$200.00USD in addition to the \$480.00USD owed to the government as indicated in the attached.

In any case, in order to issue the application into a patent, you must submit the attached with fee by August 24th of this year and there are no extensions of time available.

Please let us know how we are to proceed.

Steve

 7105-002U_2017-05-24_Notice of Allowance.pdf
416K

JUN 28 2017

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

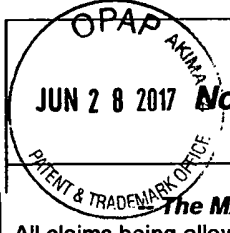
The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records management conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.



Notice of Allowability

Application No. 12/418,927	Applicant(s) KAO, LISA MARIE	
Examiner WALTER WEBB	Art Unit 1612	AIA (First Inventor to File) Status No

The MAILING DATE of this communication appears on the cover sheet with the correspondence address--
 All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

- This communication is responsive to Applicant's response filed 4/17/17.
 A declaration(s)/affidavit(s) under 37 CFR 1.130(b) was/were filed on _____.
- An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
- The allowed claim(s) is/are 1, 3, 5-19, 21-25. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.
- Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

- a) All b) Some *c) None of the:
- Certified copies of the priority documents have been received.
 - Certified copies of the priority documents have been received in Application No. _____.
 - Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
- * Certified copies not received: _____.

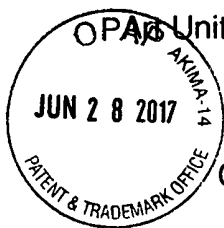
Applicant has **THREE MONTHS FROM THE "MAILING DATE"** of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in **ABANDONMENT** of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

- CORRECTED DRAWINGS** (as "replacement sheets") must be submitted.
 including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
- DEPOSIT OF and/or INFORMATION** about the deposit of **BIOLOGICAL MATERIAL** must be submitted. Note the attached Examiner's comment regarding **REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.**

Attachment(s)

- | | |
|--|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 2. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____ | 6. <input type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| 3. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 7. <input type="checkbox"/> Other _____ |
| 4. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____ | |

/WALTER WEBB/
 Primary Examiner, Art Unit 1612



Unit: 1612

Election/Restrictions

Claims 1 and 9 are allowable. The restriction requirement among as set forth in the Office action mailed on 09/27/2011 has been reconsidered in view of the allowability of claims to the elected invention pursuant to MPEP § 821.04(a). **The restriction requirement is hereby withdrawn as to any claim that requires all the limitations of an allowable claim.**

In view of the above noted withdrawal of the restriction requirement, applicant is advised that if any claim presented in a continuation or divisional application is anticipated by, or includes all the limitations of, a claim that is allowable in the present application, such claim may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application.

Once a restriction requirement is withdrawn, the provisions of 35 U.S.C. 121 are no longer applicable. See *In re Ziegler*, 443 F.2d 1211, 1215, 170 USPQ 129, 131-32 (CCPA 1971). See also MPEP § 804.01.

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in an interview with Steven M. Greenberg on May 9, 2017.

Art Unit: 1612

1) Claim 1, lines 4, delete "0.001% to about 1.0% of the total composition by weight of".

2) Claim 1, lines 5-6, delete "in a size range of about 0.05 μm to about 5.0 μm in diameter".

Correspondence

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter E. Webb whose telephone number is (571) 270-3287. The examiner can normally be reached on 9:00am-4:00pm Mon-Fri EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frederick F. Krass can be reached (571) 272-0580. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Walter E. Webb

Application/Control Number: 12/418,927

Page 4

Art Unit: 1612

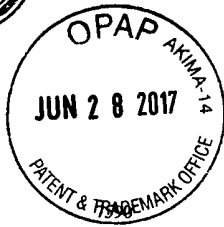
/WALTER WEBB/

Primary Examiner, Art Unit 1612



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov



NOTICE OF ALLOWANCE AND FEE(S) DUE

29973

05/24/2017

CRGO LAW
ATTN: STEVEN M. GREENBERG, ESQ.
7900 Glades Road
SUITE 520
BOCA RATON, FL 33434

EXAMINER

WEBB, WALTER E

ART UNIT PAPER NUMBER

1612

DATE MAILED: 05/24/2017

Table with 5 columns: APPLICATION NO., FILING DATE, FIRST NAMED INVENTOR, ATTORNEY DOCKET NO., CONFIRMATION NO.

12/418,927

04/06/2009

Lisa Marie Kao

7105-002U

9522

TITLE OF INVENTION: DENTAL CLEANING AND POLISHING COMPOSITION COMPRISING DIAMOND PARTICLES

Table with 7 columns: APPLN. TYPE, ENTITY STATUS, ISSUE FEE DUE, PUBLICATION FEE DUE, PREV. PAID ISSUE FEE, TOTAL FEE(S) DUE, DATE DUE

nonprovisional

SMALL

\$480

\$0

\$0

\$480

08/24/2017

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.



UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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P.O. Box 1450
Alexandria, Virginia 22313-1450
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NOTICE OF ALLOWANCE AND FEE(S) DUE

29973 7590 05/24/2017
CRGO LAW
ATTN: STEVEN M. GREENBERG, ESQ.
7900 Glades Road
SUITE 520
BOCA RATON, FL 33434

EXAMINER
WEBB, WALTER E
ART UNIT
PAPER NUMBER

1612
DATE MAILED: 05/24/2017

Table with 5 columns: APPLICATION NO., FILING DATE, FIRST NAMED INVENTOR, ATTORNEY DOCKET NO., CONFIRMATION NO.

12/418,927 04/06/2009 Lisa Marie Kao 7105-002U 9522

TITLE OF INVENTION: DENTAL CLEANING AND POLISHING COMPOSITION COMPRISING DIAMOND PARTICLES

Table with 7 columns: APPLN. TYPE, ENTITY STATUS, ISSUE FEE DUE, PUBLICATION FEE DUE, PREV. PAID ISSUE FEE, TOTAL FEE(S) DUE, DATE DUE

nonprovisional SMALL \$480 \$0 \$0 \$480 08/24/2017

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

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PART B - FEE(S) TRANSMITTAL

**Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE
 Commissioner for Patents
 P.O. Box 1450
 Alexandria, Virginia 22313-1450
 or Fax (571)-273-2885**

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

29973 7590 05/24/2017
CRGO LAW
 ATTN: STEVEN M. GREENBERG, ESQ.
 7900 Glades Road
 SUITE 520
 BOCA RATON, FL 33434

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/418,927	04/06/2009	Lisa Marie Kao	7105-002U	9522

TITLE OF INVENTION: DENTAL CLEANING AND POLISHING COMPOSITION COMPRISING DIAMOND PARTICLES

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$480	\$0	\$0	\$480	08/24/2017

EXAMINER	ART UNIT	CLASS-SUBCLASS
WEBB, WALTER E	1612	424-401000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363). <input type="checkbox"/> Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached. <input type="checkbox"/> "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required.	2. For printing on the patent front page, list (1) The names of up to 3 registered patent attorneys or agents OR, alternatively, _____ 1 (2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. _____ 2 _____ 3
--	--

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE _____ (B) RESIDENCE: (CITY and STATE OR COUNTRY) _____

Please check the appropriate assignee category or categories (will not be printed on the patent) : Individual Corporation or other private group entity Government

4a. The following fee(s) are submitted: <input type="checkbox"/> Issue Fee <input type="checkbox"/> Publication Fee (No small entity discount permitted) <input type="checkbox"/> Advance Order - # of Copies _____	4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above) <input type="checkbox"/> A check is enclosed. <input type="checkbox"/> Payment by credit card. Form PTO-2038 is attached. <input type="checkbox"/> The director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).
--	---

5. **Change in Entity Status** (from status indicated above)

Applicant certifying micro entity status. See 37 CFR 1.29

Applicant asserting small entity status. See 37 CFR 1.27

Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
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12/418,927 04/06/2009 Lisa Marie Kao 7105-002U 9522

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BOCA RATON, FL 33434

EXAMINER

WEBB, WALTER E

ART UNIT PAPER NUMBER

1612

DATE MAILED: 05/24/2017

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	Application No. 12/418,927	Applicant(s) KAO, LISA MARIE	
	Examiner WALTER WEBB	Art Unit 1612	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. This communication is responsive to Applicant's response filed 4/17/17.
 A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.
2. An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
3. The allowed claim(s) is/are 1, 3, 5-19, 21-25. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.
4. Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

- a) All b) Some *c) None of the:
1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 2. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____ | 6. <input type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| 3. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 7. <input type="checkbox"/> Other _____. |
| 4. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. | |

/WALTER WEBB/
Primary Examiner, Art Unit 1612

Election/Restrictions

Claims 1 and 9 are allowable. The restriction requirement among as set forth in the Office action mailed on 09/27/2011 has been reconsidered in view of the allowability of claims to the elected invention pursuant to MPEP § 821.04(a). **The restriction requirement is hereby withdrawn as to any claim that requires all the limitations of an allowable claim.**

In view of the above noted withdrawal of the restriction requirement, applicant is advised that if any claim presented in a continuation or divisional application is anticipated by, or includes all the limitations of, a claim that is allowable in the present application, such claim may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application.

Once a restriction requirement is withdrawn, the provisions of 35 U.S.C. 121 are no longer applicable. See *In re Ziegler*, 443 F.2d 1211, 1215, 170 USPQ 129, 131-32 (CCPA 1971). See also MPEP § 804.01.

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in an interview with Steven M. Greenberg on May 9, 2017.

Art Unit: 1612

1) Claim 1, lines 4, delete "0.001% to about 1.0% of the total composition by weight of".

2) Claim 1, lines 5-6, delete "in a size range of about 0.05 μm to about 5.0 μm in diameter".

Correspondence

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter E. Webb whose telephone number is (571) 270-3287. The examiner can normally be reached on 9:00am-4:00pm Mon-Fri EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frederick F. Krass can be reached (571) 272-0580. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Walter E. Webb


Application/Control Number: 12/418,927

Page 4

Art Unit: 1612

/WALTER WEBB/

Primary Examiner, Art Unit 1612

Search Notes 	Application/Control No. 12418927	Applicant(s)/Patent Under Reexamination KAO, LISA MARIE
	Examiner Walter Webb	Art Unit 1612

CPC- SEARCHED		
Symbol	Date	Examiner


CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
400			
106			
424			
424	49, 401, 769	11/3/2011	WW

SEARCH NOTES		
Search Notes	Date	Examiner
East, Google		
Inventor Name Search on PALM	11/3/2011	WW
EAST Search History	11/3/2011	WW
NPL Search Terms: diamond particles, diamond dust, nanodiamonds	11/3/2011	WW

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner
A46D	1/100	5/15/2017	WW


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Issue Classification 	Application/Control No. 12418927	Applicant(s)/Patent Under Reexamination KAO, LISA MARIE	
	Examiner WALTER WEBB	Art Unit 1612	

CPC						
Symbol					Type	Version
A61Q		11		00	F	2013-01-01
A61K		8		19	I	2013-01-01
A61K		2800		412	A	2013-01-01


CPC Combination Sets				
Symbol	Type	Set	Ranking	Version

NONE		Total Claims Allowed:	
		22	
(Assistant Examiner)	(Date)	O.G. Print Claim(s)	O.G. Print Figure
/WALTER WEBB/ Primary Examiner.Art Unit 1612	05/09/2017	Claim 1	None
(Primary Examiner)	(Date)		

Issue Classification 	Application/Control No. 12418927	Applicant(s)/Patent Under Reexamination KAO, LISA MARIE
	Examiner WALTER WEBB	Art Unit 1612

US ORIGINAL CLASSIFICATION					INTERNATIONAL CLASSIFICATION							
CLASS		SUBCLASS			CLAIMED				NON-CLAIMED			
424		401			A	6	1	K	6 / 00 (2006.01.01)			
CROSS REFERENCE(S)					A	6	1	Q	11 / 00 (2006.01.01)			
					CLASS		SUBCLASS (ONE SUBCLASS PER BLOCK)					
424	49	58	489									

NONE		Total Claims Allowed:	
		22	
(Assistant Examiner)	(Date)	O.G. Print Claim(s)	O.G. Print Figure
/WALTER WEBB/ Primary Examiner.Art Unit 1612	05/09/2017	Claim 1	None
(Primary Examiner)	(Date)		

Issue Classification 	Application/Control No. 12418927	Applicant(s)/Patent Under Reexamination KAO, LISA MARIE
	Examiner WALTER WEBB	Art Unit 1612

<input checked="" type="checkbox"/> Claims renumbered in the same order as presented by applicant <input type="checkbox"/> CPA <input type="checkbox"/> T.D. <input type="checkbox"/> R.1.47															
Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1	17	19												
2	3	18	21												
3	5	19	22												
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12	14														
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14	16														
15	17														
16	18														

NONE		Total Claims Allowed:	
		22	
(Assistant Examiner)	(Date)	O.G. Print Claim(s)	O.G. Print Figure
/WALTER WEBB/ Primary Examiner.Art Unit 1612	05/09/2017	Claim 1	None
(Primary Examiner)	(Date)		


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BIB DATA SHEET
CONFIRMATION NO. 9522


SERIAL NUMBER	FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.	
12/418,927	04/06/2009	424	1612	7105-002U	
APPLICANTS INVENTORS Lisa Marie Kao, Miami Beach, FL; ** CONTINUING DATA ***** ** FOREIGN APPLICATIONS ***** ** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** ** SMALL ENTITY ** 05/13/2009					
Foreign Priority claimed <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No 35 USC 119(a-d) conditions met <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Verified and Acknowledged <u>/WALTER E WEBB/</u> <small>Examiner's Signature</small>	<input type="checkbox"/> Met after Allowance <small>Initials</small>	STATE OR COUNTRY FL	SHEETS DRAWINGS 0	TOTAL CLAIMS 22	INDEPENDENT CLAIMS 3
ADDRESS CRGO LAW ATTN: STEVEN M. GREENBERG, ESQ. 7900 Glades Road SUITE 520 BOCA RATON, FL 33434 UNITED STATES					
TITLE DENTAL CLEANING AND POLISHING COMPOSITION COMPRISING DIAMOND PARTICLES					
FILING FEE RECEIVED 514	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:		<input type="checkbox"/> All Fees <input type="checkbox"/> 1.16 Fees (Filing) <input type="checkbox"/> 1.17 Fees (Processing Ext. of time) <input type="checkbox"/> 1.18 Fees (Issue) <input type="checkbox"/> Other _____ <input type="checkbox"/> Credit		

EAST Search History**EAST Search History (I nterference)**

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	1429369	diamond dust or diamond particles or diamond powder	USPAT	OR	ON	2017/05/09 12:56
L2	17222	dentifrice or toothpaste or tooth paste or oral care or oral hygiene	USPAT	ADJ	ON	2017/05/09 12:57
L3	10628	l1 and l2	USPAT	ADJ	ON	2017/05/09 12:57
L4	7822	diamond.ab.	USPAT	ADJ	ON	2017/05/09 12:58
L5	21243	diamond.clm.	USPAT	ADJ	ON	2017/05/09 12:58
L6	22440	l4 or l5	USPAT	ADJ	ON	2017/05/09 12:58
L7	42	l3 and l6	USPAT	ADJ	ON	2017/05/09 12:58
L8	6969	diamond dust or diamond particles or diamond powder	USPAT	ADJ	ON	2017/05/09 12:59
L9	9	l7 and l8	USPAT	ADJ	ON	2017/05/09 12:59

5/ 9/ 2017 1:04:57 PM

C:\ Users\ wwebb\ Documents\ EAST\ Workspaces\ 12418927 _dimond dust dentifrice.wsp

Index of Claims 	Application/Control No. 12418927	Applicant(s)/Patent Under Reexamination KAO, LISA MARIE
	Examiner WALTER WEBB	Art Unit 1612

✓	Rejected
=	Allowed

-	Cancelled
÷	Restricted

N	Non-Elected
I	Interference

A	Appeal
O	Objected

Claims renumbered in the same order as presented by applicant

 CPA

 T.D.

 R.1.47

CLAIM		DATE								
Final	Original	01/18/2011	09/27/2011	11/10/2011	07/03/2012	12/17/2013	11/03/2016	05/09/2017		
1	1	✓	÷	✓	✓	✓	✓	=		
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2	3	✓	÷	✓	✓	✓	✓	=		
	4	✓	-	-	-	-	-	-		
3	5	✓	÷	✓	✓	✓	✓	=		
4	6	✓	÷	✓	✓	✓	✓	=		
5	7	✓	÷	N	N	N	N	=		
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7	9	✓	÷	✓	✓	✓	=	=		
8	10	✓	÷	✓	✓	✓	=	=		
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	20	✓	÷	✓	✓	✓	=	-		
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21	24		÷	✓	✓	✓	=	=		
22	25		÷	✓	✓	✓	=	=		

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**CHANGE OF
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Application**Address to:
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Alexandria, VA 22313-1450

Application Number	12/418,927
Filing Date	April 6, 2009
First Named Inventor	Lisa Marie Kao
Art Unit	1612
Examiner Name	WEBB, WALTER E
Attorney Docket Number	7105-002U

Please change the Correspondence Address for the above-identified patent application to:

 The address associated with
Customer Number:**OR** Firm or
Individual Name **Lisa Kao**Address **1228 WEST AVENUE
#1214**City **Miami Beach**State **FL**Zip **33139**Country **US**

Telephone

Email **lisamariekao@gmail.com**

This form cannot be used to change the data associated with a Customer Number. To change the data associated with an existing Customer Number use "Request for Customer Number Data Change" (PTO/SB/124).

I am the:

Applicant

Attorney or agent of record. Registration Number 44725

Registered practitioner named in the application transmittal papers who acts in a representative capacity under 37 CFR 1.34. See 37 CFR 1.33(a)(1). Registration Number _____

Signature **/Steven Greenberg/**Typed or Printed
Name **Steven Greenberg**Date **May 24, 2017**Telephone **561-922-3835**NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications.
Submit multiple forms if more than one signature is required, see below*. *Total of 1 forms are submitted.This collection of information is required by 37 CFR 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: **Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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The information provided by you in this form will be subject to the following routine uses:

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4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
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Electronic Acknowledgement Receipt

EFS ID:	29307332
Application Number:	12418927
International Application Number:	
Confirmation Number:	9522
Title of Invention:	DENTAL CLEANING AND POLISHING COMPOSITION COMPRISING DIAMOND PARTICLES
First Named Inventor/Applicant Name:	Lisa Marie Kao
Customer Number:	29973
Filer:	Steven M. Greenberg
Filer Authorized By:	
Attorney Docket Number:	7105-002U
Receipt Date:	24-MAY-2017
Filing Date:	06-APR-2009
Time Stamp:	19:56:09
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Change of Address	7105-002_CHANGE_CORRESPONDENCE.pdf	176869 <small>35e0470d25e4056ce84f59e9533446d5fd2faeb</small>	no	2

Warnings:

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Information:**Total Files Size (in bytes):**

176869

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New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application Number: 12/418,927

Confirmation Number: 9522

Filing Date: April 6, 2009

Applicant(s): Lisa Marie Kao

Entitled: DENTAL CLEANING AND POLISHING
COMPOSITION INCLUDING DIAMOND
PARTICLES AND METHODS OF USE

Examiner: Walter E. Webb

Group Art Unit: 1612

Attorney Docket No.: 7105-002U (formerly 091-001)

Mail Stop Amendment
Commissioner For Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In response to the official action mailed November 3, 2016 (the "Non-Final Office Action"), and the Notice of Non-Compliant Amendment, please enter the following amendments into the above-referenced patent application (the "Patent Application") and further please consider the following remarks establishing the patentability of the claims of the Patent Application.

Amendments to the Claims are reflected in the listing of claims that begins on page 3 of this paper.

Remarks/Arguments begin on page 10 of this paper.

LISTING OF THE CLAIMS

1. (Currently Amended) A dentifrice or polish composition consisting essentially of:
 - (a) an orally acceptable vehicle;
 - (b) 0.001% to about 1.0% of the total composition by weight of diamond particles in a size range of about 0.05 μm to about 5.0 μm in diameter disposed within the orally acceptable vehicle;
 - (c) a humectant and a binder disposed within the vehicle; and,
 - (d) sodium fluoride and xylitol also disposed within the vehicle;wherein the composition is effective for whitening teeth having porcelain surfaces and suitable for application to teeth in the oral cavity;
wherein the diamond particles constitute about 0.01 to about 0.02 percent by weight of the composition, and have a size range of about 0.03 μm to about 0.07 μm in diameter.
2. Canceled.
3. (Previously Amended) The dentifrice or polish of claim 1, wherein the humectant is selected from the group consisting of: glycerin, sorbitol,

propylene glycol, polyethylene glycol, xylitol, maltitol, lactitol and trehalose, in a concentration of about 30% to 70% by weight of the composition.

4. Canceled.

5. (Previously Amended) The dentifrice or polish composition of claim 1, wherein the binder is selected from the group consisting of: xanthan gum and other gums, sodium alginate, sodium carboxymethylcellulose, carrageenan, xanthan gum, sodium polyacrylate, hydroxyethyl cellulose, hydroxypropyl cellulose, pectin, tragacanth gum, arabic gum, guar gum, karaya gum, locust bean gum, gellan gum, tamarind gum, Psyllium seed gum, polyvinyl alcohol, sodium chondroitin sulfate, and methoxyethylene-maleic anhydride copolymer.

6. (Previously Amended) The dentifrice or polish composition of claim 1, wherein said composition further comprises an abrasive agent.

7. (Withdrawn) The dentifrice or polish of claim 6, wherein the abrasive agent is selected from the group consisting of: precipitated silica,

silica gel, aluminosilicate and zirconsilicate, secondary calcium phosphate dihydrate or anhydrate, calcium pyrophosphate, calcium carbonate, alumina, aluminum hydroxide, magnesium acetate, tertiary magnesium phosphate, zeolite and synthetic resin abrasives.

8. (Original) The dentifrice or polish composition of claim 1, further comprising one or more of a flavoring agent, a colorant, an anti-caries agent, a pH modifying agent, plant extracts, antimicrobial agents, anti-plaque agents, thickeners, gums and foam modulators.

9. (Previously Amended) A dentifrice or polish composition effective for whitening teeth having porcelain surfaces suitable for application to teeth in the oral cavity having the following composition:

diamond particles having a size range of about 0.1 μm to about 0.5 μm and comprising between about 0.002% to about 0.05% of the total composition by weight disposed within an orally acceptable vehicle;

both a humectant in a concentration of about 5 to about 70% by weight of the composition and also a binder disposed within the vehicle;

sodium fluoride also disposed within the vehicle, the binder having a concentration of about 0.1% to about 10% by weight of the composition;

a plant extract in a concentration of about 0.1% to about 5% by weight of the composition also disposed within the vehicle; and,

an abrasive agent in a concentration of about 15% to about 30% by weight of the composition disposed within the vehicle.

10. (Original) The dentifrice or polish composition of claim 9, further comprising one or more of a flavoring agent, a colorant, an anti-caries agent, a pH modifying agent, antimicrobial agents, anti-plaque agents, thickeners, gums and foam modulators.

11. (Withdrawn) A dentifrice or polish effective for whitening teeth having porcelain surfaces suitable for application to teeth in the oral cavity having the following composition: TABLE-US-00009 Ingredient Percent by weight (wt %) Xanthan gum 1.00 Sorbitol 20.00 Glycerin 21.00 Plant extract (chamomile flower extract, sage 0.50 leaf extract, peppermint leaf extract) Xylitol 0.20 Sodium monofluorophosphate (USP) 0.70 Silica-Sident 9 (Degussa) 6.00 Silica-Sident 22 S (Degussa) 13.00 TiO.sub.2 (Titanium Dioxide) 1.00 Diamond Powder MSY 0.5.mu. 0.01 Cocamidopropyl Betaine

2.00 Aloe vera oil gel 0.10 Aroma Powermint 1.00 and said composition including the remainder as water up to 100% by weight.

12. (Withdrawn) The dentifrice or polish composition of claim 11, wherein said composition further comprises a whitening agent.

13. (Withdrawn) The dentifrice or polish composition of claim 12, wherein said whitening agent comprises about 5% by weight of Na.sub.2HCO.sub.3.

14. (Withdrawn) The dentifrice or polish composition of claim 11, wherein said composition further comprising a desensitizing agent.

15. (Withdrawn) The dentifrice or polish composition of claim 14, wherein said desensitizing agent comprises about 5% by weight of potassium nitrite.

16. (Withdrawn) The dentifrice or polish composition of claim 11, wherein said composition further comprises a tartar control agent.

17. (Withdrawn) The dentifrice or polish composition of claim 16, wherein said tartar control agent comprises about 0.5% by weight of zinc citrate.
18. (Withdrawn) The dentifrice or polish composition of claim 11, wherein said composition further comprises an antiplaque agent.
19. (Withdrawn) The dentifrice or polish composition of claim 18, wherein said tartar control agent comprises about 0.5% by weight of xylitol.
20. Canceled.
21. (Withdrawn) A method of cleaning or polishing a dental surface, wherein said method comprises the steps of applying the dentifrice or polish of claim 1 to a dental surface, and brushing said dental surface with said composition for a therapeutically effective period of time.
22. (Withdrawn) A method of cleaning or polishing an older dental surface, wherein said method comprises the steps of applying the dentifrice

or polish of claim 1 to a dental surface, and brushing said dental surface with said composition for a therapeutically effective period of time.

23. (Previously Presented) The dentifrice or polish composition of claim 9, wherein said composition further comprises 0.5 to 5.0% by weight of xylitol.

24. (Currently Amended) The dentifrice or polish composition of claim 9, wherein said composition further comprises about 0.1 to 2.0 % by weight of sodium monofluorophosphate or sodium fluoride (USP).

25. (Currently Amended) The dentifrice or polish composition of claim 9, wherein said composition further comprises about 0.5 to 5.0% by weight of xylitol and about 0.1 to 2.0 % by weight of sodium monofluorophosphate or sodium fluoride (USP).

REMARKS

These remarks are set forth in response to the Non-Final Office Action. Presently, claims 1, 3 and 5 through 25 are pending in the Patent Application. Claims 7, 11 through 19, 21 and 22 are withdrawn from consideration. Claims 1 and 9 subject presently subject to examination are independent in nature. In the Non-Final Office Action, claims 1, 3, 5, 6 and 8 are newly rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Application Publication No. 2009/0130627 by Herman. But, claims 9, 10 and 23 through 25 are allowed.

In response, Applicants have amended claim 1 to incorporate the limitations of claim 20 and Applicants have amended claims 24 and 25 as required by Examiner. Yet further, Applicants have canceled claim 20. As such, no new matter has been added. Examination on the merits is requested. An indication of allowance is respectfully requested. The Applicants request that the Examiner call the undersigned if clarification is needed on any matter within this Amendment, or if the Examiner believes a telephone interview would expedite the prosecution of the subject application to completion.

Respectfully submitted,

Date: April 17, 2017

/Steven M. Greenberg/

Steven M. Greenberg
Reg. No.: 44,725
CRGO Law
7900 Glades Road, Suite 520
Boca Raton, Florida 33434
Customer No. 29973
Tel: (561) 922-3845
Fax: (561) 244-1062

Electronic Acknowledgement Receipt

EFS ID:	28949923
Application Number:	12418927
International Application Number:	
Confirmation Number:	9522
Title of Invention:	DENTAL CLEANING AND POLISHING COMPOSITION COMPRISING DIAMOND PARTICLES
First Named Inventor/Applicant Name:	Lisa Marie Kao
Customer Number:	29973
Filer:	Steven M. Greenberg
Filer Authorized By:	
Attorney Docket Number:	7105-002U
Receipt Date:	17-APR-2017
Filing Date:	06-APR-2009
Time Stamp:	22:13:24
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Amendment/Req. Reconsideration-After Non-Final Reject	7105-002_RESPONSE_NNCA_04172017.pdf	43592 <small>51849bceac9fe264dfadee398ffa7d72fa6eb e68</small>	no	11

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43592

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New International Application Filed with the USPTO as a Receiving Office

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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 12/418,927	Filing Date 04/06/2009	<input type="checkbox"/> To be Mailed
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ENTITY: LARGE SMALL MICRO

APPLICATION AS FILED – PART I

FOR	NUMBER FILED	NUMBER EXTRA	RATE (\$)	FEE (\$)
<input type="checkbox"/> BASIC FEE <small>(37 CFR 1.16(a), (b), or (c))</small>	N/A	N/A	N/A	
<input type="checkbox"/> SEARCH FEE <small>(37 CFR 1.16(k), (l), or (m))</small>	N/A	N/A	N/A	
<input type="checkbox"/> EXAMINATION FEE <small>(37 CFR 1.16(o), (p), or (q))</small>	N/A	N/A	N/A	
TOTAL CLAIMS <small>(37 CFR 1.16(i))</small>	minus 20 =	*	X \$ =	
INDEPENDENT CLAIMS <small>(37 CFR 1.16(h))</small>	minus 3 =	*	X \$ =	
<input type="checkbox"/> APPLICATION SIZE FEE <small>(37 CFR 1.16(s))</small>	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
<input type="checkbox"/> MULTIPLE DEPENDENT CLAIM PRESENT <small>(37 CFR 1.16(j))</small>				
<small>* If the difference in column 1 is less than zero, enter "0" in column 2.</small>			TOTAL	

APPLICATION AS AMENDED – PART II

	(Column 1)	(Column 2)	(Column 3)	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)
AMENDMENT	04/17/2017	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR			
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	Independent <small>(37 CFR 1.16(h))</small>	* 3	Minus	***3	= 0	X \$210 = 0
	<input type="checkbox"/> Application Size Fee <small>(37 CFR 1.16(s))</small>					
<input type="checkbox"/> FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM <small>(37 CFR 1.16(j))</small>						
					TOTAL ADD'L FEE	0

	(Column 1)	(Column 2)	(Column 3)	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)
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	Independent <small>(37 CFR 1.16(h))</small>	*	Minus	***	=	X \$ =
	<input type="checkbox"/> Application Size Fee <small>(37 CFR 1.16(s))</small>					
<input type="checkbox"/> FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM <small>(37 CFR 1.16(j))</small>						
					TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
 ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
 *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

LIE
MOLIKI MAY

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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29973 e 2017-02-16
CRGO LAW
ATTN: STEVEN M. GREENBERG, ESQ.
7900 Glades Road
SUITE 520
BOCA RATON, FL 33434

Paper No.

Application No.:	12/418,927 	Date Mailed:	2017-02-16
First Named Inventor:	Lisa Marie Kao	Examiner:	WEBB, WALTER E
Attorney Docket No.:	424/049	Art Unit:	1612
Confirmation No.:	9522	Filing Date:	04/06/2009

Please find attached an Office communication concerning this application or proceeding.

Commissioner for Patents

Notice of Non-Compliant Amendment (37 CFR 1.121)	Application No. 12/418,927	Applicant(s) KAO, LISA MARIE
---	--------------------------------------	--

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

The amendment document filed on 03 February, 2017 is considered non-compliant because it has failed to meet the requirements of 37 CFR 1.121 or 1.4. In order for the amendment document to be compliant, correction of the following item(s) is required.

THE FOLLOWING MARKED (X) ITEM(S) CAUSE THE AMENDMENT DOCUMENT TO BE NON-COMPLIANT:

- 1. Amendments to the specification:
 - A. Amended paragraph(s) do not include markings.
 - B. New paragraph(s) should not be underlined.
 - C. Other _____.
- 2. Abstract:
 - A. Not presented on a separate sheet. 37 CFR 1.72.
 - B. Other _____.
- 3. Amendments to the drawings:
 - A. The drawings are not properly identified in the top margin as "Replacement Sheet," "New Sheet," or "Annotated Sheet" as required by 37 CFR 1.121(d).
 - B. The practice of submitting proposed drawing correction has been eliminated. Replacement drawings showing amended figures, without markings, in compliance with 37 CFR 1.84 are required.
 - C. Other _____.
- 4. Amendments to the claims:
 - A. A complete listing of all of the claims is not present.
 - B. The listing of claims does not include the text of all pending claims (including withdrawn claims)
 - C. Each claim has not been provided with the proper status identifier, and as such, the individual status of each claim cannot be identified. Note: the status of every claim must be indicated after its claim number by using one of the following status identifiers: (Original), (Currently amended), (Canceled), (Previously presented), (New), (Not entered), (Withdrawn) and (Withdrawn-currently amended).
 - D. The claims of this amendment paper have not been presented in ascending numerical order.
 - E. Other: Withdrawn Claims 7, 11-19 and 21-22 must have text by them.
- 5. Other (e.g., the amendment is unsigned or not signed in accordance with 37 CFR 1.4): For further explanation of the amendment format required by 37 CFR 1.121, see MPEP § 714.

TIME PERIODS FOR FILING A REPLY TO THIS NOTICE:

1. Applicant is given **no new time period if the non-compliant amendment is an** after-final amendment or an amendment filed after allowance, or a drawing submission (only) If applicant wishes to resubmit the non-compliant after-final amendment with corrections, the **entire corrected amendment** must be resubmitted.
2. Applicant is given **two months** from the mail date of this notice to supply the correction, if the non-compliant amendment is one of the following: a preliminary amendment, a non-final amendment (including a submission for a request for continued examination (RCE) under 37 CFR 1.114), a supplemental amendment filed within a suspension period under 37 CFR 1.103(a) or (c), and an amendment filed in response to a Quayle action. If any of above boxes 1 to 4 are checked, the correction required is only the corrected section of the non-compliant amendment in compliance with 37 CFR 1.121.

Extensions of time are available under 37 CFR 1.136(a) only if the non-compliant amendment is a non-final amendment or an amendment filed in response to a *Quayle* action.

Failure to timely respond to this notice will result in:

Abandonment of the application if the non-compliant amendment is a non-final amendment or an amendment filed in response to a *Quayle* action; or

Non-entry of the amendment if the non-compliant amendment is a preliminary amendment or supplemental amendment.

Legal Instruments Examiner (LIE), if applicable PAUL STANBACK

Telephone No: (571)272-0675

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application Number: 12/418,927

Confirmation Number: 9522

Filing Date: April 6, 2009

Applicant(s): Lisa Marie Kao

Entitled: DENTAL CLEANING AND POLISHING
COMPOSITION INCLUDING DIAMOND
PARTICLES AND METHODS OF USE

Examiner: Walter E. Webb

Group Art Unit: 1612

Attorney Docket No.: 7105-002U (formerly 091-001)

Mail Stop Amendment
Commissioner For Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In response to the official action mailed November 3, 2016 (the "Non-Final Office Action"), please enter the following amendments into the above-referenced patent application (the "Patent Application") and further please consider the following remarks establishing the patentability of the claims of the Patent Application.

Amendments to the Claims are reflected in the listing of claims that begins on page 3 of this paper.

Remarks/Arguments begin on page 8 of this paper.

LISTING OF THE CLAIMS

1. (Currently Amended) A dentifrice or polish composition consisting essentially of:
 - (a) an orally acceptable vehicle;
 - (b) 0.001% to about 1.0% of the total composition by weight of diamond particles in a size range of about 0.05 μm to about 5.0 μm in diameter disposed within the orally acceptable vehicle;
 - (c) a humectant and a binder disposed within the vehicle; and,
 - (d) sodium fluoride and xylitol also disposed within the vehicle;wherein the composition is effective for whitening teeth having porcelain surfaces and suitable for application to teeth in the oral cavity;
wherein the diamond particles constitute about 0.01 to about 0.02 percent by weight of the composition, and have a size range of about 0.03 μm to about 0.07 μm in diameter.

2. Canceled.

3. (Previously Amended) The dentifrice or polish of claim 1, wherein the humectant is selected from the group consisting of: glycerin, sorbitol,

propylene glycol, polyethylene glycol, xylitol, maltitol, lactitol and trehalose, in a concentration of about 30% to 70% by weight of the composition.

4. Canceled.

5. (Previously Amended) The dentifrice or polish composition of claim 1, wherein the binder is selected from the group consisting of: xanthan gum and other gums, sodium alginate, sodium carboxymethylcellulose, carrageenan, xanthan gum, sodium polyacrylate, hydroxyethyl cellulose, hydroxypropyl cellulose, pectin, tragacanth gum, arabic gum, guar gum, karaya gum, locust bean gum, gellan gum, tamarind gum, Psyllium seed gum, polyvinyl alcohol, sodium chondroitin sulfate, and methoxyethylene-maleic anhydride copolymer.

6. (Previously Amended) The dentifrice or polish composition of claim 1, wherein said composition further comprises an abrasive agent.

7. (Withdrawn)

8. (Original) The dentifrice or polish composition of claim 1, further comprising one or more of a flavoring agent, a colorant, an anti-caries agent, a pH modifying agent, plant extracts, antimicrobial agents, anti-plaque agents, thickeners, gums and foam modulators.

9. (Previously Amended) A dentifrice or polish composition effective for whitening teeth having porcelain surfaces suitable for application to teeth in the oral cavity having the following composition:

diamond particles having a size range of about 0.1 μm to about 0.5 μm and comprising between about 0.002% to about 0.05% of the total composition by weight disposed within an orally acceptable vehicle;

both a humectant in a concentration of about 5 to about 70% by weight of the composition and also a binder disposed within the vehicle;

sodium fluoride also disposed within the vehicle, the binder having a concentration of about 0.1% to about 10% by weight of the composition;

a plant extract in a concentration of about 0.1% to about 5% by weight of the composition also disposed within the vehicle; and,

an abrasive agent in a concentration of about 15% to about 30% by weight of the composition disposed within the vehicle.

10. (Original) The dentifrice or polish composition of claim 9, further comprising one or more of a flavoring agent, a colorant, an anti-caries agent, a pH modifying agent, antimicrobial agents, anti-plaque agents, thickeners, gums and foam modulators.

Claims 11 through 19: Withdrawn.

20. Canceled.

21. Withdrawn.

22. Withdrawn.

23. (Previously Presented) The dentifrice or polish composition of claim 9, wherein said composition further comprises 0.5 to 5.0% by weight of xylitol.

24. (Currently Amended) The dentifrice or polish composition of claim 9, wherein said composition further comprises about 0.1 to 2.0 % by weight of sodium monofluorophosphate or sodium fluoride (USP).

25. (Currently Amended) The dentifrice or polish composition of claim 9, wherein said composition further comprises about 0.5 to 5.0% by weight of xylitol and about 0.1 to 2.0 % by weight of sodium monofluorophosphate or sodium fluoride (USP).

REMARKS

These remarks are set forth in response to the Non-Final Office Action. Presently, claims 1, 3 and 5 through 25 are pending in the Patent Application. Claims 7, 11 through 19, 21 and 22 are withdrawn from consideration. Claims 1 and 9 subject presently subject to examination are independent in nature. In the Non-Final Office Action, claims 1, 3, 5, 6 and 8 are newly rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Application Publication No. 2009/0130627 by Herman. But, claims 9, 10 and 23 through 25 are allowed.

In response, Applicants have amended claim 1 to incorporate the limitations of claim 20 and Applicants have amended claims 24 and 25 as required by Examiner. Yet further, Applicants have canceled claim 20. As such, no new matter has been added. Examination on the merits is requested. An indication of allowance is respectfully requested. The Applicants request that the Examiner call the undersigned if clarification is needed on any matter within this Amendment, or if the Examiner believes a telephone interview would expedite the prosecution of the subject application to completion.

Respectfully submitted,

Date: February 3, 2017

/Steven M. Greenberg/

Steven M. Greenberg
Reg. No.: 44,725
CRGO Law
7900 Glades Road, Suite 520
Boca Raton, Florida 33434
Customer No. 29973
Tel: (561) 922-3845
Fax: (561) 244-1062

Electronic Acknowledgement Receipt

EFS ID:	28262992
Application Number:	12418927
International Application Number:	
Confirmation Number:	9522
Title of Invention:	DENTAL CLEANING AND POLISHING COMPOSITION COMPRISING DIAMOND PARTICLES
First Named Inventor/Applicant Name:	Lisa Marie Kao
Customer Number:	29973
Filer:	Steven M. Greenberg
Filer Authorized By:	
Attorney Docket Number:	424/049
Receipt Date:	03-FEB-2017
Filing Date:	06-APR-2009
Time Stamp:	17:13:08
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Amendment/Req. Reconsideration-After Non-Final Reject	7105-002_ROA_02032017.pdf	37238 <small>cc9d432bea96d5c9fefee3465cf50e91b08eb83</small>	no	9

Warnings:

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Information:**Total Files Size (in bytes):**

37238

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 12/418,927	Filing Date 04/06/2009	<input type="checkbox"/> To be Mailed
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ENTITY: LARGE SMALL MICRO

APPLICATION AS FILED – PART I

FOR	NUMBER FILED	NUMBER EXTRA	RATE (\$)	FEE (\$)
<input type="checkbox"/> BASIC FEE <small>(37 CFR 1.16(a), (b), or (c))</small>	N/A	N/A	N/A	
<input type="checkbox"/> SEARCH FEE <small>(37 CFR 1.16(k), (l), or (m))</small>	N/A	N/A	N/A	
<input type="checkbox"/> EXAMINATION FEE <small>(37 CFR 1.16(o), (p), or (q))</small>	N/A	N/A	N/A	
TOTAL CLAIMS <small>(37 CFR 1.16(i))</small>	minus 20 =	*	X \$ =	
INDEPENDENT CLAIMS <small>(37 CFR 1.16(h))</small>	minus 3 =	*	X \$ =	
<input type="checkbox"/> APPLICATION SIZE FEE <small>(37 CFR 1.16(s))</small>	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
<input type="checkbox"/> MULTIPLE DEPENDENT CLAIM PRESENT <small>(37 CFR 1.16(j))</small>				
<small>* If the difference in column 1 is less than zero, enter "0" in column 2.</small>			TOTAL	

APPLICATION AS AMENDED – PART II

	(Column 1)	(Column 2)	(Column 3)	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)	
AMENDMENT	02/03/2017	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR			
		* 10	Minus	** 22	= 0	X \$40 = 0	
		* 2	Minus	***3	= 0	X \$210 = 0	
		<input type="checkbox"/> Application Size Fee <small>(37 CFR 1.16(s))</small>					
		<input type="checkbox"/> FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM <small>(37 CFR 1.16(j))</small>					
					TOTAL ADD'L FEE	0	

	(Column 1)	(Column 2)	(Column 3)	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)	
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR			
		*	Minus	**	=	X \$ =	
		*	Minus	***	=	X \$ =	
		<input type="checkbox"/> Application Size Fee <small>(37 CFR 1.16(s))</small>					
		<input type="checkbox"/> FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM <small>(37 CFR 1.16(j))</small>					
					TOTAL ADD'L FEE		

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
 ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
 *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

LIE
PAUL STANBACK

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Table with 5 columns: APPLICATION NO., FILING DATE, FIRST NAMED INVENTOR, ATTORNEY DOCKET NO., CONFIRMATION NO. Includes application details for 12/418,927 and 29973, and examiner information for WEBB, WALTER E.

