UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO. : 8,449,831 B2
APPLICATION NO. : 12/178812
DATED : May 28, 2013
INVENTOR(S) : Blackwell et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

On the Title Page:

The first or sole Notice should read --

Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 1141 days.

Signed and Sealed this
Twenty-third Day of May, 2017

Michelle K. Lee
Director of the United States Patent and Trademark 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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/178,812	07/24/2008	Bryan E. Blackwell	106389-1403	7029

116387 7590 12/26/2014

Foley & Lardner LLP
3000 K Street N.W.
Suite 600
Washington, DC 20007-5109

EXAMINER
DUONG, THANH P

ART UNIT	PAPER NUMBER
1774	

NOTIFICATION DATE	DELIVERY MODE
12/26/2014	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):

ipdocketing@foley.com

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 Patent No. 8,449,831	:	
Blackwell et al.	:	REDETERMINATION OF
Issue Date: May 28, 2013	:	PATENT TERM ADJUSTMENT
Application No. 12/178,812	:	
Filing or 371(c) Date: July 24, 2008	:	
Attorney Docket No. 106389-1403	:	

This is in response to patentee's "REQUEST FOR RECONSIDERATION OF PATENT TERM ADJUSTMENT FOR PATENT UNDER 37 C.F.R. § 1.705(d)" filed December 26, 2013, which is being treated under 37 CFR 1.705(b) as a request that the Office adjust the patent term adjustment (PTA) from 889 days to 1140 days.

The Office has re-determined the PTA to be **1141** days.

This redetermination of patent term adjustment is not the Director's decision on the patentee's request for reconsideration within the meaning of 35 U.S.C. 154(b)(4) that triggers a 180-day period for applicant disagreeing with the Office redetermination to commence a civil action in the District Court for the Eastern District of Virginia.

Relevant Procedural History

On May 28, 2013, this patent issued with a PTA of 889 days. On December 26, 2013, patentee submitted the present request for redetermination of patent term adjustment and the $200.00 fee set forth in 37 CFR 1.18(e). The Office notes the date that is two months from May 28, 2013, the issue date, is July 28, 2013. For the USPTO to consider the present request for redetermination as timely filed, the Office must charge the Deposit Account for a five-month extension of time fee in the amount of $3,000.00 as authorized.

Patentee seeks 1140 days of PTA. Patentee solely disputes the amount of "B" delay. Patentee asserts the period of adjustment under § 1.702(b) is 674 days, the number of days in the period beginning on the day after the date that is three years after the date on which the application was filed under 35 U.S.C. 111(a), July 25, 2011, and ending on the date the patent issued, May 28, 2013. During this time, applicant filed a notice of appeal on May 23, 2012; however, the Board did not receive jurisdiction of the application. Therefore, it appears patentee is arguing that no reduction of "B" delay under 37 CFR 1.703(b)(4) is merited.

Decision

After conducting a manual redetermination of patent term adjustment, the USPTO finds that patentee is entitled to **1141** days of PTA. The Office agrees with patentee regarding the calculation of 557 days of "A" delay, 674 days of "B" delay, 0 days of "C" delay, and 0 days of overlap. The Office has updated its records and the "PTA Calculations" accordingly. Specifically, the Office has removed the period of adjustment of 423 days pursuant to 37 CFR 1.702(b) and entered a period of adjustment of 674 days.

As to the amount of applicant delay, the Office has taken a further review of the period of reduction of 1 day under 37 CFR 1.704(b) for the payment of the issue fee on April 29, 2013, in response to the Notice of Allowance mailed on January 28, 2013. The Office notes that the reduction of patent term adjustment for responses filed in excess of three months from the mail date of any notice or action by the Office making any rejection, objection, argument, or other request is subject to the "weekend and holiday" exception set forth in 35 U.S.C. 21(b). Therefore, if the three-month deadline to respond to an Office action falls on a weekend or a federal holiday, an applicant may file the response on the next business day without an assessment of applicant delay under 37 CFR 1.704(b).

In this case, the three-month date for filing a response to the Notice of Allowance mailed on January 28, 2013, fell on Sunday, April 28, 2013. Applicant had until Monday, April 29, 2013, to file a reply without incurring applicant delay under 37 CFR 1.704(b). As applicant paid the issue fee in response to the Notice of Allowance on Monday, April 29, 2013, no reduction of the patent term adjustment pursuant to 37 CFR 1.704(b) is warranted. Accordingly, the Office has removed the period of reduction of 1 day for applicant delay.