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docketing@crgolaw.com

DETAILED ACTION

The present application is being examined under the pre-AIA first to invent provisions.

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 5/27/2016 has been entered.

Applicants' arguments, filed 5/27/2016, have been fully considered. Rejections and/or objections not reiterated from previous office actions are hereby withdrawn. The following rejections and/or objections are either reiterated or newly applied. They constitute the complete set presently being applied to the instant application.

Claim Objections

Claims 24 and 25 are objected to because of the following informalities: claim 24 recites "about 0.1 to 2.0%" but should recite --about 0.1 to 2.0%--; claim 24 recites "monotluorophosphate" but should recite --monofluorophosphate--; claim 25 recites "ofxylitol" and should recite --of xylitol--. Appropriate correction is required.

Art Unit: 1612

Claim Rejections - 35 USC § 103--New

The following is a quotation of pre-AIA 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3, 5, 6, 8 is/are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Herman (US 2009/0130627).

Herman teaches **diamond dust** compositions for polishing natural teeth and dental veneers (**porcelain surfaces**), where the diamond dust has a particle size of approximately 500 nm to 5 nanometers (**0.5 μm to 0.005 μm**) (Abstract).

Herman teaches a specific embodiment of a dental gel comprising **diamond dust** in glycerin **0.4%**, 8.25% xylitol, 26% **glycerin** (humectant), viscarin TP 399 (binder/**carrageenan**), zeodent 113 (**abrasive agent**), aloe (**plant extract**) (Example 5, para. [0058]).

Herma does not teach sodium fluoride. However, it would have been obvious to add sodium fluoride to the compositions, since the compositions are dentifrices. Generally, it is *prima facie* obvious to select a known material based on its suitability for its intended use (see MPEP 2144.07). Also, established precedent holds that it is generally obvious to add known ingredients to known compositions with the expectation of obtaining their known function (see 2144.06). Sodium fluoride is typically added to

Art Unit: 1612

dentifrices as an anti-caries agent. It would have been obvious to add sodium fluoride to the compositions of Herman to provide an anti-caries effect to the dental compositions.

Allowable Subject Matter

Claims 9, 10, 23-25 allowed.

Claim 20 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter E. Webb whose telephone number is (571) 270-3287. The examiner can normally be reached on 9:00am-5:00pm Tues-Thurs EST.

Art Unit: 1612

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frederick F. Krass can be reached (571) 272-0580. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Walter E. Webb
/WALTER WEBB/
Primary Examiner, Art Unit 1612

Notice of References Cited	Application/Control No. 12/418,927	Applicant(s)/Patent Under Reexamination KAO, LISA MARIE	
	Examiner WALTER WEBB	Art Unit 1612	Page 1 of 1

U.S. PATENT DOCUMENTS

*	Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A US-2009/0130627 A1	05-2009	Herman; Michael	A61K8/19	433/142
B	US-				
C	US-				
D	US-				
E	US-				
F	US-				
G	US-				
H	US-				
I	US-				
J	US-				
K	US-				
L	US-				
M	US-				

FOREIGN PATENT DOCUMENTS

*	Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
N					
O					
P					
Q					
R					
S					
T					

NON-PATENT DOCUMENTS

*	Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)				
U					
V					
W					
X					


*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

EAST Search History**EAST Search History (Prior Art)**

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S39	97142	dentifrice or toothpaste or tooth paste or dental creme or dental cream or oral care or oral hygiene	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2016/10/28 10:20
S40	1951	S39 and diamond	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2016/10/28 10:20
S41	76	S40 and porcelain	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2016/10/28 10:20

10/ 28/ 2016 5:22:13 PM

C:\Users\wwebb\Documents\EAST\Workspaces\12418927_dimond dust dentifrice.wsp

Search Notes 	Application/Control No. 12418927	Applicant(s)/Patent Under Reexamination KAO, LISA MARIE
	Examiner Walter Webb	Art Unit 1612

CPC- SEARCHED		
Symbol	Date	Examiner

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
400			
106			
424			
424	49, 401, 769	11/3/2011	WW

SEARCH NOTES		
Search Notes	Date	Examiner
East, Google		
Inventor Name Search on PALM	11/3/2011	WW
EAST Search History	11/3/2011	WW
NPL Search Terms: diamond particles, diamond dust, nanodiamonds	11/3/2011	WW

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

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Office of Petitions: Routing Sheet



Application No. 12/418,927

This application is being forwarded to your office for further processing. A decision has been rendered on a petition filed in this application.

GRANTED

DISMISSED

DENIED



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/418,927	04/06/2009	Lisa Marie Kao	424/049	9522
29973	7590	07/22/2016	EXAMINER	
CRGO LAW ATTN: STEVEN M. GREENBERG, ESQ. 7900 Glades Road SUITE 520 BOCA RATON, FL 33434			WEBB, WALTER E	
			ART UNIT	PAPER NUMBER
			1612	
			NOTIFICATION DATE	DELIVERY MODE
			07/22/2016	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docketing@crgolaw.com



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In re Application of
Lisa Marie Kao
Application No. 12/418,927
Filed: April 6, 2009
Title of Invention: **Dental Cleaning and
Polishing Composition Comprising
Diamond Particles**

DECISION ON PETITION

This is a decision on the renewed petition filed May 27, 2016 under 37 CFR 1.137(a)¹, to revive the above-identified application.

The petition is **GRANTED**.

This application became abandoned on March 18, 2014, for failure to timely respond to the Final Office Action mailed December 17, 2013. Accordingly, a Notice of Abandonment was mailed July 14, 2014. A petition to revive filed May 26, 2015 lacked compliance with items (1), and (2) of the regulation and thus was dismissed in a decision mailed November 9, 2015.

Comes now petitioner with the required petition fee and a response to the December 17, 2013 Final Office Action in the form of a Request for Continued Examination (RCE) and an amendment as the submission required under 37 CFR 1.114.

As the statutorily set fee for reviving the application is \$850 (paid with the instant renewed petition), the fee in the amount of \$100 for the petition filed May 26, 2015 will be refunded in due course.

The request for continued examination (RCE) of this application under 37 CFR 1.114 is being forwarded to Technology Center 1612 for processing.

Telephone inquiries concerning this matter may be directed to the undersigned Attorney at (571) 272-3212.

/Patricia Faison-Ball/

Patricia Faison-Ball
ATTORNEY ADVISOR
Office of Petitions

¹Effective December 18, 2013, a grantable petition under 37 CFR 1.137(a) must be accompanied by: (1) the required reply, unless previously filed; (2) the petition fee as set forth in 37 CFR 1.17(m); (3) a statement that the entire delay in filing the required reply from the due date for the reply until the filing of a grantable petition pursuant to 37 CFR 1.137(a) was unintentional; and (4) any terminal disclaimer (and fee as set forth in 37 CFR 1.20(d)) required by 37 CFR 1.137(d). Where there is a question as to whether either the abandonment or the delay in filing a petition under 37 CFR 1.137 was unintentional, the Director may require additional information. See MPEP 711.03(c)(II)(C) and (D).

Office of Petitions: Decision Count Sheet

Mailing Month

Application No.

12418927



For US serial numbers: enter number only, no slashes or commas. Ex: 10123456

For PCT: enter "51+single digit of year of filing+last 5 numbers", Ex. for PCT/US05/12345, enter 51512345

Deciding Official:

FAISON-BALL, PATRICIA

Count (1) - Palm Credit

12/418,927

Decision: GRANT

FINANCE WORK NEEDED

Select Check Box for YES



Decision Type: 502 - 37 CFR 1.137(b) - REVIVAL BASED ON UNINTENTIC



Notes:

Count (2)

Decision: n/a

FINANCE WORK NEEDED

Select Check Box for YES

Decision Type: NONE

Notes:

Count (3)

Decision: n/a

FINANCE WORK NEEDED

Select Check Box for YES

Decision Type: NONE

Notes:

Initials of Approving Official (if required)

If more than 3 decisions, attach 2nd count sheet & mark this box

Printed on: 7/19/2016

**PETITION FOR REVIVAL OF AN APPLICATION FOR PATENT
ABANDONED UNINTENTIONALLY UNDER 37 CFR 1.137(a)**

Docket Number (Optional)

7105-002U

Page 1 of 2

First named inventor: Lisa Marie Kao

Application No.: 12/418,927

Art Unit: 1612

Filed: April 6, 2009

Examiner: WEBB, WALTER E

Title: **DENTAL CLEANING AND POLISHING COMPOSITION COMPRISING
DIAMOND PARTICLES**

Attention: Office of Petitions

Mail Stop Petition

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

FAX (571) 273-8300

NOTE: If information or assistance is needed in completing this form, please contact the Office of Petitions at (571) 272-3282.

The above-identified application became abandoned for failure to file a timely and proper reply to a notice or action by the United States Patent and Trademark Office. The date of abandonment is the day after the expiration date of the period set for reply in the Office notice or action plus any extensions of time actually obtained.

APPLICANT HEREBY PETITIONS FOR REVIVAL OF THIS APPLICATION.

NOTE: A grantable petition requires the following items:

- (1) Petition fee;
- (2) Reply and/or issue fee;
- (3) Terminal disclaimer with disclaimer fee – required for all utility and plant applications filed before June 8, 1995, and for all design applications; and
- (4) Statement that the entire delay was unintentional.

1. Petition fee

Small entity fee \$ 850.00 (37 CFR 1.17(m)). Applicant asserts small entity status. See 37 CFR 1.27.

Undiscounted fee \$ _____ (37.CFR.1.17(m)).

2. Reply and/or fee

A The reply and/or fee to the above-noted Office notice or action in the form of

RCE/AMENDMENT (identify the type of reply):

has been filed previously on _____.

is enclosed herewith.

B The issue fee and publication fee (if applicable) of \$ _____

has been paid previously on _____.

is enclosed herewith.

This collection of information is required by 37 CFR 1.137(a). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11, 1.14 and 41.6. This collection is estimated to take 1 hour to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: **Mail Stop Petition, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

if you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

**PETITION FOR REVIVAL OF AN APPLICATION FOR PATENT
ABANDONED UNINTENTIONALLY UNDER 37 CFR 1.137(a)**

Page 2 of 2

3. Terminal disclaimer with disclaimer fee

- Since this utility/plant application was filed on or after June 8, 1995, no terminal disclaimer is required.
- A terminal disclaimer (and disclaimer fee (37 CFR 1.20(d)) of \$ _____) disclaiming the required period of time is enclosed herewith (see PTO/SB/63).

4. STATEMENT: The entire delay in filing the required reply from the due date for the required reply until the filing of a grantable petition under 37 CFR 1.137(a) was unintentional. [NOTE: The United States Patent and Trademark Office may require additional information if there is a question as to whether either the abandonment or the delay in filing a petition under 37 CFR 1.137(a) was unintentional. (MPEP 711.03(c), subsections (III)(C) and (D)).]

WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

/Steven Greenberg/
Signature

May 27, 2016
Date

Steven Greenberg
Typed or Printed Name

44,725
Registration Number, if applicable

7900 Glades Road, Ste 520
Address

561-922-3835
Telephone Number

Boca Raton, FL 33434
Address

Enclosures:

- Fee Payment
- Reply
- Terminal Disclaimer Form
- Additional sheet(s) containing statements establishing unintentional delay
- Other: _____

CERTIFICATE OF MAILING OR TRANSMISSION [37 CFR 1.8(a)]

I hereby certify that this correspondence is being:

- Deposited with the United States Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to: Mail Stop Petition, Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450.
- Transmitted by EFS-Web or facsimile on the date shown below to the United States Patent and Trademark Office at (571) 273-8300.

Date

Signature

Typed or printed name of person signing certificate

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

**REQUEST FOR CONTINUED EXAMINATION(RCE)TRANSMITTAL
(Submitted Only via EFS-Web)**

Application Number	12/418,927	Filing Date	2009-04-06	Docket Number (if applicable)	7105-002U	Art Unit	1612
First Named Inventor	Lisa Marie Kao			Examiner Name	Walter E. Webb		

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. The Instruction Sheet for this form is located at WWW.USPTO.GOV

SUBMISSION REQUIRED UNDER 37 CFR 1.114

Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____

Other _____

Enclosed

Amendment/Reply

Information Disclosure Statement (IDS)

Affidavit(s)/ Declaration(s)

Other _____

MISCELLANEOUS

Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of months _____
(Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

Other _____

FEES

The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.

The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments, to Deposit Account No _____

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

Patent Practitioner Signature

Applicant Signature

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Signature of Registered U.S. Patent Practitioner			
Signature	/Steven Greenberg/	Date (YYYY-MM-DD)	2016-05-27
Name	Steven Greenberg	Registration Number	44725

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450.

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Privacy Act Statement

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1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application Number: 12/418,927

Confirmation Number: 9522

Filing Date: April 6, 2009

Applicant(s): Lisa Marie Kao

Entitled: DENTAL CLEANING AND POLISHING
COMPOSITION INCLUDING DIAMOND
PARTICLES AND METHODS OF USE

Examiner: Walter E. Webb

Group Art Unit: 1612

Attorney Docket No.: 7105-002U (formerly 091-001)

Mail Stop Amendment
Commissioner For Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In response to the official action mailed December 17, 2013 (the "Final Office Action"), please enter the following amendments into the above-referenced patent application (the "Patent Application") and further please consider the following remarks establishing the patentability of the claims of the Patent Application.

Amendments to the Claims are reflected in the listing of claims that begins on page 3 of this paper.

Remarks/Arguments begin on page 8 of this paper.

LISTING OF THE CLAIMS

1. (Currently Amended) A dentifrice or polish composition

consisting essentially of:

(a) an orally acceptable vehicle~~0.001% to about 1.0% of the total composition by weight of diamond particles in a size range of about 0.05 μ m to about 5.0 μ m in diameter;~~

(b) 0.001% to about 1.0% of the total composition by weight of diamond particles in a size range of about 0.05 μ m to about 5.0 μ m in diameter disposed within the an orally acceptable vehicle;

(c) a humectant[[;]] and a binder disposed within the vehicle; and,

(d) sodium fluoride and xylitol also disposed within the vehicle
binder;

wherein the composition is effective for whitening teeth having porcelain surfaces and suitable for application to teeth in the oral cavity.

2. Canceled.

3. (Previously Amended) The dentifrice or polish of claim 1, wherein the humectant is selected from the group consisting of: glycerin, sorbitol,

propylene glycol, polyethylene glycol, xylitol, maltitol, lactitol and trehalose, in a concentration of about 30% to 70% by weight of the composition.

4. Canceled.

5. (Previously Amended) The dentifrice or polish composition of claim 1, wherein the binder is selected from the group consisting of: xanthan gum and other gums, sodium alginate, sodium carboxymethylcellulose, carrageenan, xanthan gum, sodium polyacrylate, hydroxyethyl cellulose, hydroxypropyl cellulose, pectin, tragacanth gum, arabic gum, guar gum, karaya gum, locust bean gum, gellan gum, tamarind gum, Psyllium seed gum, polyvinyl alcohol, sodium chondroitin sulfate, and methoxyethylene-maleic anhydride copolymer.

6. (Previously Amended) The dentifrice or polish composition of claim 1, wherein said composition further comprises an abrasive agent.

7. (Withdrawn)

8. (Original) The dentifrice or polish composition of claim 1, further comprising one or more of a flavoring agent, a colorant, an anti-caries agent, a pH modifying agent, plant extracts, antimicrobial agents, anti-plaque agents, thickeners, gums and foam modulators.

9. (Currently Amended) A dentifrice or polish composition effective for whitening teeth having porcelain surfaces suitable for application to teeth in the oral cavity having the following composition:

diamond particles having a size range of about 0.1 μm to about 0.5 μm and comprising between about 0.002% to about 0.05% of the total composition by weight disposed within an orally acceptable vehicle;

both a humectant in a concentration of about 5 to about 70% by weight of the composition and also a binder disposed within the vehicle;

sodium fluoride also disposed within the vehicle, the binder having a concentration of about 0.1% to about 10% by weight of the composition;

a plant extract in a concentration of about 0.1% to about 5% by weight of the composition also disposed within the vehicle; and,

~~a binder in a concentration of about 0.1% to about 10% by weight of the composition;~~

an abrasive agent in a concentration of about 15% to about 30% by weight of the composition disposed within the vehicle.

10. (Original) The dentifrice or polish composition of claim 9, further comprising one or more of a flavoring agent, a colorant, an anti-caries agent, a pH modifying agent, antimicrobial agents, anti-plaque agents, thickeners, gums and foam modulators.

Claims 11 through 19: Withdrawn.

20. The dentifrice or polish composition of claim 1, wherein the diamond particles constitute about 0.01 to about 0.02 percent by weight of the composition, and have a size range of about 0.03 μm to about 0.07 μm in diameter.

21. Withdrawn.

22. Withdrawn.

23. (Previously Presented) The dentifrice or polish composition of claim 9, wherein said composition further comprises 0.5 to 5.0% by weight of xylitol.

24. (Previously Presented) The dentifrice or polish composition of claim 9, wherein said composition further comprises about 0.1 to 2.0 % by weight of sodium monofluorophosphate or sodium fluoride (USP).

25. (Previously Presented) The dentifrice or polish composition of claim 9, wherein said composition further comprises about 0.5 to 5.0% by weight of xylitol and about 0.1 to 2.0 % by weight of sodium monofluorophosphate or sodium fluoride (USP).

REMARKS

I. Overview

These remarks are set forth in response to the Final Office Action. Presently, claims 1, 3 and 5 through 25 are pending in the Patent Application. Claims 7, 11 through 19, 21 and 22 are withdrawn from consideration. Claims 1 and 9 subject presently subject to examination are independent in nature. In the Non-Final Office Action, claims 1, 5 and 8 remain rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,094,839 to Lowder et al. (“Lowder”). Further, claim 20 remains rejected under 35 U.S.C. § 103(a) as being unpatentable over Lowder. Yet further, claims 1, 3, 5, 6, 8 through 10, 20 and 24 remain rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Application Publication No. 2005/0220829 by Sung et al. (“Sung”). Finally, claims 23 and 25 remain rejected under 35 U.S.C. § 103(a) as being unpatentable over Sung in view of U.S. Patent Application Publication No. 2005/0084551 by Jensen et al. (“Jensen”).

In response, Applicants have amended claims 1 and 9 to specify that the diamond particles, a humectant and a binder, as well as sodium fluoride are disposed within an orally acceptable vehicle. As well, claim 1 is

additionally amended to require the presence of xylitol in the vehicle. So much is described at paragraphs [0024], [0027] and [0044] of the originally presented specification. As such, no new matter has been added.

Examination on the merits is requested.

II. The Applicants' Invention

As set forth in Applicants' originally filed specification, the Applicants' invention provides for a new whitening dentifrice suitable for use with porcelain veneers and dental work as well as with natural tooth enamel comprising diamond particles.

III. Rejections Under 35 U.S.C. § 102(b) and 103(a)

At pages 2 and 3 of the Final Office Action, Examiner maintains the rejection of claims 1, 5 and 8 as being anticipated by Lowder. Applicant's claims relate to a polishing composition. As amended herein, exemplary claim 1 recites as follows:

1. A dentifrice or polish composition consisting essentially of:
 - (a) an orally acceptable vehicle;
 - (b) 0.001% to about 1.0% of the total composition by weight of diamond particles in a size range of about 0.05 μm to about 5.0 μm in diameter disposed within the orally acceptable vehicle;
 - (c) a humectant and a binder disposed within the vehicle; and,
 - (d) sodium fluoride and xylitol also disposed within the vehicle;

wherein the composition is effective for whitening teeth having porcelain surfaces and suitable for application to teeth in the oral cavity.

Essentially present within claim 1 is the notion of an orally acceptable vehicle that includes each of the following components: diamond particulates, a humectant, a binder, sodium fluoride and xylitol. It is believed that Lowder lacks this unique combination.

In this regard, at page 3 of the Final Office Action, Examiner stated the following:

Lowder et al. teaches a polishing composition comprising diamond particles, glycerine (orally acceptable vehicle) as a humectant and a mixture of gum tragacanth (binder; claim 5) and agar (plant extract; claim 8) (see col. 2, lines 33-36, and lines 51-55). The reference teaches using 0.5 carat (0.1 g) of diamond particles (see col. 6, lines 67-68), which amounts to 0.08% according to Example 1 (total weight in grams equal 118.7738; see col. 8). The particle size of the diamond particles tested for polishing were 0.25 micron (μm), and 5 micron, as per claim 1 (a) (see col. 9, lines 21-34). Other suitable particle sizes include sizes within the range of Oto 0.5 microns (claim 20) (see col. 9, lines 35-41).

As can be seen, Examiner has compared the claimed “orally acceptable vehicle” to the exemplary humectant, “glycerine”. At column 11, lines 34 through 38 of Lowder, it is suggested that fluoride may be added to the composition described in Lowder, but the teaching of fluoride is not so specific as to indicate the presence of the fluoride in the exemplary humectant, glycerine. As well, completely lacking in Lowder is a teaching

of the incorporation of xylitol in the composition of Lowder and most certainly not within the glycerine.

Therefore, it is believed that Applicants' amended claim 1 and its dependencies distinguish over the Lowder reference.

At pages 4 through 6 of the Final Office Action, Examiner additionally indicates that the Sung reference renders Applicant's claim 9 obvious. In a manner similar to Lowder, however, Sung at paragraph [0050] specifies the humectant, glycerin as a carrier and separately, fluoride as part of the toothpaste, but Sung at paragraph [0050] does not specify that the fluoride may be disposed within the glycerin. Yet, as claimed, claim 9 requires that the fluoride is disposed within the carrier. Thus, it is also believed that Applicants' amended claim 9 and its dependencies distinguish over Sung alone and Sung in combination with Jensen.

IV. Conclusion

Applicants respectfully request the withdrawal of the rejections under 35 U.S.C. §§ 102(b) and 103(a) owing to the amended claims and foregoing remarks. The Applicants request that the Examiner call the undersigned if

clarification is needed on any matter within this Amendment, or if the Examiner believes a telephone interview would expedite the prosecution of the subject application to completion.

Respectfully submitted,

Date: May 27, 2016

/Steven M. Greenberg/

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CRGO Law
7900 Glades Road, Suite 520
Boca Raton, Florida 33434
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Fax: (561) 244-1062

Electronic Patent Application Fee Transmittal

Application Number:	12418927
Filing Date:	06-Apr-2009
Title of Invention:	DENTAL CLEANING AND POLISHING COMPOSITION COMPRISING DIAMOND PARTICLES
First Named Inventor/Applicant Name:	Lisa Marie Kao
Filer:	Steven M. Greenberg
Attorney Docket Number:	424/049

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Pet. Revive Abandon App, Delay Pymt-Resp	2453	1	850	850

Patent-Appeals-and-Interference:

Post-Allowance-and-Post-Issuance:

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Miscellaneous:				
RCE- 2nd and Subsequent Request	2820	1	850	850
Total in USD (\$)				1700

Electronic Acknowledgement Receipt

EFS ID:	25913470
Application Number:	12418927
International Application Number:	
Confirmation Number:	9522
Title of Invention:	DENTAL CLEANING AND POLISHING COMPOSITION COMPRISING DIAMOND PARTICLES
First Named Inventor/Applicant Name:	Lisa Marie Kao
Customer Number:	29973
Filer:	Steven M. Greenberg
Filer Authorized By:	
Attorney Docket Number:	424/049
Receipt Date:	27-MAY-2016
Filing Date:	06-APR-2009
Time Stamp:	18:07:40
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	\$1700
RAM confirmation Number	7334
Deposit Account	
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Petition for review by the Office of Petitions	7105-002_PETITION_REVIVE_05272016.pdf	207462	no	3
			c3085ea56805085ef55b113a2e4653356a10219c		
Warnings:					
Information:					
2	Request for Continued Examination (RCE)	7105-002_RCE_05272016.pdf	78016	no	3
			4a50663616df1f0b5b5933543795bc0dd20ad43a		
Warnings:					
This is not a USPTO supplied RCE SB30 form.					
Information:					
3	Response After Final Action	7105-002_ROA_05272016.pdf	49299	no	12
			1bf75e9035145f31cbd599922dcb625fb5e4a1e5		
Warnings:					
Information:					
4	Fee Worksheet (SB06)	fee-info.pdf	32137	no	2
			9dc7af69b7ba87ba3243f533216c9b87b07fc58		
Warnings:					
Information:					
Total Files Size (in bytes):			366914		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
12/418,927	04/06/2009	Lisa Marie Kao	424/049

CONFIRMATION NO. 9522

POA ACCEPTANCE LETTER



29973
CRGO LAW
ATTN: STEVEN M. GREENBERG, ESQ.
7900 Glades Road
SUITE 520
BOCA RATON, FL 33434

Date Mailed: 05/06/2016

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 04/27/2016.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at (571) 272-4000 or (571) 272-4200 or 1-888-786-0101.

/ctuazon/

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

TRANSMITTAL FOR POWER OF ATTORNEY TO ONE OR MORE REGISTERED PRACTITIONERS

NOTE: This form is to be submitted with the Power of Attorney by Applicant form (PTO/AIA/82B) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5, unless the application number and filing date are identified in the Power of Attorney by Applicant form. If neither form PTO/AIA/82A nor form PTO/AIA82B identifies the application to which the Power of Attorney is directed, the Power of Attorney will not be recognized in the application.

Application Number	12418927
Filing Date	04-06-2009
First Named Inventor	Lisa Marie Kao
Title	Dental Cleaning and Polishing Composition Comprising Diamond Particles
Art Unit	1612
Examiner Name	Walter E. Webb
Attorney Docket Number	424/049

SIGNATURE of Applicant or Patent Practitioner

Signature	/Steven M. Greenberg/	Date (Optional)	2016-04-27
Name	Steven M. Greenberg	Registration Number	44725
Title (if Applicant is a juristic entity)			
Applicant Name (if Applicant is a juristic entity)			

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. If more than one applicant, use multiple forms.

*Total of _____ forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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POWER OF ATTORNEY BY APPLICANT

I hereby revoke all previous powers of attorney given in the application identified in either the attached transmittal letter or the boxes below.

Application Number	Filing Date
12418927	04-06-2009

(Note: The boxes above may be left blank if information is provided on form PTO/AIA/B2A.)

- I hereby appoint the Patent Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above: 29973
- OR
- I hereby appoint Practitioner(s) named in the attached list (form PTO/AIA/82C) as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the patent application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above. (Note: Complete form PTO/AIA/82C.)

Please recognize or change the correspondence address for the application identified in the attached transmittal letter or the boxes above to:

- The address associated with the above-mentioned Customer Number
- OR
- The address associated with Customer Number:
- OR

Firm or individual Name				
Address				
City	State	Zip		
Country				
Telephone	Email			

I am the Applicant (if the Applicant is a juristic entity, list the Applicant name in the box):

Lisa Marie Kao

- Inventor or Joint Inventor (title not required below)
- Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)
- Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a juristic entity)
- Person Who Otherwise Shows Sufficient Proprietary Interest (e.g., a petition under 37 CFR 1.46(b)(2) was granted in the application or is concurrently being filed with this document) (provide signer's title if applicant is a juristic entity)

SIGNATURE of Applicant for Patent

The undersigned (whose title is supplied below) is authorized to act on behalf of the applicant (e.g., where the applicant is a juristic entity).

Signature	Date (Optional)	
Name	Lisa Marie Kao	
Title	Inventor	

NOTE: Signature - This form must be signed by the applicant in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. If more than one applicant, use multiple forms.

Total of _____ forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Electronic Acknowledgement Receipt

EFS ID:	25607636
Application Number:	12418927
International Application Number:	
Confirmation Number:	9522
Title of Invention:	DENTAL CLEANING AND POLISHING COMPOSITION COMPRISING DIAMOND PARTICLES
First Named Inventor/Applicant Name:	Lisa Marie Kao
Correspondence Address:	Lisa Marie Kao FDR STATION P.O. BOX 7460 - New York NY 10150 US 9172460073 lisamarielkao@gmail.com
Filer:	Steven M. Greenberg/Isabelle Jung
Filer Authorized By:	Steven M. Greenberg
Attorney Docket Number:	091-001
Receipt Date:	27-APR-2016
Filing Date:	06-APR-2009
Time Stamp:	10:43:07
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Power of Attorney	POA_Kao.pdf	2166168 <small>4b53e4c8bf922e839487fc7a9c63c7e47b23065a</small>	no	2

Warnings:

Information:

Total Files Size (in bytes):	2166168
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This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

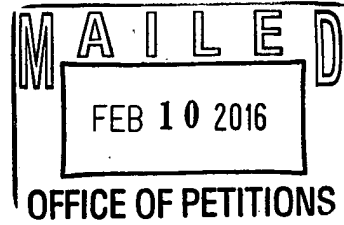
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.



UNITED STATES PATENT AND TRADEMARK OFFICE

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LISA MARIE KAO
LMKAO FDR STATION
P.O. BOX 7460
NEW YORK NY 10150



In re Application of
Lisa Marie Kao
Application No. 12/418,927
Filed: April 6, 2009
Title of Invention: Dental Cleaning and
Polishing Composition Comprising Diamond
Particles

LETTER

Please find attached a courtesy copy of the decision mailed November 9, 2015 in response to the petition filed May 26, 2015, which was returned to the Office by the US Postal Service.

The correspondence address has now been updated pursuant to the address change filed January 28, 2016.

Further correspondence with respect to this matter should be addressed as follows:

By mail: Mail Stop Petitions
Commissioner for Patents
P.O. Box 1450
Alexandria VA 22313-1450

By FAX: (571) 273-8300
ATTN: Office of Petitions

Telephone inquiries concerning this matter may be directed to the undersigned Attorney at (571) 272-3212.

/Patricia Faison-Ball/

Patricia Faison-Ball
ATTORNEY ADVISOR
Office of Petitions

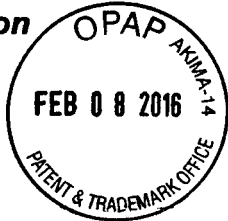
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CHANGE OF CORRESPONDENCE ADDRESS

Application

Address to:
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450



Application Number	12/418,927
Filing Date	4/6/2009
First Named Inventor	Lisa Marie Kao
Art Unit	1612
Examiner Name	WALTER WEBB
Attorney Docket Number	404343

Please change the Correspondence Address for the above-identified patent application to:

The address associated with Customer Number:

OR

Firm or Individual Name LISA MARIE KAO

Address FDR STATION P.O. BOX 7460

City New York State NY Zip 10150

Country USA

Telephone 917-246-0073 Email lisamariekao@gmail.com

This form cannot be used to change the data associated with a Customer Number. To change the data associated with an existing Customer Number use "Request for Customer Number Data Change" (PTO/SB/124).

I am the:

- Applicant
- Attorney or agent of record. Registration Number _____
- Registered practitioner named in the application transmittal papers who acts in a representative capacity under 37 CFR 1.34. See 37 CFR 1.33(a)(1). Registration Number _____

Lisa Marie Kao
Signature LISA MARIE KAO

Typed or Printed Name

Date 2/5/14 Telephone 917-246-0073

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. Submit multiple forms if more than one signature is required, see below*.

*Total of _____ forms are submitted.

This collection of information is required by 37 CFR 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

IFW
DAC



SENT VIA FACSIMILE (571) 273-8300 AND REGULAR MAIL

January 27, 2016

Attn: Patricia
Attorney Advisor, Office of Petitions
Mail Stop Petition
P.O. Box 1450
Alexandria, VA 22313

Re: Formal request to change mailing address for Patent Application No. 12/418,927

Dear Patricia,

Please consider this a formal request to officially change the mailing address in connection with Patent Application No. 12/418,927 for my patent titled "Dental Cleaning and Polishing Composition Including Diamond Particles and Methods of Use." I have left several voice messages recently in connection with this request. However, I haven't heard back from you and I wanted to follow up with this written request.

Please note that on September 29, 2015, I officially filed my Application for Petition of Revival in connection with Patent Application No. 12/418,927. On January 14, 2016, I followed up on this Application by contacting the patent examiner who told me that the United States Patent and Trademark Office ("USPTO") had my old address of 61 Broadway, New York, New York 10006, on file. This is the old address I initially used when my patent application was originally filed in 2009. However, I subsequently moved and informed USPTO of my updated mailing address.

Despite my request to update my mailing address, nothing was ever sent to me at my updated mailing address. Instead, everything was sent to my old address of 61 Broadway, New York, New York 10006. Consequently, all correspondence to me was returned to USPTO and my patent application was deemed "abandoned". The original patent attorney I hired to file my patent application, i.e. Mr. Joe Contrera, Esq. left his law firm for a teaching position at John Hopkins University.

It is imperative that USPTO records be updated to reflect my current official mailing address of LMKAO FDR STATION P.O. BOX 7460, NY NY 10150. This is my current, official mailing address that needs to be used in connection with my patent application. I would greatly appreciate it if you would please update your records to reflect this current address.

Please call me to confirm. I thank you in advance for your attention to this urgent matter. I can be reached directly at (917) 246-0073 or via email at: lisamariekao@gmail.com

Sincerely,


Lisa Marie Kao
CEO of Myntsmile

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JAN 28 2016

SENT VIA FACSIMILE (571) 273-8300 AND REGULAR MAIL

January 27, 2016

Attn: Patricia
Attorney Advisor, Office of Petitions
Mail Stop Petition
P.O. Box 1450
Alexandria, VA 22313

Re: Formal request to change mailing address for Patent Application No. 12/418,927

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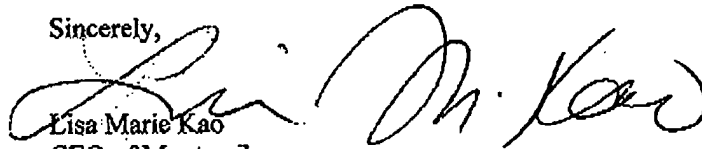
Please note that on September 29, 2015, I officially filed my Application for Petition of Revival in connection with Patent Application No. 12/418,927. On January 14, 2016, I followed up on this Application by contacting the patent examiner who told me that the United States Patent and Trademark Office ("USPTO") had my old address of 61 Broadway, New York, New York 10006, on file. This is the old address I initially used when my patent application was originally filed in 2009. However, I subsequently moved and informed USPTO of my updated mailing address.

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Please call me to confirm. I thank you in advance for your attention to this urgent matter. I can be reached directly at (917) 246-0073 or via email at: lisamariekao@gmail.com

Sincerely,



Lisa Marie Kao
CEO of Myntsmile

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UNABLE TO FORWARD

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22313@1450
100063274E 0004



UNITED STATES PATENT AND TRADEMARK OFFICE

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UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/418,927	04/06/2009	Lisa Marie Kao	091-001	9522

7590
Lisa Marie Kao
LMKAO LLC
61 Broadway, Suite 513
New York, NY 10006

11/09/2015



EXAMINER

WEBB, WALTER E

ART UNIT	PAPER NUMBER
----------	--------------

1612

MAIL DATE	DELIVERY MODE
-----------	---------------

11/09/2015

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.



UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

In re Application of
Lisa Marie Kao
Application No. 12/418,927
Filed: April 6, 2009
Title of Invention: **Dental Cleaning and
Polishing Composition Comprising
Diamond Particles**

DECISION ON PETITION

This is a decision on the petition filed May 26, 2015 under 37 CFR 1.137(a)¹, to revive the above-identified application.

The petition is **DISMISSED**.

Any request for reconsideration of this decision must be submitted within TWO (2) MONTHS from the mail date of this decision. Extensions of time under 37 CFR 1.136(a) are permitted. The reconsideration request should include a cover letter entitled "Renewed Petition under 37 CFR 1.137(b)." This is not a final agency decision.

This application became abandoned on March 18, 2014, for failure to timely respond to the Final Office Action mailed December 17, 2013. Accordingly, a Notice of Abandonment was mailed July 14, 2014.

Pursuant to 37 CFR 1.137(a) however, the instant petition lacks compliance with items (1), and (2) of the regulation.

A response filed May 10, 2012, which was fully considered and addressed with the July 3, 2012 Office Action, have been filed with the instant petition to revive but not a response to the Final Office Action mailed December 17, 2013 which is the subject of this abandonment. The required response to the Final Office Action has therefore not been submitted.

¹Effective December 18, 2013, a grantable petition under 37 CFR 1.137(a) must be accompanied by: (1) the required reply, unless previously filed; (2) the petition fee as set forth in 37 CFR 1.17(m); (3) a statement that the entire delay in filing the required reply from the due date for the reply until the filing of a grantable petition pursuant to 37 CFR 1.137(a) was unintentional; and (4) any terminal disclaimer (and fee as set forth in 37 CFR 1.20(d)) required by 37 CFR 1.137(d). Where there is a question as to whether either the abandonment or the delay in filing a petition under 37 CFR 1.137 was unintentional, the Director may require additional information. See MPEP 711.03(c)(II)(C) and (D).

Art Unit: OPET

A petition fee is due before a petition on the merits can be addressed and granted. A review of the record reveals that a fee in the amount of \$100 was filed with the instant petition. Petitioner is advised that the fee for a petition to revive is pursuant to 37 CFR 1.17(m) and is not \$100. Since no authorizations for debiting a deposit account for any deficiencies have been granted, the petition fee has not been filed.

Petitioner should note that the fees due are the fees set at the time the application file is revived and that submission of any renewed petition without the required reply will be construed as intentional delay.

Further correspondence with respect to this matter should be addressed as follows:

By mail: Mail Stop Petition
 Commissioner for Patents
 P.O. Box 1450
 Alexandria, VA 22313-1450

By FAX: (571) 273-8300

Telephone inquiries concerning this matter may be directed to the undersigned Attorney at (571) 272-3212.

/Patricia Faison-Ball/

Patricia Faison-Ball
ATTORNEY ADVISOR
Office of Petitions



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/418,927	04/06/2009	Lisa Marie Kao	091-001	9522

7590 11/09/2015
Lisa Marie Kao
LMKAO LLC
61 Broadway, Suite 513
New York, NY 10006

EXAMINER

WEBB, WALTER E

ART UNIT	PAPER NUMBER
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1612

MAIL DATE	DELIVERY MODE
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11/09/2015

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.



UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

In re Application of
Lisa Marie Kao
Application No. 12/418,927
Filed: April 6, 2009
Title of Invention: **Dental Cleaning and
Polishing Composition Comprising
Diamond Particles**

DECISION ON PETITION

This is a decision on the petition filed May 26, 2015 under 37 CFR 1.137(a)¹, to revive the above-identified application.

The petition is **DISMISSED**.

Any request for reconsideration of this decision must be submitted within TWO (2) MONTHS from the mail date of this decision. Extensions of time under 37 CFR 1.136(a) are permitted. The reconsideration request should include a cover letter entitled "Renewed Petition under 37 CFR 1.137(b)." This is not a final agency decision.

This application became abandoned on March 18, 2014, for failure to timely respond to the Final Office Action mailed December 17, 2013. Accordingly, a Notice of Abandonment was mailed July 14, 2014.

Pursuant to 37 CFR 1.137(a) however, the instant petition lacks compliance with items (1), and (2) of the regulation.

A response filed May 10, 2012, which was fully considered and addressed with the July 3, 2012 Office Action, have been filed with the instant petition to revive but not a response to the Final Office Action mailed December 17, 2013 which is the subject of this abandonment. The required response to the Final Office Action has therefore not been submitted.

¹Effective December 18, 2013, a grantable petition under 37 CFR 1.137(a) must be accompanied by: (1) the required reply, unless previously filed; (2) the petition fee as set forth in 37 CFR 1.17(m); (3) a statement that the entire delay in filing the required reply from the due date for the reply until the filing of a grantable petition pursuant to 37 CFR 1.137(a) was unintentional; and (4) any terminal disclaimer (and fee as set forth in 37 CFR 1.20(d)) required by 37 CFR 1.137(d). Where there is a question as to whether either the abandonment or the delay in filing a petition under 37 CFR 1.137 was unintentional, the Director may require additional information. See MPEP 711.03(c)(II)(C) and (D).

Art Unit: OPET

A petition fee is due before a petition on the merits can be addressed and granted. A review of the record reveals that a fee in the amount of \$100 was filed with the instant petition. Petitioner is advised that the fee for a petition to revive is pursuant to 37 CFR 1.17(m) and is not \$100. Since no authorizations for debiting a deposit account for any deficiencies have been granted, the petition fee has not been filed.

Petitioner should note that the fees due are the fees set at the time the application file is revived and that submission of any renewed petition without the required reply will be construed as intentional delay.

Further correspondence with respect to this matter should be addressed as follows:

By mail: Mail Stop Petition
 Commissioner for Patents
 P.O. Box 1450
 Alexandria, VA 22313-1450

By FAX: (571) 273-8300

Telephone inquiries concerning this matter may be directed to the undersigned Attorney at (571) 272-3212.

/Patricia Faison-Ball/

Patricia Faison-Ball
ATTORNEY ADVISOR
Office of Petitions

Office of Petitions: Routing Sheet



Application No. 12/418,927

This application is being forwarded to your office for further processing. A decision has been rendered on a petition filed in this application.

GRANTED

DISMISSED

DENIED

Office of Petitions: Decision Count Sheet

Mailing Month

Application No.

12418927



For US serial numbers: enter number only, no slashes or commas. Ex: 10123456

For PCT: enter "51+single digit of year of filing+last 5 numbers", Ex. for PCT/US05/12345, enter 51512345

Deciding Official:

FAISON-BALL, PATRICIA

Count (1) - Palm Credit

12/418,927

Decision: DISMISSED

FINANCE WORK NEEDED

Select Check Box for YES



Decision Type: 502 - 37 CFR 1.137(b) - REVIVAL BASED ON UNINTENTIC



Notes:

Count (2)

Decision: n/a

FINANCE WORK NEEDED

Select Check Box for YES

Decision Type: NONE

Notes:

Count (3)

Decision: n/a

FINANCE WORK NEEDED

Select Check Box for YES

Decision Type: NONE

Notes:

Initials of Approving Official (if required)

If more than 3 decisions, attach 2nd count sheet & mark this box

Printed on: 11/9/2015

OPAP AKIMA-18
MAY 26 2015
U.S. PATENT & TRADEMARK OFFICE

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DAE

U.S. Patent and Trademark Office, U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

**PETITION FOR REVIVAL OF AN APPLICATION FOR PATENT
ABANDONED UNINTENTIONALLY UNDER 37 CFR 1.137(b)**

Docket Number (Optional)
404343

First named inventor: LISA Marie Kao

Application No.: 12/418,927

Art Unit: 1612

Filed: 4/6/2009

Examiner: WALTER WEBB

Title: Dental Cleanly and Polishing Composition
Including Diamonds Particles and Methods of Use

Attention: Office of Petitions
Mail Stop Petition
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450
FAX (571) 273-8300

NOTE: If information or assistance is needed in completing this form, please contact Petitions Information at (571) 272-3282.

The above-identified application became abandoned for failure to file a timely and proper reply to a notice or action by the United States Patent and Trademark Office. The date of abandonment is the day after the expiration date of the period set for reply in the office notice or action plus any extensions of time actually obtained.

APPLICANT HEREBY PETITIONS FOR REVIVAL OF THIS APPLICATION

NOTE: A grantable petition requires the following items:

- (1) Petition fee;
- (2) Reply and/or issue fee;
- (3) Terminal disclaimer with disclaimer fee - required for all utility and plant applications filed before June 8, 1995; and for all design applications; and
- (4) Statement that the entire delay was unintentional

1. Petition Fee

Small entity-fee \$ 100.00 (37 CFR 1.17(m)). Application claims small entity status. See 37 CFR 1.27.

Other than small entity-fee \$ _____ (37 CFR 1.17(m))

2. Reply and/or fee

A. The reply and/or fee to the above-noted Office action in the form of _____ (identify type of reply):

has been filed previously on _____ 05/27/2015 ZFUHAR1 00000002 12418927

is enclosed herewith. 01 FC:1999 100.00 OP

B. The issue fee and publication fee (if applicable) of \$ _____.

has been paid previously on _____.

is enclosed herewith.

This collection of information is required by 37 CFR 1.137(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1.0 hour to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop Petition, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number

3. Terminal disclaimer with disclaimer fee

Since this utility/plant application was filed on or after June 8, 1995, no terminal disclaimer is required.

A terminal disclaimer (and disclaimer fee (37 CFR 1.20(d)) of \$ _____ for a small entity or \$ _____ for other than a small entity) disclaiming the required period of time is enclosed herewith (see PTO/SB/63).

4. STATEMENT: The entire delay in filing the required reply from the due date for the required reply until the filing of a grantable petition under 37 CFR 1.137(b) was unintentional. [NOTE: The United States Patent and Trademark Office may require additional information if there is a question as to whether either the abandonment or the delay in filing a petition under 37 CFR 1.137(b) was unintentional (MPEP 711.03(c), subsections (III)(C) and (D)).]

WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

[Signature]
Signature
LISA M. KAO
Type or Printed name

Address

Address

5/15/2015
Date

Registration Number, If applicable
917-246-0073
Telephone Number

Enclosures:

- Fee Payment
 - Reply
 - Terminal Disclaimer Form
 - Additional sheets containing statements establishing unintentional delay
 - Other: Patent, Claim Studies, Amendment, Letter
- SEE LETTER ATTACHED

CERTIFICATE OF MAILING OR TRANSMISSION [37 CFR 1.8(a)]

I hereby certify that this correspondence is being:

Deposited with the United States Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to: Mail Stop Petition, Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450.

Transmitted by facsimile on the date shown below to the United States Patent and Trademark Office at (571) 273-8300.

5/15/15
Date

[Signature]
Signature
LISA M. KAO
Typed or printed name of person signing certificate

Office of Petitions,



May, 15,2015

**Patent Revival for Lisa Marie Kao
Dental Cleaning and Polishing Composition including Diamond
particles and Methods of Use Art Unit 1612
Attorney Docket No. 404343
Application # 12/418,927
Web Examiner Walter Web**

I would like to have a petition granted for my patent entitled "Dental Cleaning and Polishing Composition including Diamond particles and Methods of Use " Art Unit 1612 Attorney Docket No. 404343 Application # 12/418,927 revived. I have enclosed the patent, patent amendments, revival form, check fee, clinical studies which were published in several dental journals, and our certificate (Myntsmile Trademark)

According to the PTO, the last two items that were sent for the final rejection and the notice of cancellation, were returned to the PTO marked undeliverable by the post office showing that I never received received them. My patent attorney left the firm and decided to go work at John Hopkins University. Given the absence of an attorney off record, that should provide evidence that the abandonment was unintentional.

I then maintained patent pending status on Diamynt and was waiting to hear back form USPTO. I also moved to different address. In the interim we were doing more clinical studies on our product Diamynt Porcelain Veneer and Anti Cavity Toothpaste at Universities in USA. We were then published in the Journal of Dental Research, The American Journal of Dentistry, Scientific research was presented at the International and American Association for Dental Research meetings 2012 & 2013. Diamynt is being taught at Dental Hygiene schools in the USA. We have been well received by the public and even got into the Grammys and Oscar Award Shows.

We have claims to our patent which will show we are novelty product in dentistry. I ask for a request for a continued examination (RCE) and we have a reply to file to the USPTO. Thank you.

Sincerely,


Lisa Marie Kao

United States of America
United States Patent and Trademark Office

MYNTSMILE

Reg. No. 4,184,382

LMKAO LLC (NEW YORK LIMITED LIABILITY COMPANY)
FDR STATION, P.O. BOX 7460
NEW YORK, NY 10150

Registered July 31, 2012

Int. Cl.: 3

FOR: TOOTH PASTE; BREATH FRESHENER; TOOTH WHITENING PREPARATION; NON-MEDICATED MOUTHWASHES; NON-MEDICATED MOUTH RINSES; MOUTHWASH TABLETS; EFFERVESCENT MOUTHWASH TABLETS, IN CLASS 3 (U.S. CLS. 1, 4, 6, 50, 51 AND 52).

TRADEMARK

PRINCIPAL REGISTER

FIRST USE 2-8-2012; IN COMMERCE 2-8-2012.

THE MARK CONSISTS OF STANDARD CHARACTERS WITHOUT CLAIM TO ANY PARTICULAR FONT, STYLE, SIZE, OR COLOR.

SN 85-439,293, FILED 10-4-2011.

LINDA MICKLEBURGH, EXAMINING ATTORNEY



David J. Kypas

Director of the United States Patent and Trademark Office

Research on Diamynt Toothpaste / Articles ONLINE

REGISTERED DENTAL HYGIENE MAGAZINE

<http://www.rdhmag.com/articles/print/volume-32/issue-10/departments/product-report.html>

AMERICAN DENTAL HYGIENE MAGAZINE

<http://pubs.royle.com/publication/?i=127231&p=18>

THE JOURNAL OF DENTAL RESEARCH (ONLINE)

<http://iadr.confex.com/iadr/2012tampa/webprogram/Paper157221.html>

<http://iadr.confex.com/iadr/13iags/webprogram/Paper173199.html>

DENTISTRY IQ MAGAZINE

<http://www.dentistryiq.com/articles/2012/08/diamynt-for-porcelain-veneers.html#%2EUGAqvMSB18%2Etwitter>

THE AMERICAN JOURNAL OF DENTISTRY

<http://www.amjdent.com/Archive/Abstracts/2013/February%202013%20Abst>

Effect of toothbrushing with a novel dentifrice on porcelain roughness and gloss

A Garcia-Godoy, RA Wicks, F Garcia-Godoy, B Morrow, LM Kao



agodoy2747@gmail.com, fgarcisgodoy@gmail.com

ABSTRACT

Objectives: The objective of this study was to evaluate the effect of a novel dentifrice (Diamynt, with fluoride, xylitol, herbal extracts, hydrated silica and diamond particles) on the surface roughness and gloss of two commercially available dental porcelains following simulated toothbrushing.

Methods: Two commercially available porcelains (Vita VM13 and Ceramco 3) were used, as well as commercial finishing and polishing instruments (Dialite wheels). The porcelain samples were fabricated and polished by a professional dental laboratory with the same dimensions and polishing method. Roughness (Ra) was evaluated with a stylus profilometer (Federal Pockersurf). Gloss measurements were obtained by using a 60° small object glossmeter (Riopoint Novocurve Glossmeter). Following initial surface analysis of gloss and profilometry, the polished side of every sample was treated with a simulated toothbrushing technique (padding using Vita Gloss Diamynt, Ceramco Profilmometry Diamynt, Vita Gloss Arm & Hammer, Ceramco Profilmometry Arm & Hammer, and Ceramco Gloss Arm & Hammer whitening toothpaste). Each surface was brushed 10,000 times (Equivalent to 1 year toothbrushing). Then, the samples were rinsed with tap water and stored in 100% humidity until roughness and gloss values were obtained using the glossmeter and profilometer. Data was analyzed using two-tailed, unequal variance t-tests.

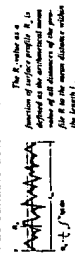
Results: Diamynt toothpaste had no significant effect on surface roughness or gloss on either porcelain tested. Arm and Hammer had no effect on the surface roughness of either porcelain, but a significant effect (P<0.05) on surface gloss of Ceramco 3 porcelain.

Conclusions: Effects of toothbrush abrasion was shown to be material and toothpaste dependent.

INTRODUCTION

The size of the filler particles that are incorporated into a dentifrice can affect the color properties and surface roughness of both natural teeth and prosthetic surfaces. Traditional measurement of color relies on evaluation of hue, chroma, value, but a fourth factor is gloss. Gloss can be measured in a relative unit named "Gloss units," a scale from 0 (matte, no reflectance) to 100 (polished, mirror-like surface). Roughness, measured in Ra serves as an indicator of how abrasivity has affected a sample after being repeatedly passed over a rough surface.

Due to their common use as veneering materials over metal substructures for porcelain fused-to-metal crowns, Vita Zahnfabrik VM 13 and Dentsply Ceramco 3 porcelain were chosen as suitable determinant surfaces for abrasion with dentifrices.



PURPOSE

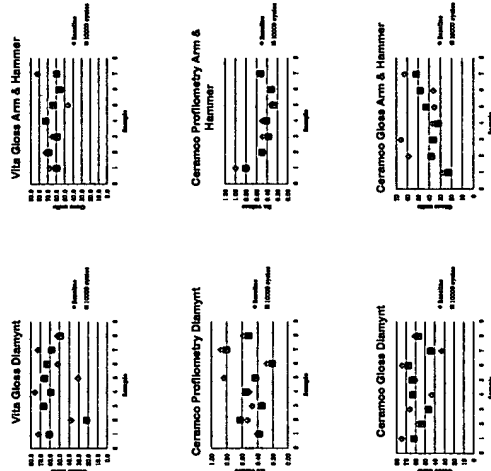
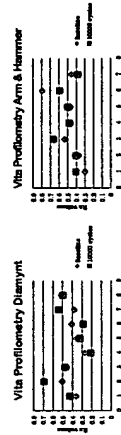
Objectives: The objective of this study was to evaluate the effect of a novel dentifrice (Diamynt, with fluoride, xylitol, herbal extracts, hydrated silica and diamond particles) on the surface roughness and gloss of two commercially available dental porcelains following simulated toothbrushing.

MATERIALS AND METHODS

Two commercially available porcelain (Vita VM13 and Ceramco 3) were used, as well as commercial finishing and polishing instruments (Dialite wheels). The porcelain samples were fabricated and polished by a professional dental laboratory with the same dimensions and polishing method. Roughness (Ra) was evaluated with a stylus profilometer (Federal Pockersurf). Gloss measurements were obtained by using a 60° small object glossmeter (Riopoint Novocurve Glossmeter). Following initial surface analysis of gloss and profilometry, the polished side of every sample was treated with a simulated toothbrushing technique (padding using Vita Gloss Diamynt, Ceramco Profilmometry Diamynt, Vita Gloss Arm & Hammer, Ceramco Profilmometry Arm & Hammer, and Ceramco Gloss Arm & Hammer whitening toothpaste). Each surface was brushed 10,000 times (Equivalent to 1 year toothbrushing). Then, the samples were rinsed with tap water and stored in 100% humidity until roughness and gloss values were obtained using the glossmeter and profilometer. Data was analyzed using two-tailed, unequal variance t-tests.

RESULTS

Diamynt toothpaste had no significant effect on surface roughness or gloss on either porcelain tested. Arm and Hammer had no effect on the surface roughness of either porcelain, but a significant effect (P<0.05) on surface gloss of Ceramco 3 porcelain. Data here represents four test groups (Vita and Ceramco/Diamynt and Arm & Hammer), and each measurement included six measurements.



CONCLUSIONS

Effects of toothbrush abrasion was shown to be material and toothpaste dependent.

In addition, All samples were brushed with three leading or trailing abrasive wheels within 5 mm of the center with a Novocurve Spectroprofilometer for 1 "3" values before and after brushing. However, data analysis has not been completed yet. Future directions for the project will be the determination of measurement of surface roughness using an optical profilometer to increase representation of the sample through increasing data measurements area.

Acknowledgments: UTMSU College of Dentistry Alumni Endowment, Fund and Tennessee Dental Association Foundation

Fluoride dentifrice containing xylitol: In vitro root caries formation

FRANKLIN GARCÍA-GODOY, DDS, MS, PHD, PHD, LISA MARIE KAO, BS, RDH, CATHERINE M. FLAITSZ, DDS, MS & JOHN HICKS, DDS, MS, PHD, MD

ABSTRACT: Purpose: To evaluate the effects of experimental xylitol dentifrices with and without fluoride on in vitro root caries formation. **Methods:** Root surfaces from caries-free human permanent teeth (n=10) underwent debridement and a fluoride-free prophylaxis. The tooth roots were sectioned into quarters, and acid-resistant varnish was placed with two sound root surface windows exposed on each tooth quarter. Each quarter from a single tooth was assigned to a treatment group: (1) No treatment control; (2) Aquafresh Advanced (0.15% F = 1,150 ppm F); (3) Experimental xylitol dentifrice without fluoride (0.45% xylitol); and (4) Diamynt fluoride dentifrice with xylitol (0.83% sodium monofluorophosphate = 1,100 ppm F and 0.20% xylitol). Tooth root quarters were treated with fresh dentifrice twice daily (3 minutes) followed by fresh synthetic saliva rinsing over a 7-day period. Controls were exposed twice daily to fresh synthetic saliva rinsing daily over a 7-day period. In vitro root caries were created using an acidified gel (pH 4.25, 21 days). Longitudinal sections (three sections/tooth quarter, 60/group) were evaluated for mean lesion depths (water inhibition, polarized light, ANOVA, DMR). **Results:** Mean lesion depths were 359 ± 37 μm for the control Group; 280 ± 28 μm for Aquafresh Advanced; 342 ± 41 μm for the experimental xylitol dentifrice without fluoride; and 261 ± 34 μm for Diamynt. Aquafresh Advanced and Diamynt had mean lesion depths significantly less than those for the no treatment control and the experimental xylitol without fluoride dentifrice (P < 0.05). There were minimal non-significant differences in mean lesion depths between Aquafresh Advanced and Diamynt (P > 0.05). (*Am J Dent* 2013;26:56-60).

CLINICAL SIGNIFICANCE: Fluoride dentifrices provided significant reductions in in vitro root caries lesion depths compared with root surfaces not exposed to dentifrice treatment (no treatment control) or exposed to the experimental xylitol without fluoride dentifrice (P < 0.05), considering the limitations of the in vitro artificial caries system. Diamynt fluoride dentifrice with xylitol reduced lesion depth to a similar extent as Aquafresh Advanced fluoride dentifrice.

✉: Dr. Franklin García-Godoy, Bioscience Research Center, College of Dentistry, University of Tennessee Health Science Center, 875 Union Avenue, Memphis, TN 38163, USA. E-✉: fgarciagodoy@gmail.com

Introduction

A current review of the available epidemiological data from many countries clearly indicates that there is a marked increase in the prevalence of dental caries.¹

Although dental caries is primarily observed in children and adolescents, this oral disease continues throughout adulthood.²⁻⁴ Furthermore, it is estimated that the aging population and the tendency of the elderly to retain their teeth will increase the risk for development of root caries.⁵⁻⁷

Dentifrice delivers anticaries ingredients, such as fluoride, which has proven to prevent or at least reduce enamel and root surface demineralization. Some dentifrices have been introduced with multiple ingredients to target specific issues, such as plaque, gingivitis, hypersensitivity, and malodor.⁸⁻¹³

Xylitol is a sugar alcohol (polyol) used as a non-caloric sweetener in the food industry. From a dental standpoint, xylitol is an interesting natural product that is not fermented by dental plaque bacteria.¹⁴ Studies^{15,16} have shown anticaries properties of fluoride dentifrices containing xylitol, as well as lower *mutans Streptococci* levels in plaque and saliva after 6 months.¹⁷ A xylitol and fluoride containing dentifrice has shown lower glucose retention in the oral cavity compared to a non-xylitol containing dentifrice.¹⁸ Additionally, xylitol has been shown to reduce plaque and saliva levels of *mutans streptococci*.¹⁹ Furthermore, xylitol can induce remineralization of the deeper layers of demineralized enamel by facilitating calcium ion movement and accessibility.²⁰

This study evaluated the effects of xylitol dentifrices with and without fluoride on in vitro root caries using a well-tested

artificial caries system based on an acidified gelatin gel.²¹⁻²⁵

The hypothesis of this laboratory study was that no statistically significant differences existed among commercially available dentifrices, with or without xylitol, containing different amounts of fluoride on in vitro root surface caries formation.

Materials and Methods

Root surfaces from caries-free human permanent teeth (n=10) underwent debridement and a fluoride-free prophylaxis. The tooth roots were sectioned into quarters, and acid-resistant varnish was placed with two sound root surface windows exposed on each tooth quarter. Each quarter from a single tooth was assigned to a treatment group:

1. No treatment control (synthetic saliva²¹ exposure only);
2. Aquafresh Advanced[®] dentifrice (0.15% w/v = 1,150 ppm sodium fluoride);
3. Experimental xylitol dentifrice without fluoride (45% xylitol);
4. Diamynt[®] xylitol dentifrice with fluoride (0.83% w/v = 1,100 ppm sodium monofluorophosphate, 0.20% xylitol, and herbal extracts (chamomile flower extract, sage leaf extract, peppermint leaf extract)).

Tooth root quarters were treated with fresh dentifrice twice daily (3 minutes) followed by fresh synthetic saliva²¹ rinsing over a 7-day period. Dentifrice treatment was performed by submerging each tooth portion into 0.5 mL of dentifrice. Following the dentifrice exposure period, the dentifrice was removed from the root portions by using a 15-second gentle air-water rinse until all visible dentifrice was removed. Controls were exposed twice daily to fresh synthetic saliva, rinsing daily over a 7-day period. In vitro root caries were created using an acidified gel (pH 4.25, 21 days)²²⁻²⁵ developed by using a 10%

Notice of Fee Due

Application Number: 12418927 Date: 05/27/2015

Fees are due for the application or document dated 05/226/15. The payment was not collectable for the reason indicated below.

Note: If the fee due is for any of the filing fees, the surcharge for late payment of the filing fees is now due as well.

- Insufficient payment by check or money order.
- No authorization to charge a deposit account.
- Invalid deposit account number.
- User name not listed in deposit account _____ at _____:_____ (time).
- Insufficient funds in deposit account _____ at _____:_____ (time).
- Insufficient payment by credit card.
- Declined credit card _____:_____ (time).

Fee code(s) to be applied:	<u>2453</u>	<u>\$850</u>
	_____	<u>\$</u>
	_____	<u>\$</u>
	_____	<u>\$</u>
	_____	<u>\$</u>
Amount in holding fee code:	<u>1506</u>	<u>\$</u>
	<u>1622/2622</u>	<u>\$</u>
	<u>1206/2206</u>	<u>\$</u>
	<u>1999</u>	<u>\$100</u>
Total remaining due from applicant:		<u>\$750</u>

RAM Operator ZJ

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Lisa Marie KAO

Application No.: 12/418,927

Filing Date: 6 April 2009

For: Dental Cleaning and Polishing Composition
Including Diamond Particles and Methods of Use
(as amended)

Art Unit: 1612

Examiner: Webb, Walter E.

Attorney Ref. No.: 091-001

Confirmation No. 9522

AMENDMENT AND RESPONSE UNDER 37 C.F.R. § 1.111

Mail Stop AMENDMENT

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Sir:

In response to the Office Action dated 10 November 2011, which set a three-month shortened statutory period of response thereto, please amend the above-captioned patent application as follows. A Petition for a three-month extension of time under 37 C.F.R. § 1.136(a), with the fee specified in 37 C.F.R. § 1.17(a), is filed concurrently herewith.

IN THE TITLE:

Kindly rewrite the Title as follows:

Dental Cleaning and Polishing Composition ~~Comprising~~ Including Diamond Particles and
Methods of Use

REMARKS

Favorable reconsideration, further examination, and allowance of this patent application are respectfully requested in view of the following remarks.

Withdrawal of Claims

Applicant acknowledges the withdrawal of Claims 7, 11-19, 21, and 22 from consideration at this time, pursuant to the Restriction and Election-of-Species requirements of record. Applicant notes the possibility of rejoinder of all of the withdrawn claims with the examined claims pursuant to M.P.E.P. §§ 806.04, 821.04.

Rejection under 35 U.S.C. § 102

In the Office Action, beginning at page 3, Claims 1, 5, and 8 were rejected under 35 U.S.C. § 102, as reciting subject matters that allegedly are anticipated by U.S. Patent No. 5,094,839, granted to Lowder et al. ("Lowder"). Applicant respectfully requests reconsideration of this rejection.

This application describes compositions and methods embodying principles of the present invention. As described in greater detail in the specification, dentifrices are used to clean, bleach, whiten, and otherwise treat the teeth and gums. Generally, the active ingredients in a dentifrice are contained within a carrier. For an abrasive, most toothpaste comprises various types of silica to debride and physically scrub the external surface of the teeth. This scrubbing action removes the organic film (i.e. the pellicle), formed of salivary proteins which covers the teeth and which is known to become stained and discolored by foods, such as coffee, tea and berries, as well as, by tobacco smoke, cationic antibacterials, and chromogenic bacteria. Such physical removal of the stained pellicle is a simple and effective means of removing the undesirable surface staining and discoloration which occurs daily. Further, such physical removal of the pellicle also removes plaque bacteria on the pellicle surface.

The carrier can be a paste (i.e., toothpaste) or a gel (i.e., brushing gels and bleaching gels)

or an equivalent vehicle suitable for oral use. The dentifrice can be dispensed onto a brushing device or, in some cases, onto a tray, stint or mouth guard, and then the dental surfaces are brushed or polished for a sufficient period of time. "Gels" are thickened by a gelling agent that hydrogen bonds a dispersion medium to produce a semisolid, transparent, jelly-like material. In contrast, "pastes" are thickened by the addition of fillers. However, the line between gels and pastes is not always clear. Furthermore, sometimes dentifrices that are opaque and/or contain one or more abrasive fillers are labeled pastes, even if they exhibit gel-like properties. Therefore, in describing the present invention, the term "dentifrice" will be used to clearly indicate that both gels and pastes are embraced.

In prior dental polishing compositions, combinations of such ingredients are disclosed and are directed to dental creams, pastes and gels which incorporate the well-known cleaning or polishing components such as water-insoluble alkaline earth metal salts or similar agents. These cleaning compositions are useful and satisfactory for manual brushing of teeth. However, these conventional agents are not satisfactory for use with cosmetic dental patients with porcelain veneers, caps or crowns. Harder and finer abrasives are typically necessary to accomplish a higher degree of polishing as opposed to mere cleaning of such surfaces to provide a smooth, mirror-like finish. There exist, presently, polishes that are used with cosmetic dental appliances which contain diamond particles, but they are designed for use in polishing porcelain and composite tooth restoration materials in "chairside applications" as well as being useful in laboratory and industrial applications. Products such as diamond particles in a glycerin base paste have been used in dental offices for years for porcelain crowns. The use of diamond particulates in a dentifrice for use by patients at home has not previously been available due to the general understanding by those of ordinary skill in the dental or oral hygiene arts, that diamond particles are too abrasive for use on natural tooth enamel by the ordinary consumer.

The inventor herein, as a dental professional and cognizant of the foregoing inadequacies of both 'chairside' and home-use preparations, developed a composition, such as that described in this application, which can provide the polishing effects of a 'chairside' dentifrice, yet can be used daily in a home-use environment.

Claim 1 relates to a dentifrice having a composition consisting essentially of several components, which is suitable for application to teeth in the oral cavity.

The prior art, including *Lowder*, fails to describe a composition which includes each and every feature as recited in the combinations of the pending claims.

Lowder describes an abrasive polishing composition having a number of components, including diamond particles; however, as plainly indicated in Example I, *Lowder*'s composition includes both methyl and propyl paraben, and distilled water, which are plainly included to influence the performance of *Lowder*'s composition. Thus, assuming *arguendo* that *Lowder*'s composition includes components which are read on by those listed in Claim 1, and which is suitable for application to teeth in the oral cavity, *Lowder*'s composition includes additional components which materially affect the basic and novel characteristics of the claimed combination. See M.P.E.P. § 2111.03, and the cases cited therein. Accordingly, *Lowder* does not anticipate the subject matters of Claims 1, 5, and 8.

For at least the foregoing reasons, Applicant respectfully submits that the subject matters of Claims 1, 5, and 8 are not anticipated by *Lowder*, are therefore not unpatentable under 35 U.S.C. § 102, and therefore respectfully requests withdrawal of the rejection thereof under 35 U.S.C. § 102.

Rejections under 35 U.S.C. § 103(a)

In the Office Action, beginning at page 4, Claim 20 was rejected under 35 U.S.C. § 103(a), as reciting subject matter that allegedly would have been obvious, and therefore allegedly is unpatentable, over *Lowder* along. Beginning at page the bottom of page 4, Claims 1, 3, 5, 6, 8-10, 20, and 24 were rejected under 35 U.S.C. § 103(a), as reciting subject matters that allegedly would have been obvious, and therefore allegedly are unpatentable, over the disclosure of U.S. Patent App. Pub. No. 2005/0220829, by Sung *et al.* ("Sung"). Claims 23 and 25 were lastly rejected under 35 U.S.C. § 103(a), as reciting subject matters that allegedly would have been obvious, and therefore allegedly are unpatentable, over the disclosure of *Sung* in view of the disclosure of U.S. Patent App. Pub. No 2005/0084551, by Jensen *et al.* ("Jensen"). Applicant

respectfully requests reconsideration of these rejections.

As discussed above, *Lowder* fails to identically disclose or describe each and every feature as recited in Claim 1. Claim 20, which further describes aspects of the diamond particles of Claim 1, does not change the foregoing analysis with respect to *Lowder*. That is, because of the use of the transitional phrase “consisting essentially of”, *Lowder* does not anticipate Claim 1, and assuming *arguendo* that a person of ordinary skill in the art would find a rational reason to select the specific particle sizes recited in Claim 20, the resulting hypothetical composition would still not be read on by Claim 20.

Sung describes the use of nano-sized diamond particles in various retail products, including dental fillings, skin care products, lotions, facial tissue, deodorant, dermal strips, skin cleanser, antibiotics, toothpaste (see paragraph [0050]), shampoo, cosmetics, and nail polish. As noted, among the cornucopia of products *Sung* describes, toothpaste is mentioned:

[0050] Alternatively, the remedial healthcare composition can be formulated as toothpaste including an acceptable carrier and a plurality of nanodiamond particles. Basic formulation of toothpastes is known in the art. Common acceptable carriers can include, for example, glycerin, sorbitol, silicas (e.g., amorphous, hydrated, etc.), thickening agents such as carrageenan and salts of cellulose ethers, alcohols, water, gels, combinations of these materials, and other known carriers. In addition, the toothpaste can include additives such as sodium fluoride, fragrance, flavors, colorants, herbal supplements, and the like. A more detailed description of various toothpaste formulations can be found in U.S. Pat. Nos. 4,414,199; 6,117,415; and 6,123,925, which are each incorporated herein by reference in their respective entireties. In these embodiments of the present invention, the nanodiamond particles can be present in the composition at from about 1 wt % to about 40 wt %, and preferably from about 2 wt % to about 15 wt %.

Thus, as discussed above with respect to Claim 1 and *Lowder*, *Sung* fails to identically disclose or describe each and every feature of Claim 1 because of the use of the transition phrase “consisting essentially of”: *Sung*'s toothpaste composition does not include each and every feature of Claim 1, and the Office Action's hypothetical adjustment of the percentages of each of the components that *Sung* does describe does not change the analysis.

Claim 9 relates to a dentifrice having a combination of features including, *inter alia*,

diamond particles between about 0.002% and about 0.05% of the total composition by weight. Claim 11 relates to a dentifrice having a combination of features including, *inter alia*, diamond powder of 0.01% of the total composition by weight. *Sung* also fails to disclose, describe, or fairly suggest dentifrices including each and every feature as recited in Claims 9 *et seq.*

As acknowledged in the Office Action, *Sung* describes a toothpaste which includes 1 wt% to 40 wt% of diamond nanoparticles; Claim 9 includes, as its upper limit, 0.05 wt%; and Claim 11 includes 0.01 wt%. Therefore, *Sung* instructs including, at the least, 20 times the weight percentage (*i.e.*, 2000%) of the diamond particles required by Claim 9, and 100 times the weight percentage (*i.e.*, 10000%) of the diamond particles required by Claim 11. Notably, the Office Action does not separately address Claims 9 and 11, and therefore does not present a *prima facie* case of obviousness of their separate subject matters. Thus, regardless of the separate disposition of the subject matter of Claim 1, the Office Action does not set forth a *prima facie* case of obviousness. Furthermore, Applicant respectfully submits that 20-fold and 100-fold differences in the weight percentage of diamond particles between the claimed compositions and the *de minimus* disclosure of *Sung*'s toothpaste does not involve mere routine experimentation, particularly in view of the paucity of guidance provided by *Sung* as to amount of diamond particles to use, and *Sung*'s preferred range of 2-15 wt%.

Applicant has conducted clinical trials of a composition as described in this application, and has demonstrated that it is very effective in polishing porcelain implants as a home-use dentifrice. Attached hereto is a summary of the study performed, as well as a poster which summarizes the presentation of the study and its data early in 2012. The data establishes that compositions embodying principles of the present invention are suitable for home use, and that, despite the relatively small (compared with the prior art compositions) wt% of diamond particles, performs well for polishing porcelain inserts.

The inclusion of *Jensen*'s disclosure does not change the foregoing analysis.

For at least the foregoing reasons, Applicant respectfully submits that the subject matters of Claims 1, 3, 5, 6, 8-10, 20, and 23-25, each taken as a whole, would not have been obvious to one of ordinary skill in the art at the time of Applicant's invention, are therefore not unpatentable

under 35 U.S.C. § 103(a), and therefore respectfully requests withdrawal of the rejection thereof under 35 U.S.C. § 103(a).

Conclusion

Applicant respectfully submits that this patent application is in condition for allowance. An early indication of the allowability of this application is therefore respectfully solicited.

If Mr. Webb that a telephone conference with the undersigned would expedite passage of this patent application to issue, he is invited to call on the number below.

It is not believed that extensions of time are required, beyond those that may otherwise be provided for in accompanying documents. If, however, additional extensions of time are necessary to prevent abandonment of this application, then such extensions of time are hereby petitioned under 37 C.F.R. § 1.136(a), and the Commissioner is hereby authorized to charge fees necessitated by this paper, and to credit all refunds and overpayments, to our Deposit Account 50-2821.

Respectfully submitted,

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703.717.9351 (v)
703.717.9392 (f)

Date: 10 May 2012



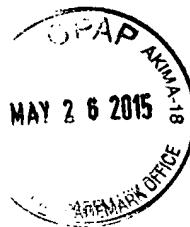
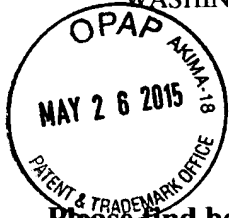
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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12/418,927	04/06/2009	Lisa Marie Kao	404343	9522
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23548 7590 07/03/2012
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 SUITE 300
 WASHINGTON, DC 20005-3960



EXAMINER

WEBB, WALTER E

ART UNIT	PAPER NUMBER
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1612

NOTIFICATION DATE	DELIVERY MODE
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07/03/2012

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

DCpatent@leydig.com
Chgpatent@leydig.com

Office Action Summary

12/418,927

KAO, LISA MARIE

Examiner

Art Unit

WALTER WEBB

1612

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).



Status

- 1) Responsive to communication(s) filed on 10 May 2012.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
- 4) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 5) Claim(s) 1,3 and 5-25 is/are pending in the application.
5a) Of the above claim(s) 7,11-19,21 and 22 is/are withdrawn from consideration.
- 6) Claim(s) _____ is/are allowed.
- 7) Claim(s) 1,3,5,6,8-10,20 and 23-25 is/are rejected.
- 8) Claim(s) _____ is/are objected to.
- 9) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 10) The specification is objected to by the Examiner.
- 11) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 12) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) Notice of Informal Patent Application
- 6) Other: _____

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DETAILED ACTION

Applicants' arguments, filed 5/10/2012, have been fully considered. Rejections and/or objections not reiterated from previous office actions are hereby withdrawn. The following rejections and/or objections are either reiterated or newly applied. They constitute the complete set presently being applied to the instant application.

Claim Rejections - 35 USC § 102--previous

Claims 1, 5 and 8 remain rejected under 35 U.S.C. 102(b) as being anticipated by Lowder et al., (US 5,094,839).

Response to Argument

Applicant argues that Lowder et al. does not anticipate the claimed invention since it "includes additional components which materially affect the basic and novel characteristics of the claimed combination" (p. 4). Applicant mentions, prior to this statement, "*Lowder's* composition includes both methyl and propyl paraben, and distilled water, which are plainly included to influence the performance of *Lowder's* composition" (Id.).

However, it is not clear how unlisted ingredients of the prior art composition materially affects the basic and novel properties of Applicant's invention.

Initially, for the purposes of searching for and applying prior art under 35 U.S.C. 102 and 103, absent a clear indication in the specification or claims of what the basic and novel characteristics actually are, "consisting essentially of" will be construed as equivalent to "comprising" (MPEP 2163 sec. IIA.1). Here, there does not appear to be a

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clear indication in the specification or claims of what the basic and novel characteristics actually are, and applicant does not point this out.

Applicant appears to suggest that methyl and propyl paraben materially affect the basic and novel characteristics of the invention. However, this cannot be true, since the instant specification specifically teaches adding methyl and propyl paraben. The instant specification states, "It is contemplated that an effective amount of recommended and well-known preservatives are included in the composition of the present invention, such as methyl paraben and propyl paraben" (Specification at p. 12, para. [0048]). The instant specification also teaches distilled water (Specification at p. 21, para. [0067]).

If an applicant contends that additional steps or materials in the prior art are excluded by the recitation of "consisting essentially of," applicant has the burden of showing that the introduction of additional steps or components would materially change the characteristics of applicant's invention (MPEP 2163 sec. IIA.1). Here, Applicant has not met the burden of showing that additional components would materially change the characteristics of Applicant's invention. Applicant merely makes a statement without providing a showing.

Claim Rejections - 35 USC § 103--previous

1) Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lowder et al. (*supra*) as applied to claims 1, 5 and 8 above.

Response to Argument

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Applicant relies on the argument above here and adds "assuming *arguendo* that a person of ordinary skill in the art would find a rational reason to select the specific particle size recited in Claim 20, the resulting hypothetical composition would still not be read on by Claim 20 (p. 5). No further analysis is provided.

Applicant's argument is not persuasive.

In regard to particle size of the abrasive, Lowder teaches a range of 0 to 0.5 microns (col. 9, lines 35-41). The claimed range of 0.03 μm to about 0.07 μm falls within the prior art range. Accordingly, in the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a *prima facie* case of obviousness exists (MPEP 2144.05). The amount of abrasive would have been result effective, insofar as Lowder et al. teaches "The specific amount and particle size of the abrasive may vary depending upon the nature of the surface finish desired" (col. 6, lines 64-66).

2) Claims 1, 3, 5, 6, 8-10, 20 and 24 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Sung et al., (US 2005/0220829).

Response to Argument

Applicant argues that Sung et al. fails to identically disclose or describe each and every feature of Claim 1 because of the use of the transitional phrase "consisting essentially of" (p. 5). Applicant further argues that the limitations of claim 11 and claim 9, in particular, are not addressed by the prior art, specifically in regard to amount of the abrasive particles (p. 6).

Applicant's argument is not persuasive.

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Initially, claim 11 was previously withdrawn. In regard to claim 9, Sung et al. teaches, "The concentration of nanodiamond particles will vary depending on the composition and the desired effect" (p. 3, par. [0035]). Accordingly, the artisan is reasonably expected to determine result effective amounts nanodiamond particles by routine experimentation.

3) Claims 23 and 25 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Sung et al., (supra) as applied to claims 1, 3, 5, 6, 8-10, 20 and 24 above, and further in view of Jensen et al., (US 2005/0084551).

No arguments were provided in regard to this rejection.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Art Unit: 1612

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter E. Webb whose telephone number is (571) 270-3287. The examiner can normally be reached on 9:00am-5:00pm Tues-Thurs EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frederick F. Krass can be reached (571) 272-0580. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Walter E. Webb
/WALTER WEBB/
Primary Examiner, Art Unit 1612

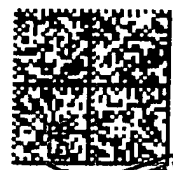
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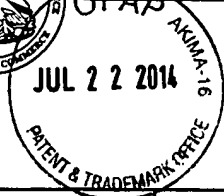
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/418,927	04/06/2009	Lisa Marie Kao	091-001	9522

7590 07/14/2014
 Lisa Marie Kao
 LMKAO LLC
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EXAMINER

WEBB, WALTER E

ART UNIT	PAPER NUMBER
1612	

MAIL DATE	DELIVERY MODE
07/14/2014	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of Abandonment	Application No.	Applicant(s)
	12/418,927	KAO, LISA MARIE
	Examiner	Art Unit
	WALTER WEBB	1612

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

This application is abandoned in view of:

1. Applicant's failure to timely file a proper reply to the Office letter mailed on 12/17/2013.
 - (a) A reply was received on _____ (with a Certificate of Mailing or Transmission dated _____), which is after the expiration of the period for reply (including a total extension of time of _____ month(s)) which expired on _____.
 - (b) A proposed reply was received on _____, but it does not constitute a proper reply under 37 CFR 1.113 to the final rejection. (A proper reply under 37 CFR 1.113 to a final rejection consists only of: (1) a timely filed amendment which places the application in condition for allowance; (2) a timely filed Notice of Appeal (with appeal fee); or (3) a timely filed Request for Continued Examination (RCE) in compliance with 37 CFR 1.114).
 - (c) A reply was received on _____, but it does not constitute a proper reply, or a bona fide attempt at a proper reply, to the non-final rejection. See 37 CFR 1.85(a) and 1.111. (See explanation in box 7 below).
 - (d) No reply has been received.

2. Applicant's failure to timely pay the required issue fee and publication fee, if applicable, within the statutory period of three months from the mailing date of the Notice of Allowance (PTOL-85).
 - (a) The issue fee and publication fee, if applicable, was received on _____ (with a Certificate of Mailing or Transmission dated _____), which is after the expiration of the statutory period for payment of the issue fee (and publication fee) set in the Notice of Allowance (PTOL-85).
 - (b) The submitted fee of \$_____ is insufficient. A balance of \$_____ is due.
The issue fee required by 37 CFR 1.18 is \$_____. The publication fee, if required by 37 CFR 1.18(d), is \$_____.
 - (c) The issue fee and publication fee, if applicable, has not been received.

3. Applicant's failure to timely file corrected drawings as required by, and within the three-month period set in, the Notice of Allowability (PTO-37).
 - (a) Proposed corrected drawings were received on _____ (with a Certificate of Mailing or Transmission dated _____), which is after the expiration of the period for reply.
 - (b) No corrected drawings have been received.

4. The letter of express abandonment which is signed by the attorney or agent of record or other party authorized under 37 CFR 1.33(b). See 37 CFR 1.138(b).

5. The letter of express abandonment which is signed by an attorney or agent (acting in a representative capacity under 37 CFR 1.34) upon the filing of a continuing application.

6. The decision by the Board of Patent Appeals and Interference rendered on _____ and because the period for seeking court review of the decision has expired and there are no allowed claims.

7. The reason(s) below:

	/WALTER WEBB/ Primary Examiner, Art Unit 1612
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Petitions to revive under 37 CFR 1.137, or requests to withdraw the holding of abandonment under 37 CFR 1.181, should be promptly filed to minimize any negative effects on patent term.



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/418,927	04/06/2009	Lisa Marie Kao	091-001	9522

7590 07/14/2014
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EXAMINER

WEBB, WALTER E

ART UNIT	PAPER NUMBER
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1612

MAIL DATE	DELIVERY MODE
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07/14/2014

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of Abandonment	Application No.	Applicant(s)
	12/418,927	KAO, LISA MARIE
	Examiner	Art Unit
	WALTER WEBB	1612

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

This application is abandoned in view of:

1. Applicant's failure to timely file a proper reply to the Office letter mailed on 12/17/2013.
 - (a) A reply was received on _____ (with a Certificate of Mailing or Transmission dated _____), which is after the expiration of the period for reply (including a total extension of time of _____ month(s)) which expired on _____.
 - (b) A proposed reply was received on _____, but it does not constitute a proper reply under 37 CFR 1.113 to the final rejection. (A proper reply under 37 CFR 1.113 to a final rejection consists only of: (1) a timely filed amendment which places the application in condition for allowance; (2) a timely filed Notice of Appeal (with appeal fee); or (3) a timely filed Request for Continued Examination (RCE) in compliance with 37 CFR 1.114).
 - (c) A reply was received on _____ but it does not constitute a proper reply, or a bona fide attempt at a proper reply, to the non-final rejection. See 37 CFR 1.85(a) and 1.111. (See explanation in box 7 below).
 - (d) No reply has been received.

2. Applicant's failure to timely pay the required issue fee and publication fee, if applicable, within the statutory period of three months from the mailing date of the Notice of Allowance (PTOL-85).
 - (a) The issue fee and publication fee, if applicable, was received on _____ (with a Certificate of Mailing or Transmission dated _____), which is after the expiration of the statutory period for payment of the issue fee (and publication fee) set in the Notice of Allowance (PTOL-85).
 - (b) The submitted fee of \$_____ is insufficient. A balance of \$_____ is due.
The issue fee required by 37 CFR 1.18 is \$_____. The publication fee, if required by 37 CFR 1.18(d), is \$_____.
 - (c) The issue fee and publication fee, if applicable, has not been received.

3. Applicant's failure to timely file corrected drawings as required by, and within the three-month period set in, the Notice of Allowability (PTO-37).
 - (a) Proposed corrected drawings were received on _____ (with a Certificate of Mailing or Transmission dated _____), which is after the expiration of the period for reply.
 - (b) No corrected drawings have been received.

4. The letter of express abandonment which is signed by the attorney or agent of record or other party authorized under 37 CFR 1.33(b). See 37 CFR 1.138(b).

5. The letter of express abandonment which is signed by an attorney or agent (acting in a representative capacity under 37 CFR 1.34) upon the filing of a continuing application.

6. The decision by the Board of Patent Appeals and Interference rendered on _____ and because the period for seeking court review of the decision has expired and there are no allowed claims.

7. The reason(s) below:

	/WALTER WEBB/ Primary Examiner, Art Unit 1612
--	--

Petitions to revive under 37 CFR 1.137, or requests to withdraw the holding of abandonment under 37 CFR 1.181, should be promptly filed to minimize any negative effects on patent term.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/418,927	04/06/2009	Lisa Marie Kao	091-001	9522

7590
Lisa Marie Kao
LMKAO LLC
61 Broadway, Suite 513
New York, NY 10006



EXAMINER

WEBB, WALTER F

ART UNIT	PAPER NUMBER
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1612

MAIL DATE	DELIVERY MODE
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12/17/2013

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1/3/2013 has been entered.