The Office finds that the correct amount of applicant delay is 90 days.

Overall PTA Calculation

Formula:

"A" delay + "B" delay + "C" delay - Overlap - applicant delay = X

USPTO's Calculation:

557 + 674 + 0 – 0 – 90 = 1141

Patentee's Calculation

557 + 674 + 0 – 0 – 91 = 1140

Conclusion

Patentee is entitled to PTA of one thousand one hundred forty-one (1141) days. Using the formula "A" delay + "B" delay + "C" delay - overlap - applicant delay = X, the amount of PTA is calculated as following: 557 + 674 + 0 – 0 – 90 = 1141 days.

If patentee continues to disagree with the Office's redetermination of patent term adjustment, patentee has two (2) months from the date of this redetermination to request reconsideration of the patent term adjustment without paying any additional petition fee. This two-month period is extendable under 37 CFR 1.136(a). However, if patentee responds more than two months after the mail date of the redetermination, patentee is required to pay the extension of time fee. After the period of time to respond has expired, the Office will *sua sponte* issue a certificate of correction adjusting the PTA to one thousand one hundred forty-one (1141) days.

Telephone inquiries specific to this matter should be directed to the undersigned at (571) 272-3211.

/Christina Tartera Donnell/

Christina Tartera Donnell
Attorney Advisor
Office of Petitions

Enclosures: Adjusted PTA calculation
Draft Certificate of Correction

Office of Petitions: Decision Count Sheet

Mailing Month: 12

Application No.: 12178812

12178812

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: DONNELL, CHRISTINA

Count (1) - Palm Credit 12/178,812

Decision: DISMISSED

FINANCE WORK NEEDED ☐ Select Check Box for YES

DISMISSED

Decision Type: 551 - 37 CFR 1.705(d) - PATENT TERM ADJUSTMENT AF

551

Notes: correctly coded as 551

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: *12/23/2014*

Office of Petitions: Routing Sheet

Application No. 12/178,812

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**

DRAFT COPY

UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT : 8,449,831 B2
DATED : May 28, 2013
INVENTOR(S) : Blackwell et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

On the cover page,

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 USC 154(b) by 889 days.

Delete the phrase "by 889 days" and insert – by 1141 days--

Patent Term Adjustments

Patent Term Adjustment (PTA) for Application Number: 12/178,812

Filing or 371(c) Date:	07-24-2008	Overlapping Days Between { A and B} or { A and C} :	0
Issue Date of Patent:	05-28-2013	Non-Overlapping USPTO Delays:	980
A Delays:	557	PTO Manual Adjustments:	252
B Delays:	423	Applicant Delays:	91
C Delays:	0	Total PTA Adjustments:	1141

Patent Term Adjustment History Explanation Of Calculations

Number	Date	Contents Description	PTO(Days)	APPL(Days)	Start
77	12-23-2014	Adjustment of PTA Calculation by PTO	1		0
77	12-23-2014	Adjustment of PTA Calculation by PTO	1		0
76	12-23-2014	Adjustment of PTA Calculation by PTO	674		0
76	12-23-2014	Adjustment of PTA Calculation by PTO	674		0
75	12-23-2014	Adjustment of PTA Calculation by PTO		423	0
75	12-23-2014	Adjustment of PTA Calculation by PTO		423	0
66.5	05-28-2013	PTA 36 Months	423		0.5
66	05-28-2013	Patent Issue Date Used in PTA Calculation			0
65	05-01-2013	Export to Final Data Capture			0
64	04-30-2013	Dispatch to FDC			0
63	04-30-2013	Application Is Considered Ready for Issue			0
62	04-29-2013	Issue Fee Payment Verified		1	56
61	04-29-2013	Issue Fee Payment Received			0
60	03-08-2013	Finished Initial Data Capture			0
56	01-28-2013	Mail Notice of Allowance			44
55	01-23-2013	Office Action Review			0
54	01-23-2013	Office Action Review			0
53	01-23-2013	Issue Revision Completed			0
52	01-23-2013	Document Verification			0
51	01-23-2013	Notice of Allowance Data Verification Completed			0
50	01-22-2013	Examiner's Amendment Communication			0
	01-22-				