Applicants' arguments, filed 5/10/2012, have been fully considered. Rejections and/or objections not reiterated from previous office actions are hereby withdrawn. The following rejections and/or objections are either reiterated or newly applied. They constitute the complete set presently being applied to the instant application.

Claim Rejections - 35 USC § 102--Previous

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 5 and 8 remain rejected under 35 U.S.C. 102(b) as being anticipated by Lowder et al., (US 5,094,839).

Lowder et al. teaches a polishing composition comprising **diamond particles, glycerine (orally acceptable vehicle) as a humectant and a mixture of gum tragacanth (binder; claim 5) and agar (plant extract; claim 8)** (see col. 2, lines 33-36, and lines 51-55). The reference teaches using 0.5 carat (0.1g) of diamond particles (see col. 6, lines 67-68), which amounts to 0.08% according to Example 1 (total weight in grams equal 118.7738; see col. 8). The particle size of the diamond particles tested for polishing were **0.25 micron** (μm), and 5 micron, as per claim 1(a) (see col. 9, lines 21-34). Other suitable particle sizes include sizes within the range of 0 to 0.5 microns (claim 20) (see col. 9, lines 35-41).

The reference is anticipatory insofar as it teaches 0.08% of diamond particles having a particle size within the range of 0.05 μm to about 5 μm , an orally acceptable vehicle, a humectant and a binder.

Claim Rejections - 35 USC § 103--Previous

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1) Claim 20 remains rejected under 35 U.S.C. 103(a) as being unpatentable over Lowder et al. (*supra*) as applied to claims 1, 5 and 8 above.

Art Unit: 1612

Lowder et al. differs from claim 20 insofar as it does not teach where the diamond particles constitute about 0.01 to about 0.02 percent by weight of the composition, and have a size range of about 0.03 μm to about 0.07 μm in diameter.

Lowder et al. teaches, "The specific amount and particle size of the abrasive may vary depending upon the nature of the surface finish desired" (col. 6, lines 64-66).

Lowder also teaches other suitable particle sizes include sizes within the range of 0 to 0.5 microns (claim 20) (see col. 9, lines 35-41).

Since Lowder et al. recognized the adjusting the amount and particle size of the diamond particles based on the nature and surface finish desired, it would have been obvious to adjust the components within the ranges instantly claimed, i.e. about 0.01 to about 0.02 percent by weight and about 0.03 μm to about 0.07 μm in diameter, since this is simply a matter of determining result effective amounts of the diamond particles beneficially taught by Lowder et al. Accordingly, this type of modification would have been well within the purview of the skilled artisan and no more than an effort to optimize results.

2) Claims 1, 3, 5, 6, 8-10, 20 and 24 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Sung et al., (US 2005/0220829).

Sung et al. teaches healthcare and cosmetic compositions, including toothpaste, comprising nanodiamonds (see Abstract). The compositions include nanodiamonds in amounts of from about 1 wt% to about 80 wt% of the composition, having a particle size of from about 0.5 nm to about 50 nm (about 0.005 μm to about 0.05 μm), as per claim

Art Unit: 1612

1(a) and claim 20 (see pg. 2, paragraph [0013]). Healthcare composition include **humectants/orally acceptable vehicle** insofar as they comprise **glycerin (claim 3)**, a **binder** insofar as they comprise **carrageenan (claim 5)** (see pg. 5, paragraph [0050]). Health care compositions also include an **abrasive agent (claim 6)** insofar as they comprise "silicas (e.g. amorphous, hydrated, etc.), **sodium fluoride (claim 24 and claim 25)**, herbal supplements (**plant extract**) (**claims 8, 9**) and **thickeners (claim 10)** (see Id.).

Sung et al. does not teach the specific ranges of particle size and amount for the diamond particles (claim 1) or the ranges for the amounts for the humectants, plant extract, binder and abrasive (claim 9).

Generally, in the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a *prima facie* case of obviousness exists (MPEP 2144.05).

Here a *prima facie* case of obviousness exists in regard to the diamond particles, since Sung et al. teaches an amount from about 1 wt% to about 80 wt% and a particle size of about 0.005 μ m to about 0.05 μ m for the diamond particles, which overlaps with the claimed ranges of 0.0001% to about 1.0% and about 0.05 μ m to about 5.0 μ m.

"[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation" (see MPEP 2144.05 IIA quoting *In re Aller*, 220 F.2d 454, 456 (105 USPQ 233)).

Since Sung et al. recognized the use of humectants, plant extracts, binders, abrasives, as sodium fluoride for its health care compositions; it would have been obvious to adjust the components within the broad ranges instantly claimed since this is simply a matter of determining result effective amounts of the ingredients beneficially taught by Sung et al. Accordingly, this type of modification would have been well within the purview of the skilled artisan and no more than an effort to optimize results.

3) Claims 23 and 25 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Sung et al., (supra) as applied to claims 1, 3, 5, 6, 8-10, 20 and 24 above, and further in view of Jensen et al., (US 2005/0084551).

Sung et al. differs from claims 23 and 25 insofar as it does not teach xylitol.

Jensen et al. teaches compositions for treating mouth disorders comprising **xylitol** as a sweetening agent where, sweetening agents may be present in amounts of 1% to about 5% of the composition as per claims 23 and 25 (see pg. 4, paragraph [0046] and pg. 11, paragraph [0101]).

It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to add the xylitol to the compositions of Sung et al., since the compositions of Sung et al. include flavors, and xylitol may be used as a sweetener, as taught by Jensen et al. The artisan would have been motivated to add a sweetening agent, such as xylitol, to the composition of Sung et al. to make the oral compositions more palatable.

Art Unit: 1612

Conclusion

All claims are drawn to the same invention claimed in the application prior to the entry of the submission under 37 CFR 1.114 and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the application prior to entry under 37 CFR 1.114. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action after the filing of a request for continued examination and the submission under 37 CFR 1.114. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Art Unit: 1612

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter E. Webb whose telephone number is (571) 270-3287. The examiner can normally be reached on 9:00am-5:00pm Tues-Thurs EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frederick F. Krass can be reached (571) 272-0580. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Walter E. Webb
/WALTER WEBB/
Primary Examiner, Art Unit 1612

Receipt date: 01/03/2013

Doc code: IDS

Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (01-10)

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	12418927
	Filing Date	2009-04-06
	First Named Inventor	Lisa Marie KAO
	Art Unit	1612
	Examiner Name	Walter E. WEBB
	Attorney Docket Number	091-001

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Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear
	1	8337204		2012-12-25	Lowder et al.	
	2	7979946		2011-07-19	Kister et al.	
	3	6503084		2003-01-07	Evers et al.	
	4	6162418		2000-12-19	Randive et al.	
	5	6159446		2000-12-12	Randive et al.	
	6	5700449		1997-12-23	Katayama et al.	
	7	5275561		1994-01-04	Goldsmith	
	8	4482538		1984-11-13	Davies	

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Receipt date: 01/03/2013 INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		12418927	
	Filing Date		2009-04-06	
	First Named Inventor	Lisa Marie KAO		
	Art Unit	1612		
	Examiner Name	Walter E. WEBB		
	Attorney Docket Number	091-001		

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/418,927	04/06/2009	Lisa Marie Kao	091-001	9522

7590 12/17/2013
Lisa Marie Kao
LMKAO LLC
61 Broadway, Suite 513
New York, NY 10006

EXAMINER

WEBB, WALTER E

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Art Unit: 1612

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Art Unit: 1612

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Art Unit: 1612

1(a) and claim 20 (see pg. 2, paragraph [0013]). Healthcare composition include **humectants/orally acceptable vehicle** insofar as they comprise **glycerin (claim 3)**, a **binder** insofar as they comprise **carrageenan (claim 5)** (see pg. 5, paragraph [0050]). Health care compositions also include an **abrasive agent (claim 6)** insofar as they comprise "silicas (e.g. amorphous, hydrated, etc.), **sodium fluoride (claim 24 and claim 25)**, herbal supplements (**plant extract (claims 8, 9)** and **thickeners (claim 10)** (see Id.).

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"[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation" (see MPEP 2144.05 IIA quoting *In re Aller*, 220 F.2d 454, 456 (105 USPQ 233)).

Art Unit: 1612

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Art Unit: 1612

Conclusion

All claims are drawn to the same invention claimed in the application prior to the entry of the submission under 37 CFR 1.114 and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the application prior to entry under 37 CFR 1.114. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action after the filing of a request for continued examination and the submission under 37 CFR 1.114. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Art Unit: 1612

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Walter E. Webb
/WALTER WEBB/
Primary Examiner, Art Unit 1612

Receipt date: 01/03/2013

Doc code: IDS

Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (01-10)

Approved for use through 07/31/2012. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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	Filing Date		2009-04-06
	First Named Inventor	Lisa Marie KAO	
	Art Unit		1612
	Examiner Name	Walter E. WEBB	
	Attorney Docket Number		091-001

U.S.PATENTS						Remove
Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	8337204		2012-12-25	Lowder et al.	
	2	7979946		2011-07-19	Kister et al.	
	3	6503084		2003-01-07	Evers et al.	
	4	6162418		2000-12-19	Randive et al.	
	5	6159446		2000-12-12	Randive et al.	
	6	5700449		1997-12-23	Katayama et al.	
	7	5275561		1994-01-04	Goldsmith	
	8	4482538		1984-11-13	Davies	
If you wish to add additional U.S. Patent citation information please click the Add button.						Add

Receipt date: 01/03/2013 INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		12418927	
	Filing Date		2009-04-06	
	First Named Inventor	Lisa Marie KAO		
	Art Unit		1612	
	Examiner Name	Walter E. WEBB		
	Attorney Docket Number		091-001	

U.S.PATENT APPLICATION PUBLICATIONS						Remove
Examiner Initial*	Cite No	Publication Number	Kind Code ¹	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear
	1					

If you wish to add additional U.S. Published Application citation information please click the Add button. **Add**

FOREIGN PATENT DOCUMENTS								Remove
Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ²	Kind Code ⁴	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T ⁵
	1							<input type="checkbox"/>

If you wish to add additional Foreign Patent Document citation information please click the Add button. **Add**


NON-PATENT LITERATURE DOCUMENTS			Remove
Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵
	1		<input type="checkbox"/>

If you wish to add additional non-patent literature document citation information please click the Add button. **Add**

EXAMINER SIGNATURE			
Examiner Signature	/Walter Webb/		Date Considered 12/12/2013

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

Search Notes 	Application/Control No. 12418927	Applicant(s)/Patent Under Reexamination KAO, LISA MARIE
	Examiner Walter Webb	Art Unit 1612

CPC- SEARCHED		
Symbol	Date	Examiner

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
400			
106			
424			
424	49, 401, 769	11/3/2011	WW

SEARCH NOTES		
Search Notes	Date	Examiner
East, Google		
Inventor Name Search on PALM	11/3/2011	WW
EAST Search History	11/3/2011	WW
NPL Search Terms: diamond particles, diamond dust, nanodiamonds	11/3/2011	WW

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

/RYAN SMITH/ Examiner.Art Unit 1612	
--	--



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
12/418,927	04/06/2009	Lisa Marie Kao	091-001

CONFIRMATION NO. 9522

POWER OF ATTORNEY NOTICE

36844
CERMAK NAKAJIMA LLP
127 S. Peyton Street, Suite 210
ALEXANDRIA, VA 22314



Date Mailed: 05/31/2013

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 05/30/2013.

- The withdrawal as attorney in this application has been accepted. Future correspondence will be mailed to the new address of record. 37 CFR 1.33.

/eefswuser/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

Electronic Petition Request	REQUEST FOR WITHDRAWAL AS ATTORNEY OR AGENT AND CHANGE OF CORRESPONDENCE ADDRESS
Application Number	12418927
Filing Date	06-Apr-2009
First Named Inventor	Lisa Kao
Art Unit	1612
Examiner Name	WALTER WEBB
Attorney Docket Number	091-001
Title	DENTAL CLEANING AND POLISHING COMPOSITION COMPRISING DIAMOND PARTICLES

Please withdraw me as attorney or agent for the above identified patent application and the practitioners of record associated with Customer Number: 36844

The reason(s) for this request are those described in 37 CFR:

11.116(b)(5)

11.116(b)(6)

- Certifications**
- I/We have given reasonable notice to the client, prior to the expiration of the response period, that the practitioner(s) intend to withdraw from employment
 - I/We have delivered to the client or a duly authorized representative of the client all papers and property (including funds) to which the client is entitled
 - I/We have notified the client of any responses that may be due and the time frame within which the client must respond

Change the correspondence address and direct all future correspondence to the first named inventor or assignee that has properly made itself of record pursuant to 37 CFR 3.71 (for applications filed before September 16, 2012) or the applicant (for applications filed on or after September 16, 2012):

Name	Lisa Marie Kao LMKAO LLC
Address	61 Broadway, Suite 513
City	New York
State	NY
Postal Code	10006

Country	US
I am authorized to sign on behalf of myself and all withdrawing practitioners.	
Signature	/Adam J. Cermak/
Name	Adam J. Cermak
Registration Number	40391



UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

Decision Date: May 30, 2013

In re Application of:

Lisa Kao

Application No: 12418927

Filed: 06-Apr-2009

Attorney Docket No: 091-001

DECISION ON REQUEST TO WITHDRAW AS
ATTORNEY/AGENT OF RECORD

This is an electronic decision on the Request to Withdraw as attorney or agent of record under 37 CFR § 1.36(b), filed May 30, 2013

The request is **APPROVED**.

The request was signed by Adam J. Cermak (registration no. 40391) on behalf of all attorneys/agents associated with Customer Number 36844. All attorneys/agents associated with Customer Number 36844 have been withdrawn.

Since there are no remaining attorneys of record, all future communications from the Office will be directed to the first named inventor or assignee that has properly made itself of record pursuant to 37 CFR 3.71 (for applications filed before September 16, 2012) or the applicant (for applications filed on or after September 16, 2012), with correspondence address:

Name Lisa Marie Kao
Name2 LMKAO LLC
Address 1 61 Broadway, Suite 513
Address 2
City New York
State NY
Postal Code 10006
Country US

As a reminder, requester is required to inform the first named inventor or assignee that has properly made itself of record pursuant to 37 CFR 3.71 (for applications filed before September 16, 2012) or the applicant (for applications filed on or after September 16, 2012) of the electronically processed petition.

Telephone inquiries concerning this decision should be directed to the Patent Electronic Business Center (EBC) at 866-217-9197.

Office of Petitions

Electronic Acknowledgement Receipt

EFS ID:	15905419
Application Number:	12418927
International Application Number:	
Confirmation Number:	9522
Title of Invention:	DENTAL CLEANING AND POLISHING COMPOSITION COMPRISING DIAMOND PARTICLES
First Named Inventor/Applicant Name:	Lisa Marie Kao
Customer Number:	36844
Filer:	Adam Cermak
Filer Authorized By:	
Attorney Docket Number:	091-001
Receipt Date:	30-MAY-2013
Filing Date:	06-APR-2009
Time Stamp:	13:37:48
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Petition automatically granted by EFS	petition-request.pdf	35317 <small>578b2b009528f4c4753267ca1ab0a7a1c122a5a6</small>	no	2

Warnings:

Information:

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Lisa Marie KAO

Application No.: **12/418,927**

Filing Date: 6 April 2009

For: Dental Cleaning and Polishing Composition
Comprising Diamond Particles and Methods of
Use

Art Unit: 1612

Examiner: Walter E. WEBB

Attorney Ref. No.: 091-001

Confirmation No.: 9522

REQUEST FOR CONTINUED EXAMINATION (RCE) UNDER 37 C.F.R. § 1.114

Mail Stop RCE

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This is a Request for Continued Examination (RCE) under 37 C.F.R. § 1.114 of the above-identified application. The following are submitted:

1. Submission required under 37 C.F.R. 1.114:

- a. Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.
 - i. Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____
 - ii. Other: _____
- b. Enclosed
 - i. Amendment/Reply
 - iii. Information Disclosure Statement
 - ii. Affidavit(s)/Declaration(s)
 - iv. Other(s): Petition for 3-month Extension of Time

2. Miscellaneous

a. **Suspension of action on the above-identified application is requested under 37 C.F.R. § 1.103(c) for a period of 3 months. (Periods of suspension shall not exceed 3 months. Fee under 37 C.F.R. 1.17(i) required).**

b. Other: _____

3. Fees – The RCE fee under 37 C.F.R §1.17(e) is required by 37 C.F.R. § 1.114 when the RCE is filed.

a. The Director is hereby authorized to charge the following fees, or credit any overpayments, to Deposit Account No. _____.

- i. The RCE fee required under 37 C.F.R. § 1.17(e)
- ii. Extension of time fee (37 C.F.R. §§ 1.17, 1.136)
- iii. Other: _____

b. A check in the amount of \$_____ is enclosed.

c. Payment by credit card (Form PTO-2038 enclosed)

d. Direct payment through EFS-Web / RAM

U.S. P.T.O. Customer No. 36844
Cermak Nakajima LLP
127 S. Peyton Street, Ste. 210
Alexandria, VA 22314
703.717.9351

Respectfully submitted,

By: /Adam J. Cermak/
Adam J. Cermak
Registration No. 40,391

Date: 3 January 2013

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		12418927
	Filing Date		2009-04-06
	First Named Inventor	Lisa Marie KAO	
	Art Unit		1612
	Examiner Name	Walter E. WEBB	
	Attorney Docket Number		091-001

U.S.PATENTS						Remove
Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	8337204		2012-12-25	Lowder et al.	
	2	7979946		2011-07-19	Kister et al.	
	3	6503084		2003-01-07	Evers et al.	
	4	6162418		2000-12-19	Randive et al.	
	5	6159446		2000-12-12	Randive et al.	
	6	5700449		1997-12-23	Katayama et al.	
	7	5275561		1994-01-04	Goldsmith	
	8	4482538		1984-11-13	Davies	

If you wish to add additional U.S. Patent citation information please click the Add button. Add

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	12418927
Filing Date	2009-04-06
First Named Inventor	Lisa Marie KAO
Art Unit	1612
Examiner Name	Walter E. WEBB
Attorney Docket Number	091-001

U.S.PATENT APPLICATION PUBLICATIONS						Remove
Examiner Initial*	Cite No	Publication Number	Kind Code ¹	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1					

If you wish to add additional U.S. Published Application citation information please click the Add button. **Add**

FOREIGN PATENT DOCUMENTS								Remove
Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ² i	Kind Code ⁴	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T ⁵
	1							<input type="checkbox"/>

If you wish to add additional Foreign Patent Document citation information please click the Add button **Add**

NON-PATENT LITERATURE DOCUMENTS			Remove
Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵
	1		<input type="checkbox"/>

If you wish to add additional non-patent literature document citation information please click the Add button **Add**

EXAMINER SIGNATURE	
Examiner Signature	Date Considered

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	12418927
Filing Date	2009-04-06
First Named Inventor	Lisa Marie KAO
Art Unit	1612
Examiner Name	Walter E. WEBB
Attorney Docket Number	091-001

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

Fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

None

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Adam J. Cermak/	Date (YYYY-MM-DD)	2013-01-03
Name/Print	Adam J. Cermak	Registration Number	40391

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Patent Application Fee Transmittal

Application Number:	12418927
Filing Date:	06-Apr-2009
Title of Invention:	DENTAL CLEANING AND POLISHING COMPOSITION COMPRISING DIAMOND PARTICLES
First Named Inventor/Applicant Name:	Lisa Marie Kao
Filer:	Adam Cermak/Christopher Goode
Attorney Docket Number:	091-001

Filed as Small Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Extension - 3 months with \$0 paid	2253	1	645	645

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Miscellaneous:				
Request for continued examination	2801	1	465	465
Processing Fee, except for Provis. apps	1808	1	130	130
Total in USD (\$)				1240

Electronic Acknowledgement Receipt

EFS ID:	14607066
Application Number:	12418927
International Application Number:	
Confirmation Number:	9522
Title of Invention:	DENTAL CLEANING AND POLISHING COMPOSITION COMPRISING DIAMOND PARTICLES
First Named Inventor/Applicant Name:	Lisa Marie Kao
Customer Number:	36844
Filer:	Adam Cermak/Christopher Goode
Filer Authorized By:	Adam Cermak
Attorney Docket Number:	091-001
Receipt Date:	03-JAN-2013
Filing Date:	06-APR-2009
Time Stamp:	14:31:46
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	\$1240
RAM confirmation Number	4468
Deposit Account	
Authorized User	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
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1	Extension of Time	2013-01-03_EoT_091-001.pdf	48021 377513bc545c8c6af95bfa0760b428c25412da6	no	1
Warnings:					
Information:					
2	Request for Continued Examination (RCE)	2013-01-03_RCE_091-001.pdf	50488 ea84219ee9edaf673760e1928098e1fa93fe0a9c	no	2
Warnings:					
This is not a USPTO supplied RCE SB30 form.					
Information:					
3	Information Disclosure Statement (IDS) Form (SB08)	2013-01-03_IDS_091-001.pdf	612401 688171ce307a86772bcd97b6bcdca3f042d12c37	no	4
Warnings:					
Information:					
4	Fee Worksheet (SB06)	fee-info.pdf	33867 071363c54d3530c07fdb048eaa37b16669ff293	no	2
Warnings:					
Information:					
Total Files Size (in bytes):				744777	
<p>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</p> <p><u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p>					

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Lisa Marie KAO

Application No.: 12/418,927

Filing Date: 6 April 2009

For: Dental Cleaning and Polishing Composition
Comprising Diamond Particles and Methods of Use

Art Unit: 1612

Examiner: Walter E. WEBB

Attorney Ref. No.: 091-001

Confirmation No.: 9522

PETITION FOR EXTENSION OF TIME

Mail Stop RCE

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Applicant respectfully Petitions for an extension of time under 37 C.F.R. § 1.136(a) to extend the period for response to the Office Action dated 3 July 2012, which set a three-month shortened statutory period for reply, the number of month(s) indicated below, to 3 January 2013.

Month(s)	<input type="checkbox"/> Large Entity Fee (fee code)	<input checked="" type="checkbox"/> Small Entity Fee (fee code)
<input type="checkbox"/> 1	\$150 (1251)	\$75 (2251)
<input type="checkbox"/> 2	\$570 (1252)	\$285 (2252)
<input checked="" type="checkbox"/> 3	\$1290 (1253)	\$645 (2253)
<input type="checkbox"/> 4	\$2010 (1254)	\$1005 (2254)
<input type="checkbox"/> 5	\$2730 (1255)	\$1365 (2255)

The period for response has previously been extended to ____; accordingly, the fee for this Petition is the difference between the fee identified above and the fee previously paid.

For the fee under 37 C.F.R. § 1.17(a) identified above for this Petition, please

- note that Applicant has directly paid the fee via EFS-Web / RAM.
- charge our Deposit Account No. 50-2821.
- find our attached check made payable to "Director of the U.S. P.T.O.".
- charge the credit account identified in the attached PTO-2038.

Customer Number 36844
Cermak Nakajima LLP
127 S. Peyton Street, Ste. 210
Alexandria, VA 22314
703.717.9351 (v)
703.717.9392 (f)

Respectfully submitted,

/Adam J. Cermak/

Adam J. Cermak

Reg. No. 40391

Date: 3 January 2013



UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
12/418,927	04/06/2009	Lisa Marie Kao	091-001

36844
CERMAK NAKAJIMA LLP
127 S. Peyton Street, Suite 210
ALEXANDRIA, VA 22314

CONFIRMATION NO. 9522
POA ACCEPTANCE LETTER



Date Mailed: 07/26/2012

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 07/20/2012.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

/snguyen/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101



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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
12/418,927	04/06/2009	Lisa Marie Kao	404343

CONFIRMATION NO. 9522

POWER OF ATTORNEY NOTICE



23548
LEYDIG VOIT & MAYER, LTD
700 THIRTEENTH ST. NW
SUITE 300
WASHINGTON, DC 20005-3960

Date Mailed: 07/26/2012

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 07/20/2012.

- The Power of Attorney to you in this application has been revoked by the applicant. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

/snguyen/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Lisa Marie KAO

Application No.: 12/418,927

Filing Date: 6 April 2009

Title: Dental Cleaning and Polishing Composition
Comprising Diamond Particles and Methods of
Use

Copy

Art Unit: 1612

Examiner: Walter E. WEBB

Attorney Ref. No.: 091-001

Via EFS-Web

**REVOCATION OF PRIOR POWERS OF ATTORNEY AND
APPOINTMENT OF NEW ATTORNEYS OF RECORD**

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

The undersigned named inventor(s) for the above-captioned U.S. patent application, no assignment having been recorded at the U.S. Patent and Trademark Office, hereby revoke(s) all powers of attorney heretofore given in this patent application, and appoints as their agents and attorneys the patent attorneys and/or patent agents associated with

U.S. P.T.O. Customer Number 36844

with full power of substitution, association, and revocation, to prosecute said application and to transact all business in the U.S. Patent and Trademark Office connected therewith.

Please direct all future correspondence concerning this application to the address of the U.S. P.T.O. Customer Number 36844.

SIGNATURE

Lisa Marie KAO
Lisa Marie KAO

DATE

7/10/12

Electronic Acknowledgement Receipt

EFS ID:	13299288
Application Number:	12418927
International Application Number:	
Confirmation Number:	9522
Title of Invention:	DENTAL CLEANING AND POLISHING COMPOSITION COMPRISING DIAMOND PARTICLES
First Named Inventor/Applicant Name:	Lisa Marie Kao
Customer Number:	23548
Filer:	Adam Cermak/Christopher Goode
Filer Authorized By:	Adam Cermak
Attorney Docket Number:	404343
Receipt Date:	20-JUL-2012
Filing Date:	06-APR-2009
Time Stamp:	10:39:05
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Power of Attorney	2012-07-20_Rev- New_POA_091-001.pdf	49892 <small>3610a5e2cca942cf8cf990be0f9e91d695f71954</small>	no	1

Warnings:

Information:

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

JPW

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Lisa Marie KAO

Application No.: 12/418,927

Filing Date: 6 April 2009

Title: Dental Cleaning and Polishing Composition
Comprising Diamond Particles and Methods of
Use



Art Unit: 1612

Examiner: Walter E. WEBB

Attorney Ref. No.: 091-001

Via EFS-Web

REVOCATION OF PRIOR POWERS OF ATTORNEY AND
APPOINTMENT OF NEW ATTORNEYS OF RECORD

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

The undersigned named inventor(s) for the above-captioned U.S. patent application, no assignment having been recorded at the U.S. Patent and Trademark Office, hereby revoke(s) all powers of attorney heretofore given in this patent application, and appoints as their agents and attorneys the patent attorneys and/or patent agents associated with

U.S. P.T.O. Customer Number 36844

with full power of substitution, association, and revocation, to prosecute said application and to transact all business in the U.S. Patent and Trademark Office connected therewith.

Please direct all future correspondence concerning this application to the address of the U.S. P.T.O. Customer Number 36844.

SIGNATURE

Lisa Marie KAO

DATE:

7/10/12



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/418,927	04/06/2009	Lisa Marie Kao	404343	9522
23548	7590	07/03/2012	EXAMINER	
LEYDIG VOIT & MAYER, LTD 700 THIRTEENTH ST. NW SUITE 300 WASHINGTON, DC 20005-3960			WEBB, WALTER E	
			ART UNIT	PAPER NUMBER
			1612	
			NOTIFICATION DATE	DELIVERY MODE
			07/03/2012	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

DCpatent@leydig.com
Chgpatent@leydig.com

Office Action Summary

Application No. 12/418,927	Applicant(s) KAO, LISA MARIE	
Examiner WALTER WEBB	Art Unit 1612	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 10 May 2012.
- 2a) This action is **FINAL**.
- 2b) This action is non-final.
- 3) An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
- 4) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 5) Claim(s) 1,3 and 5-25 is/are pending in the application.
5a) Of the above claim(s) 7,11-19,21 and 22 is/are withdrawn from consideration.
- 6) Claim(s) _____ is/are allowed.
- 7) Claim(s) 1,3,5,6,8-10,20 and 23-25 is/are rejected.
- 8) Claim(s) _____ is/are objected to.
- 9) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 10) The specification is objected to by the Examiner.
- 11) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 12) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
- 5) Notice of Informal Patent Application
- 6) Other: _____.

DETAILED ACTION

Applicants' arguments, filed 5/10/2012, have been fully considered. Rejections and/or objections not reiterated from previous office actions are hereby withdrawn. The following rejections and/or objections are either reiterated or newly applied. They constitute the complete set presently being applied to the instant application.

Claim Rejections - 35 USC § 102--previous

Claims 1, 5 and 8 remain rejected under 35 U.S.C. 102(b) as being anticipated by Lowder et al., (US 5,094,839).

Response to Argument

Applicant argues that Lowder et al. does not anticipate the claimed invention since it "includes additional components which materially affect the basic and novel characteristics of the claimed combination" (p. 4). Applicant mentions, prior to this statement, "*Lowder's* composition includes both methyl and propyl paraben, and distilled water, which are plainly included to influence the performance of *Lowder's* composition" (Id.).

However, it is not clear how unlisted ingredients of the prior art composition materially affects the basic and novel properties of Applicant's invention.

Initially, for the purposes of searching for and applying prior art under 35 U.S.C. 102 and 103, absent a clear indication in the specification or claims of what the basic and novel characteristics actually are, "consisting essentially of" will be construed as equivalent to "comprising" (MPEP 2163 sec. IIA.1). Here, there does not appear to be a

Art Unit: 1612

clear indication in the specification or claims of what the basic and novel characteristics actually are, and applicant does not point this out.

Applicant appears to suggest that methyl and propyl paraben materially affect the basic and novel characteristics of the invention. However, this cannot be true, since the instant specification specifically teaches adding methyl and propyl paraben. The instant specification states, "It is contemplated that an effective amount of recommended and well-known preservatives are included in the composition of the present invention, such as methyl paraben and propyl paraben" (Specification at p. 12, para. [0048]). The instant specification also teaches distilled water (Specification at p. 21, para. [0067]).

If an applicant contends that additional steps or materials in the prior art are excluded by the recitation of "consisting essentially of," applicant has the burden of showing that the introduction of additional steps or components would materially change the characteristics of applicant's invention (MPEP 2163 sec. IIA.1). Here, Applicant has not met the *burden of showing* that additional components would materially change the characteristics of Applicant's invention. Applicant merely makes a statement without providing a showing.

Claim Rejections - 35 USC § 103--previous

1) Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lowder et al. (*supra*) as applied to claims 1, 5 and 8 above.

Response to Argument

Art Unit: 1612

Applicant relies on the argument above here and adds "assuming *arguendo* that a person of ordinary skill in the art would find a rational reason to select the specific particle size recited in Claim 20, the resulting hypothetical composition would still not be read on by Claim 20 (p. 5). No further analysis is provided.

Applicant's argument is not persuasive.

In regard to particle size of the abrasive, Lowder teaches a range of 0 to 0.5 microns (col. 9, lines 35-41). The claimed range of 0.03 μm to about 0.07 μm falls within the prior art range. Accordingly, in the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a *prima facie* case of obviousness exists (MPEP 2144.05). The amount of abrasive would have been result effective, insofar as Lowder et al. teaches "The specific amount and particle size of the abrasive may vary depending upon the nature of the surface finish desired" (col. 6, lines 64-66).

2) Claims 1, 3, 5, 6, 8-10, 20 and 24 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Sung et al., (US 2005/0220829).

Response to Argument

Applicant argues that Sung et al. fails to identically disclose or describe each and every feature of Claim 1 because of the use of the transitional phrase "consisting essentially of" (p. 5). Applicant further argues that the limitations of claim 11 and claim 9, in particular, are not addressed by the prior art, specifically in regard to amount of the abrasive particles (p. 6).

Applicant's argument is not persuasive.

Art Unit: 1612

Initially, claim 11 was previously withdrawn. In regard to claim 9, Sung et al. teaches, "The concentration of nanodiamond particles will vary depending on the composition and the desired effect" (p. 3, par. [0035]). Accordingly, the artisan is reasonably expected to determine result effective amounts nanodiamond particles by routine experimentation.

3) Claims 23 and 25 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Sung et al., (supra) as applied to claims 1, 3, 5, 6, 8-10, 20 and 24 above, and further in view of Jensen et al., (US 2005/0084551).

No arguments were provided in regard to this rejection.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


Art Unit: 1612

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter E. Webb whose telephone number is (571) 270-3287. The examiner can normally be reached on 9:00am-5:00pm Tues-Thurs EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frederick F. Krass can be reached (571) 272-0580. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Walter E. Webb
/WALTER WEBB/
Primary Examiner, Art Unit 1612

Search Notes 	Application/Control No. 12418927	Applicant(s)/Patent Under Reexamination KAO, LISA MARIE
	Examiner Walter Webb	Art Unit 1612

SEARCHED			
Class	Subclass	Date	Examiner
400			
106			
424			
424	49, 401, 769	11/3/2011	WW

SEARCH NOTES		
Search Notes	Date	Examiner
East, Google		
Inventor Name Search on PALM	11/3/2011	WW
EAST Search History	11/3/2011	WW
NPL Search Terms: diamond particles, diamond dust, nanodiamonds	11/3/2011	WW

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Lisa Marie KAO

Application No.: 12/418,927

Filing Date: 6 April 2009

For: Dental Cleaning and Polishing Composition
Including Diamond Particles and Methods of Use
(as amended)

Art Unit: 1612

Examiner: Webb, Walter E.

Attorney Ref. No.: 091-001

Confirmation No. 9522

AMENDMENT AND RESPONSE UNDER 37 C.F.R. § 1.111

Mail Stop AMENDMENT

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Sir:

In response to the Office Action dated 10 November 2011, which set a three-month shortened statutory period of response thereto, please amend the above-captioned patent application as follows. A Petition for a three-month extension of time under 37 C.F.R. § 1.136(a), with the fee specified in 37 C.F.R. § 1.17(a), is filed concurrently herewith.

IN THE TITLE:

Kindly rewrite the Title as follows:

Dental Cleaning and Polishing Composition ~~Comprising~~ Including Diamond Particles and
Methods of Use

REMARKS

Favorable reconsideration, further examination, and allowance of this patent application are respectfully requested in view of the following remarks.

Withdrawal of Claims

Applicant acknowledges the withdrawal of Claims 7, 11-19, 21, and 22 from consideration at this time, pursuant to the Restriction and Election-of-Species requirements of record. Applicant notes the possibility of rejoinder of all of the withdrawn claims with the examined claims pursuant to M.P.E.P. §§ 806.04, 821.04.

Rejection under 35 U.S.C. § 102

In the Office Action, beginning at page 3, Claims 1, 5, and 8 were rejected under 35 U.S.C. § 102, as reciting subject matters that allegedly are anticipated by U.S. Patent No. 5,094,839, granted to Lowder et al. ("Lowder"). Applicant respectfully requests reconsideration of this rejection.

This application describes compositions and methods embodying principles of the present invention. As described in greater detail in the specification, dentifrices are used to clean, bleach, whiten, and otherwise treat the teeth and gums. Generally, the active ingredients in a dentifrice are contained within a carrier. For an abrasive, most toothpaste comprises various types of silica to debride and physically scrub the external surface of the teeth. This scrubbing action removes the organic film (i.e. the pellicle), formed of salivary proteins which covers the teeth and which is known to become stained and discolored by foods, such as coffee, tea and berries, as well as, by tobacco smoke, cationic antibacterials, and chromogenic bacteria. Such physical removal of the stained pellicle is a simple and effective means of removing the undesirable surface staining and discoloration which occurs daily. Further, such physical removal of the pellicle also removes plaque bacteria on the pellicle surface.

The carrier can be a paste (i.e., toothpaste) or a gel (i.e., brushing gels and bleaching gels)

or an equivalent vehicle suitable for oral use. The dentifrice can be dispensed onto a brushing device or, in some cases, onto a tray, stint or mouth guard, and then the dental surfaces are brushed or polished for a sufficient period of time. "Gels" are thickened by a gelling agent that hydrogen bonds a dispersion medium to produce a semisolid, transparent, jelly-like material. In contrast, "pastes" are thickened by the addition of fillers. However, the line between gels and pastes is not always clear. Furthermore, sometimes dentifrices that are opaque and/or contain one or more abrasive fillers are labeled pastes, even if they exhibit gel-like properties. Therefore, in describing the present invention, the term "dentifrice" will be used to clearly indicate that both gels and pastes are embraced.

In prior dental polishing compositions, combinations of such ingredients are disclosed and are directed to dental creams, pastes and gels which incorporate the well-known cleaning or polishing components such as water-insoluble alkaline earth metal salts or similar agents. These cleaning compositions are useful and satisfactory for manual brushing of teeth. However, these conventional agents are not satisfactory for use with cosmetic dental patients with porcelain veneers, caps or crowns. Harder and finer abrasives are typically necessary to accomplish a higher degree of polishing as opposed to mere cleaning of such surfaces to provide a smooth, mirror-like finish. There exist, presently, polishes that are used with cosmetic dental appliances which contain diamond particles, but they are designed for use in polishing porcelain and composite tooth restoration materials in "chairside applications" as well as being useful in laboratory and industrial applications. Products such as diamond particles in a glycerin base paste have been used in dental offices for years for porcelain crowns. The use of diamond particulates in a dentifrice for use by patients at home has not previously been available due to the general understanding by those of ordinary skill in the dental or oral hygiene arts, that diamond particles are too abrasive for use on natural tooth enamel by the ordinary consumer.

The inventor herein, as a dental professional and cognizant of the foregoing inadequacies of both 'chairside' and home-use preparations, developed a composition, such as that described in this application, which can provide the polishing effects of a 'chairside' dentifrice, yet can be used daily in a home-use environment.

Claim 1 relates to a dentifrice having a composition consisting essentially of several components, which is suitable for application to teeth in the oral cavity.

The prior art, including *Lowder*, fails to describe a composition which includes each and every feature as recited in the combinations of the pending claims.

Lowder describes an abrasive polishing composition having a number of components, including diamond particles; however, as plainly indicated in Example I, *Lowder*'s composition includes both methyl and propyl paraben, and distilled water, which are plainly included to influence the performance of *Lowder*'s composition. Thus, assuming *arguendo* that *Lowder*'s composition includes components which are read on by those listed in Claim 1, and which is suitable for application to teeth in the oral cavity, *Lowder*'s composition includes additional components which materially affect the basic and novel characteristics of the claimed combination. See M.P.E.P. § 2111.03, and the cases cited therein. Accordingly, *Lowder* does not anticipate the subject matters of Claims 1, 5, and 8.

For at least the foregoing reasons, Applicant respectfully submits that the subject matters of Claims 1, 5, and 8 are not anticipated by *Lowder*, are therefore not unpatentable under 35 U.S.C. § 102, and therefore respectfully requests withdrawal of the rejection thereof under 35 U.S.C. § 102.

Rejections under 35 U.S.C. § 103(a)

In the Office Action, beginning at page 4, Claim 20 was rejected under 35 U.S.C. § 103(a), as reciting subject matter that allegedly would have been obvious, and therefore allegedly is unpatentable, over *Lowder* along. Beginning at page the bottom of page 4, Claims 1, 3, 5, 6, 8-10, 20, and 24 were rejected under 35 U.S.C. § 103(a), as reciting subject matters that allegedly would have been obvious, and therefore allegedly are unpatentable, over the disclosure of U.S. Patent App. Pub. No. 2005/0220829, by Sung *et al.* ("Sung"). Claims 23 and 25 were lastly rejected under 35 U.S.C. § 103(a), as reciting subject matters that allegedly would have been obvious, and therefore allegedly are unpatentable, over the disclosure of *Sung* in view of the disclosure of U.S. Patent App. Pub. No 2005/0084551, by Jensen *et al.* ("Jensen"). Applicant

respectfully requests reconsideration of these rejections.

As discussed above, *Lowder* fails to identically disclose or describe each and every feature as recited in Claim 1. Claim 20, which further describes aspects of the diamond particles of Claim 1, does not change the foregoing analysis with respect to *Lowder*. That is, because of the use of the transitional phrase “consisting essentially of”, *Lowder* does not anticipate Claim 1, and assuming *arguendo* that a person of ordinary skill in the art would find a rational reason to select the specific particle sizes recited in Claim 20, the resulting hypothetical composition would still not be read on by Claim 20.

Sung describes the use of nano-sized diamond particles in various retail products, including dental fillings, skin care products, lotions, facial tissue, deodorant, dermal strips, skin cleanser, antibiotics, toothpaste (see paragraph [0050]), shampoo, cosmetics, and nail polish. As noted, among the cornucopia of products *Sung* describes, toothpaste is mentioned:

[0050] Alternatively, the remedial healthcare composition can be formulated as toothpaste including an acceptable carrier and a plurality of nanodiamond particles. Basic formulation of toothpastes is known in the art. Common acceptable carriers can include, for example, glycerin, sorbitol, silicas (e.g., amorphous, hydrated, etc.), thickening agents such as carrageenan and salts of cellulose ethers, alcohols, water, gels, combinations of these materials, and other known carriers. In addition, the toothpaste can include additives such as sodium fluoride, fragrance, flavors, colorants, herbal supplements, and the like. A more detailed description of various toothpaste formulations can be found in U.S. Pat. Nos. 4,414,199; 6,117,415; and 6,123,925, which are each incorporated herein by reference in their respective entireties. In these embodiments of the present invention, the nanodiamond particles can be present in the composition at from about 1 wt % to about 40 wt %, and preferably from about 2 wt % to about 15 wt %.

Thus, as discussed above with respect to Claim 1 and *Lowder*, *Sung* fails to identically disclose or describe each and every feature of Claim 1 because of the use of the transition phrase “consisting essentially of”: *Sung*’s toothpaste composition does not include each and every feature of Claim 1, and the Office Action’s hypothetical adjustment of the percentages of each of the components that *Sung* does describe does not change the analysis.

Claim 9 relates to a dentifrice having a combination of features including, *inter alia*,

diamond particles between about 0.002% and about 0.05% of the total composition by weight. Claim 11 relates to a dentifrice having a combination of features including, *inter alia*, diamond powder of 0.01% of the total composition by weight. *Sung* also fails to disclose, describe, or fairly suggest dentifrices including each and every feature as recited in Claims 9 *et seq.*

As acknowledged in the Office Action, *Sung* describes a toothpaste which includes 1 wt% to 40 wt% of diamond nanoparticles; Claim 9 includes, as its upper limit, 0.05 wt%; and Claim 11 includes 0.01 wt%. Therefore, *Sung* instructs including, at the least, 20 times the weight percentage (*i.e.*, 2000%) of the diamond particles required by Claim 9, and 100 times the weight percentage (*i.e.*, 10000%) of the diamond particles required by Claim 11. Notably, the Office Action does not separately address Claims 9 and 11, and therefore does not present a *prima facie* case of obviousness of their separate subject matters. Thus, regardless of the separate disposition of the subject matter of Claim 1, the Office Action does not set forth a *prima facie* case of obviousness. Furthermore, Applicant respectfully submits that 20-fold and 100-fold differences in the weight percentage of diamond particles between the claimed compositions and the *de minimus* disclosure of *Sung*'s toothpaste does not involve mere routine experimentation, particularly in view of the paucity of guidance provided by *Sung* as to amount of diamond particles to use, and *Sung*'s preferred range of 2-15 wt%.