49	2013	Allowability Notice		0
48	11-27-2012	Date Forwarded to Examiner		0
47	11-23-2012	Appeal Brief Filed		0
46	11-26-2012	Appeal Brief Review Complete		0
45	11-23-2012	Request for Extension of Time - Granted		0
44	05-23-2012	Notice of Appeal Filed	90	27
43	05-23-2012	Request for Extension of Time - Granted		0
42	02-27-2012	Mail Advisory Action (PTOL - 303)		0
41	02-24-2012	Advisory Action (PTOL-303)		0
40	04-11-2012	Date Forwarded to Examiner		0
39	04-12-2012	Mail Notice of Rescinded Abandonment		0
36	04-10-2012	Notice of Rescinded Abandonment in TCs		0
35	04-04-2012	Mail Abandonment for Failure to Respond to Office Action		0
34	03-29-2012	Office Action Review		0
33	03-29-2012	Aband. for Failure to Respond to O. A.		0
32	02-27-2012	Mail Advisory Action (PTOL - 303)		0
31	02-25-2012	Office Action Review		0
30	02-24-2012	Advisory Action (PTOL-303)		0
29	02-24-2012	Date Forwarded to Examiner		0
28	02-23-2012	Response after Final Action		0
27	11-23-2011	Mail Final Rejection (PTOL - 326)		0
26	11-21-2011	Office Action Review		0
25	11-18-2011	Final Rejection		0
24	09-16-2011	Date Forwarded to Examiner		0
23	09-07-2011	Response after Non-Final Action		0
22	06-07-2011	Mail Non-Final Rejection		0
21	06-06-2011	Office Action Review		0
20	06-02-2011	Non-Final Rejection		0

19	11-17-2008	Information Disclosure Statement considered		0
18	05-05-2011	Date Forwarded to Examiner		0
17	05-03-2011	Response to Election / Restriction Filed		0
16	04-04-2011	Mail Restriction Requirement	557	0.5
15	03-29-2011	Restriction/Election Requirement		0
14	10-06-2010	Case Docketed to Examiner in GAU		0
13	01-28-2010	PG-Pub Issue Notification		0
12	02-23-2009	Case Docketed to Examiner in GAU		0
10	11-18-2008	IFW TSS Processing by Tech Center Complete		0
9	11-17-2008	Information Disclosure Statement (IDS) Filed		0
8	11-17-2008	Information Disclosure Statement (IDS) Filed		0
7	08-29-2008	Application Dispatched from OIPE		0
6	08-05-2008	Sent to Classification Contractor		0
5	08-05-2008	Filing Receipt		0
4	08-05-2008	Application Is Now Complete		0
3	07-25-2008	Cleared by OIPE CSR		0
2	07-24-2008	IFW Scan & PACR Auto Security Review		0
1	07-24-2008	Initial Exam Team nn		0
0.5	07-24-2008	Filing date		0

Close Window

Document code: WFEE

United States Patent and Trademark Office
Sales Receipt for Accounting Date: 02/10/2014

GTRAMMEL SALE #00000002 Mailroom Dt: 02/06/2014 080219 12178812
01 FC : 1201 420.00 DA

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 NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
12/178,812	07/24/2008	Bryan E. Blackwell	106389-1403

CONFIRMATION NO. 7029

POA ACCEPTANCE LETTER

116387
Foley & Lardner LLP
3000 K Street NW
Suite 500
Washington, DC 20007

OC000000065711632

Date Mailed: 12/30/2013

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 12/16/2013.

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.

/tnnguyen/

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

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
12/178,812	07/24/2008	Bryan E. Blackwell	20305.0017US01

CONFIRMATION NO. 7029

POWER OF ATTORNEY NOTICE

52835
HAMRE, SCHUMANN, MUELLER & LARSON, P.C.
P.O. BOX 2902
MINNEAPOLIS, MN 55402-0902

OC000000065711560

Date Mailed: 12/30/2013

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 12/16/2013.