Applicant has conducted clinical trials of a composition as described in this application, and has demonstrated that it is very effective in polishing porcelain implants as a home-use dentifrice. Attached hereto is a summary of the study performed, as well as a poster which summarizes the presentation of the study and its data early in 2012. The data establishes that compositions embodying principles of the present invention are suitable for home use, and that, despite the relatively small (compared with the prior art compositions) wt% of diamond particles, performs well for polishing porcelain inserts.

The inclusion of *Jensen*'s disclosure does not change the foregoing analysis.

For at least the foregoing reasons, Applicant respectfully submits that the subject matters of Claims 1, 3, 5, 6, 8-10, 20, and 23-25, each taken as a whole, would not have been obvious to one of ordinary skill in the art at the time of Applicant's invention, are therefore not unpatentable

under 35 U.S.C. § 103(a), and therefore respectfully requests withdrawal of the rejection thereof under 35 U.S.C. § 103(a).

Conclusion

Applicant respectfully submits that this patent application is in condition for allowance. An early indication of the allowability of this application is therefore respectfully solicited.

If Mr. Webb that a telephone conference with the undersigned would expedite passage of this patent application to issue, he is invited to call on the number below.

It is not believed that extensions of time are required, beyond those that may otherwise be provided for in accompanying documents. If, however, additional extensions of time are necessary to prevent abandonment of this application, then such extensions of time are hereby petitioned under 37 C.F.R. § 1.136(a), and the Commissioner is hereby authorized to charge fees necessitated by this paper, and to credit all refunds and overpayments, to our Deposit Account 50-2821.

Respectfully submitted,

By: /Adam J. Cermak/
Adam J. Cermak
Registration No. 40,391

U.S. P.T.O. Customer Number 36844
Cermak Nakajima LLP
127 S. Peyton St., Suite 210
Alexandria, Virginia 22314

703.717.9351 (v)
703.717.9392 (f)

Date: 10 May 2012

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Lisa Marie KAO

Application No.: 12/418,927

Filing Date: 6 April 2009

For: Dental Cleaning and Polishing Composition
Comprising Diamond Particles and Methods of Use

Art Unit: 1612

Examiner: Walter E. WEBB

Attorney Ref. No.: 091-001

Via EFS-Web

PETITION FOR EXTENSION OF TIME

Mail Stop AMENDMENT

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Sir:

Applicant respectfully Petitions for an extension of time under 37 C.F.R. § 1.136(a) to extend the period for response to the Office Action dated 10 November 2011, which set a three-month shortened statutory period for reply, the number of month(s) indicated below, to 10 May 2012.

Month(s)	<input type="checkbox"/> Large Entity Fee (fee code)	<input checked="" type="checkbox"/> Small Entity Fee (fee code)
<input type="checkbox"/> 1	\$150 (1251)	\$75 (2251)
<input type="checkbox"/> 2	\$560 (1252)	\$280 (2252)
<input checked="" type="checkbox"/> 3	\$1270 (1253)	\$635 (2253)
<input type="checkbox"/> 4	\$1980 (1254)	\$990 (2254)
<input type="checkbox"/> 5	\$2690 (1255)	\$1345 (2255)

The period for response has previously been extended to ____; accordingly, the fee for this Petition is the difference between the fee identified above and the fee previously paid.

For the fee under 37 C.F.R. § 1.17(a) identified above for this Petition, please

- note that Applicant has directly paid the fee via EFS-Web / RAM.
- charge our Deposit Account No. 50-2821.
- find our attached check made payable to "Director of the U.S. P.T.O."
- charge the credit account identified in the attached PTO-2038.

Customer Number 36844
Cermak Nakajima LLP
127 S. Peyton Street, Ste. 210
Alexandria, VA 22314
703.717.9351 (v)
703.717.9392 (f)

Respectfully submitted,

/Adam J. Cermak/

Adam J. Cermak

Reg. No. 40391

Date: 10 May 2012

The Need for a Porcelain Veneer Toothpaste

Porcelain veneers can last for a relatively long time on average up to 10 years before they need replacement. Although if done and maintained properly, veneers can last a lifetime. Most commercially available toothpastes are too abrasive for everyday use on porcelain and bonding. Therefore by dulling the surface, porcelain can become more susceptible to stain, plaque and tartar. Porcelain and bonding do not have the same ability to remineralize the way enamel does. It is important to maintain the fine finish.

NEW GLOSSY VENEERS

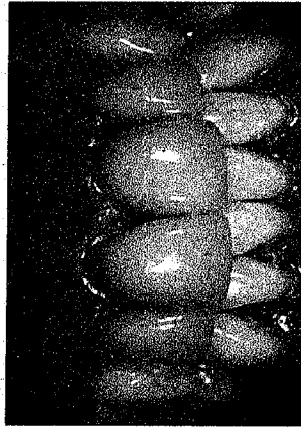


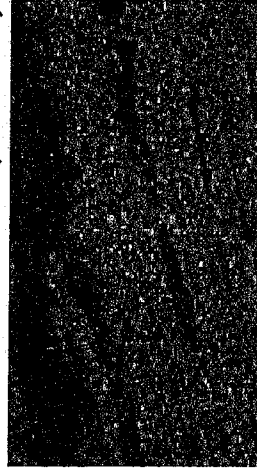
Exhibit gloss and shine

DULL OLD VENEERS



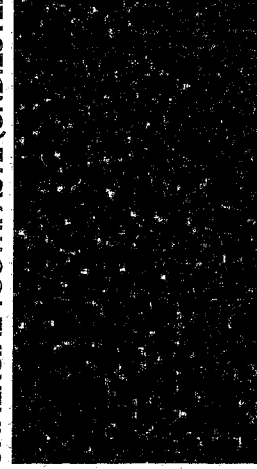
We see loss of shine and gloss

DIAMYNT TOOTHPASTE (UNDILUTED)



We see fine non abrasive particles

COMMERCIAL TOOTHPASTE (UNDILUTED)



We see gritty abrasive particles

References from The Journal of Prosthetic Dentistry concerning porcelain wear:

"Normal toothbrushing with a common dentifrice has the ability to wear away porcelain stains applied to the surface of porcelain-fused-to-metal restorations in as few as 10 to 12 years unless a protective layer of clear glaze is applied over the stain. At 160,000 strokes (equivalent to 11.4 years) there was evidence of loss of surface integrity."

Key Benefits of DIAMYNT™

- **Polishes and Restores** Veneers, crowns, caps, bonding and all porcelain restorations to their original whiteness.
- **Brightens** Porcelain by creating smoother surfaces which helps promote gloss and luster.
- **Whitens** Enamel by safely removing surface stains such as coffee, tea, tobacco and red wine without harsh abrasives.
- **Protects** Prevents tooth decay on enamel with fluoride and xylitol a natural sweetener which has been known to make plaque less adhesive.
- **Freshens** Breath with fresh mint and natural plant extracts.
- **Cleans** Helps with removal of plaque buildup.
- **Sodium Laurel Sulfate (SLS) Free.** No artificial preservatives or dyes.
- **Patent Pending Formula.**
- **Clinically proven** on porcelain, bonding, enamel and root cavities.

Study on Porcelain and Composites

Study on Porcelain and Composites
Experimental Dentifrice on Porcelain and Composites (Bonding) NOVA University Bioscience Dental Research Center F. GARCIA-GODOY, College of Dentistry

Purpose of Study:

To evaluate the abrasiveness of a regular toothpaste, whitening toothpaste and a porcelain formulated toothpaste. Study was completed in a lab setting by using roughness and gloss measurements on porcelain and composite resins. Diamynt was tested in a controlled study amongst a premium whitening toothpaste and a regular toothpaste. Listed below are the results of the three toothpastes which were tested for gloss and roughness on porcelain and ceramics. Diamynt performed statistically better than the other toothpastes tested. Three toothpastes were tested for gloss and roughness on porcelain and ceramics.

1. Crest Fluoride Toothpaste (toothpaste A)
 2. Diamynt Porcelain Veneer Toothpaste (toothpaste B)
 3. Supersmile Whitening Toothpaste (toothpaste C)
- AB= After Brushing B= Brushing/Baseline

Method:

Gloss and roughness were measured at baseline and after 2 years simulated brushing. Slurry was made with 37g toothpaste and 37ml distilled water. Samples were brushed on the V-8 Cross Brushing Machine and brushed for 10,000 cycles, equivalent to 1-2 year of brushing. ADA standard manual toothbrushes were used for study. Instruments were used to determine the roughness and gloss values.)

Gloss:

Descriptive statistics are provided in Table 1. Results indicate that the main effects and interactions are all significant ($p < .01$) (Table 2). For the main effects the highest gloss score was found in toothpaste B. (Table 3), ceramic four (Table 4), and time AB (Table 5). The three-way interaction (Table 8) demonstrates an interesting finding: Toothpaste C, with ceramic four and time B provided the highest gloss score while Toothpaste C, with ceramic four and time AB the lowest. For more information on the interaction of toothpaste, ceramic and time please refer to Table 8.

GLOSS Summary:

Toothpaste B (Diamynt) and C (Whitening) provided a high gloss score during (B) brushing time but: toothpaste C (Whitening) showed the gloss score to be the lowest for AB (after brushing) therefore it abraded the gloss on the porcelain while Diamynt maintained it (this was noted as an interesting finding) Please note: When you lose surface glaze/gloss on porcelain the tooth becomes more susceptible to stain, tartar and plaque.

Roughness:

Descriptive statistics are provided in Table 1. Results indicate that the main effects and interactions are all significant ($p < .01$) (Table 2). For the main effects the highest roughness score was found in toothpaste B and A, (Table 3), ceramic two (Table 4), and time B (Table 5). The three-way interaction (Table 8) demonstrates that samples utilizing toothpaste A, ceramic two and at time B were the roughest. For more information on the interaction of toothpaste, ceramic and time please refer to Table 8.

Roughness Summary:

Toothpaste A (Regular) and toothpaste B (Diamynt) both showed a roughness score, but After brushing toothpaste A (Crest) produced the higher roughness Score. Diamynt produced a lower score on roughness.

*Actual study tables available upon request.

Study on 30 day Clinical Trials

DIAMYNT PATIENT SATISFACTION STUDY

Experimental Dentifrice on Patients with Porcelain Restorations

Global Research Consultants F. GARCIA-GODOY, College of Dentistry, University of Tennessee, Memphis, TN

Method:

Thirty patients attending general dental practices in the New York City were asked to participate in this study. Fifteen patients will be using a regular toothpaste as a controlled group and the remainder fifteen will be using Diamynt porcelain veneer toothpaste in a 30 day study. All patients were asked to brush their teeth twice daily for 30 days. After 30 days patients were asked to fill out a questionnaire on both products.

Inclusion Criteria:

Have at least to 4-6 porcelain veneers or crowns in their maxillary anterior teeth.

Purpose:

To evaluate patient satisfaction after the use of the Diamynt toothpaste and a regular toothpaste as the controlled group.

Results:

Diamynt patients: 14 out of 15 patients reported their teeth felt more glossy and smooth after using Diamynt. 14 out of 15 patients were satisfied with Diamynt toothpaste. 13 patients out of 15 felt the toothpaste to be cream like. 15 out of 15 reported no adverse affect. 15 out of 15 patients reported they would use this product again. Regular patients: 13 out of 15 patients reported there was no difference. 14 out of 15 patients were satisfied, however a few participants noted they would be interested in using a product that would have benefits for porcelain. 12 out of 15 patients reported their regular toothpaste to feel gritty. 15 out of 15 patients reported no adverse affect.

Conclusion:

Diamynt toothpaste users reported their veneers felt more glossy and smooth after 30 days. Regular controlled group reported their toothpaste felt gritty and saw no difference in texture on their veneers. Both groups reported no adverse affects from toothpaste. Study on 30 day Clinical Trials

Study on Enamel and Root Cavities

Experimental Fluoride Dentifrices Containing Xylitol: In Vitro Root Caries Formation

F. GARCIA-GODOY, College of Dentistry, University of Tennessee, Memphis, TN, J. HICKS, Texas Children's Hospital, Baylor College of Medicine, Houston, TX, C. FLAITZ, Department of Diagnostic Sciences, University of Texas at Houston, Houston, TX,

ABSTRACT

Objective: The effects of experimental xylitol dentifrices with and without fluoride on in vitro root caries formation were evaluated using an artificial caries system.

Method: Root surfaces from caries-free permanent teeth (n=10) underwent debridement and a fluoride-free prophylaxis. The tooth roots were sectioned into quarters, and acid-resistant varnish was placed with 2 sound root surface windows exposed on each tooth quarter. Each quarter from a single tooth was assigned to a treatment group: 1) No Treatment Control; 2) Aquafresh Advanced dentifrice (1500 ppm F, GlaxoSmithKline, Township, PA 15108); 3) Experimental Xylitol Dentifrice Without Fluoride; and 4) Experimental Xylitol Dentifrice With Fluoride. Tooth root quarters were treated with fresh dentifrice twice daily (3 minutes) followed by fresh synthetic saliva rinsing over a 7 day period. Controls were exposed twice daily to fresh synthetic saliva rinsing over a 7 day period. In vitro root caries were created using an acidified gel (pH 4.25, 21 days). Longitudinal sections (3/tooth quarter, 60/group) were evaluated for mean lesion depths (water imbibition, polarized light, ANOVA, DMR).

Result: Mean lesion depths were 359 3 37 Qm for No Treatment Control Group; 280 3 28 Qm for Aquafresh Advanced dentifrice; 342 3 41 Qm for Xylitol Without Fluoride dentifrice; 261 3 34 Qm for Xylitol With Fluoride dentifrice. Aquafresh Advanced and Xylitol With Fluoride dentifrices had mean lesion depths significantly less than those for No Treatment Controls and Xylitol Without Fluoride dentifrice (P<0.05). There was little difference in mean lesion depths between Aquafresh Advanced and Xylitol With Fluoride dentifrices (P>0.05).

Conclusion: Fluoridated dentifrices provided significant reductions in in vitro root caries lesion depths compared with root surfaces not exposed to dentifrice treatment (no treatment control) or exposed to Xylitol Without Fluoride dentifrice (P<0.05). Xylitol With Fluoride dentifrice reduced lesion depth to a similar extent as a commercially available fluoride dentifrice (Aquafresh Advanced dentifrice, P>0.05).⁸

*This study will be presented at 41st Annual Scientific Meeting AADR (American Association for Dental Research) then published in a special edition of The Journal of Dental Research 2012.



Presented on 3/29/12 in Tampa, FL

Experimental Fluoride Dentifrices Containing Xylitol: *In Vitro* Root Caries Formation

F Garcia-Godoy¹, J Hicks^{2,3}, C Flaitz³, LM Kao^{4*}

¹College of Dentistry, UTHSC, Memphis, TN; ²Baylor College of Medicine, Texas Children's Hospital, Houston, TX; ³University of Texas, Houston, TX; ⁴LMKAO LLC, New York, NY

fgarciagodoy@gmail.com

ABSTRACT

Objectives: The effects of experimental xylitol dentifrices with and without fluoride on *in vitro* root caries formation were evaluated using an artificial caries system.

Methods: Root surfaces from caries-free permanent teeth (n=10) underwent debridement and a fluoride-free prophylaxis. The tooth roots were sectioned into quarters, and acid-resistant varnish was placed with 2 sound root surface windows exposed on each tooth quarter. Each quarter from a single tooth was assigned to a treatment group: 1) No Treatment Control; 2) Aquafresh Advanced Dentifrice (1500 ppm FL, GlaxoSmithKline, Township, PA 15108); 3) Experimental Xylitol Dentifrice Without Fluoride; and 4) Experimental Xylitol Dentifrice With Fluoride. Tooth root quarters were treated with fresh dentifrice twice daily (3 minutes) followed by fresh synthetic saliva rinsing over a 7 day period. Controls were exposed twice daily to fresh synthetic saliva rinsing daily over a 7 day period. *In vitro* root caries were created using an acidified gel (pH 4.25, 21 days). Longitudinal sections (3/tooth quarter, 60/group) were evaluated for mean lesion depths (water inhibition, polarized light, ANOVA, DMR).

Results: Mean lesion depths were 359 ± 37 µm for No Treatment Control Group; 280 ± 28 µm for Aquafresh Advanced Dentifrice; 342 ± 41 µm for Xylitol Without Fluoride Dentifrice; and 261 ± 34 µm for Xylitol With Fluoride Dentifrice. Aquafresh Advanced and Xylitol With Fluoride Dentifrices had mean lesion depths significantly less than those for No Treatment Controls and Xylitol Without Fluoride Dentifrice (P<0.05). There was little difference in mean lesion depths between Aquafresh Advanced and Xylitol With Fluoride Dentifrices (P>0.05).

Conclusions: Fluoridated dentifrices provided significant reductions in *in vitro* root caries lesion depths compared with root surfaces not exposed to dentifrice treatment (No Treatment Control) or exposed to Xylitol Without Fluoride Dentifrice (P<0.05). Xylitol With Fluoride Dentifrice reduced lesion depth to a similar extent as a commercially available fluoride dentifrice (Aquafresh Advanced Dentifrice, P>0.05).

PURPOSE

To evaluate the effects of experimental xylitol dentifrices with and without fluoride on *in vitro* root caries using an artificial caries system.

MATERIALS AND METHODS

Root surfaces from caries-free permanent teeth (n=10) underwent debridement and a fluoride-free prophylaxis. The tooth roots were sectioned into quarters, and acid-resistant varnish was placed with 2 sound root surface windows exposed on each tooth quarter. Each quarter from a single tooth was assigned to a treatment group: 1) No Treatment Control; 2) Aquafresh Advanced Dentifrice (1500 ppm Fluoride, GlaxoSmithKline, Township, PA 15108); 3) Experimental Xylitol Dentifrice Without Fluoride; and 4) Experimental Xylitol Dentifrice With Fluoride. Tooth root quarters were treated with fresh dentifrice twice daily (3 minutes) followed by fresh synthetic saliva rinsing over a 7 day period. Controls were exposed twice daily to fresh synthetic saliva daily rinsing over a 7 day period. *In vitro* root caries were created using an acidified gel (pH 4.25, 21 days). Longitudinal sections (3/tooth quarter, 60/group) were evaluated for mean lesion depths (water inhibition, polarized light, ANOVA, DMR).

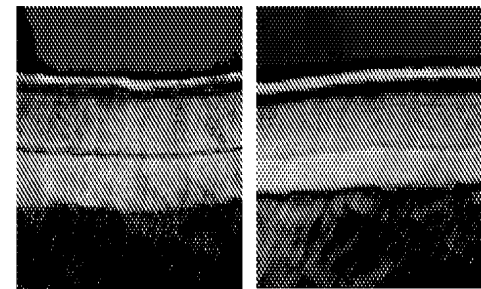
RESULTS

	Mean Lesion Depth
• No Treatment Control (n=60 caries-risk sites)	359 ± 37 µm
• Fluoridated Dentifrice (n=60 caries-risk sites)	280 ± 28 µm*
• Xylitol Experimental Dentifrice (n=60 caries-risk sites)	342 ± 41 µm
• Xylitol with Fluoride Dentifrice (n=60 caries-risk sites)	261 ± 34 µm*

* Mean Lesion Depths for Fluoridated Dentifrice and Xylitol with Fluoride Experimental Dentifrice Significantly Different Compared with No Treatment Control and Xylitol Only Experimental Dentifrice (P<0.05, ANOVA, DMR)

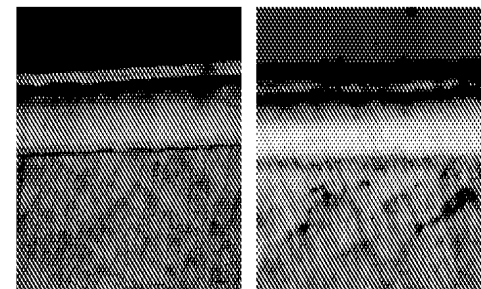
	Lesion Depth Reduction
• No Treatment Control (n=60 caries-risk sites)	
• Fluoridated Dentifrice (n=60 caries-risk sites)	22%*
• Xylitol Experimental Dentifrice (n=60 caries-risk sites)	9%
• Xylitol with Fluoride Experimental Dentifrice (n=60 caries-risk sites)	27%*

* Mean Lesion Depths for Fluoridated Dentifrice and Xylitol with Fluoride Experimental Dentifrice Significantly Different Compared with No Treatment Control and Xylitol Only Experimental Dentifrice (P<0.05, ANOVA, DMR)



No Treatment Control

Xylitol Only Toothpaste



Xylitol With Fluoride Toothpaste

Fluoride only Toothpaste

CONCLUSIONS

Fluoridated dentifrices provided significant reductions of *in vitro* root caries lesion depths compared with root surfaces not exposed to dentifrice treatment (no treatment control) or exposed to Xylitol Without Fluoride Dentifrice (P<0.05). Xylitol With Fluoride Dentifrice reduced lesion depth to a similar extent as a commercially available fluoride dentifrice (Aquafresh Advanced Dentifrice).

Electronic Patent Application Fee Transmittal

Application Number:	12418927
Filing Date:	06-Apr-2009
Title of Invention:	DENTAL CLEANING AND POLISHING COMPOSITION COMPRISING DIAMOND PARTICLES
First Named Inventor/Applicant Name:	Lisa Marie Kao
Filer:	Adam Cermak/Christopher Goode
Attorney Docket Number:	404343

Filed as Small Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Extension - 3 months with \$0 paid	2253	1	635	635

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Miscellaneous:				
Total in USD (\$)				635

Electronic Acknowledgement Receipt

EFS ID:	12748104
Application Number:	12418927
International Application Number:	
Confirmation Number:	9522
Title of Invention:	DENTAL CLEANING AND POLISHING COMPOSITION COMPRISING DIAMOND PARTICLES
First Named Inventor/Applicant Name:	Lisa Marie Kao
Customer Number:	23548
Filer:	Adam Cermak/Christopher Goode
Filer Authorized By:	Adam Cermak
Attorney Docket Number:	404343
Receipt Date:	10-MAY-2012
Filing Date:	06-APR-2009
Time Stamp:	14:01:45
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	\$635
RAM confirmation Number	341
Deposit Account	
Authorized User	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
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1		2012-05-10_Amendment_12-418927_091-001.pdf	96333 81a88c19981ab88d0bc1342c1ae6e522bc2c0058	yes	7
Multipart Description/PDF files in .zip description					
		Document Description	Start	End	
		Amendment/Req. Reconsideration-After Non-Final Reject	1	1	
		Applicant Arguments/Remarks Made in an Amendment	2	7	
Warnings:					
Information:					
2	Extension of Time	2012-05-10_EoT3_12-418927_091-001.pdf	48095 4af62125324c35f2b25681b11f28a001ec8c533b	no	1
Warnings:					
Information:					
3	Miscellaneous Incoming Letter	2012-05-10_Clinical_Study_papers_091-001.pdf	440864 d8138f0e497f358dae7a3a8cea8837f963499456	no	5
Warnings:					
Information:					
4	Miscellaneous Incoming Letter	FFG_Xylitol_Poster_AADR_2012_Revision_4_FINAL_091-001_as-filed.pdf	94153 73edd6559761c67e15beda5c69433ecb0f7edf90	no	1
Warnings:					
Information:					
5	Fee Worksheet (SB06)	fee-info.pdf	30159 a13870d5abc728c70645c007557e6ced31ec869f	no	2
Warnings:					
Information:					
Total Files Size (in bytes):			709604		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.



UNITED STATES PATENT AND TRADEMARK OFFICE

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United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/418,927	04/06/2009	Lisa Marie Kao	404343	9522
23548	7590	11/10/2011	EXAMINER	
LEYDIG VOIT & MAYER, LTD 700 THIRTEENTH ST. NW SUITE 300 WASHINGTON, DC 20005-3960			WEBB, WALTER E	
			ART UNIT	PAPER NUMBER
			1612	
			NOTIFICATION DATE	DELIVERY MODE
			11/10/2011	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

DCpatent@leydig.com
Chgpatent@leydig.com

Office Action Summary	Application No. 12/418,927	Applicant(s) KAO, LISA MARIE	
	Examiner WALTER WEBB	Art Unit 1612	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 26 October 2011.
- 2a) This action is **FINAL**.
- 2b) This action is non-final.
- 3) An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
- 4) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 5) Claim(s) 1, 3 and 5-25 is/are pending in the application.
- 5a) Of the above claim(s) 7, 11-19, 21 and 22 is/are withdrawn from consideration.
- 6) Claim(s) _____ is/are allowed.
- 7) Claim(s) 1, 3, 5, 6, 8-10, 20 and 23-25 is/are rejected.
- 8) Claim(s) _____ is/are objected to.
- 9) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 10) The specification is objected to by the Examiner.
- 11) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 12) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
- 5) Notice of Informal Patent Application
- 6) Other: _____.

Art Unit: 1612

DETAILED ACTION***Election/Restrictions***

Applicant's election without traverse of Group I, claims 1, 3, 5-20 and 23-25, in the reply filed on 10/26/2011 is acknowledged. In regard to the elections of species, applicant elects glycerin and sorbitol as the humectant, xanthan gum as binder, hydrated silica as abrasive, sorbitol and peppermint as flavoring agent, titanium dioxide as colorant, fluoride and xylitol as anti-caries agent, citric acid as pH modifier, triclosan as anti-microbial agent, xylitol as anti-plaque agent, cocamidopropyl betain as thickener, gum tragacanth as gum, a mixture of mentha piperita, salvia officinalis, chamomilla recutita flower as plant extract, polyethylene glycol as foam modulator, hydrated silica as whitening agent, potassium nitrate as desensitizing agent, hydrated silica as tartar control agent.

Claims 7, 11-19, 21 and 22 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim.

Claim Rejections - 35 USC § 102--New

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Art Unit: 1612

Claims 1, 5 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Lowder et al., (US 5,094,839).

Lowder et al. teaches a polishing composition comprising **diamond particles**, **glycerine (orally acceptable vehicle)** as a **humectant** and a mixture of **gum tragacanth (binder; claim 5)** and agar (**plant extract; claim 8**) (see col. 2, lines 33-36, and lines 51-55). The reference teaches using 0.5 carat (0.1g) of diamond particles (see col. 6, lines 67-68), which amounts to 0.08% according to Example 1 (total weight in grams equal 118.7738; see col. 8). The particle size of the diamond particles tested for polishing were **0.25 micron** (μm), and 5 micron, as per claim 1(a) (see col. 9, lines 21-34). Other suitable particle sizes include sizes within the range of 0 to 0.5 microns (claim 20) (see col. 9, lines 35-41).

The reference is anticipatory insofar as it teaches 0.08% of diamond particles having a particle size within the range of 0.05 μm to about 5 μm , an orally acceptable vehicle, a humectant and a binder.

Claim Rejections - 35 USC § 103--New

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 1612

1) Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lowder et al. (*supra*) as applied to claims 1, 5 and 8 above.

Lowder et al. differs from claim 20 insofar as it does not teach where the diamond particles constitute about 0.01 to about 0.02 percent by weight of the composition, and have a size range of about 0.03 μm to about 0.07 μm in diameter.

Lowder et al. teaches, "The specific amount and particle size of the abrasive may vary depending upon the nature of the surface finish desired" (col. 6, lines 64-66). Lowder also teaches other suitable particle sizes include sizes within the range of 0 to 0.5 microns (claim 20) (see col. 9, lines 35-41).

Since Lowder et al. recognized the adjusting the amount and particle size of the diamond particles based on the nature and surface finish desired, it would have been obvious to adjust the components within the ranges instantly claimed, i.e. about 0.01 to about 0.02 percent by weight and about 0.03 μm to about 0.07 μm in diameter, since this is simply a matter of determining result effective amounts of the diamond particles beneficially taught by Lowder et al. Accordingly, this type of modification would have been well within the purview of the skilled artisan and no more than an effort to optimize results.

2) Claims 1, 3, 5, 6, 8-10, 20 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sung et al., (US 2005/0220829).

Sung et al. teaches healthcare and cosmetic compositions, including toothpaste, comprising nanodiamonds (see Abstract). The compositions include nanodiamonds in

Art Unit: 1612

amounts of from about 1 wt% to about 80 wt% of the composition, having a particle size of from about 0.5 nm to about 50 nm (about 0.005 μ m to about 0.05 μ m), as per **claim 1(a) and claim 20** (see pg. 2, paragraph [0013]). Healthcare composition include **humectants/orally acceptable vehicle** insofar as they comprise **glycerin (claim 3)**, a **binder** insofar as they comprise **carrageenan (claim 5)** (see pg. 5, paragraph [0050]). Health care compositions also include an **abrasive agent (claim 6)** insofar as they comprise "silicas (e.g. amorphous, hydrated, etc.), **sodium fluoride (claim 24** and claim 25), herbal supplements (**plant extract (claims 8, 9)** and **thickeners (claim 10)** (see Id.).

Sung et al. does not teach the specific ranges of particle size and amount for the diamond particles (claim 1) or the ranges for the amounts for the humectants, plant extract, binder and abrasive (claim 9).

Generally, in the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a *prima facie* case of obviousness exists (MPEP 2144.05).

Here a prima facie case of obviousness exists in regard to the diamond particles, since Sung et al. teaches an amount from about 1 wt% to about 80 wt% and a particle size of about 0.005 μ m to about 0.05 μ m for the diamond particles, which overlaps with the claimed ranges of 0.0001% to about 1.0% and about 0.05 μ m to about 5.0 μ m.

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"[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation" (see MPEP 2144.05 IIA quoting *In re Aller*, 220 F.2d 454, 456 (105 USPQ 233)).

Since Sung et al. recognized the use of humectants, plant extracts, binders, abrasives, as sodium fluoride for its health care compositions; it would have been obvious to adjust the components within the broad ranges instantly claimed since this is simply a matter of determining result effective amounts of the ingredients beneficially taught by Sung et al. Accordingly, this type of modification would have been well within the purview of the skilled artisan and no more than an effort to optimize results.

3) Claims 23 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sung et al., (*supra*) as applied to claims 1, 3, 5, 6, 8-10, 20 and 24 above, and further in view of Jensen et al., (US 2005/0084551).

Sung et al. differs from claims 23 and 25 insofar as it does not teach xylitol.

Jensen et al. teaches compositions for treating mouth disorders comprising **xylitol** as a sweetening agent where, sweetening agents may be present in amounts of 1% to about 5% of the composition as per claims 23 and 25 (see pg. 4, paragraph [0046] and pg. 11, paragraph [0101]).

It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to add the xylitol to the compositions of Sung et al., since the compositions of Sung et al. include flavors, and xylitol may be used as a sweetener, as taught by Jensen et al. The artisan would have been motivated to add a sweetening

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agent, such as xylitol, to the composition of Sung et al. to make the oral compositions more palatable.

Response to Affidavit

The declaration showing the claimed invention was filed prior to November 16, 2007 in an effort to antedate US Patent Publication No. 2009/0130031 is acknowledged. It should be noted that that reference is not being relied on here.

Conclusion

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter E. Webb whose telephone number is (571) 270-3287. The examiner can normally be reached on 8:00am-4:00pm Mon-Fri EST.

Art Unit: 1612

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frederick F. Krass can be reached (571) 272-0580. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Walter E. Webb
/Walter E Webb/
Examiner, Art Unit 1612

Notice of References Cited	Application/Control No. 12/418,927	Applicant(s)/Patent Under Reexamination KAO, LISA MARIE	
	Examiner WALTER WEBB	Art Unit 1612	Page 1 of 1

U.S. PATENT DOCUMENTS

*	Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A US-5,094,839	03-1992	Lowder et al.	424/49
*	B US-2005/0084551	04-2005	Jensen et al.	424/769
*	C US-2005/0220829	10-2005	Sung et al.	424/401
	D US-			
	E US-			
	F US-			
	G US-			
	H US-			
	I US-			
	J US-			
	K US-			
	L US-			
	M US-			

FOREIGN PATENT DOCUMENTS

*	Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N				
	O				
	P				
	Q				
	R				
	S				
	T				

NON-PATENT DOCUMENTS

*	Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)				
	U				
	V				
	W				
	X				

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

EAST Search History

EAST Search History (Prior Art)


Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L16	241	xanthan gum and peppermint and titanium dioxide and sodium fluoride and citric acid and triclosan and xylitol and tragacanth and polyethylene glycol	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2011/11/03 12:37
L17	204	l16 and sage	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2011/11/03 12:38
L18	13649	chamomilla or camomile or chamomile or matricaria	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2011/11/03 12:39
L19	74	l17 and l18	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2011/11/03 12:39
S1	0	"20090130031"	USPAT	OR	OFF	2011/09/15 12:02
S2	1	"20090130031"	US-PGPUB; USPAT	OR	OFF	2011/09/15 12:03
S3	1	("4021263").PN.	USPAT; USOCR	OR	OFF	2011/09/15 12:07
S4	769	diamond dust	USPAT	NEAR	ON	2011/09/15 12:18
S5	245137	dental or dentifrice or oral care or oral hygiene or oral composition or toothpaste or mouthwash or oral rinse or oral wash or mouth rinse or mouth wash	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2011/09/15 12:19
S6	39	S4 and S5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2011/09/15 12:20
S7	38	S4 and dental	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2011/09/15 12:22
S8	298137	diamond dust or diamond	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2011/09/15 12:23

S9	8055	S8 and S5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2011/09/15 12:23
S10	1109019	gum or cellulose or pectin or polyvinyl alcohol or chondroitin sulfate or maleic anhydride	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2011/09/15 12:27
S11	579611	glycerin or glycerol or glycerine or sorbitol or propylene glycol for polyethylene glycol or xylitol or maltitol or lactitol or trehalose	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2011/09/15 12:29
S12	2804	S10 and S11 and S9	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2011/09/15 12:30
S13	5	S12 and diamond dust	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2011/09/15 12:30
S14	1	("5094839").PN.	USPAT; USOCR	OR	OFF	2011/09/15 12:33
S15	2386	diamond dust	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	WITH	ON	2011/09/15 13:17
S16	62	S15 and S10 and S11	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	WITH	ON	2011/09/15 13:17
S17	1768	diamond dust	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2011/09/15 13:45
S18	46	S17 and S10 and S11	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	WITH	ON	2011/09/15 13:45
S19	0	diamond particle size	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	WITH	ON	2011/11/02 12:53
S20	4863	diamond particle size	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	WITH	ON	2011/11/02 12:54
S21	845379	glycerin or glycerol or glycerine or sorbitol or propylene glycol or	US-PGPUB; USPAT; USOCR;	ADJ	ON	2011/11/02 12:54

		polyethylene glycol or xylitol or maltitol or lactitol or trehalose	FPRS; EPO; JPO; DERWENT; IBM_TDB			
S22	607	S20 and S21	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2011/11/02 12:54
S23	607	S22 and diamond	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2011/11/02 12:55
S24	1124474	gum or cellulose or pectin or polyvinyl alcohol or chondroitin sulfate or maleic anhydride or sodium alginate	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2011/11/02 12:55
S25	395	S23 and S24	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2011/11/02 12:55
S26	385	S25 and particle size	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2011/11/02 12:58
S27	1	("4021263").PN.	USPAT; USOCR	OR	OFF	2011/11/03 10:25
S28	1	("5188820").PN.	USPAT; USOCR	OR	OFF	2011/11/03 10:31
S29	1	("6020395").PN.	USPAT; USOCR	OR	OFF	2011/11/03 12:18
S30	1	("6121344").PN.	USPAT; USOCR	OR	OFF	2011/11/03 12:19
S31	1	("6593395").PN.	USPAT; USOCR	OR	OFF	2011/11/03 12:19
S32	1	("4414199").PN.	USPAT; USOCR	OR	OFF	2011/11/03 12:20
S33	1	("6117415").PN.	USPAT; USOCR	OR	OFF	2011/11/03 12:20
S34	1	("6123925").PN.	USPAT; USOCR	OR	OFF	2011/11/03 12:20

11/ 3/ 2011 1:11:16 PM

C:\Users\wwebb\Documents\EAST\Workspaces\12418927_dimond dust dentifrice.wsp

Search Notes 	Application/Control No. 12418927	Applicant(s)/Patent Under Reexamination KAO, LISA MARIE
	Examiner Walter Webb	Art Unit 1612

SEARCHED			
Class	Subclass	Date	Examiner
400			
106			
424			
424	49, 401, 769	11/3/2011	WW

SEARCH NOTES		
Search Notes	Date	Examiner
East, Google		
Inventor Name Search on PALM	11/3/2011	WW
EAST Search History	11/3/2011	WW
NPL Search Terms: diamond particles, diamond dust, nanodiamonds	11/3/2011	WW

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner

/RYAN SMITH/ Examiner.Art Unit 1612	
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 Alexandria, Virginia 22313-1450
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BIB DATA SHEET

CONFIRMATION NO. 9522

SERIAL NUMBER 12/418,927	FILING or 371(c) DATE 04/06/2009	CLASS 424	GROUP ART UNIT 1612	ATTORNEY DOCKET NO. 404343		
APPLICANTS Lisa Marie Kao, Miami Beach, FL;						
** CONTINUING DATA *****						
** FOREIGN APPLICATIONS *****						
** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** ** SMALL ENTITY ** 05/13/2009						
Foreign Priority claimed <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	35 USC 119(a-d) conditions met <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Met after Allowance Initials	STATE OR COUNTRY FL	SHEETS DRAWINGS 0	TOTAL CLAIMS 22	INDEPENDENT CLAIMS 3
Verified and Acknowledged /WALTER E WEBB/ Examiner's Signature						
ADDRESS LEYDIG VOIT & MAYER, LTD 700 THIRTEENTH ST. NW SUITE 300 WASHINGTON, DC 20005-3960 UNITED STATES						
TITLE DENTAL CLEANING AND POLISHING COMPOSITION COMPRISING DIAMOND PARTICLES						
FILING FEE RECEIVED 514	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:		<input type="checkbox"/> All Fees <input type="checkbox"/> 1.16 Fees (Filing) <input type="checkbox"/> 1.17 Fees (Processing Ext. of time) <input type="checkbox"/> 1.18 Fees (Issue) <input type="checkbox"/> Other _____ <input type="checkbox"/> Credit			

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent Application No. 12/418,927

Confirmation No.: 9522

Applicant(s): Lisa Marie KAO

Filed: April 6, 2009

TC/AU: 1612

Examiner: Smith, Ryan C.

Docket No.: 404343

Customer No.: 23548

Commissioner for Patents
U.S. Patent and Trademark Office
Randolph Building
401 Dulany Street
Alexandria, VA 22314

REPLY TO RESTRICTION REQUIREMENT

Sir:

In reply to the Office Action dated September 27, 2011, please consider the following amendments and remarks.

Remarks/Arguments begin on page 2 of this paper.

*REMARKS/ARGUMENTS**The Pending Claims*

Claims 1, 3 and 5-25 are currently pending. Claims 2 and 4 have been cancelled.

The Restriction Requirement

In response to Applicant's previous Reply, the Examiner has issued a Restriction Requirement in the present application. The Examiner has indicated restriction is required between the following Groups:

Group I, claims 1, 3, 5-20 and 23-25, drawn to a composition, classified in class 106, subclass 400; and

Group II, claims 21 and 22, drawn to a method of cleaning or polishing a dental surface, classified in class 433, subclass 216.

Applicant elects Group I without traverse.

The Examiner indicated that claim 1 of Group I was considered to be a generic claim. As such, Applicant is required to make an election of certain species identified by the Examiner in the Restriction Requirement. Applicant's election of the selected species is found in the table below.

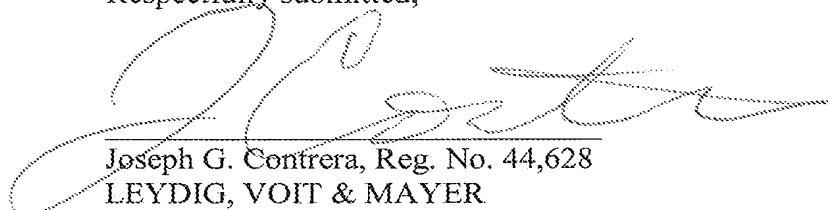
<u>Species</u>	<u>Applicant's election</u>
Dentifrice or Polish	Dentifrice
Humectant	Glycerin & sorbitol
Binder	Xanthan gum
Abrasive agent	Hydrated silica
Flavoring agent	sorbitol & peppermint extract
Colorant	white- titanium dioxide

Anti-caries agent	fluoride & xylitol
pH modifier	Citric acid
Anti-microbial agent	triclosan
Anti-plaque agent	xylitol
Thickener	cocamidopropyl betaine
Gum	gum tragacanth
Plant extract	A mixture of mentha piperita (peppermint) leaf extract, salvia officinalis (sage) leaf extract, chamomilla recutita (matricaria) flower
Foam modulator	polyethylene glycol
Whitening agent	Hydrated silica
Desensitizing agent	potassium nitrate
Tartar control agent	Hydrated silica

Conclusion

Applicants respectfully submit that the patent application is in condition for allowance. If, in the opinion of the Examiner, a telephone conference would expedite the prosecution of the subject application, the Examiner is invited to call the undersigned agent.

Respectfully submitted,



Joseph G. Contrera, Reg. No. 44,628
LEYDIG, VOIT & MAYER

700 Thirteenth Street, N.W., Suite 300
Washington, DC 20005-3960
(202) 737-6770 (telephone)
(202) 737-6776 (facsimile)

Date: October 26, 2011

JGC/bh

J:\Myntsmile LLC\404343 Reply to RR.doc

Electronic Acknowledgement Receipt

EFS ID:	11269897
Application Number:	12418927
International Application Number:	
Confirmation Number:	9522
Title of Invention:	DENTAL CLEANING AND POLISHING COMPOSITION COMPRISING DIAMOND PARTICLES
First Named Inventor/Applicant Name:	Lisa Marie Kao
Customer Number:	23548
Filer:	Joseph Contrera/Judith Norton
Filer Authorized By:	Joseph Contrera
Attorney Docket Number:	404343
Receipt Date:	26-OCT-2011
Filing Date:	06-APR-2009
Time Stamp:	14:33:58
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		404343_ResponseRR.pdf	1598027 <small>a4164ab3b58f128b5ec1572f2fbfa451b4185b1</small>	yes	5

Multipart Description/PDF files in .zip description			
Document Description	Start	End	
Transmittal Letter	1	1	
Response to Election / Restriction Filed	2	2	
Applicant Arguments/Remarks Made in an Amendment	3	5	

Warnings:

Information:

Total Files Size (in bytes):	1598027
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This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

In re Application of: Lisa Marie KAO
Application No. 12/418,927
Filed: April 6, 2009

U.S. Patent and Trademark Office
Randolph Building
Customer Service Window, Mail Stop Amendment
401 Dulany Street
Alexandria, VA 22314


Sir:

- Small entity status is claimed for this application under 37 CFR 1.27.
- Petition for an extension of time for the period noted below, as well as for any additional period necessary to render the present submission timely. Please charge Deposit Account No. 12-1216 for the appropriate petition fee.
- Other:
- Please charge Deposit Account No. 12-1216 in the total amount indicated below.

					SMALL ENTITY		OTHER THAN A SMALL ENTITY	
TIME EXTENSION PETITION FEE			none		\$ 0.00		\$ 0.00	
subtract time extension fee previously paid			none		(\$ 0.00)		(\$ 0.00)	
CLAIM FEE	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	EXTRA CLAIMS PRESENT	RATE	ADD'L CLAIM FEE	RATE	ADD'L CLAIM FEE
TOTAL	23	MINUS	25	= 0	x 30 =	\$	x 60 =	\$0.00
INDEPENDENT	3	MINUS	3	= 0	x 125 =	\$	x 250 =	\$0.00
<input type="checkbox"/>	FIRST PRESENTATION OF MULTIPLE CLAIM				+ 225 =	\$	+ 450 =	\$0.00
OTHER FEES AS DESCRIBED:					\$		\$0.00	
TOTAL AMOUNT TO BE CHARGED TO DEPOSIT ACCOUNT					TOTAL	\$	TOTAL	\$0.00

- The Commissioner is hereby authorized to charge any deficiencies in the following fees associated with this communication or credit any overpayment to Deposit Account No. 12-1216.
 - Any filing fees under 37 CFR 1.16 for the presentation of extra claims.
 - Any patent application processing fees under 37 CFR 1.17.

Respectfully submitted,



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(202) 737-6776 (facsimile)

Date: October 26, 2011



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/418,927	04/06/2009	Lisa Marie Kao	404343	9522
23548	7590	09/27/2011	EXAMINER	
LEYDIG VOIT & MAYER, LTD 700 THIRTEENTH ST. NW SUITE 300 WASHINGTON, DC 20005-3960			WEBB, WALTER E	
			ART UNIT	PAPER NUMBER
			1612	
			NOTIFICATION DATE	DELIVERY MODE
			09/27/2011	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

DCpatent@leydig.com
Chgpatent@leydig.com

Art Unit: 1612

DETAILED ACTION

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1, 3, 5-20 and 23-25, drawn to a composition, classified in class 106, subclass 400.
- II. Claims 21-22, drawn to a method of cleaning or polishing a dental surface, classified in class 433, subclass 216.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product. See MPEP § 806.05(h). In the instant case the product as claimed can be used in a materially different process, i.e. a process for treating signs of aging and/or stress.

Restriction for examination purposes as indicated is proper because all these inventions listed in this action are independent or distinct for the reasons given above

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and there would be a serious search and examination burden if restriction were not required because one or more of the following reasons apply:

- (a) the inventions have acquired a separate status in the art in view of their different classification;
- (b) the inventions have acquired a separate status in the art due to their recognized divergent subject matter;
- (c) the inventions require a different field of search (for example, searching different classes/subclasses or electronic resources, or employing different search queries);
- (d) the prior art applicable to one invention would not likely be applicable to another invention;
- (e) the inventions are likely to raise different non-prior art issues under 35 U.S.C. 101 and/or 35 U.S.C. 112, first paragraph.

Applicant is advised that the reply to this requirement to be complete must include (i) an election of a invention to be examined even though the requirement may be traversed (37 CFR 1.143) **and (ii) identification of the claims encompassing the elected invention.**

The election of an invention may be made with or without traverse. To reserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse. Traversal must be presented at the time of election in order to be considered timely. Failure to timely traverse the requirement

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will result in the loss of right to petition under 37 CFR 1.144. If claims are added after the election, applicant must indicate which of these claims are readable on the elected invention.

If claims are added after the election, applicant must indicate which of these claims are readable upon the elected invention.

Should applicant traverse on the ground that the inventions are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the inventions to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Rejoinder Advisory

The examiner has required restriction between product and process claims. Where applicant elects claims directed to the product, and the product claims are subsequently found allowable, withdrawn process claims that depend from or otherwise require all the limitations of the allowable product claim will be considered for rejoinder.

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All claims directed to a nonelected process invention must require all the limitations of an allowable product claim for that process invention to be rejoined.

In the event of rejoinder, the requirement for restriction between the product claims and the rejoined process claims will be withdrawn, and the rejoined process claims will be fully examined for patentability in accordance with 37 CFR 1.104. Thus, to be allowable, the rejoined claims must meet all criteria for patentability including the requirements of 35 U.S.C. 101, 102, 103 and 112. Until all claims to the elected product are found allowable, an otherwise proper restriction requirement between product claims and process claims may be maintained. Withdrawn process claims that are not commensurate in scope with an allowable product claim will not be rejoined. See MPEP § 821.04(b). Additionally, in order to retain the right to rejoinder in accordance with the above policy, applicant is advised that the process claims should be amended during prosecution to require the limitations of the product claims. **Failure to do so may result in a loss of the right to rejoinder.** Further, note that the prohibition against double patenting rejections of 35 U.S.C. 121 does not apply where the restriction requirement is withdrawn by the examiner before the patent issues. See MPEP § 804.01.

Election of Species

Claim(s) 1 is/are generic to the following disclosed patentably distinct species: dentifrice or polish compositions. Each addition to the chemical composition represents a different chemical entity and reasonably exhibits different characteristics. The species

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are independent or distinct because claims to the different species recite the mutually exclusive characteristics of such species. In addition, these species are not obvious variants of each other based on the current record.

Applicant is required to elect for purposes of examination the following:

- a) a single specific disclosed species of a humectant, e.g. glycerin
- b) a single specific disclosed species of a binder e.g. xanthan gum.

Applicant is also required to elect **one or more** of a specific disclosed species of an abrasive agent (e.g. precipitated silica), a flavoring agent (e.g. vanillin), a colorant (e.g. talc), an anti-caries agent (e.g. sodium fluoride), a pH modifying agent (e.g. boric acid), antimicrobial agents (e.g. triclosan), anti-plaque agents (e.g. xylitol), thickener (e.g. carboxymethylcellulose), gums (e.g. gum Arabic), plant extract (licorice), foam modulators (e.g. sodium lauryl sulfate), whitening agent (e.g. calcium peroxide), desensitizing agent (e.g. potassium nitrate), tartar control agent (e.g. zinc citrate).

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, claim 1 is generic.

The species are independent or distinct because claims to the different species recite the mutually exclusive characteristics of such species. In addition, these species are not obvious variants of each other based on the current record.

Art Unit: 1612

There is an examination and search burden for these patentably distinct species due to their mutually exclusive characteristics. The species require a different field of search (e.g., searching different classes/subclasses or electronic resources, or employing different search queries); and/or the prior art applicable to one species would not likely be applicable to another species; and/or the species are likely to raise different non-prior art issues under 35 U.S.C. 101 and/or 35 U.S.C. 112, first paragraph.

Applicant is advised that the reply to this requirement to be complete must include (i) an election of a species to be examined even though the requirement may be traversed (37 CFR 1.143) **and (ii) identification of the claims encompassing the elected species**, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

The election of the species may be made with or without traverse. To preserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the election of species requirement, the election shall be treated as an election without traverse. Traversal must be presented at the time of election in order to be considered timely. Failure to timely traverse the requirement will result in the loss of right to petition under 37 CFR 1.144. If claims are added after the election, applicant must indicate which of these claims are readable on the elected species.

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record

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showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the species unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other species.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which depend from or otherwise require all the limitations of an allowable generic claim as provided by 37 CFR 1.141.

Conclusion

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter E. Webb whose telephone number is (571) 270-3287. The examiner can normally be reached on 8:00am-4:00pm Mon-Fri EST.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frederick F. Krass can be reached (571) 272-0580. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Walter E. Webb
Patent Examiner
AU 1612
/Walter E Webb/

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent Application No. 12/418,927

Confirmation No.: 9522

Applicant(s): Lisa Marie KAO

Filed: April 6, 2009

TC/AU: 1612

Examiner: Smith, Ryan C.

Docket No.: 404343

Customer No.: 23548

Commissioner for Patents
U.S. Patent and Trademark Office
Randolph Building
401 Dulany Street
Alexandria, VA 22314

REPLY TO OFFICE ACTION

Sir:

In reply to the Office Action dated January 18, 2010, please consider the following amendments and remarks.

Amendments to the claims begin on page 2 of this paper.

Remarks/Arguments begin on page 7 of this paper.

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions, and listings, of claims in the application.

1. (Currently amended) A dentifrice or polish composition ~~effective for whitening teeth having porcelain surfaces suitable for application to teeth in the oral cavity comprising~~ consisting essentially of:

(a) 0.001% to about 1.0% of the total composition by weight of diamond particles in a size range of about 0.05 μm to about 5.0 μm in diameter; ~~and~~

(b) an orally acceptable vehicle;

(c) a humectant; and

(d) a binder;

wherein the composition is effective for whitening teeth having porcelain surfaces and suitable for application to teeth in the oral cavity.

2. (Cancelled).

3. (Currently amended) The dentifrice or polish of claim ~~2~~ 1, wherein the humectant is selected from the group consisting of: glycerin, sorbitol, propylene glycol, polyethylene glycol, xylitol, maltitol, lactitol and trehalose, in a concentration of about 30% to 70% by weight of the composition.

4. (Cancelled).

5. (Currently amended) The dentifrice or polish composition of claim ~~4~~ 1, wherein the binder is selected from the group consisting of: xanthan gum and other gums, sodium alginate, sodium carboxymethylcellulose, carrageenan, xanthan gum, sodium polyacrylate, hydroxyethyl cellulose, hydroxypropyl cellulose, pectin, tragacanth gum, arabic gum, guar gum, karaya gum, locust bean gum, gellan gum, tamarind gum, Psyllium seed gum, polyvinyl alcohol, sodium chondroitin sulfate, and methoxyethylene-maleic anhydride copolymer.

6. (Currently amended) The dentifrice or polish composition of claim 1, wherein said composition further comprises an abrasive agent.

7. (Currently amended) The dentifrice or polish composition of claim 6, wherein the abrasive agent is selected from the group consisting of: precipitated silica, silica gel, aluminosilicate and zirconosilicate, secondary calcium phosphate dihydrate or anhydrate, calcium pyrophosphate, calcium carbonate, alumina, aluminum hydroxide, magnesium acetate, tertiary magnesium phosphate, zeolite and synthetic resin abrasives.

8. (Original) The dentifrice or polish composition of claim 1, further comprising one or more of a flavoring agent, a colorant, an anti-caries agent, a pH modifying agent, plant extracts, antimicrobial agents, anti-plaque agents, thickeners, gums and foam modulators.

9. (Currently amended) A dentifrice or polish composition effective for whitening teeth having porcelain surfaces suitable for application to teeth in the oral cavity having the following composition: diamond particles having a size range of about 0.1 μm to about 0.5 μm and comprising between about 0.002% to about 0.05% of the total composition by weight; a humectant in a concentration of about 5 to about 70% by weight of the composition; a plant extract in a concentration of about 0.1% to about 5% by weight of the composition; a binder in a concentration of about 0.1% to about 10% by weight of the composition; an abrasive agent in a concentration of about 15% to about 30% by weight of the composition.

10. (Original) The dentifrice or polish composition of claim 9, further comprising one or more of a flavoring agent, a colorant, an anti-caries agent, a pH modifying agent, antimicrobial agents, anti-plaque agents, thickeners, gums and foam modulators.

11. (Currently amended) A dentifrice or polish effective for whitening teeth having porcelain surfaces suitable for application to teeth in the oral cavity having the following composition:

Ingredient	Percent by weight (wt %)
Xanthan gum	1.00
Sorbitol	20.00
Glycerin	21.00
Plant extract (chamomile flower extract, sage leaf extract, peppermint leaf extract)	0.50
Xylitol	0.20
Sodium monofluorophosphate <u>or sodium fluoride (USP)</u>	0.70
Silica-Sident 9 (Degussa) μm	6.00
Silica-Sident 22 S (Degussa) μm	13.00
TiO ₂ (Titanium Dioxide)	1.00
Diamond Powder MSY (<u>monocrystalline synthetic diamond</u>) 0.5 μ	0.01
Cocamidopropyl Betaine	2.00
Aloe vera oil gel	0.10
Aroma Peppermint	1.00

and said composition including the remainder as water up to 100 % by weight.

12. (Original) The dentifrice or polish composition of claim 11, wherein said composition further comprises a whitening agent.

13. (Original) The dentifrice or polish composition of claim 12, wherein said whitening agent comprises about 5 % by weight of Na₂HCO₃.

14. (Original) The dentifrice or polish composition of claim 11, wherein said composition further comprising a desensitizing agent.

15. (Original) The dentifrice or polish composition of claim 14, wherein said desensitizing agent comprises about 5 % by weight of potassium nitrite.

16. (Original) The dentifrice or polish composition of claim 11, wherein said composition further comprises a tartar control agent.
17. (Original) The dentifrice or polish composition of claim 16, wherein said tartar control agent comprises about 0.5 % by weight of zinc citrate.
18. (Original) The dentifrice or polish composition of claim 11, wherein said composition further comprises an antiplaque agent.
19. (Original) The dentifrice or polish composition of claim 18, wherein said tartar control agent comprises about 0.5 % by weight of xylitol.
20. (Original) The dentifrice or polish composition of claim 1, wherein the diamond particles constitute about 0.01 to about 0.02 percent by weight of the composition, and have a size range of about 0.03 μm to about 0.07 μm in diameter.
21. (Currently amended) A method of cleaning or polishing a dental surface, wherein said method comprises the steps of applying the dentifrice or polish composition of claim 1 to a dental surface, and brushing said dental surface with said composition for a therapeutically effective period of time.
22. (Currently amended) A method of cleaning or polishing an older dental surface, wherein said method comprises the steps of applying the dentifrice or polish composition of claim 1 to a dental surface, and brushing said dental surface with said composition for a therapeutically effective period of time.
23. (New) The dentifrice or polish composition of claim 9, wherein said composition further comprises 0.5 to 5.0% by weight of xylitol.
24. (New) The dentifrice or polish composition of claim 9, wherein said composition further comprises about 0.1 to 2.0 % by weight of sodium monofluorophosphate or sodium fluoride (USP).

25. (New) The dentifrice or polish composition of claim 9, wherein said composition further comprises about 0.5 to 5.0% by weight of xylitol and about 0.1 to 2.0 % by weight of sodium monofluorophosphate or sodium fluoride (USP).

*REMARKS/ARGUMENTS**The Pending Claims*

Claims 1-22 are currently pending. Claims 2 and 4 have been cancelled. Claims 1, 3, 5-7, 9, 11, 21 and 22 are amended. Claims 23-25 are newly presented. No new matter has been added by these amendments.

The Rule 131 Declaration

Applicant has submitted herewith, a Rule 131 Declaration indicating that Applicant conceived and/or reduced to practice the claimed invention prior to the earliest effective filing date of the Herman (U.S. Patent Publication No. 2009/0130031) reference. Evidence in support of the Declaration is attached as Attachment A.

The Claim Amendments

Claim 1 was amended to clarify and refine that which Applicant considers to be the invention. In particular, claim 1 was amended to recite that the dentifrice or polish was a composition, and that the composition consisted essentially of the diamond particles, an orally acceptable vehicle, a humectant; and a binder; and wherein the composition is effective for whitening teeth having porcelain surfaces and suitable for application to teeth in the oral cavity.

Support for the amendments to claim 1 can be found throughout the specification, including, for example, paragraphs [0019]-[0029] and [0052]-[0054].

Claim 11 was amended by deletion of certain trademark names and examples of plant extracts. Claim 11 was also amended by insertion of the definition of MSY as meaning monocrystalline synthetic diamond powder. Finally, claim 11 was amended by addition of the term "or sodium fluoride" in addition to the sodium monofluorophosphate term. The amendments are fully supported by the specification including, for example, paragraphs [0012] and [0044].

Newly added claims 23-25 are dependent from claim 9, and provide that the composition of claim 9 can also include xylitol and/or sodium monofluorophosphate

in a defined range. These claims are fully supported in the specification, and therefore, no new matter has been added by these amendments.

The Office Action

Claims 11-19 were objected to for informalities. Claims 11-19 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite. Claims 1-3, 6-7, and 21-22 were rejected under 35 U.S.C. §102(b) as anticipated by Rosenblum (U.S. 4,021,263). Claims 1-8, and 21-22 were rejected under 35 U.S.C. §102(e) as anticipated by Herman. Claim 8 was rejected under 35 U.S.C. §103(a) as obvious over Rosenblum. Claims 9-10, and 20 were rejected under 35 U.S.C. §103(a) as obvious over Herman. Claims 11-19 were rejected under 35 U.S.C. §103(a) as obvious over Herman, in view of Boyd et al. (U.S. Patent Publication No. 2007/0140985) and in view of Gomi et al. (U.S. 4,649,044).

The Claim Objections

Claims 11-19 were objected to because the term “Diamond powder MSY 0.5 μ was not adequately explained. Applicants submit the term MSY is a standard term in the diamond arts meaning a synthetic monocrystalline diamond powder of approximately 0.5 μ m in diameter. Applicant has submitted a copy of a web page from Microdiamant AG which shows the common types of diamond powder, including MSY (Attachment B). Claim 11 was amended to recite “monocrystalline diamond powder.”

Rejections Under 35 U.S.C. § 112, second paragraph

The Examiner objected to claim 11 because the claim recites plant extract and then includes “(chamomile flower extract, sage leaf extract, peppermint leaf extract).” The Examiner considers this indefinite because it is not clear whether each or only one or more of the named extracts are included, or whether the list is an example of possible extracts. Applicant has amended claim 11 by deleting the parenthetical expression. Any plant extract may be added to the claimed composition.

The Examiner stated that the term “Aroma powermint” was not adequately described in claims 11-19. Applicant has deleted the term “powermint” from claim 11. The claim now describes that an aroma is part of the composition.

The Examiner objected to the presence of terms “Sident 9” and “Sident 22” in claim 11 as being trademarks, and are indefinite. Applicant has deleted the term “Sident” and inserted “ μm ” to indicate that the silica particles used in the composition are 9 and 22 μm in diameter.

Applicant has amended the claims accordingly and respectfully request withdrawal of these rejections as moot.

Rejections Under 35 U.S.C. § 102(b)

Claims 1-3, 6-7, and 21-22 were rejected under 35 U.S.C. §102(b), as anticipated by Rosenblum (U.S. 4,021,263). The Examiner alleges that Rosenblum teaches a composition having 0.5% by weight of diamond particles and are 0.25 μm in diameter. The Examiner states that Rosenblum also teaches polyethylene glycol 400, and that it is an orally acceptable carrier. Applicant respectfully traverses this rejection.

Applicant submits that Rosenblum teaches a composition comprising alumina powder and diamond powder. Furthermore, the composition is formulated for use on highly filled resin bonding restorations and non-precious metal dental constructions, and does not teach that it is effective for use on porcelain veneers and can be used orally on natural teeth surfaces. It is clear from the specification of Rosenblum, that the polish composition is not formulated for oral use, but rather is a composition used by dentists in the office where the restorations are polished at the bench, prior to insertion into the mouth of the patient. At column 3, lines 29-33, Rosenblum states that the preferred tool for polishing a highly filled resin bonded restoration or non precious metal dental construction is a felt wheel or tip. These polishing tools are well known in the dental arts, and are used at the bench, not in the mouth of a patient.

Applicant has amended claim 1, by inserting the transitional phrase “consisting essentially of” and including the features of a humectant and a binder in the claimed composition. Claim 1 was also rewritten to include the feature that the

composition is effective for whitening teeth having porcelain surfaces and suitable for application to teeth in the oral cavity. Rosenblum does not teach all of the elements of claim 1, as now amended, and therefore cannot anticipate claim 1. Claims 2 and 4 are now incorporated into claim 1, and have been cancelled. In view of Applicant's amendments, Applicant requests withdrawal of this rejection as moot.

Claims 1-8, and 21-22 were rejected under 35 U.S.C. §102(e), as anticipated by Herman. The Examiner alleges that Herman teaches the use of diamonds in a polishing composition, and that the particles are between about 0.005 and 0.5 μm in diameter. The Examiner also alleges Herman teaches an orally acceptable carrier, a binder, and humectant. Applicant respectfully traverses this rejection.

Applicant states that she conceived and first reduced to practice that which is considered to be the invention, prior to November 16, 2007. Evidence in support of this statement can be found in Applicant's Declaration under 37 C.F.R. §1.131 ("Rule 131 Declaration"), which is attached to this Reply. In particular, the general composition of the dentifrice and polish was included in a U.S. FDA Drug Product Listing which was attached to a form for FDA Registration of a Drug Establishment and Labeler Code Assignment. These submissions were prepared and filed by the inventor with the FDA prior to November 16, 2007.

In view of the attached Rule 131 Declaration, Applicants submit that the Herman reference cannot be considered prior art to Applicants' claimed invention under 35 U.S.C. §102(e), and therefore, Applicants respectfully request withdrawal of this rejection.

Claim 8 was rejected under 35 U.S.C. §103(a), as obvious over Rosenblum. The Examiner stated that while Rosenblum did not teach a flavoring agent or coloring agent, it would have been obvious for one of ordinary skill in the art, to combine the teachings of Rosenblum with such agents with a reasonable expectation of success. Applicant respectfully disagrees.

As Applicant has pointed out above, Rosenblum does not teach a polish composition that is suitable for use in the oral cavity of a patient. The polish was formulated for use with a polishing device, such as a felt wheel, which is used on a lab or office bench. As such, one of ordinary skill in the art would not have any need

or motivation to add either a coloring agent or flavoring agent to a polish that is not used in the patient's mouth. In addition, in view of Applicant's amended claims, Rosenblum does not teach each and every featured of Applicant's claimed invention, and therefore, cannot render Applicant's claim obvious. Applicant respectfully requests withdrawal of this rejection.

Claims 9-10, and 20 were rejected under 35 U.S.C. §103(a), as obvious over Herman. The Examiner restates the teachings of Herman, and admits that Herman does not teach the use of 0.002% to 0.05% by weight of diamond particles and an abrasive agent in a concentration of about 15% to 30% by weight. The Examiner contends that it would have been obvious, for one of ordinary skill, to optimize or vary the concentration of components, and arrive at Applicant's claimed invention, unless the Applicant provides evidence to the contrary. Applicant respectfully traverses this rejection.

Applicant submits that in view of Applicant's Rule 131 Declaration, Herman is not prior art to Applicant's claimed invention under 35 U.S.C. §102(e), and therefore, Applicants respectfully request withdrawal of this rejection.

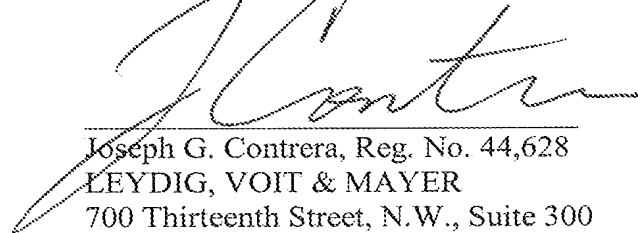
Claims 11-19 were rejected under 35 U.S.C. §103(a), as obvious over Herman, in view of Boyd et al., and in view of Gomi et al. The Examiner restates the teachings of Herman, and admits that Herman does not teach the use of two silica abrasive agents, sodium monofluorophosphate and sorbitol in an oral composition. The Examiner contends that it would have been obvious, for one of ordinary skill, to add these additional components, and arrive at Applicant's claimed invention, unless the Applicant provides evidence to the contrary. Applicant respectfully traverses this rejection.

Applicant submits that in view of Applicant's Rule 131 Declaration, Herman is not prior art to Applicant's claimed invention under 35 U.S.C. §102(e), and the combination of the teachings of Boyd et al. and Gomi et al. do not teach all of Applicant's claimed features. As such, Applicants respectfully request withdrawal of this rejection.

Conclusion

Applicants respectfully submit that the patent application is in condition for allowance. If, in the opinion of the Examiner, a telephone conference would expedite the prosecution of the subject application, the Examiner is invited to call the undersigned agent.

Respectfully submitted,



Joseph G. Contrera, Reg. No. 44,628
LEYDIG, VOIT & MAYER
700 Thirteenth Street, N.W., Suite 300
Washington, DC 20005-3960
(202) 737-6770 (telephone)
(202) 737-6776 (facsimile)

Date: July 13, 2011

JGC/bh

J:\Myntsmile LLC\404343 Reply OA1.doc

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent Application No. 12/418,927

Confirmation No.: 9522

Applicant(s): Lisa Marie KAO

Filed: April 6, 2009

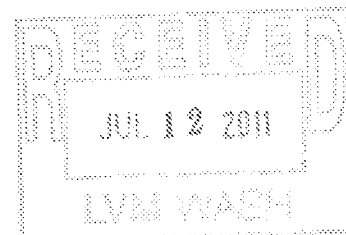
TC/AU: 1612

Examiner: Smith, Ryan C.

Docket No.: 404343

Customer No.: 23548

Commissioner for Patents
U.S. Patent and Trademark Office
Randolph Building
401 Dulany Street
Alexandria, VA 22314

**DECLARATION UNDER 37 C.F.R. § 1.131**

I, Lisa Marie Kao, do hereby declare as follows:

1. I am the sole inventor of the pending claims in the above-referenced patent application.
2. I conceived of and/or reduced to practice the claimed invention, as identified by the originally filed claims 1-22, prior to November 16, 2007. I provide the following document as evidence of this fact:

The general composition of the dentifrice and polish was included in a U.S. FDA Drug Product Listing which was attached to a form for FDA Registration of a Drug Establishment and Labeler Code Assignment. These submissions were prepared and filed by the inventor prior to November 16, 2007, and copies of these forms are attached. (Attachment

A)

3. I hereby declare that all statements made herein of my own knowledge are true, that all statements made on information and belief are believed to be true, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Date:

7/11/11



Lisa Marie Kao

ATTACHMENT A

DEPARTMENT OF HEALTH AND HUMAN SERVICES
FOOD AND DRUG ADMINISTRATION
**REGISTRATION OF DRUG ESTABLISHMENT/
 LABELER CODE ASSIGNMENT**
 (In accordance with Public Law 92-387)

NOTICE: This report is required by law (21 C.F.R. 207.20). Failure to report can result in imprisonment for not more than one year or a fine of not more than \$1,000, or both. (FD&C Act, Section 303).

SECTION A - SITE INFORMATION

REPORTING FIRM NAME MYNT SMILE L.L.C				STATE OF INC. NEW YORK	
SITE ADDRESS (No P.O. Box) 845 Third Ave. Suite 600				SITE TELEPHONE NUMBER (646) 338-7727	
CITY New York	STATE NY	ZIP CODE 10022	COUNTRY U.S.A	BUSINESS CATEGORY: <input checked="" type="checkbox"/> HUMAN <input type="checkbox"/> VETERINARY	
SITE MAILING ADDRESS (If different from site address) 1228 WEST AVENUE #1214					
CITY Miami	STATE FL	ZIP CODE 33139	COUNTRY U.S.A	SITE INTERNET/EMAIL ADDRESS LISAMARIEKAO@MYNT SMILE CO	
DOING BUSINESS AS (DBA) NAME OF FIRM (if applicable) MYNT SMILE					
PARENT COMPANY NAME NONE					

REASON(S) FOR SUBMISSION <input checked="" type="checkbox"/> Firm Registration <input type="checkbox"/> Registration of Additional Site <input type="checkbox"/> Re-Registration <input type="checkbox"/> LC Assignment <input type="checkbox"/> Name Change		TYPE OF OWNERSHIP <input checked="" type="checkbox"/> Sole Proprietorship <input type="checkbox"/> Partnership <input type="checkbox"/> Coop. Assn. <input type="checkbox"/> Corporation <input checked="" type="checkbox"/> Other LLC		PERSON SUBMITTING DATA AND TELEPHONE LISA KAO (646) 338-7727 BUSINESS TYPE <input checked="" type="checkbox"/> Distributor* <input type="checkbox"/> Foreign Country <input type="checkbox"/> Analytical Lab <input checked="" type="checkbox"/> Other president/owner	
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SECTION B - FIRM COMPLIANCE MAILING ADDRESS for Annual Listing Report and/or Firm Correspondence

NUMBER AND STREET AND/OR P.O. BOX and ATTENTION LINE and/or Internal Mail Code 845 Third Ave. Suite 600			TELEPHONE NUMBER (646) 338-7727		
CITY New York	STATE NY	ZIP CODE 10022	COUNTRY U.S.A	COMPLIANCE INTERNET/EMAIL ADDRESS LISAMARIEKAO@MYN SMIL CO	

SECTION C - ADDITIONAL FIRM AND SITE INFORMATION

NAME OF OWNER, PARTNERS OR OFFICERS LISA MARIE KAO	TITLE MS.	POSITION DIRECTOR


OTHER FIRMS DOING BUSINESS AT THIS SITE

LABELER CODE	FIRM NAME	LABELER CODE	FIRM NAME

SECTION D - SIGNATURE

SIGNATURE OF AUTHORIZING OFFICIAL 	TITLE DIRECTOR	DATE 10/24/07
--	--------------------------	-------------------------

***DISTRIBUTOR'S CERTIFICATION:** As a Distributor, I am submitting product listing information to the FDA on my own behalf. I have provided a copy of this certification (Form FDA 2656) to the registered manufacturer(s). My signature and phone number are listed below.

RETURN THIS FORM TO: FOOD AND DRUG ADMINISTRATION CDER/DRUG REGISTRATION AND LISTING (HFD-337) 5600 FISHERS LANE ROCKVILLE, MD 20857 INTERNET: DRLS@FDA.HHS.GOV	SIGNATURE OF DISTRIBUTOR  DISTRIBUTOR'S TELEPHONE NUMBER (646) 338-7727
---	---

ATTACHMENT B



diamond types

Microdiamant produces all common types of diamond powder: polycrystalline, monocrystalline monocrystalline resin-bond, and natural diamond.

Please click on the links below to find more detailed information about a specific diamond type.

Diamond type	DP	FG	MSY	RSYN	NAT
Particle structure	poly synthetic	poly synthetic	mono synthetic	mono synthetic	mono natural
Stock removal rate	excellent	excellent	medium-high	low-medium	medium
Pressure resistance	very high	high	medium	low-medium	medium
Grading quality	precision	standard	precision	standard	precision
Particle shape	blocky, uniform blocky		blocky, uniform sharp-edged		block edged

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E-Mail admin@microdiamant.com · Internet www.microdiamant.com

Electronic Patent Application Fee Transmittal

Application Number:	12418927
Filing Date:	06-Apr-2009
Title of Invention:	DENTAL CLEANING AND POLISHING COMPOSITION COMPRISING DIAMOND PARTICLES
First Named Inventor/Applicant Name:	Lisa Marie Kao
Filer:	Joseph Contrera/Bernetha Harrison
Attorney Docket Number:	404343

Filed as Small Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Extension - 3 months with \$0 paid	2253	1	555	555

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Miscellaneous:				
Total in USD (\$)				555

Electronic Acknowledgement Receipt

EFS ID:	10508177
Application Number:	12418927
International Application Number:	
Confirmation Number:	9522
Title of Invention:	DENTAL CLEANING AND POLISHING COMPOSITION COMPRISING DIAMOND PARTICLES
First Named Inventor/Applicant Name:	Lisa Marie Kao
Customer Number:	23548
Filer:	Joseph Contrera/Bernetha Harrison
Filer Authorized By:	Joseph Contrera
Attorney Docket Number:	404343
Receipt Date:	13-JUL-2011
Filing Date:	06-APR-2009
Time Stamp:	12:53:48
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	\$555
RAM confirmation Number	8968
Deposit Account	121216
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)

File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Miscellaneous Incoming Letter	ROA1_Transmtl.pdf	939898 ae8aa472d190e2a83fe11886417cd7a79d158ee5	no	1
Warnings:					
Information:					
2		ROA1.pdf	895255 ffe4a885b6fe88c4d9ac0a64c5fe717485e1e52e	yes	12
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Amendment/Req. Reconsideration-After Non-Final Reject		1	1	
	Claims		2	6	
	Applicant Arguments/Remarks Made in an Amendment		7	12	
Warnings:					
Information:					
3	Oath or Declaration filed	Declaration.pdf	701887 95354a739e4a0acf3297aeefff1029a1e61b3663	no	2
Warnings:					
Information:					
4	Miscellaneous Incoming Letter	Attachment_A.pdf	222624 2f9f32eddd6ab88cb594ff30a582c226d7b54946	no	3
Warnings:					
Information:					
5	Miscellaneous Incoming Letter	Attachment_B.pdf	56465 493c49761989350bbe9b42c24d8dd74bb1c65b1c	no	2
Warnings:					
Information:					
6	Fee Worksheet (SB06)	fee-info.pdf	30171 df5e738eed78d6a9330fb1ec679bd0938e1aa0f6	no	2
Warnings:					
Information:					
Total Files Size (in bytes):			2846300		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

In re Application of: Lisa Marie KAO
Application No. 12/418,927
Filed: April 6, 2009

U.S. Patent and Trademark Office
Randolph Building
Customer Service Window
401 Dulany Street
Alexandria, VA 22314

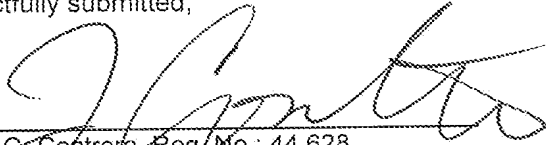
Sir:

- Small entity status is claimed for this application under 37 CFR 1.27.
- Petition for an extension of time for the period noted below, as well as for any additional period necessary to render the present submission timely. Please charge Deposit Account No. 12-1216 for the appropriate petition fee.
- Other: Reply to Office Action dated 1/1/2010; Declaration Under 37 CFR 1.131 with attachments.
- Please charge Deposit Account No. 12-1216 in the total amount indicated below.

					SMALL ENTITY		OTHER THAN A SMALL ENTITY	
TIME EXTENSION PETITION FEE			3-month		\$555.00		\$ 0.00	
subtract time extension fee previously paid			none		(\$ 0.00)		(\$ 0.00)	
CLAIM FEE	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	EXTRA CLAIMS PRESENT	RATE	ADD'L CLAIM FEE	RATE	ADD'L CLAIM FEE
TOTAL		MINUS		= 0	x 26 =	\$	x 52 =	\$0.00
INDEPENDENT		MINUS		= 0	x 110 =	\$	x 220 =	\$0.00
<input type="checkbox"/>	FIRST PRESENTATION OF MULTIPLE CLAIM				+ 195 =	\$	+ 390 =	\$0.00
OTHER FEES AS DESCRIBED:					\$		\$0.00	
TOTAL AMOUNT TO BE CHARGED TO DEPOSIT ACCOUNT					TOTAL	\$555.00	TOTAL	\$0.00

- The Commissioner is hereby authorized to charge any deficiencies in the following fees associated with this communication or credit any overpayment to Deposit Account No. 12-1216.
 - Any filing fees under 37 CFR 1.16 for the presentation of extra claims.
 - Any patent application processing fees under 37 CFR 1.17.

Respectfully submitted,


Joseph G. Contreras, Reg. No.: 44,628
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700 Thirteenth Street, N.W., Suite 300
Washington, DC 20005-3960
(202) 737-6770 (telephone)
(202) 737-6776 (facsimile)

Date: July 13, 2011



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/418,927	04/06/2009	Lisa Marie Kao	404343	9522
23548	7590	01/18/2011	EXAMINER	
LEYDIG VOIT & MAYER, LTD 700 THIRTEENTH ST. NW SUITE 300 WASHINGTON, DC 20005-3960			SMITH, RYAN C	
			ART UNIT	PAPER NUMBER
			1612	
			NOTIFICATION DATE	DELIVERY MODE
			01/18/2011	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

DCpatent@leydig.com
Chgpatent@leydig.com

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DETAILED ACTION

Claim Objections

1. Claims 11-19 are objected to because of the following informalities: the use of the term Diamond powder MSY 0.5 μ is not adequately explained. The term MSY should be clearly explained within the claim language. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Regarding claims 11-19, the phrase "for example" renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d). Instant claim 11 recites plant extract (chamomile flower extract, sage leaf extract, peppermint leaf extract). The claim is indefinite because the claim does not provide a clear description if 1) each of the plant extracts need to be included, 2) only one extract is required, 3) any combination of the plant extracts or 4) the plant extract listed in parenthesis is a non-exclusive list of plant extracts that may be added to the composition. Clarification of the claim language is required.

2. Regarding claim 11-19, the use of the element "Aroma powermint" is not adequately described. The use of the term "Aroma powermint" is found solely in the

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claim and does not provide an adequate description of an "Aroma powermint."

Clarification of the claim language is required.

3. Claims 11-19 contains the trademark/trade name Silica-Sident 9 (Degussa) and Silica Sident 22 S (Degussa). Where a trademark or trade name is used in a claim as a limitation to identify or describe a particular material or product, the claim does not comply with the requirements of 35 U.S.C. 112, second paragraph. See *Ex parte Simpson*, 218 USPQ 1020 (Bd. App. 1982). The claim scope is uncertain since the trademark or trade name cannot be used properly to identify any particular material or product. A trademark or trade name is used to identify a source of goods, and not the goods themselves. Thus, a trademark or trade name does not identify or describe the goods associated with the trademark or trade name. In the present case, the trademark/trade name is used to identify/describe a brand of silica and, accordingly, the identification/description is indefinite. Correction of the claim language is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section

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351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 1-3, 6-7 and 21-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Rosenblum (US 4,021,263).

The claims are drawn to a composition comprising diamonds and an orally acceptable vehicle.

Rosenblum teaches the use of 0.5% by weight of diamond particles (Example II, col. 3). The diamond particles are 0.25 microns (Example II, col. 3). Instant claim 1 describes the use of a diamond particle in the range of 0.001% to about 1.0% by weight of diamond particles with a particle size of 0.05 μM to about 5.0 μM . Rosenblum also teaches the use of Polyethylene glycol 400. Note that Polyethylene glycol 400 is an orally acceptable carrier. Instant claim 1 is anticipated. Instant claims 2 and 3 describes the use of a water phase vehicle containing a humectant, the humectant is polyethylene glycol in a concentration of about 30% to about 70% by weight of the total composition. Rosenblum teaches the use of polyethylene glycol in a concentration of 60% by weight of the total composition (Example II, col. 3). Claims 2-3 are anticipated. Rosenblum teaches the use of alumina (Example II, col. 3). Note that instant claim 6 and 7 describe the use of an abrasive agent, said abrasive agent is alumina. Claims 6 and 7 are anticipated. The composition taught in Rosenblum is used as a polishing agent (abstract). Claims 21-22 are anticipated.

Accordingly claims 1-3, 6-7 and 21-22 are anticipated.

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2. Claims 1-8 and 21-22 are rejected under 35 U.S.C. 102(e) as being anticipated by Herman (US 2009/0130031 A1).

The claims are drawn to a composition comprising diamonds and an orally acceptable vehicle.

Herman teaches the use of diamonds in a polishing composition (Examples 1-5, pages 3-4). The diamond particles described in Herman are in the range of 500 nanometers or less to about 5 nanometers in diameter. Note that this diameter is 0.005 μM to 0.5 μM in diameter (claim 1). The diamond particles are taught in a concentration of .4 % (Examples 1, 4 and 5) and 10 % (Example 3). Herman also teaches the use of an orally acceptable carrier (Examples 1-5). Note that an orally acceptable carrier is the sorbitol solution. Claim 1 is anticipated. Herman also teaches the use of a humectant, such as glycerin (Examples 1-5), sorbitol (Examples 1-4), and xylitol (Example 5). Each of the humectants is found in concentrations of 8%-52% (example 1-5). Claims 2-3 are anticipated.

Herman also teaches the use of carrageenan (Examples 1-3 and 5). Instant claim 5 describes the use of carrageenan as a binder. Note that carrageenan in Example 5 is found in the ingredient Viscarin TP 399. Claims 4-5 are anticipated. Herman also teaches the use of an abrasive agent (Examples 1-5). Specifically Herman teaches the use of calcium carbonate (Examples 1-3), silica (Example 4) and titanium dioxide (Example 5). Claims 6-7 are anticipated. Herman also teaches the use of pH modifying agents, plant extracts, thickeners, gums, flavorants (Examples 1-5).

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Claim 8 is anticipated. Herman teaches a composition that is used for the care of natural teeth and dental veneers (abstract). Claims 21-22 are anticipated.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rosenblum (US 4,021,263) as applied to claims 1-3, 6-7 and 21-22 above.

The claims are drawn to a composition comprising diamonds and an orally acceptable vehicle.

Rosenblum teaches the use of 0.5% by weight of diamond particles (Example II, col. 3). The diamond particles are 0.25 microns (Example II, col. 3). Instant claim 1 describes the use of a diamond particle in the range of 0.001% to about 1.0% by weight of diamond particles with a particle size of 0.05 μM to about 5.0 μM . Rosenblum also teaches the use of Polyethylene glycol 400. Note that Polyethylene glycol 400 is an orally acceptable carrier. Instant claims 2 and 3 describes the use of a water phase vehicle containing a humectant, the humectant is polyethylene glycol in a concentration of about 30% to about 70% by weight of the total composition. Rosenblum teaches the use of polyethylene glycol in a concentration of 60% by weight of the total composition

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(Example II, col. 3). Rosenblum teaches the use of alumina (Example II, col. 3). Note that instant claim 6 and 7 describe the use of an abrasive agent, said abrasive agent is alumina.

Rosenblum does not specifically teach the use of a flavoring agent or a coloring agent.

It would have been obvious to one of ordinary skill in the art to use the teachings of Rosenblum to add a flavoring agent. There is a reasonable expectation of success because Rosenblum describes that the use of dyes, flavoring, preservative, or the like may be added to the polishing composition (col. 2, lines 37-40). Rosenblum also describes adding coloring, perfume, preservatives or the like to a polishing composition (col. 3, lines 5-7).

Accordingly claim 8 is rendered obvious.

2. Claims 9-10 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Herman as applied to claims 1-8 and 21-22 above.

The claims are drawn to a composition comprising diamonds and an orally acceptable vehicle.

Herman teaches the use of diamonds in a polishing composition (Examples I-V, pages 3-4). The diamond particles described in Herman are in the range of 500 nanometers or less to about 5 nanometers in diameter. Note that this diameter is 0.005 μ M to 0.5 μ M in diameter (claim 1). The diamond particles are taught in a concentration of .4 % (Examples 1, 4 and 5) and 10 % (Example 3). Herman also

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teaches the use of an orally acceptable carrier (Examples 1-5). Note that an orally acceptable carrier is the sorbitol solution. Herman also teaches the use of a humectant, such as glycerin (Examples 1-5), sorbitol (Examples 1-4), and xylitol (Example 5). Each of the humectants is found in concentrations of 8%-52% (example 1-5).