- The Power of Attorney to you in this application has been revoked by the assignee who has intervened as provided by 37 CFR 3.71. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

/tnnguyen/

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

312 IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Inventor Name:	Bryan E. Blackwell	Filed Via EFS on December
Title:	SPIN FORMED CATALYST	26, 2013
Appl. No.:	12/178,812	
Filing Date:	7/24/2008	
Patent No.:	8,449,831	
Grant Date:	5/28/2013	
Examiner:	Tom Duong	
Art Unit:	1774	
Confirmation Number:	7029	

REQUEST FOR RECONSIDERATION OF PATENT TERM ADJUSTMENT FOR PATENT UNDER 37 C.F.R. §1.705(d)

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

Commissioner:

Applicants have calculated PTA for the captioned patent and have determined that the patent is entitled to 1140 days of Patent Term Adjustment, as shown on the attached sheet, which shows the relevant delays under 37 CFR §§1.702, 1.703 and 1.704:

(a) Total PTO delay: 1231 days

(b) Total Applicant delay: 91 days

Final PTA Determination under 37 CFR §1.703(f): 1140 days

In accordance with 1.705(b)(2)(ii), the relevant dates as specified in §§1.703(a) through (e) for which an adjustment is sought and the adjustment as specified in § 1.703(f) to which the patent is entitled are clearly represented in the attached PTA Calculation.

The relevant dates where the applicant is not in agreement with the PTO's determination are discussed in more detail below.

The Section of the Issued Patent regarding Patent Term Adjustment makes the statement that "Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. §154(b) by 889 days."

This statement is incorrect because it does not take into account accrued patent term adjustment under 37 C.F.R. §1.703(b) due to having an overall pendency of greater than three years. Therefore, the overall Patent Term Adjustment should be 1140 days, as shown in the attached calculation.

In accordance with §1.705(b)(2)(iv)(A), the circumstances during the prosecution of the application resulting in the patent that constitute a failure to engage in reasonable efforts to conclude processing or examination of such application as set forth in § 1.704 are clearly represented in the attached PTA Calculation.

Applicants therefore respectfully request that the patent be accorded 1140 days PTA.

Fees in the amount of $200.00 set forth in 37 C.F.R. § 1.18(e) to cover the fee for this request are being paid by credit card via EFS-Web.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. § 1.705, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by the credit card payment instructions in EFS-Web being incorrect or absent, resulting in a rejected or incorrect credit card transaction, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741.

However, because this PTA error is due to a Patent Office error in interpreting and applying the PTA statute, a refund of the fee is respectfully requested.

Respectfully submitted,

Date Dec. 26, 2013

By _____

FOLEY & LARDNER LLP
Customer Number: 116387
Telephone: (312) 832-4358
Facsimile: (312) 832-4700

Marshall J. Brown
Attorney for Applicant
Registration No. 44,566

Patent Term Adjustment Calculation System

Add a new event to this case

Docket Number: 106389-1403
Application Number: 12/178812
Patent Number: 8449831

	Event Description	Event Date	Days from Filing	PTO Days	Applicant Days
Edit Delete	Application Filing Date	07/24/2008	0		
Edit Delete	Priority Date	07/24/2008	0		
CLOSE WINDOW	ALL CASES SELECT CASE				
	14 month From Application date	09/24/2009	427		
Edit Delete	Restriction Requirement	04/04/2011	984	557	
Edit Delete	Restriction Requirement Response Received at PTO	05/03/2011	1,013		
Edit Delete	Non-Final Office Action	06/07/2011	1,048		
	Three Years From Filing	07/24/2011	1,095		
	3 Year Period Starts	07/24/2011	1,095		
Edit Delete	Non-Final Office Action Rsp. Rcv'd at PTO	09/07/2011	1,140		
Edit Delete	Final Office Action	11/23/2011	1,217		
Edit Delete	Final Office Action Response Received at PTO	02/23/2012	1,309		
	Final Office Action + 3 months	02/23/2012	1,309		
Edit Delete	Advisory Action	02/27/2012	1,313		
Edit Delete	Notice of Appeal Received at PTO	05/23/2012	1,399		90
Edit Delete	Appeal Brief Received at PTO	11/23/2012	1,583		
Edit Delete	Notice of Allowance	01/28/2013	1,649		
	Notice of Allowance + 3 months	04/28/2013	1,739		
Edit Delete	Issue Fee Paid	04/29/2013	1,740		1
Edit Delete	Patent Grant Date	05/28/2013	1,769	674	
			Totals:	1,231	91
			PTA:	1,140	

Created and maintained by
FOLEY
FOLEY & LARDNER LLP

Version: 3.02.16 LOGIN: Jane Herold IP: 10.19.29.104 Foley & Lardner LLP

Electronic Patent Application Fee Transmittal

Application Number:	12178812
Filing Date:	24-Jul-2008
Title of Invention:	SPIN FORMED CATALYST
First Named Inventor/Applicant Name:	Bryan E. Blackwell
Filer:	Marshall Joel Brown/Jane Herold
Attorney Docket Number:	106389-1403

Filed as Large 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:				
Application for patent term adjustment	1455	1	200	200
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
			Total in USD ($)	**200**

Electronic Acknowledgement Receipt

EFS ID:	17761974
Application Number:	12178812
International Application Number:	
Confirmation Number:	7029
Title of Invention:	SPIN FORMED CATALYST
First Named Inventor/Applicant Name:	Bryan E. Blackwell
Customer Number:	116387
Filer:	Marshall Joel Brown/Jane Herold
Filer Authorized By:	Marshall Joel Brown
Attorney Docket Number:	106389-1403
Receipt Date:	26-DEC-2013
Filing Date:	24-JUL-2008
Time Stamp:	17:10:19
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$200
RAM confirmation Number	2672
Deposit Account	
Authorized User	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)

1	Patent Term Adjustment Petition	106389_1403_PTA_reconsideration.pdf	116870 3d419ea3f8ceadd2ec9db3410d2c057f35b28226	no	3
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30482 53fcbf771678754334fc7b752f6cb2c50b98ea06	no	2
Warnings:					
Information:					
			Total Files Size (in bytes):	147352	

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.

Document code: WFEE

United States Patent and Trademark Office
Sales Receipt for Accounting Date: 12/18/2014

GARIAS SALE #00000005 Mailroom Dt: 12/26/2013 190741 12178812
01 FC : 1255 3,000.00 DA

PTO/SB/80 (11-08)
Approved for use through 11/30/2011. OMB 0651-0035
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

POWER OF ATTORNEY TO PROSECUTE APPLICATIONS BEFORE THE USPTO

I hereby revoke all previous powers of attorney given in the application identified in the attached statement under 37 CFR 3.73(b).

I hereby appoint:

[X] Practitioners associated with the Customer Number: **116387**

OR

[ ] Practitioner(s) named below (if more than ten patent practitioners are to be named, then a customer number must be used):

Name	Registration Number	Name	Registration Number

as attorney(s) or agent(s) to represent the undersigned before the United States Patent and Trademark Office (USPTO) in connection with any and all patent applications assigned only to the undersigned according to the USPTO assignment records or assignment documents attached to this form in accordance with 37 CFR 3.73(b).

Please change the correspondence address for the application identified in the attached statement under 37 CFR 3.73(b) to:

[X] The address associated with Customer Number: **116387**

OR

[ ] Firm or Individual Name

Address					
City		State		Zip	
Country		Telephone		Email	

Assignee Name and Address:

Cummins Filtration IP, Inc.
500 Jackson Street
Columbus, Indiana 47201

A copy of this form, together with a statement under 37 CFR 3.73(b) (Form PTO/SB/96 or equivalent) is required to be filed in each application in which this form is used. The statement under 37 CFR 3.73(b) may be completed by one of the practitioners appointed in this form if the appointed practitioner is authorized to act on behalf of the assignee, and must identify the application in which this Power of Attorney is to be filed.

SIGNATURE of Assignee of Record

The individual whose signature and title is supplied below is authorized to act on behalf of the assignee

Signature	By	Date	8 November 2011
Name	BARRY M. VERDEGAN	Telephone	608-873-4371
Title	VICE PRESIDENT		

Electronic Acknowledgement Receipt

EFS ID:	17669248
Application Number:	12178812
International Application Number:	
Confirmation Number:	7029
Title of Invention:	SPIN FORMED CATALYST
First Named Inventor/Applicant Name:	Bryan E. Blackwell
Customer Number:	52835
Filer:	Marshall Joel Brown/Brandi Parker
Filer Authorized By:	Marshall Joel Brown
Attorney Docket Number:	20305.0017US01
Receipt Date:	16-DEC-2013
Filing Date:	24-JUL-2008
Time Stamp:	15:09:10
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		1403_poa.pdf	110624 3af3fbc07536ba90b75bcc61c53eb964bfaf2849	yes	2

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Assignee showing of ownership per 37 CFR 3.73.	1	1
	Power of Attorney	2	2
Warnings:			
Information:			
	Total Files Size (in bytes):	110624	

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.