Herman also teaches the use of carrageenan (Examples 1-3 and 5). Instant claim 5 describes the use of carrageenan as a binder. Note that carrageenan in Example 5 is found in the ingredient Viscarin TP 399. Herman also teaches the use of an abrasive agent (Examples 1-5). Specifically Herman teaches the use of calcium carbonate (Examples 1-3), silica (Example 4) and titanium dioxide (Example 5). Herman also teaches the use of pH modifying agents, plant extracts, thickeners, gums, flavorants (Examples 1-5).

Herman does not specifically teach the use of 0.002% to about 0.05% by weight of diamond particles and an abrasive agent in a concentration from about 15% to about 30%.

It would have been obvious to one of ordinary skill in the art to use various concentrations and particle sizes of diamonds and various concentrations of abrasive agents in a polishing composition. The MPEP states "Generally differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical. Where the general condition of a claim are disclosed in the prior art, it is not inventive to discover the optimal or workable ranges by routine experimentation." See MPEP 2144.05. Given each element found in instant claims 9-

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10 and 20 are taught in Herman, it would have been obvious to one of ordinary skill in the art to modify the dose of diamond concentrations and abrasive agents to optimize the polishing composition and use varied diameters of diamond particles as an abrasive. Thus, unless applicant shows teaching to the contrary, instant claims 9-10 and 20 do not rise beyond that of a general condition achieved through obvious experimental optimization.

3. Claims 11-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Herman (US 2009/0130031 A1) as applied to claims 1-8 and 21-22 above, and further in view of Boyd et al (US 2007/0140985 A1) in further view of Gomi et al (US 4,649,044).

The claims are drawn to a composition comprising diamonds and an orally acceptable vehicle.

Note that although claims 11-19 have rejected for being indefinite the claims will continue to be examined to provide compact prosecution of the instant application. For the purposed of the following rejection claim 11 is being interpreted to require silica in a concentration of 18% by weight of the total composition. Moreover, the use of the examples of plant extract is interpreted to require at least one of the mentioned plant extracts. Additionally, the element "Aroma powermint" is considered the aroma from a mint plant, mint extract or mint byproduct.

Herman teaches the use of diamonds in a polishing composition (Examples I-V, pages 3-4). The diamond particles described in Herman are in the range of 500 nanometers or less to about 5 nanometers in diameter. Note that this diameter is

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0.005 μ M to 0.5 μ M in diameter (claim 1). The diamond particles are taught in a concentration of .4 % (Examples 1, 4 and 5) and 10 % (Example 3). Herman also teaches the use of an orally acceptable carrier (Examples 1-5). Note that an orally acceptable carrier is the sorbitol solution. Herman also teaches the use of a humectant, such as glycerin (Examples 1-5), sorbitol (Examples 1-4), and xylitol (Example 5). Each of the humectants is found in concentrations of 8%-52% (example 1-5). Note that Example 5 describes an oral cleansing composition which is an anti-plaque agent containing xylitol.

Herman also teaches the use of carrageenan (Examples 1-3 and 5). Instant claim 5 describes the use of carrageenan as a binder. Note that carrageenan in Example 5 is found in the ingredient Viscarin TP 399. Herman also teaches the use of an abrasive agent (Examples 1-5). Specifically Herman teaches the use of calcium carbonate (Examples 1-3), silica (Example 4) and titanium dioxide (Example 5). Herman also teaches the use of pH modifying agents, plant extracts, thickeners, gums, flavorants (Examples 1-5). Herman also teaches the use of aloe extracts (Example 5) and plant extracts (Example 5). Note that the use of peppermint oil is derived from the peppermint plant and is thus an extract of peppermint plant. Moreover, the use of peppermint oil would inherently have the aroma of mint, specifically, peppermint. Herman also teaches the use of sodium bicarbonate and precipitated silica (Example 5). Note that sodium bicarbonate is a whitening agent. Herman also teaches the use of zinc citrate may be employed as an anti-bacterial agent (page 4, para [0078]). Herman

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also teaches the use of plant extracts as well as potassium salts are useful in the treatment of dentin hypersensitivity, such as potassium nitrate (page 4, para [0083]).

Herman does not specifically teach the use of two silica abrasive agents, sodium monofluorophosphate and sorbitol in an oral combination.

Boyd et al (hereinafter Boyd) describes the use of a polishing composition (abstract). Specifically Boyd teaches the use of two silica abrasives, cocamidopropyl betaine, flavor oil, sorbitol, saccharin (Example 3 (which included the elements of Table 2 and Table 3), page 8, para [0077]-[0078]).

Gomi et al (hereinafter Gomi) teaches the use of sodium monofluorophosphate in a toothpaste formulation (Example 3).

It would have been obvious to one of ordinary skill in the art to combine the teachings of Herman, Boyd and Gomi as each relates to an oral cleaning composition. There is a motivation to use sorbitol and xylitol because pasty and liquid oral compositions such as toothpastes and mouthwashes, a humectant may be blended in an amount of 10 to 70% by weight, including sorbitol, glycerin, ethylene glycol, propylene glycol, 1,3-butylene glycol, polyethylene glycol, polypropylene glycol, xylitol, maltitol, lactitol, etc. and mixtures thereof (Gomi, col. 7, lines 6-10). There is a reasonable expectation of success because the humectant is generally a mixture of humectants, such as glycerin, sorbitol and a polyethylene glycol of a molecular weight in the range of 200-1000, but other mixtures of humectants and single humectants may also be Employed (Herman para [0038]. Therefore the use of sorbitol in combination with xylitol would have been obvious to one of ordinary skill in the art.

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It would have been obvious to one of ordinary skill in the art to add two silica abrasives to an oral composition as taught in Boyd because the use of two silica abrasives can provide a controlled release of the two abrasives (page 7, para [0067]). There is a reasonable expectation of success because both Herman and Boyd teach formulations for an oral cleaning composition which contain at least two abrasive elements. Note that alumina, diamonds, calcium carbonate, silica, and the like are abrasive agents.

It would have been obvious to one of ordinary skill in the art to use sodium monofluorophosphate to an oral composition as taught in Gomi (Example 3). There is a motivation to combine because the use of one or more active ingredients, for example, alkali metal monofluorophosphate, such as sodium monofluorophosphate (col. 7, lines 55-58) can be added to an oral composition. There is a reasonable expectation of success because the use of sodium monofluorophosphate is taught specifically in an oral care composition in Gomi (Example 3).

Furthermore the use of the concentration, by weight, of the known elements of oral care compositions does not rise above that of routine optimization. The MPEP states "Generally differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical. Where the general condition of a claim are disclosed in the prior art, it is not inventive to discover the optimal or workable ranges by routine experimentation." See MPEP 2144.05. Given each element found in instant claim 11 is taught in Herman, Boyd and Gomi it would have

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been obvious to one of ordinary skill in the art to modify the concentrations to optimize the polishing composition. Thus, unless applicant shows teaching to the contrary, instant claim 11 do not rise beyond that of a general condition achieved through obvious experimental optimization.

Accordingly claims 11-19 are rendered obvious

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RYAN SMITH whose telephone number is (571)270-5250. The examiner can normally be reached on Mon. - Thurs. 8 am - 6:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frederick Krass can be reached on 571-272-0580. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1612

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Anish Gupta/
Primary Examiner, Art Unit 1654

/R. S./
Examiner, Art Unit 1612

Notice of References Cited	Application/Control No. 12/418,927	Applicant(s)/Patent Under Reexamination KAO, LISA MARIE	
	Examiner RYAN SMITH	Art Unit 1612	Page 1 of 1

U.S. PATENT DOCUMENTS

*	Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A US-4,021,263	05-1977	Rosenblum, Marc	106/474
*	B US-2009/0130031	05-2009	Herman, Michael	424/49
*	C US-2007/0140985	06-2007	Boyd et al.	424/049
*	D US-4,649,044	03-1987	Gomi et al.	424/49
	E US-			
	F US-			
	G US-			
	H US-			
	I US-			
	J US-			
	K US-			
	L US-			
	M US-			

FOREIGN PATENT DOCUMENTS

*	Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N				
	O				
	P				
	Q				
	R				
	S				
	T				

NON-PATENT DOCUMENTS

*	Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)				
	U				
	V				
	W				
	X				

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

<i>Index of Claims</i>	Application/Control No.	Applicant(s)/Patent Under Reexamination
	Examiner	Art Unit

✓	Rejected
=	Allowed


-	Cancelled
÷	Restricted

N	Non-Elected
I	Interference

A	Appeal
O	Objected

Claims renumbered in the same order as presented by applicant
 CPA
 T.D.
 R.1.47

CLAIM		DATE									
Final	Original										

Search Notes 	Application/Control No. 12418927	Applicant(s)/Patent Under Reexamination KAO, LISA MARIE
	Examiner RYAN SMITH	Art Unit 1612

SEARCHED			
Class	Subclass	Date	Examiner
400			
106			
424			

SEARCH NOTES		
Search Notes	Date	Examiner
East, Google		

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner

/RYAN SMITH/ Examiner.Art Unit 1612	
--	--

Please type a plus sign (+) inside this box → +

Substitute for form 1449A/B/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary)				Complete if Known		
				Application Number	12/418,927	
Sheet		1	of	1	Attorney Docket Number	404343/Myntsmile

U.S. PATENT DOCUMENTS						
Examiner Initials	Doc. No.	U.S. Patent Document		Name of Patentee or Applicant	Date of Publication	Filing Date If Appropriate
		Application or Patent Number	Kind Code			
/R.S./	A 1	3,892,853		Cobble	07/01/1975	
/R.S./	A 2	4,528,180		Schaeffer	07/09/1985	
/R.S./	A 3	4,702,905		Mitchell et al.	10/27/1987	
/R.S./	A 4	4,705,680		Vellekoop	11/10/1987	
/R.S./	A 5	4,814,160		Carter et al.	03/21/1989	
/R.S./	A 6	5,294,434		King et al.	03/15/1994	
/R.S./	A 7	5,776,435		Gaffar et al.	07/15/1998	

FOREIGN PATENT DOCUMENTS							
Examiner Initials	Doc. No.	Foreign Patent Document			Name of Patentee or Applicant	Date of Publication	Translation *
		Office	Application or Patent Number	Kind Code			

OTHER - NON PATENT LITERATURE DOCUMENTS			
Examiner Initials	Doc. No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number (s), publisher, city and/or country where published.	Translation *

Examiner Signature	/Ryan Smith/	Date Considered	01/06/2011
--------------------	--------------	-----------------	------------

* If the reference is not in English, then at least one of the following is provided: (a) an English translation in whole or in part or (b) a concise statement of relevance in the form of, for example, an English language counterpart, an English-language abstract, or an English-language version of the search report or action by a foreign patent office in a counterpart foreign application indicating the degree of relevance found by the foreign office.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

Table with 4 columns: APPLICATION NUMBER (12/418,927), FILING OR 371(C) DATE (04/06/2009), FIRST NAMED APPLICANT (Lisa Marie Kao), ATTY. DOCKET NO./TITLE (404343)

CONFIRMATION NO. 9522

PUBLICATION NOTICE

23548
LEYDIG VOIT & MAYER, LTD
700 THIRTEENTH ST. NW
SUITE 300
WASHINGTON, DC 20005-3960



Title: DENTAL CLEANING AND POLISHING COMPOSITION COMPRISING DIAMOND PARTICLES

Publication No. US-2010-0254915-A1
Publication Date: 10/07/2010

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

The publication may be accessed through the USPTO's publically available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently http://www.uspto.gov/patft/.

The publication process established by the Office does not provide for mailing a copy of the publication to applicant. A copy of the publication may be obtained from the Office upon payment of the appropriate fee set forth in 37 CFR 1.19(a)(1). Orders for copies of patent application publications are handled by the USPTO's Office of Public Records. The Office of Public Records can be reached by telephone at (703) 308-9726 or (800) 972-6382, by facsimile at (703) 305-8759, by mail addressed to the United States Patent and Trademark Office, Office of Public Records, Alexandria, VA 22313-1450 or via the Internet.

In addition, information on the status of the application, including the mailing date of Office actions and the dates of receipt of correspondence filed in the Office, may also be accessed via the Internet through the Patent Electronic Business Center at www.uspto.gov using the public side of the Patent Application Information and Retrieval (PAIR) system. The direct link to access this status information is currently http://pair.uspto.gov/. Prior to publication, such status information is confidential and may only be obtained by applicant using the private side of PAIR.

Further assistance in electronically accessing the publication, or about PAIR, is available by calling the Patent Electronic Business Center at 1-866-217-9197.

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

Electronic Acknowledgement Receipt

EFS ID:	5654782
Application Number:	12418927
International Application Number:	
Confirmation Number:	9522
Title of Invention:	DENTAL CLEANING AND POLISHING COMPOSITION COMPRISING DIAMOND PARTICLES
First Named Inventor/Applicant Name:	Lisa Marie Kao
Customer Number:	23548
Filer:	Joseph Contrera/Joanne Johnson
Filer Authorized By:	Joseph Contrera
Attorney Docket Number:	404343
Receipt Date:	07-JUL-2009
Filing Date:	06-APR-2009
Time Stamp:	13:44:28
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		404343_IDS_1449_form.pdf	325274 <small>5d93c6b4cf58d9edc5581543a99a7a27220f 2022</small>	yes	6

Multipart Description/PDF files in .zip description			
Document Description		Start	End
Transmittal Letter		1	5
Information Disclosure Statement (IDS) Filed (SB/08)		6	6

Warnings:

Information:

Total Files Size (in bytes):	325274
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This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent Application No. 12/418,927

Confirmation No. 9522

Applicant: Lisa Marie KAO

Filed: April 4, 2009

TC/AU: 1614

Examiner: Unassigned

Docket No.: 404343

Customer No.: 23548

Commissioner for Patents
U.S. Patent and Trademark Office
Randolph Building
401 Dulany Street
Alexandria, VA 22314

INFORMATION DISCLOSURE STATEMENT

Pursuant to 37 CFR 1.97 and 1.98, the references listed on the enclosed Form PTO-1449 and/or Substitute Form PTO-1449 ("Form 1449") are submitted for consideration by the Examiner in the examination of the above-identified patent application.

The full consideration of the references in their entirety by the Examiner is respectfully requested and encouraged. Also, it is respectfully requested that the references be entered into the record of the present application and that the Examiner initial the appropriate area on the enclosed Form 1449, thereby indicating the Examiner's consideration of each of the references.

The submission of the references listed on the Form 1449 is for the purpose of providing a complete record and is not a concession that the references listed thereon are prior art to the invention claimed in the patent application. The right is expressly reserved to establish an invention date earlier than the above-identified filing date in order to remove any reference submitted herewith as prior art should it be deemed appropriate to do so.

Further, the submission of the references is not to be taken as a concession that any reference represents art that is relevant or analogous to the claimed invention. Accordingly, the right to argue that any reference is not properly within the scope of prior art relevant to an examination of the claims in the above-identified application is also expressly reserved.

The Information Disclosure Statement is being filed:

- within** any one of the following time periods: (a) within three months of the filing date of a national application other than a continued prosecution application under 37 CFR 1.53(d); (b) within three months of the date of entry of the national stage as set forth in 37 CFR 1.491 of an international application; (c) before the mailing date of a first Office Action on the merits; or (d) before the mailing of a first Office Action after the filing of a request for continued examination under 37 CFR 1.114.
- after** (a), (b), (c) or (d) above, but before the mailing date of a final action under 37 CFR 1.113, a Notice of Allowance under 37 CFR 1.311, or an action that otherwise closes prosecution in the application, and includes *one* of:
- the Statement under 37 CFR 1.97(e) (see "Statement under 37 CFR 1.97(e)" below).
- or –
- the fee of \$180 set forth in 37 CFR 1.17(p) (see "Fees" below).
- after** the mailing date of a final action under 37 CFR 1.113 or a Notice of Allowance under 37 CFR 1.311, or an action that otherwise closes prosecution in the application, and on or before payment of the issue fee, and includes the Statement under 37 CFR 1.97(e) (see "Statement under 37 CFR 1.97(e)" below), and the fee of \$180 as set forth in 37 CFR 1.17(p) (see "Fees" below).
- after** the mailing date of a Notice of Allowance under 37 CFR 1.311, and on or before payment of the issue fee, and **within** thirty days of receiving each item of information contained in the Information Disclosure Statement, and includes the Statement under 37 CFR 1.704(d) (see "Statement under 37 CFR 1.704(d)" below), and the fee of \$180 as set forth in 37 CFR 1.17(p) (see "Fees" below). NOTE: This is for original applications except applications for a design patent, filed on or after May 29, 2000, wherein a paper containing only an Information Disclosure Statement in compliance with 37 CFR 1.97 and 1.98 is being filed.

Citation to Other Patent Applications

- The following U.S. patent applications are hereby brought to the attention of the Examiner. The U.S. patent applications claim subject matter that may be considered by the Examiner to be similar to the subject matter claimed in the above-identified patent application. Accordingly, these U.S. patent applications and/or the prosecution pertaining thereto may include information considered to be material to the prosecution of the above-identified patent application. Since the Examiner has electronic access to the prosecution histories of these U.S. patent applications, copies of prosecution materials therefrom are not provided herewith, but will be promptly provided if the Examiner so desires and requests same.

U.S. APPLICATIONS		STATUS <i>(check one)</i>		
U.S. APPLICATIONS	U.S. FILING DATE	PATENTED	PENDING	ABANDONED
1.				
2.				
3.				

Copies of the References

- Copies of all of the references listed on the enclosed Form 1449 are enclosed herewith.
- Copies of U.S. patents and patent applications that are listed on the accompanying Form 1449 are not enclosed herewith. Copies of other references identified on the accompanying Form 1449 are enclosed herewith.
- For each reference not in the English language, attached is an English translation, a concise explanation of relevance, an English-language equivalent/patent, an English-language abstract, or an English-language version of the search report or action by a foreign patent office in a counterpart foreign application indicating the degree of relevance found by the foreign office pursuant to 37 CFR 1.98(a)(3).
- Copies of foreign search reports or foreign examination reports are enclosed as follows.

SEARCHING OR EXAMINING OFFICE	APPLICATION COUNTRY	APPLICATION NO.	DATE OF MAILING OF SEARCH REPORT OR EXAMINATION REPORT

- The references listed on the enclosed Form 1449 were previously identified in the parent application(s) of the present application, and copies of the references were furnished at that time. Accordingly, additional copies of the references are not submitted herewith, so as not to burden the file with duplicate copies of references. The Examiner is respectfully requested to carefully review the references in accordance with the requirements set out in the Manual of Patent Examining Procedure. In accordance with 37 CFR 1.98(d), the details of the parent application(s) relied upon for an earlier filing date under 35 USC 120 in which copies of the references were previously furnished are set out below:

U.S. APPLICATIONS		STATUS <i>(check one)</i>		
U.S. APPLICATIONS	U.S. FILING DATE	PATENTED	PENDING	ABANDONED
1.				
2.				
3.				

Statement under 37 CFR 1.97(e)

- The **undersigned** hereby states that each item of information contained in the Information Disclosure Statement was first cited in any communication from a foreign patent office in a counterpart foreign patent application not more than three months prior to the filing of the Information Disclosure Statement.
- The **undersigned** hereby states that no item of information contained in the Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign patent application, and, to the knowledge of the undersigned after making reasonable inquiry, no item of information contained in the Information Disclosure Statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the Information Disclosure Statement.

Statement under 37 CFR 1.704(d)

- The **undersigned** hereby states that each item of information contained in the Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart application and that this communication was not received by any individual designated in 37 CFR 1.56(c) more than thirty days prior to the filing of the Information Disclosure Statement.

Fees

- No fee** is owed by the applicant(s).
- Charge Deposit Account No. 12-1216 in the amount of **\$180.00** (37 CFR 1.17(p)).

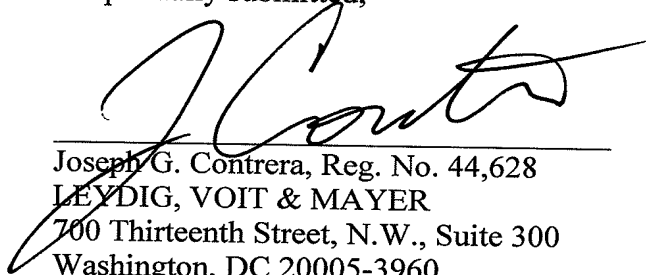
Authorization to Charge Additional Fees

- If any additional fees are owed in connection with this communication, please charge Deposit Account No. 12-1216.

Instructions as to Overpayment

- Credit Account No. 12-1216.
- Refund

Respectfully submitted,



Joseph G. Contrera, Reg. No. 44,628
LEYDIG, VOIT & MAYER
700 Thirteenth Street, N.W., Suite 300
Washington, DC 20005-3960
(202) 737-6770 (telephone)
(202) 737-6776 (facsimile)

Date: 7/2/09

JGC/jj



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UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

Table with 7 columns: APPLICATION NUMBER, FILING or 371(c) DATE, GRP ART UNIT, FIL FEE REC'D, ATTY. DOCKET NO, TOT CLAIMS, IND CLAIMS. Values: 12/418,927, 04/06/2009, 1614, 514, 404343, 22, 3

CONFIRMATION NO. 9522

23548
LEYDIG VOIT & MAYER, LTD
700 THIRTEENTH ST. NW
SUITE 300
WASHINGTON, DC 20005-3960

FILING RECEIPT



Date Mailed: 05/18/2009

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections

Applicant(s)

Lisa Marie Kao, Miami Beach, FL;

Power of Attorney: The patent practitioners associated with Customer Number 23548

Domestic Priority data as claimed by applicant

Foreign Applications

Permission to Access - A proper Authorization to Permit Access to Application by Participating Offices (PTO/SB/39 or its equivalent) has been received by the USPTO.

If Required, Foreign Filing License Granted: 05/13/2009

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is US 12/418,927

Projected Publication Date: 10/07/2010

Non-Publication Request: No

Early Publication Request: No

** SMALL ENTITY **

Title

DENTAL CLEANING AND POLISHING COMPOSITION COMPRISING DIAMOND PARTICLES

Preliminary Class

424

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at <http://www.uspto.gov/web/offices/pac/doc/general/index.html>.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4158).

LICENSE FOR FOREIGN FILING UNDER**Title 35, United States Code, Section 184****Title 37, Code of Federal Regulations, 5.11 & 5.15****GRANTED**

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as

set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign Assets Control, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Attorney Docket No.	404343
Client Reference No.	
First Inventor	Lisa Marie KAO
Title	DENTAL CLEANING AND POLISHING COMPOSITION COMPRISING DIAMOND PARTICLES
Express Mail Label No.	

APPLICATION ELEMENTS

ADDRESS TO:
 Commissioner for Patents
 U.S. Patent and Trademark Office
 Customer Service Window
 Randolph Building
 401 Dulany Street
 Alexandria, VA 22314

1. Utility Patent Application Transmittal Form
2. Applicant claims small entity status. See 37 CFR 1.27.
3. Specification (including claims and abstract) [Total Pages 28]
4. Drawings [Total Sheets]
5. Combined Declaration and Power of Attorney [Total Pages 2]
 - a. Newly executed
 - b. Copy from prior application [Note Box 6 below]
 - i. Deletion of Inventor(s) Signed statement attached deleting inventor(s) named in the prior application
6. Incorporation by Reference: The entire disclosure of the prior application, from which an oath or declaration is supplied under Box 5b is considered as part of the disclosure of the accompanying application and is hereby incorporated by reference.
7. Application Data Sheet. See 37 CFR 1.76
8. CD-ROM or CD-R in duplicate, large table or Computer Program (Appendix)
9. Nucleotide and/or Amino Acid Sequence Submission
 - a. Computer Readable Form (CRF)
 - b. Specification Sequence Listing on:
 - i. CD-ROM or CD-R (2 copies); or
 - ii. Paper Copy
 - c. Statement verifying identity of above copies

ACCOMPANYING APPLICATION PARTS

10. Applicant requests early publication. (include publication fee under 37 CFR 1.18(d))
11. Assignment Papers (cover sheet and document(s))
12. 37 CFR 3.73(b) Statement (when there is an Assignee)
13. Power of Attorney
14. English Translation Document (if applicable)
15. Information Disclosure Statement (IDS)
 - Form PTO-1449
 - Copies of References (except for U.S. patents and applications)
16. Preliminary Amendment
17. Return Receipt Postcard (Should be specifically itemized)
18. Claim of Priority & Certified Copy of Priority Document(s)
19. Request & Certification Under 35 USC 122(b)(2)(B)(i) (Form PTO/SB/35 or its equivalent must be submitted with this application to prevent publication at 18 months)
20.

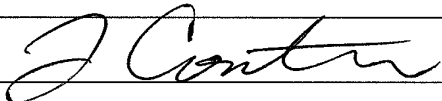
21. If a CONTINUING APPLICATION, check appropriate box and supply the requisite information below:
 Continuation Divisional Continuation-in-part of prior application no.
 Prior application information: Examiner _____; Group Art Unit: _____

APPLICATION FEES

			SMALL ENTITY		OTHER THAN A SMALL ENTITY	
FILING FEE			\$82 (EFS)		\$330	
SEARCH FEE			\$270		\$540	
EXAM FEE			\$110		\$220	
CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE	ADD'L CLAIM FEE	RATE	ADD'L CLAIM FEE
Total Claims	22 - 20 =	2	x 26 =	\$52	x 52 =	
Independent Claims	- 3 =		x 110 =		x 220 =	
<input type="checkbox"/> First Presentation of Multiple Dependent Claim			+ 195 =		+ 390 =	
<input type="checkbox"/> Application Size Fee – If the application transmittals, data sheet, specification, claims, abstract, drawings, and preliminary amendment exceed 100 sheets of paper, enter number of sheets here: - If application is filed in paper form, enter this number in Total Sheets, below. - If application is filed via EFS-Web, multiply this number by 0.75 and enter result in Total Sheets, below.						
Total Sheets =	- 100 =	÷ 50 =	x 135 =		x 270 =	
<input type="checkbox"/> Assignment Fee			+ 40 =		+ 40 =	
<input type="checkbox"/> Early Publication Fee			+ 300 =		+ 300 =	
TOTAL AMOUNT TO BE CHARGED			TOTAL	\$514	TOTAL	

22. Please charge my Deposit Account No. 12-1216 in the amount of \$514.00.
23. A check in the amount of \$ _____ is enclosed.
24. The Commissioner is hereby authorized to credit overpayments or charge any additional fees of the following types to Deposit Account No. 12-1216:
- a. Fees required under 37 CFR 1.16.
 - b. Fees required under 37 CFR 1.17.
25. The Commissioner is hereby generally authorized under 37 CFR 1.136(a)(3) to treat any future reply in this or any related application filed pursuant to 37 CFR 1.53 requiring an extension of time as incorporating a request therefor, and the Commissioner is hereby specifically authorized to charge Deposit Account No. 12-1216 for any fee that may be due in connection with such a request for an extension of time.

26. CORRESPONDENCE ADDRESS

<input checked="" type="checkbox"/> Customer Number: <div style="text-align: center; margin-top: 10px;">23548</div>	<input type="checkbox"/> Joseph G. Contrera, Reg. No. 44,628 Leydig, Voit & Mayer 700 Thirteenth Street, N.W., Suite 300 Washington, D.C. 20005-3960 (202) 737-6770 (telephone) (202) 737-6776 (facsimile)
Name	Joseph G. Contrera, Reg. No. 44,628
Signature	
Date	April 6, 2009

COMBINED DECLARATION FOR UTILITY OR DESIGN PATENT APPLICATION
AND POWER OF ATTORNEY

- Declaration Submitted with Initial Filing OR
 Declaration Submitted after Initial Filing (surcharge (37 CFR 1.16(e)) required)

As a below named inventor, I hereby declare that:

My residence, post office address, and citizenship are as stated below next to my name. I believe I am the original, first, and sole inventor (*if only one name is listed below*) or an original, first, and joint inventor (*if plural names are listed below*) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

DENTAL CLEANING AND POLISHING COMPOSITION COMPRISING DIAMOND PARTICLES

the specification of which:

- is attached hereto.
 was filed on as Application No. and was amended on (*if applicable*).
 was filed by Express Mail No. as Application No. not known yet, and was amended on (*if applicable*).
 was filed on as PCT International Application No. PCT/ and was amended on (*if any*).

I state that I have reviewed and understand the contents of the specification identified above, including the claim(s), as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56, including for continuation-in-part applications, material information which became available between the filing date of the prior application and the national or PCT international filing date of the continuation-in-part application.

Authorization to Permit Access to Application by Participating Offices

- If checked, the undersigned hereby grants the USPTO authority to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO) and any other intellectual property offices in which a foreign application claiming priority to the above-identified application is filed access to the above-identified patent application. See 37 CFR 1.14(c) and (h). This box should not be checked if the applicant does not wish the EPO, JPO, or other intellectual property office in which a foreign application claiming priority to the above-identified application is filed to have access to the application.

In accordance with 37 CFR 1.14(h)(3), access will be provided to a copy of the application-as-filed with respect to: 1) the above-identified application, 2) any foreign application to which the above-identified application claims priority under 35 USC 119(a)-(d) if a copy of the foreign application that satisfies the certified copy requirement of 37 CFR 1.55 has been filed in the above-identified US application, and 3) any U.S. application from which benefit is sought in the above-identified application.

In accordance with 37 CFR 1.14(c), access may be provided to information concerning the date of filing the Authorization to Permit Access to Application by Participating Offices.

Claim of Foreign Priority Benefits

I claim foreign priority benefits under 35 USC 119(a)-(d) or (f), or 365(b) of any foreign application(s) for patent, inventor's or plant breeder's rights certificate(s), or 365(a) of any PCT international application(s) designating at least one country other than the United States of America, listed below and have also identified

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below, by checking the box, any foreign application(s) for patent, utility model, design registration, inventor's or plant breeder's rights certificate(s), or any PCT international application(s) designating at least one country other than the United States of America filed by me on the same subject matter and having a filing date before that of the application(s) from which the benefit of priority is claimed.

PRIOR FOREIGN APPLICATION NUMBER(S)	COUNTRY	FOREIGN FILING DATE (MM/DD/YYYY)	PRIORITY CLAIMED		CERTIFIED COPY ATTACHED	
			YES	NO	YES	NO
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As a named inventor, I hereby appoint Leydig, Voit & Mayer, Ltd., associated with the following Customer No., to prosecute this application and transact all business in the Patent and Trademark Office connected therewith:

23548

I further direct that correspondence concerning this application be directed to the above-mentioned Customer Number.

I declare that all statements made herein of my own knowledge are true, that all statements made on information and belief are believed to be true, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

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Declaration DC (Revised 3/4/2008)

DENTAL CLEANING AND POLISHING COMPOSITION COMPRISING DIAMOND
PARTICLES

BACKGROUND OF THE INVENTION

[0001] Dentifrices are used to clean, bleach, whiten, and otherwise treat the teeth and gums. Generally, the active ingredients in a dentifrice are contained within a carrier.

[0002] For an abrasive, most toothpaste comprises various types of silica to debride and physically scrub the external surface of the teeth. This scrubbing action removes the organic film (i.e. the pellicle), formed of salivary proteins which covers the teeth and which is known to become stained and discolored by foods, such as coffee, tea and berries, as well as, by tobacco smoke, cationic antibacterials, and chromogenic bacteria. Such physical removal of the stained pellicle is a simple and effective means of removing the undesirable surface staining and discoloration which occurs daily. Further, such physical removal of the pellicle also removes plaque bacteria on the pellicle surface.

[0003] The carrier can be a paste (i.e., toothpaste) or a gel (i.e., brushing gels and bleaching gels) or an equivalent vehicle suitable for oral use. The dentifrice can be dispensed onto a brushing device or, in some cases, onto a tray, stint or mouth guard, and then the dental surfaces are brushed or polished for a sufficient period of time. "Gels" are thickened by a gelling agent that hydrogen bonds a dispersion medium to produce a semisolid, transparent, jelly-like material. In contrast, "pastes" are thickened by the addition of fillers. However, the line between gels and pastes is not always clear. Furthermore, sometimes dentifrices that are opaque and/or contain one or more abrasive fillers are labeled pastes, even if they exhibit gel-like properties. Therefore, in describing the present invention, the term "dentifrice" will be used to clearly indicate that both gels and pastes are embraced.

[0004] In dental polishing compositions, such as disclosed in prior U.S. Pat. Nos. 4,702,905; 4,528,180, 4,705,680 and 4,814,160, combinations of such ingredients are disclosed and are directed to dental creams, pastes and gels which incorporate the well-known cleaning or polishing components such as water-insoluble alkaline earth metal salts or similar agents.

[0005] These cleaning compositions are useful and satisfactory for manual brushing of teeth. However, these conventional agents are not satisfactory for use with cosmetic dental

patients with porcelain veneers, caps or crowns. Harder and finer abrasives are typically necessary to accomplish a higher degree of polishing as opposed to mere cleaning of such surfaces to provide a smooth, mirror-like finish.

[0006] There exist presently, polishes that are used with cosmetic dental appliances which contain diamond particles, but they are designed for use in polishing porcelain and composite tooth restoration materials in "chairside applications" as well as being useful in laboratory and industrial applications. Products such as diamond particles in a glycerin base paste have been used in dental offices for years for porcelain crowns.

[0007] The use of diamond particulates in a dentifrice for use by patients at home has not previously been available due to the general understanding by those of ordinary skill in the dental or oral hygiene arts, that diamond particles are too abrasive for use on natural tooth enamel by the ordinary consumer.

BRIEF SUMMARY OF THE INVENTION

[0008] The dentifrice of the present invention can provide cleaning and a higher gloss than conventional compositions known in the art.

[0009] The instant invention is directed to a dentifrice (toothpaste, brushing gel, etc ...). More specifically, the instant invention is directed to specifically cleaning cosmetic dental surfaces such as porcelain, composites and also natural teeth with a gel or paste comprising a diamond abrasive or diamond particulates such as diamond dust.

[0010] It has been surprisingly found that a dentifrice or polishing composition comprising diamond particulates can be prepared that will maintain the luster and gloss of porcelain dental work with low abrasion on natural tooth enamel. The composition may include many compounds useful in toothpastes and gels, such as flavoring agents, thickeners, stabilizing agents, colors, humectants and other compounds suitable for use in oral care applications.

[0011] In an embodiment, the invention provides a dentifrice or polishing composition comprising diamond particles. In another embodiment, the diamond particles are in an amount and size which is effective to maintain the luster and gloss of porcelain dental work with low abrasion on natural tooth enamel, such as diamond dust.

[0012] In an embodiment, the invention also provides a dentifrice or polishing composition comprising diamond particles which will also prevent dental caries by addition of sodium fluoride.

[0013] In another embodiment, the invention provides a dentifrice or polishing composition comprising diamond particles which also comprises other whitening or abrasive agents.

[0014] In yet another embodiment, the invention provides a dentifrice or polishing composition comprising diamond particles in a size and an amount effective to remove surface stains from porcelain dental appliances and tooth enamel.

[0015] In another embodiment the invention provides a method of cleaning or polishing a dental surface, wherein said method comprises the steps of applying the dentifrice or polishing composition of the present invention to a dental surface, and brushing said dental surface with said composition for a therapeutically effective period of time.

[0016] The invention, together with other features and advantages, which will become subsequently apparent, reside in the details of the technology as more fully hereinafter described and claimed.

DETAILED DESCRIPTION OF THE INVENTION

[0017] In describing embodiments of the invention, specific terminology will be resorted to for the sake of clarity. However, the invention is not intended to be limited to the specific terms so selected, and it is to be understood that each specific term includes all technical equivalents which operate in a similar manner to accomplish a similar purpose.

[0018] The following examples further illustrate the invention but, of course, should not be construed as in any way limiting its scope.

[0019] In the present invention, there is thus provided a dentifrice or polishing composition comprising diamond powder and at least one or more of the following components: xylitol, sodium fluoride, water, glycerin, sorbitol, silica, cocamidopropyl betaine, and titanium dioxide.

[0020] In another embodiment, the above dentifrice or polishing composition may also comprise flavoring agents and sweetening agents.

[0021] The dentifrice or polishing composition of the present invention also may comprise binders such as xanthan gum and other gums, sodium alginate, sodium carboxymethylcellulose, carrageenan, xanthan gum, sodium polyacrylate, hydroxyethyl cellulose, hydroxypropyl cellulose, pectin, tragacanth gum, arabic gum, guar gum, karaya gum, locust bean gum, gellan gum, tamarind gum, Psyllium seed gum, polyvinyl alcohol, sodium chondroitin sulfate, and methoxyethylene-maleic anhydride copolymer. It is contemplated that binders can comprise between 0.1% and about 10% by weight of the composition.

[0022] In one embodiment it is contemplated that the dentifrice or polishing composition of the present invention comprises natural plant extracts, such as chamomile extract, and may also contain herbal extracts such as sage extract in a concentration range of about 0.1 to 5% by weight.

[0023] In an embodiment, the dentifrice or polishing composition comprises, in addition to the above-described components, a foaming agent, a foaming assistant, an abrasive, a humectant, a sweetener, a preservative, an enzyme, a pH regulator, a bactericide, a medicinal component, a pigment, a colorant and flavoring agent.

[0024] The orally-acceptable dentifrice vehicle used to prepare an embodiment of the present invention comprises a water-phase, containing a humectant therein. Examples of the possible humectants included in the present invention include glycerin, sorbitol, propylene glycol, polyethylene glycol, xylitol, maltitol, lactitol and trehalose.

[0025] The humectant can include glycerin, sorbitol, xylitol, and/or propylene glycol of molecular weight in the range of 200-1,000; but, other humectants and mixtures thereof may also be employed. The humectant concentration typically totals about 5 to about 70% by weight of the oral composition. In an embodiment of the present invention, the humectant comprises about 30% to about 50% by weight of the composition. Water is a preferred diluent and in some compositions, such as mouthwashes and whitening liquids, it is commonly accompanied by an alcohol, e.g., ethanol. The weight ratio of water to alcohol in a mouthwash composition is generally about 1:1 to about 20:1, for example about 3:1 to about 20:1 or about 4:1 to about 10:1.

[0026] Reference hereto to sorbitol refers to the material typically commercially available as a 70% aqueous solution. Water is present typically in amount of at least about 10% by weight, and generally about 25 to 70% by weight of the oral composition. Water employed

in the preparation of commercially suitable toothpastes should preferably be deionized and free of organic impurities, such as USP grade water. These amounts of water include the free water which is added plus that which is introduced with other materials such as with sorbitol.

[0027] Xylitol is a non-cariogenic carbohydrate and has a variety of uses including, but not limited to, a non-cariogenic sweetener, a humectant, and an anti-caries agent. Reference here to xylitol refers to the material typically commercially available and is typically present in a concentration range of about 0.1 to about 5% by weight.

[0028] It is contemplated that diamond particles or diamond dust present included in the dentifrice or polishing composition of the present invention is considered to be an abrasive component of the invention. In an embodiment, the diamond particles are present in a size range of about 0.01 μm to about 5.0 μm in diameter. In another embodiment, the diamond particles are present in a size range of about 0.05 μm to about 1.0 μm in diameter. In yet another embodiment, the diamond particles are present in a size range of about 0.02 μm to about 0.8 μm . In another embodiment, the diamond particles are present in a size range of about 0.05 μm to 0.6 μm . In a further embodiment, the diamond particles are present in a size range of about 0.1 μm to about 0.5 μm .

[0029] The diamond particulates included in the present composition can be from any commercially available source. It is typically sold in various sizes or meshes and is used primarily in the grinding and polishing arts. It is contemplated that the diamond powder included in the present composition is of superabrasive quality. The diamond particles are also available in mesh sizes. In an embodiment, the diamond particles are present in a size range of about 8000 to about 60,000 mesh. In another embodiment, the diamond particles are present in a size range of about 14,000 to about 60,000 mesh. In yet another embodiment, the diamond particles are present in a size range of about 28,000 to about 60,000 mesh.

[0030] The diamond particles can be obtained from any commercially available source. In an embodiment, the diamond particles obtained were in a size range of about 0.01 to about 0.5 μm in diameter (Diamond Technologies, Ltd., Bangkok, 10500, Thailand).

[0031] The concentration of the diamond powder in the composition of the present invention also contributes to its effectiveness as a cleaning and polishing agent. It is understood that the diamond particulates included in the present invention contribute to the higher gloss values obtained when compared to standard dentifrices or polishes. The

concentration of the components and of the diamond powder included in the present invention is expressed in percent by weight. In an embodiment, the diamond particles included in the present invention can comprise between about 0.001% to about 1.0% of the total composition by weight. In another embodiment, the diamond particles of the present invention can comprise between about 0.005% to about 0.5% of the total composition by weight. In a further embodiment, the diamond particles of the present invention can comprise between about 0.005% to about 0.05% of the total composition by weight. In yet another embodiment, the diamond particles of the present invention can comprise between about 0.002% to about 0.02% of the total composition by weight. In another embodiment, the diamond particles of the present invention can comprise between about 0.01% to about 0.02% of the total composition by weight.

[0032] While it is contemplated that the diamond particulates comprise the abrasive component of the present invention, however, other typical dental abrasives can also be included in conjunction with the diamond particulates. In an embodiment of the present invention other abrasive agents included in the present invention comprise silica abrasives such as precipitated silica, silica gel, aluminosilicate and zirconosilicate, secondary calcium phosphate dihydrate or anhydrate, calcium pyrophosphate, calcium carbonate, alumina, aluminum hydroxide, magnesium acetate, tertiary magnesium phosphate, zeolite and synthetic resin abrasives. In an embodiment, commercially available silicas can be used. For example, silicas such as SIDENT® 9 and SIDENT® 22 made by Degussa are used (Degussa Corp. Parsippany, NJ). These silicas have low oil absorption and medium hardness, and have a particle size of between about 9 and about 22 microns in diameter. However, a range of between about 2 and about 30 microns in diameter can be used in the present invention.

[0033] Commercially available abrasives may be used in combination with the diamond powder and include precipitated silicas having a mean particle size of up to about 20 microns, such as ZEODENT® 115 (J.M. Huber Chemicals Division, Havre de Grace, MD), or SYLODENT® 783 (Davison Chemical Division of W.R. Grace & Co. Columbia, MD). Among insoluble phosphates useful as abrasives are orthophosphates, polymetaphosphates and pyrophosphates. Illustrative examples are dicalcium orthophosphate dihydrate, calcium pyrophosphate, β -calcium pyrophosphate, tricalcium phosphate, calcium polymetaphosphate and insoluble sodium polymetaphosphate. One or more additional abrasives are optionally present in an abrasive effective total amount, typically about 5% to about 70%, for example

about 10% to about 50% or about 15% to about 30% by weight of the composition. Average particle size of an abrasive, if present, is generally about 0.1 to about 30 μm , for example about 1 to about 20 μm or about 5 to about 15 μm .