PTO/SB/96 (07-09)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

STATEMENT UNDER 37 CFR 3.73(b)

Applicant/Patent Owner:	Bryan E. BLACKWELL et al.		
Application No./Patent No.:	12/178812	Filed/Issue Date:	07/24/2008
Attorney Docket Number:	106389-1403		
Entitled:	SPIN FORMED CATALYST		

CUMMINS FILTRATION IP, INC. (Name of Assignee)

Corporation (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that it is:

1. ☒ the assignee of the entire right, title, and interest;
2. ☐ an assignee of less than the entire right, title, and interest (The extent (by percentage) of its ownership interest is %); or
3. ☐ the assignee of an undivided interest in the entirety of (a complete assignment from one of the joint inventors was made)

in the patent application/patent identified above by virtue of either:

A. ☒ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel/Frame 021297/0156 or for which a copy thereof is attached.

OR

B. ☐ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: To:
   The document was recorded in the United States Patent and Trademark Office at Reel ____, Frame ____, or for which a copy thereof is attached.
2. From: To:
   The document was recorded in the United States Patent and Trademark Office at Reel ____, Frame ____, or for which a copy thereof is attached.
3. From: To:
   The document was recorded in the United States Patent and Trademark Office at Reel ____, Frame ____, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet.

☐ As required by 37 CFR 3.73(b)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, if the assignment is to be recorded in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

Signature	12/12/2013 Date
Marshall J. Brown (44,566) Printed or Typed Name	312-832-4500 Telephone Number
Attorney for Applicant Title	

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.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/178,812	05/28/2013	8449831	20305.0017US01	7029

52835 7590 05/08/2013

HAMRE, SCHUMANN, MUELLER & LARSON, P.C.
P.O. BOX 2902
MINNEAPOLIS, MN 55402-0902

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 889 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):

Bryan E. Blackwell, Franklin, IN;
Eric L. Reeck, Columbus, IN;
Howard S. Savage, Columbus, IN;

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)

52835 7590 01/28/2013
HAMRE, SCHUMANN, MUELLER & LARSON, P.C.
P.O. BOX 2902
MINNEAPOLIS, MN 55402-0902

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.

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.

Laurie Hammel	(Depositor's name)
/Laurie Hammel/	(Signature)
April 29, 2013	(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/178,812	07/24/2008	Bryan E. Blackwell	20305.0017US01	7029

TITLE OF INVENTION: SPIN FORMED CATALYST

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	$1770	$300	$0	$2070	04/29/2013

EXAMINER	ART UNIT	CLASS-SUBCLASS
DUONG, THANH P	1774	422-179000

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 Hamre, Schumann,
2 Mueller & Larson,
3 P.C.

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: Cummins Filtration IP, Inc.

(B) RESIDENCE: (CITY and STATE OR COUNTRY): Minneapolis, Minnesota

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 credit any overpayment, to Deposit Account Number 503478 (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)
☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.
☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____ Date April 29, 2013

Typed or printed name Bryan A. Wong Registration No. 50836

This collection of information 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.

Electronic Patent Application Fee Transmittal

Application Number:	12178812
Filing Date:	24-Jul-2008
Title of Invention:	SPIN FORMED CATALYST
First Named Inventor/Applicant Name:	Bryan E. Blackwell
Filer:	Bryan A. Wong/Laurie Hammel
Attorney Docket Number:	20305.0017US01

Filed as Large 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:				
Utility Appl Issue Fee	1501	1	1780	1780
Publ. Fee- Early, Voluntary, or Normal	1504	1	300	300

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**2080**

Electronic Acknowledgement Receipt

EFS ID:	15636111
Application Number:	12178812
International Application Number:	
Confirmation Number:	7029
Title of Invention:	SPIN FORMED CATALYST
First Named Inventor/Applicant Name:	Bryan E. Blackwell
Customer Number:	52835
Filer:	Bryan A. Wong/Laurie Hammel
Filer Authorized By:	Bryan A. Wong
Attorney Docket Number:	20305.0017US01
Receipt Date:	29-APR-2013
Filing Date:	24-JUL-2008
Time Stamp:	14:20:01
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$2080
RAM confirmation Number	633
Deposit Account	503478
Authorized User	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)