[0034] Sweetening agents of the present invention include sodium saccharin, aspartame, sucralose, thaumatin, acesulfame potassium, stevioside, stevia extract, paramethoxy cinnamic aldehyde, neohesperidyl dihydrochalcone and perillartine. Sweeteners among those useful herein also include orally acceptable natural or artificial, nutritive or non-nutritive sweeteners. Such sweeteners in the present invention can include dextrose, polydextrose, sucrose, maltose, dextrin, dried invert sugar, mannose, xylose, ribose, fructose, levulose, galactose, corn syrup (including high fructose corn syrup and corn syrup solids), partially hydrolyzed starch, hydrogenated starch hydrolysate, sorbitol, mannitol, xylitol, maltitol, isomalt, neotame, saccharin and salts thereof, sucralose, dipeptide-based intense sweeteners, cyclamates, dihydrochalcones, and mixtures thereof. One or more sweeteners are optionally present in a total amount depending strongly on the particular sweetener(s) selected, but typically at levels of from about 0.005% to about 5% by weight, optionally from about 0.01% to about 1% by weight.

[0035] Plant extracts among those useful herein include pine, licorice, cassia seed, cinnamon, nothosmyrnium root, sophora, lonicera flower, platycodon, green tea, dayflower, Korean angelica root, liriopoe rhizome, moutan, Arabian myrrh, seseleos radix, Angelicae Dahuricae Radix, Lagerstroemia indica, morus bark, ginger, sanguinaria, asarum, cimicifuga, Chinese galls, grapefruit seed, lycium root, cnidium, Alpinia katsumadai Hayata, gardenia, Lythrum salicaria L., dandelion, propolis, flavonoid, nepta herb, Reynoutria japonica Houtt., scutellaria, machilia, black adzuki bean, camomile, ratanhia or sage oil. In an embodiment, the plant extract is a combination of two or more plant extracts. In another embodiment, the plant extract is a combination of three or more different plant extracts, for example, camomile flower extract, sage leaf extract and peppermint leaf extract. Plant extracts can be obtained from any commercially available source. In one embodiment, extracts were obtained from Alban Muller International, Vincennes, France. Plant extracts are provided in an embodiment in a concentration between about 0.1% to about 5% by weight.

[0036] In an embodiment, a combination of three plant extracts is contemplated. The combination includes camomile flower extract, sage leaf extract and peppermint leaf extract.

The three plant extract is provided in an embodiment in a concentration between about 0.1% to about 5% by weight.

[0037] Plant extracts contemplated herein also include aloe vera extracts, such as aloe vera oil. U.S. Pat. No. 3,892,853 to Henry H. Cobble teaches the use of aloe vera gel by physicians and dentists in relieving pain and in promoting healing of topical and other lesions. Other toothpastes use aloe vera, a bacteriostatic or bactericidal agent, to remove bacteria which are known to cause plaque. This has also been noted to have a natural antibiotic action, see for example, U.S. patent 5,294,434 to King et al. In an embodiment, the composition of the present invention comprises aloe vera oil in gel form; however other forms of aloe vera can be used.

[0038] Flavoring agents among those useful herein include any material or mixture of materials operable to enhance the taste of the present composition. Any orally acceptable natural or synthetic flavorant can be used, such as flavoring oils, flavoring aldehydes, esters, alcohols, similar materials, and combinations thereof. Flavoring agents include vanillin, sage, marjoram, parsley oil, spearmint oil, cinnamon oil, oil of wintergreen (methyl salicylate), peppermint oil, clove oil, bay oil, anise oil, eucalyptus oil, citrus oils, fruit oils and essences including those derived from lemon, orange, lime, grapefruit, apricot, banana, grape, apple, strawberry, cherry, pineapple, etc., bean- and nut-derived flavors such as coffee, cocoa, cola, peanut, almond, etc., adsorbed and encapsulated flavorants, and mixtures thereof. Also encompassed within flavorants herein are ingredients that provide fragrance and/or other sensory effect in the mouth, including cooling or warming effects. Such ingredients include methol, menthyl acetate, menthyl lactate, camphor, eucalyptus oil, eucalyptol, anethole, eugenol, cassia, oxanone, .alpha.-irisone, propenyl guaithol, thymol, linalool, benzaldehyde, cinnamaldehyde, N-ethyl-p-menthan-3-carboxamine, N,2,3-trimethyl-2-isopropylbutanamide, 3-1-menthoxypropane-1,2-diol, cinnamaldehyde glycerol acetal (CGA), methone glycerol acetal (MGA), 1-menthol, carvone, anethole, eugenol, limonene, peppermint oil, spearmint oil, ocimene, n-amyl alcohol, citronellol, a-terpineol, methyl salicylate, methyl acetate, citronellol acetate, cineol, linalool, ethyl linalool, capsaicin and mixtures thereof. One or more flavorants are optionally present in a total amount of about 0.01% to about 5% by weight, optionally in various embodiments from about 0.05 to about 2% by weight, from about 0.1% to about 2.5% by weight, and from about 0.1 to about 0.5% by weight.

[0039] Colorants among those useful herein include pigments, dyes, lakes and agents imparting a particular luster or reflectivity such as pearling agents. In various embodiments, colorants are operable to provide a white or light-colored coating on a dental surface, to act as an indicator of locations on a dental surface that have been effectively contacted by the composition, and/or to modify appearance, in particular color and/or opacity, of the composition to enhance attractiveness to the consumer. Any orally acceptable colorant can be used, including FD&C dyes and pigments, talc, mica, magnesium carbonate, calcium carbonate, magnesium silicate, magnesium aluminum silicate, silica, titanium dioxide, zinc oxide, red, yellow, brown and black iron oxides, ferric ammonium ferrocyanide, manganese violet, ultramarine, titanated mica, bismuth oxychloride, and mixtures thereof. One or more colorants are optionally present in a total amount of about 0.001% to about 20% by weight, for example about 0.01% to about 10% by weight or about 0.1% to about 5% by weight.

[0040] Fragrances and aromas may also be added to the dentifrice composition. For example, aromas of peppermint or spearmint are commercially available. In an embodiment, a fragrance is added to the dentifrice composition in a concentration of about 0.01% to about 5% by weight. In another embodiment, a fragrance is added to the dentifrice in a concentration of about 0.5 to about 1.5% by weight. Aromas and fragrances can be obtained from any commercially available source. In one embodiment, extracts were obtained from Curt Georgi GmbH & Co. KG, 71034 Boeblingen, Germany.

[0041] The dentifrice composition of the present invention may include other various effective ingredients include water-soluble phosphoric acid compounds such as potassium salt or sodium salt of orthophosphoric acid, allantoin chlorohydroxyaluminum, hinokitiol, lysozyme chloride, sodium chloride, epsilon-aminocaproic acid, dl-tocopherol acetate, azulene, copper compounds such as sodium copper chlorophyllin and copper gluconate, aluminum lactate, strontium chloride, potassium nitrate, berberine, hydroxamic acid and derivatives thereof, sodium tripolyphosphate, zeolite, dextranase, mutanase, amylase, methoxyethylene, maleic anhydride copolymer, polyvinylpyrrolidone, epidihydrocholesterin, dihydrocholesterol, zinc citrate, clove, rosemary, scutellaria roots, safflower, and the like, .alpha.-bisabolol, chlorhexidine salts, triclosan, cetylpyridinium chloride, benzethonium chloride, and trichlorocarbanilide.

[0042] It is understood that for pH modifying agents among those useful herein include acidifying agents to lower pH, basifying agents to raise pH, and buffering agents to control

pH within a desired range. For example, one or more compounds selected from acidifying, basifying, and buffering agents can be included to provide a pH of about 2 to about 10, or in various embodiments from about 2 to about 8, from about 3 to about 9, from about 4 to about 8, from about 5 to about 7, from about 6 to about 10, and from about 7 to about 9. Any orally acceptable pH modifying agent can be used including, but not limited to, those described above herein. One or more pH modifying agents are optionally present in a total amount effective to maintain the composition in an orally acceptable pH range.

[0043] The compositions of the present invention optionally comprise one or more additional active ingredient(s), which is operable for the prevention or treatment of a condition or disorder of hard or soft tissue of the oral cavity, the prevention or treatment of a physiological disorder or condition, or to provide a cosmetic benefit. In various embodiments, the active ingredient is a "systemic active ingredient" which is operable to treat or prevent a disorder which, in whole or in part, is not a disorder of the oral cavity. In various embodiments, the active is an "oral care active ingredient" operable to treat or prevent a disorder or provide a cosmetic benefit within the oral cavity (e.g., to the teeth, gingiva or other hard or soft tissue of the oral cavity). Oral care actives among those useful herein include whitening agents, anticaries agents, tartar control agents, periodontal actives, abrasives, breath freshening agents, malodour control agents, tooth desensitizers, salivary stimulants, antibacterial agents, and combinations thereof. It is understood that while general attributes of each of the above categories of actives may differ, there may be some common attributes and any given material may serve multiple purposes within two or more of such categories of actives.

[0044] The compositions of the present invention optionally comprise an antimicrobial (e.g., antibacterial) agent. One or more such agents can be present. Suitable examples include without limitation copper (II) compounds such as copper (II) chloride, fluoride, sulfate and hydroxide, zinc ion sources such as zinc acetate, zinc citrate, zinc gluconate, zinc glycinate, zinc oxide, zinc sulfate and sodium zinc citrate, phthalic acid and salts thereof such as magnesium monopotassium phthalate, hexetidine, octenidine, sanguinarine, benzalkonium chloride, domiphen bromide, alkylpyridinium chlorides such as cetylpyridinium chloride (CPC) (including combinations of CPC with zinc and/or enzymes), tetradecylpyridinium chloride and N-tetradecyl-4-ethylpyridinium chloride, iodine, sulfonamides, bisbiguanides such as alexidine, chlorhexidine and chlorhexidine digluconate, piperidino derivatives such as

delmopinol and octapinol, magnolia extract, grapeseed extract, menthol, geraniol, citral, eucalyptol, antibiotics such as augmentin, amoxicillin, tetracycline, doxycycline, minocycline, metronidazole, neomycin, kanamycin and clindamycin, and the like. Other suitable antibacterial agents include non-ionic and anionic antibacterial agents known to one of skill in the art. For example, non-ionic antibacterial agents include the substantially water insoluble, noncationic antibacterial agents such as alkylphenoxy phenols; cycloalkyl-phenoxyphenols; 9,10-dihydrophenanthrenol; alkylphenols; cycloalkyl-phenols; phenolic compounds; halogenated carbanilides; halogenated salicylanilides; benzoic esters; halogenated diphenyl ethers, and mixtures thereof. A particularly suitable non-ionic antibacterial agent is a diphenyl ether such as 2,4,4'-trichloro-2'-hydroxydiphenyl ether (Triclosan) and 2,2'-dihydroxy-5,5'-dibromodiphenyl ether. A further illustrative list of useful antibacterial agents is provided in U.S. Pat. No. 5,776,435 to Gaffar et al. One or more antimicrobial agents are optionally present in an antimicrobially effective total amount, typically about 0.05% to about 10%, for example about 0.1% to about 3% by weight, of the composition.

[0045] The compositions of the present invention optionally comprise an antiplaque (e.g., plaque disrupting) agent. One or more such agents can be present in an antiplaque effective total amount. Suitable antiplaque agents include without limitation xylitol, stannous, copper, magnesium and strontium salts, dimethicone copolyols such as cetyl dimethicone copolyol, papain, glucoamylase, glucose oxidase, urea, calcium lactate, calcium glycerophosphate, strontium polyacrylates and chelating agents such as citric and tartaric acids and alkali metal salts thereof.

[0046] The compositions of the present invention optionally comprise a desensitizing, or tooth sensitivity protecting agent. One or more such agents can be included. Suitable desensitizing agents include, without limitation, potassium salts such as potassium citrate, potassium tartrate, potassium chloride, potassium sulfate and potassium nitrate. Another suitable desensitizing agent is sodium nitrate. Alternatively, or in addition, a local or systemic analgesic such as aspirin, codeine, acetaminophen, sodium salicylate or triethanolamine salicylate can be used. One or more desensitizing agents and/or analgesics are optionally present in a desensitizing and/or analgesic effective amount, typically about 0.05% to about 5%, for example about 0.1% to about 3% by weight, of the composition.

[0047] The ingredients of the present invention must be non-toxic, for example, the ingredients can meet or exceed food, cosmetic or U.S.P. grade materials, or otherwise are suitable for use in an oral care product. The gelling agents include an edible gum and a seaweed extract, both of which are food or cosmetic quality and have been used in a variety of food applications. All of the above ingredients are readily available in U.S.P. or food grade.

[0048] It is contemplated that an effective amount of recommended and well-known preservatives are included in the composition of the present invention, such as methyl paraben and propyl paraben. These preservatives are soluble in glycerin and other equivalent humectants. Methyl and propyl paraben may be added in the present invention in typical effective amounts of about 0.2 and about 0.1 weight percent respectively.

[0049] In various embodiments, toothpastes, creams and gels contain a natural or synthetic thickener or gelling agent, which, other than silica thickeners, include natural and synthetic gums and colloids. In a still further embodiment a composition of the invention comprises at least one thickening agent, useful for example to impart a desired consistency and/or mouth feel to the composition. Any orally acceptable thickening agent can be used, including without limitation carbomers, also known as carboxyvinyl polymers, carrageenans, also known as Irish moss and more particularly ι -carrageenan (iota-carrageenan), cellulosic polymers such as hydroxyethylcellulose, carboxymethylcellulose (CMC) and salts thereof, e.g., CMC sodium, natural gums such as karaya, xanthan, gum arabic and tragacanth, colloidal magnesium aluminum silicate, colloidal silica, cocamidopropyl betaine and the like. One or more thickening agents are optionally present in a total amount of about 0.01% to about 15%, for example about 0.1% to about 10% or about 0.2% to about 5% by weight of the composition.

[0050] The gums that are contemplated for use as thickeners in the present invention also include gum tragacanth, a relatively well-known water soluble, edible gum and such gums have been used in prior dental paste and cream formulations. Agar is a commonly known edible, seaweed extract. It is considered to be a non-sulfated linear molecule composed of alternating residues of 1,3, beta D-galactopyranose and 1,4-3,6 anhydro-alpha-L-galactopyranose together with a non-gelling or very weak gelling agaropectin composed of a complicated acidic polymer containing ester sulfate groups and organic acid groups. Other seaweed extracts in the form of commercially prepared propylene glycol alginate, algin or certain carrageenans can be substituted for agar.

[0051] Foam modulators useful herein include materials operable to increase amount, thickness, or stability of foam generated by the composition (e.g., dentifrice or polish compositions) upon agitation. Any orally acceptable foam modulator can be used, including polyethylene glycols (PEGs), also known as polyoxyethylenes. High molecular weight PEGs are suitable, including those having an average molecular weight of about 200,000 to about 7,000,000, for example about 500,000 to about 5,000,000 or about 1,000,000 to about 2,500,000. one or more PEGs are optionally present in a total amount of about 0.1% to about 10% by weight, for example about 0.2% to about 5% by weight or about 0.25% to about 2% by weight.

[0052] Methods are provided to polish or whiten dental surfaces and/or treat or prevent dental caries in a human or animal subject comprising administering a safe and effective amount of a dentifrice or polish composition to the dental surfaces of the subject, using a brush or other suitable applicator or appliance, the composition comprising: water, a humectant and diamond powder wherein the diamond powder is present in a range of about 0.001 to about 0.1% by weight. As used herein "animal subject" includes higher order non-human mammals such as canines and felines. The dentifrice or polish composition is contacted with dental, porcelain or composite covered surfaces of the mammalian subject to thereby provide cleaning and polishing of said surfaces of the teeth in a highly efficacious manner.

[0053] In an embodiment, the dentifrice composition contains aloe vera extract in various forms, including powder, oil or gel form. The aloe vera extract can be from any commercially available source that is food grade or USP grade, or otherwise suitable for an oral care product. For example, the aloe vera oil can be obtained from Textron Technica S. L. (Barcelona, Spain 08402), or from Florida Food Products, Inc. (Eustis, FL). It is contemplated that the aloe vera extract can be present in the dentifrice composition in a concentration of about 0.01 % to about 1 % by weight of the composition.

[0054] In various embodiments, it is preferred that the dentifrice or polish composition of the present invention is applied and contacted with the dental enamel or porcelain or composite surfaces of the teeth or implant or other restoration. In an embodiment, the dentifrice or polish prepared in accordance with the present invention is preferably applied regularly to dental enamel, or porcelain, or composite surfaces, including crowns or other implantable oral devices, such as on a daily basis, at least one time daily for multiple days,

but alternately every second or third day. In another embodiment, the dentifrice composition is applied to the dental or porcelain surfaces from 1 to 3 times daily, for at least 2 weeks up to 8 weeks, from two years to three years, or more up to lifetime.

[0055] The dentifrice or polish composition of the present invention is applied and contacted to the surfaces of the teeth dental enamel, porcelain or composite surfaces, including crowns or other implantable oral devices by any known means, including, but not limited to, toothbrushes, applicators, swabs, dental instruments including motorized or powered implements as well as manual implements.

[0056] The dentifrice compositions of the present invention may be prepared by suitably mixing the ingredients. For instance, in the preparation of a dentifrice, the abrasives, including the diamond powder, are dispersed in a mixture of dry ingredients, e.g., humectants, surfactants, flavoring, additional thickener are then added and mixed. The ingredients are then mixed with deionized water for about 15-30 minutes. The resulting product is then packaged.

[0057] While it is contemplated that application of the dentifrice of the present invention will be on dental surfaces of natural teeth as well as porcelain, ceramic and composite dental surfaces, it is also an embodiment of the invention to apply the composition on dental implants and also to older dental restorative devices, such as bridgework, that have been used by a patient for years. In one embodiment, the dentifrice of the present invention can be used to restore discolored veneers or crowns or bridgework to a significantly whiter color, and glossier and smoother finish.

[0058] It is contemplated that the dentifrice or polish composition can be included in a kit. In an embodiment, the kit of the present invention comprises the dentifrice or polish composition and a brush or other suitable applicator or appliance. In another embodiment, the kit of the present invention may comprises the dentifrice or polish composition and a brush or other suitable applicator or appliance, along with instructions in printed form.

EXAMPLES

[0059] A dentifrice composition is prepared according to the following table. In an embodiment, the composition of the tooth polish of the present invention includes the following:

Ingredient	Percent by weight (wt %)
Water (demi)	10-70
Xanthan gum	0.1-10
Sorbitol	5.0-30
Glycerin	5.0-30
Plant extract (chamomile flower extract, sage leaf extract, peppermint leaf extract)	0.1-5.0
Xylitol	0.05-5.0
Sodium monofluorophosphate (USP)	0.1-2.0
Silica-SIDENT 9 (Degussa)	0.1-20.0
Silica-SIDENT 22 S (Degussa)	0.1-20.0
TiO ₂ (Titanium Dioxide)	0.1-5.0
Diamond Powder MSY 0.5 μ	0.001-1.0

EXAMPLE 1

[0060] A dentifrice composition is prepared according to the following table. In an embodiment, the composition of the tooth polish of the present invention includes the following:

Ingredient	Percent by weight (wt %)
Water (demi)	23.49
Xanthan gum	1.00
Sorbitol	20.00
Glycerin	21.00
Plant extract (chamomile flower extract, sage leaf extract, peppermint leaf extract)	0.50
Xylitol	0.20
Sodium monofluorophosphate (USP)	0.70
Silica- SIDENT 9 (Degussa)	6.00
Silica- SIDENT 22 S (Degussa)	13.00
TiO ₂ (Titanium Dioxide)	1.00

Diamond Powder MSY 0.5 μ	0.01
Cocamidopropyl Betaine	2.00
Aloe vera oil gel	0.10
Mint Fragrance	1.00

EXAMPLE 2

[0061] In another embodiment for whitening, the composition of the tooth polish of the present invention includes the following:

Ingredient	Percent by weight (wt %)
Water (demi)	23.49
Xanthan gum	1.00
Sorbitol	20.00
Glycerin	21.00
Plant extract (chamomile flower extract, sage leaf extract, peppermint leaf extract)	0.50
Xylitol	0.20
Sodium monofluorophosphate (USP)	0.70
Silica- SIDENT 9 (Degussa)	6.00
Silica- SIDENT 22 S (Degussa)	13.00
TiO ₂ (Titanium Dioxide)	1.00
Diamond Powder MSY 0.5 μ	0.01
Cocamidopropyl Betaine	2.00
Aloe vera oil gel	0.10
Mint Fragrance	1.00
Sodium Bicarbonate (NaHCO ₃)	5.00

EXAMPLE 3

[0062] In an embodiment useful for patients with sensitive teeth, the composition of the tooth polish of the present invention includes the following:

Ingredient	Percent by weight (wt %)
Water (demi)	23.49
Xanthan gum	1.00
Sorbitol	20.00
Glycerin	21.00
Plant extract (chamomile flower extract, sage leaf extract, peppermint leaf extract)	0.50
Xylitol	0.20
Sodium monofluorophosphate (USP)	0.70
Silica- SIDENT 9 (Degussa)	6.00
Silica- SIDENT 22 S (Degussa)	13.00
TiO ₂ (Titanium Dioxide)	1.00
Diamond Powder MSY 0.5 μ	0.01
Cocamidopropyl Betaine	2.00
Aloe vera oil gel	0.10
Mint Fragrance	1.00
Potassium Nitrate	5.00

EXAMPLE 4

[0063] In an embodiment, a plaque fighting composition of the tooth polish of the present invention includes the following:

Ingredient	Percent by weight (wt %)
Water (demi)	23.49
Xanthan gum	1.00

Sorbitol	20.00
Glycerin	21.00
Plant extract (chamomile flower extract, sage leaf extract, peppermint leaf extract)	0.50
Xylitol	0.50
Sodium monofluorophosphate (USP)	0.70
Silica- SIDENT 9 (Degussa)	6.00
Silica- SIDENT 22 S (Degussa)	13.00
TiO ₂ (Titanium Dioxide)	1.00
Diamond Powder MSY 0.5 μ	0.01
Cocamidopropyl Betaine	2.00
Aloe vera oil gel	0.10
Mint Fragrance	1.00

EXAMPLE 5

[0064] In an embodiment, a tartar control composition of the tooth polish of the present invention includes the following:

Ingredient	Percent by weight (wt %)
Water (demi)	23.49
Xanthan gum	1.00
Sorbitol	20.00
Glycerin	21.00
Plant extract (chamomile flower extract, sage leaf extract, peppermint leaf extract)	0.50
Xylitol	0.20
Sodium monofluorophosphate (USP)	0.70
Silica- SIDENT 9 (Degussa)	6.00
Silica- SIDENT 22 S (Degussa)	13.00
TiO ₂ (Titanium Dioxide)	1.00
Diamond Powder MSY 0.5 μ	0.01

Cocamidopropyl Betaine	2.00
Aloe vera oil gel	0.10
Mint Fragrance	1.00
Zinc Citrate	5.00

EXAMPLE 6

[0065] In an embodiment, an extra strength composition of the tooth polish of the present invention includes the following:

Ingredient	Percent by weight (wt %)
Water (demi)	23.49
Xanthan gum	1.00
Sorbitol	20.00
Glycerin	21.00
Plant extract (chamomile flower extract, sage leaf extract, peppermint leaf extract)	0.50
Xylitol	0.20
Sodium monofluorophosphate (USP)	0.70
Silica- SIDENT 9 (Degussa)	6.00
Silica- SIDENT 22 S (Degussa)	13.00
TiO ₂ (Titanium Dioxide)	1.00
Diamond Powder MSY 0.5 μ	0.05
Cocamidopropyl Betaine	2.00
Aloe vera oil gel	0.20
Mint Fragrance	1.00
Zinc Citrate	5.00

EXAMPLE 7

[0066] In an embodiment, a milder polish composition of the tooth polish of the present invention includes the following:

Ingredient	Percent by weight (wt %)
Water (demi)	23.49
Xanthan gum	1.00
Sorbitol	20.00
Glycerin	21.00
Plant extract (chamomile flower extract, sage leaf extract, peppermint leaf extract)	0.50
Xylitol	0.20
Sodium monofluorophosphate (USP)	0.70
Silica- SIDENT 9 (Degussa)	6.00
Silica- SIDENT 22 S (Degussa)	13.00
TiO ₂ (Titanium Dioxide)	1.00
Diamond Powder MSY 0.5 μ	0.005
Cocamidopropyl Betaine	2.00
Aloe vera oil gel	0.10
Mint Fragrance	1.00
Zinc Citrate	5.00

EXAMPLE 8

[0067] A controlled study was performed by the College of Dental Medicine at Nova Southeastern University in Ft. Lauderdale Florida. The study was designed to determine how well the inventive dentifrice composition polished surfaces using a standard brushing protocol on eight different porcelain, ceramic and composite surfaces against a standard toothpaste (Regular CREST® toothpaste) and a standard polish (SUPERSMILE® a mixture of bicarbonate of soda and other components). Gloss and Roughness of the samples were measured at the start (baseline) and after one year of simulated brushing. The brushing was performed on a V-8 Cross Brushing Machine (Sabri Dental Enterprises, Inc., Il). The samples were brushed for 10,000 cycles which is equivalent to one year of brushing. The brushes used were standard American Dental Association manual toothbrushes (Henry

Schein, Inc. Melville, NY). A standard slurry was made using 37 g of polish and 37 ml of distilled water to polish the test surfaces. Only one surface was brushed in each test.

[0068] Gloss Results. Gloss of the brushed surface was measured using a Novo-Curve curved surface glossmeter (Rhopoint Instrumentation, Ltd. 12 Beeching Road, Bexhill-on-Sea, East Sussex, TN39 3LG, UK).

[0069] Testing showed that the highest gloss scores during brushing were found with dentifrice or polish of the present invention and the standard polish. However, gloss scores taken after brushing was completed found that dentifrice or polish of the present invention produced the highest gloss score, while the standard polish actually had the lowest after brushing score.

[0070] Roughness Results. Roughness of the test surfaces was measured using a MicroXam optical surface profiler (Phase-Shift, Inc. Tucson AZ). The testing showed that, overall, the standard control test toothpaste had the highest scores for roughness. The dentifrice or polish of the present invention had only slightly greater roughness scores than the standard polish, thus it produced a smoother tooth surface than the standard toothpaste.

[0071] The results from both tests show that dentifrice or polish of the present invention comprising diamond particles produced a glossier and a smoother surface than standard toothpaste, and was safe to use on teeth on a daily basis.

EXAMPLE 9

[0072] The dentifrice or polish composition according to Example 1 is administered to a human subject having existing porcelain veneers or composite on their teeth. The composition is applied with a toothbrush to the dental surfaces twice daily for three months to whiten and polish the teeth and veneer surfaces and reduce plaque formation. After application, the natural tooth, porcelain and composite surfaces have increased gloss and whiteness and a smoother finish.

EXAMPLE 10

[0073] The dentifrice or polish composition according to Example 1 is applied to older dental restorations that have become discolored after years of use. The composition is

applied with a toothbrush twice daily for two weeks to three months to whiten and polish the teeth and veneer surfaces and reduce plaque formation. After application, the whiteness, gloss and luster of the older restorations are improved significantly.

EXAMPLE 11

[0074] A controlled study is designed to determine how well the inventive dentifrice composition polished surfaces using a standard brushing protocol on eight different porcelain, ceramic and composite surfaces that are made to simulate older aged dental surfaces and restorations against a standard toothpaste (Regular CREST® toothpaste) and a standard polish (SUPERSMILE® a mixture of bicarbonate of soda and other components). The aging will be simulated by pre-abrading the various surfaces sufficiently to mimic two or more years of use in a patient. Gloss and Roughness of the samples will be measured at the start (baseline) and after one year of simulated brushing. The brushing will be performed on a V-8 Cross Brushing Machine (Sabri Dental Enterprises, Inc., Il). The samples will be brushed for 10,000 cycles which is equivalent to one year of brushing. The brushes used will be standard American Dental Association manual toothbrushes (Henry Schein, Inc. Melville, NY). A standard slurry will be made using 37 g of polish and 37 ml of distilled water to polish the test surfaces. Only one surface will be brushed in each test.

[0075] All references, including publications, patent applications, and patents, cited herein are hereby incorporated by reference to the same extent as if each reference were individually and specifically indicated to be incorporated by reference and were set forth in its entirety herein.

[0076] The use of the terms “a” and “an” and “the” and similar referents in the context of describing the invention (especially in the context of the following claims) are to be construed to cover both the singular and the plural, unless otherwise indicated herein or clearly contradicted by context. The terms “comprising,” “having,” “including,” and “containing” are to be construed as open-ended terms (i.e., meaning “including, but not limited to,”) unless otherwise noted. Recitation of ranges of values herein are merely intended to serve as a shorthand method of referring individually to each separate value falling within the range, unless otherwise indicated herein, and each separate value is incorporated into the specification as if it were individually recited herein. All methods

described herein can be performed in any suitable order unless otherwise indicated herein or otherwise clearly contradicted by context. The use of any and all examples, or exemplary language (e.g., “such as”) provided herein, is intended merely to better illuminate the invention and does not pose a limitation on the scope of the invention unless otherwise claimed. No language in the specification should be construed as indicating any non-claimed element as essential to the practice of the invention.

[0077] Preferred embodiments of this invention are described herein, including the best mode known to the inventors for carrying out the invention. Variations of those preferred embodiments may become apparent to those of ordinary skill in the art upon reading the foregoing description. The inventors expect skilled artisans to employ such variations as appropriate, and the inventors intend for the invention to be practiced otherwise than as specifically described herein. Accordingly, this invention includes all modifications and equivalents of the subject matter recited in the claims appended hereto as permitted by applicable law. Moreover, any combination of the above-described elements in all possible variations thereof is encompassed by the invention unless otherwise indicated herein or otherwise clearly contradicted by context.

CLAIM(S):

1. A dentifrice or polish effective for whitening teeth having porcelain surfaces suitable for application to teeth in the oral cavity comprising:

(a) 0.001% to about 1.0% of the total composition by weight of diamond particles in a size range of about 0.05 μm to about 5.0 μm in diameter; and

(b) an orally acceptable vehicle.

2. The dentifrice of claim 1, wherein the orally acceptable vehicle is a water-phase vehicle, containing a humectant.

3. The dentifrice or polish of claim 2, wherein the humectant is selected from the group consisting of: glycerin, sorbitol, propylene glycol, polyethylene glycol, xylitol, maltitol, lactitol and trehalose, in a concentration of about 30% to 70% by weight of the composition.

4. The dentifrice or polish of claim 1, wherein the orally acceptable vehicle comprises a binder.

5. The dentifrice or polish of claim 4, wherein the binder is selected from the group consisting of: xanthan gum and other gums, sodium alginate, sodium carboxymethylcellulose, carrageenan, xanthan gum, sodium polyacrylate, hydroxyethyl cellulose, hydroxypropyl cellulose, pectin, tragacanth gum, arabic gum, guar gum, karaya gum, locust bean gum, gellan gum, tamarind gum, Psyllium seed gum, polyvinyl alcohol, sodium chondroitin sulfate, and methoxyethylene-maleic anhydride copolymer.

6. The dentifrice or polish of claim 1, wherein said composition further comprises an abrasive agent.

7. The dentifrice or polish of claim 6, wherein the abrasive agent is selected from the group consisting of: precipitated silica, silica gel, aluminosilicate and zirconsilicate, secondary calcium phosphate dihydrate or anhydrate, calcium pyrophosphate, calcium carbonate, alumina, aluminum hydroxide, magnesium acetate, tertiary magnesium phosphate, zeolite and synthetic resin abrasives.

8. The dentifrice or polish composition of claim 1, further comprising one or more of a flavoring agent, a colorant, an anti-caries agent, a pH modifying agent, plant extracts, antimicrobial agents, anti-plaque agents, thickeners, gums and foam modulators.

9. A dentifrice or polish effective for whitening teeth having porcelain surfaces suitable for application to teeth in the oral cavity having the following composition: diamond particles having a size range of about 0.1 μm to about 0.5 μm and comprising between about 0.002% to about 0.05% of the total composition by weight; a humectant in a concentration of about 5 to about 70% by weight of the composition; a plant extract in a concentration of about 0.1% to about 5% by weight of the composition; a binder in a concentration of about 0.1% to about 10% by weight of the composition; an abrasive agent in a concentration of about 15% to about 30% by weight of the composition.

10. The dentifrice or polish composition of claim 9, further comprising one or more of a flavoring agent, a colorant, an anti-caries agent, a pH modifying agent, antimicrobial agents, anti-plaque agents, thickeners, gums and foam modulators.

11. A dentifrice or polish effective for whitening teeth having porcelain surfaces suitable for application to teeth in the oral cavity having the following composition:

Ingredient	Percent by weight (wt %)
Xanthan gum	1.00

Sorbitol	20.00
Glycerin	21.00
Plant extract (chamomile flower extract, sage leaf extract, peppermint leaf extract)	0.50
Xylitol	0.20
Sodium monofluorophosphate (USP)	0.70
Silica-Sident 9 (Degussa)	6.00
Silica-Sident 22 S (Degussa)	13.00
TiO ₂ (Titanium Dioxide)	1.00
Diamond Powder MSY 0.5 μ	0.01
Cocamidopropyl Betaine	2.00
Aloe vera oil gel	0.10
Aroma Powermint	1.00

and said composition including the remainder as water up to 100 % by weight.

12. The dentifrice or polish composition of claim 11, wherein said composition further comprises a whitening agent.

13. The dentifrice or polish composition of claim 12, wherein said whitening agent comprises about 5 % by weight of Na₂HCO₃.

14. The dentifrice or polish composition of claim 11, wherein said composition further comprising a desensitizing agent.

15. The dentifrice or polish composition of claim 14, wherein said desensitizing agent comprises about 5 % by weight of potassium nitrite.

16. The dentifrice or polish composition of claim 11, wherein said composition further comprises a tartar control agent.

17. The dentifrice or polish composition of claim 16, wherein said tartar control agent comprises about 0.5 % by weight of zinc citrate.

18. The dentifrice or polish composition of claim 11, wherein said composition further comprises an antiplaque agent.

19. The dentifrice or polish composition of claim 18, wherein said tartar control agent comprises about 0.5 % by weight of xylitol.

20. The dentifrice or polish composition of claim 1, wherein the diamond particles constitute about 0.01 to about 0.02 percent by weight of the composition, and have a size range of about 0.03 μm to about 0.07 μm in diameter.

21. A method of cleaning or polishing a dental surface, wherein said method comprises the steps of applying the dentifrice or polish of claim 1 to a dental surface, and brushing said dental surface with said composition for a therapeutically effective period of time.

22. A method of cleaning or polishing an older dental surface, wherein said method comprises the steps of applying the dentifrice or polish of claim 1 to a dental surface, and brushing said dental surface with said composition for a therapeutically effective period of time.

ABSTRACT OF THE DISCLOSURE

A new whitening dentifrice suitable for use with porcelain veneers and dental work as well as with natural tooth enamel comprising diamond particles is disclosed.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	404343
		Application Number	
Title of Invention	DENTAL CLEANING AND POLISHING COMPOSITION COMPRISING DIAMOND PARTICLES		
<p>The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76. This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.</p>			

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- Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

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Attorney Docket Number	404343	Small Entity Status Claimed	<input checked="" type="checkbox"/>
Application Type	Nonprovisional		
Subject Matter	Utility		
Suggested Class (if any)		Sub Class (if any)	
Suggested Technology Center (if any)			
Total Number of Drawing Sheets (if any)	0	Suggested Figure for Publication (if any)	

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	404343
	Application Number	
Title of Invention	DENTAL CLEANING AND POLISHING COMPOSITION COMPRISING DIAMOND PARTICLES	

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	404343
	Application Number	
Title of Invention	DENTAL CLEANING AND POLISHING COMPOSITION COMPRISING DIAMOND PARTICLES	

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Country		Postal Code		
Phone Number		Fax Number		
Email Address				
Additional Assignee Data may be generated within this form by selecting the Add button.				<input type="button" value="Add"/>

Signature:

A signature of the applicant or representative is required in accordance with 37 CFR 1.33 and 10.18. Please see 37 CFR 1.4(d) for the form of the signature.					
Signature	/Joseph G. Contrera/			Date (YYYY-MM-DD)	2009-04-06
First Name	Joseph	Last Name	Contrera	Registration Number	44628

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Patent Application Fee Transmittal

Application Number:				
Filing Date:				
Title of Invention:	DENTAL CLEANING AND POLISHING COMPOSITION COMPRISING DIAMOND PARTICLES			
First Named Inventor/Applicant Name:	Lisa Marie KAO			
Filer:	Joseph Contrera/Malika Ash Shakur			
Attorney Docket Number:	404343			
Filed as Small Entity				
Utility under 35 USC 111(a) Filing Fees				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Utility filing Fee (Electronic filing)	4011	1	82	82
Utility Search Fee	2111	1	270	270
Utility Examination Fee	2311	1	110	110
Pages:				
Claims:				
Claims in excess of 20	2202	2	26	52
Miscellaneous-Filing:				
Petition:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				514

Electronic Acknowledgement Receipt

EFS ID:	5102817
Application Number:	12418927
International Application Number:	
Confirmation Number:	9522
Title of Invention:	DENTAL CLEANING AND POLISHING COMPOSITION COMPRISING DIAMOND PARTICLES
First Named Inventor/Applicant Name:	Lisa Marie KAO
Customer Number:	23548
Filer:	Joseph Contrera/Malika Ash Shakur
Filer Authorized By:	Joseph Contrera
Attorney Docket Number:	404343
Receipt Date:	06-APR-2009
Filing Date:	
Time Stamp:	15:33:47
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	\$514
RAM confirmation Number	1890
Deposit Account	121216
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)

File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal of New Application	404343_Transmittal.pdf	126354 29d60b2baa03e7e84dec549bfa89b4b1398e062d	no	2
Warnings:					
Information:					
2	Oath or Declaration filed	404343_Declaration.pdf	111958 bb197ec6ae94cc92f2adff87c787060098211577	no	2
Warnings:					
Information:					
3		404343_Application.pdf	134533 2451df2f9d8fe9c4d9c35f1a3a4090da255776f	yes	28
	Multipart Description/PDF files in .zip description				
	Document Description	Start	End		
	Specification	1	23		
	Claims	24	27		
	Abstract	28	28		
Warnings:					
Information:					
4	Application Data Sheet	404343_US_ADS_Form_SB_14.pdf	964562 b40213a99ef2499472f49df68ea698b851ccde39	no	4
Warnings:					
Information:					
5	Fee Worksheet (PTO-06)	fee-info.pdf	36450 5e7928981a050e1619316d7f5de3d0a534a14b8e	no	2
Warnings:					
Information:					
Total Files Size (in bytes):			1373857		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Electronic Acknowledgement Receipt

EFS ID:	5102817
Application Number:	12418927
International Application Number:	
Confirmation Number:	9522
Title of Invention:	DENTAL CLEANING AND POLISHING COMPOSITION COMPRISING DIAMOND PARTICLES
First Named Inventor/Applicant Name:	Lisa Marie KAO
Customer Number:	23548
Filer:	Joseph Contrera/Malika Ash Shakur
Filer Authorized By:	Joseph Contrera
Attorney Docket Number:	404343
Receipt Date:	06-APR-2009
Filing Date:	
Time Stamp:	15:33:47
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	\$514
RAM confirmation Number	1890
Deposit Account	121216
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)

File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal of New Application	404343_Transmittal.pdf	126354 29d60b2baa03e7e84dec549bfa89b4b1398e062d	no	2
Warnings:					
Information:					
2	Oath or Declaration filed	404343_Declaration.pdf	111958 bb197ec6ae94cc92f2adff87c787060098211577	no	2
Warnings:					
Information:					
3		404343_Application.pdf	134533 2451df2f9d8fe9c4d9c35f1a3a4090da255776f	yes	28
	Multipart Description/PDF files in .zip description				
	Document Description	Start	End		
	Specification	1	23		
	Claims	24	27		
	Abstract	28	28		
Warnings:					
Information:					
4	Application Data Sheet	404343_US_ADS_Form_SB_14.pdf	964562 b40213a99ef2499472f49df68ea698b851ccde39	no	4
Warnings:					
Information:					
5	Fee Worksheet (PTO-06)	fee-info.pdf	36450 5e7928981a050e1619316d7f5de3d0a534a14b8e	no	2
Warnings:					
Information:					
Total Files Size (in bytes):			1373857		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

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New International Application Filed with the USPTO as a Receiving Office

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Filing Date: 04/06/09

Approved for use through 7/31/2006. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 12/418,927
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APPLICATION AS FILED – PART I
(Column 1) (Column 2)

FOR	NUMBER FILED	NUMBER EXTRA
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A
TOTAL CLAIMS (37 CFR 1.16(i))	22	minus 20 = 2
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3	minus 3 = *
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$260 (\$130 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR	
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))		

SMALL ENTITY

RATE (\$)	FEE (\$)
N/A	82
N/A	270
N/A	110
x\$26	52
x\$110	
195	
TOTAL	514

OTHER THAN SMALL ENTITY

RATE (\$)	FEE (\$)
N/A	
N/A	
N/A	
x\$52	
x\$220	
390	
TOTAL	

* If the difference in column 1 is less than zero, enter "0" in column 2.

APPLICATION AS AMENDED – PART II
(Column 1) (Column 2) (Column 3)

AMENDMENT A	CLAIMS REMAINING AFTER AMENDMENT	MINUS	HIGHEST NUMBER PREVIOUSLY PAID FOR	EQUALS	PRESENT EXTRA
Total (37 CFR 1.16(i))	*	Minus	**	=	
Independent (37 CFR 1.16(h))	*	Minus	***	=	
Application Size Fee (37 CFR 1.16(s))					
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					

SMALL ENTITY

RATE (\$)	ADDITIONAL FEE (\$)
X =	
X =	
N/A	
TOTAL ADD'T FEE	

OTHER THAN SMALL ENTITY

RATE (\$)	ADDITIONAL FEE (\$)
X =	
X =	
N/A	
TOTAL ADD'T FEE	

AMENDMENT B	CLAIMS REMAINING AFTER AMENDMENT	MINUS	HIGHEST NUMBER PREVIOUSLY PAID FOR	EQUALS	PRESENT EXTRA
Total (37 CFR 1.16(i))	*	Minus	**	=	
Independent (37 CFR 1.16(h))	*	Minus	***	=	
Application Size Fee (37 CFR 1.16(s))					
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					

SMALL ENTITY

RATE (\$)	ADDITIONAL FEE (\$)
X =	
X =	
N/A	
TOTAL ADD'T FEE	

OTHER THAN SMALL ENTITY

RATE (\$)	ADDITIONAL FEE (\$)
X =	
X =	
N/A	
TOTAL ADD'T FEE	

- * If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
 - ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
 - *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
- The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.