1	Issue Fee Payment (PTO-85B)	IssueFeeTransmittal.pdf	166046 eb6d586cf9d24552ed7d5f6a2a8adda9902e35a6	no	1
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	32011 a18fb94ecb1dd3b2a6015bb3e657483673cc6230	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	198057		

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

NOTICE OF ALLOWANCE AND FEE(S) DUE

52835 7590 01/28/2013

HAMRE, SCHUMANN, MUELLER & LARSON, P.C.
P.O. BOX 2902
MINNEAPOLIS, MN 55402-0902

EXAMINER
DUONG, THANH P

ART UNIT	PAPER NUMBER
1774	

DATE MAILED: 01/28/2013

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/178,812	07/24/2008	Bryan E. Blackwell	20305.0017US01	7029

TITLE OF INVENTION: SPIN FORMED CATALYST

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	$1770	$300	$0	$2070	04/29/2013

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 SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

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.

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)

52835 7590 01/28/2013

HAMRE, SCHUMANN, MUELLER & LARSON, P.C.
P.O. BOX 2902
MINNEAPOLIS, MN 55402-0902

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.

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.
12/178,812	07/24/2008	Bryan E. Blackwell	20305.0017US01	7029

TITLE OF INVENTION: SPIN FORMED CATALYST

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	$1770	$300	$0	$2070	04/29/2013

EXAMINER	ART UNIT	CLASS-SUBCLASS
DUONG, THANH P	1774	422-179000

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 _____

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:

❑ 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 credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

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

❑ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.

❑ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

This collection of information 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.

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UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/178,812	07/24/2008	Bryan E. Blackwell	20305.0017US01	7029

52835 7590 01/28/2013

HAMRE, SCHUMANN, MUELLER & LARSON, P.C.
P.O. BOX 2902
MINNEAPOLIS, MN 55402-0902

EXAMINER	
DUONG, THANH P	

ART UNIT	PAPER NUMBER
1774	

DATE MAILED: 01/28/2013

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

The Patent Term Adjustment to date is 467 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 467 day(s).

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 Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

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.	Applicant(s)	
	12/178,812	BLACKWELL ET AL.	
	Examiner	Art Unit	
	Tom P. Duong	1774	

-- 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 *11/23/2012*.

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 *6,7,9,10 and 13-17*. 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).
   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. ☐ Notice of References Cited (PTO-892)
2. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
5. ☒ Examiner's Amendment/Comment
6. ☐ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/Tom P Duong/
Primary Examiner, Art Unit 1774

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 a telephone interview with Mr. Brian A. Wong on January 22, 2013.

The application has been amended as follows:

In the claims:

Claims 1-5 (canceled).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tom P. Duong whose telephone number is (571)272-2794. The examiner can normally be reached on 8:00AM - 4:30PM (IFP).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Walter Griffin can be reached on (571) 272-1447. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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.

/Tom P Duong/
Primary Examiner, Art Unit 1774

Search Notes	Application/Control No.	Applicant(s)/Patent under Reexamination	
	12/178,812	BLACKWELL ET AL.	
	Examiner	Art Unit	
	Tom P. Duong	1774	

SEARCHED			
Class	Subclass	Date	Examiner
Update	Search	1/22/2013	TD

INTERFERENCE SEARCHED			
Class	Subclass	Date	Examiner
Search	**Pg-pubs**	**1/22/2013**	**TD**
Search Claim Language		1/22/2013	TD

SEARCH NOTES (INCLUDING SEARCH STRATEGY)		
	DATE	EXMR
Update Search	1/22/2013	TD

Issue Classification	Application/Control No.	Applicant(s)/Patent under Reexamination	
	12/178,812	BLACKWELL ET AL.	
	Examiner	Art Unit	
	Tom P. Duong	1774	

ISSUE CLASSIFICATION

ORIGINAL					CROSS REFERENCE(S)						
CLASS		SUBCLASS		CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)						
422		179		422	180						
INTERNATIONAL CLASSIFICATION											
B	0	1	D	50/00							
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None (Assistant Examiner) (Date)	/Tom Duong/ 1/22/2013 (Primary Examiner) (Date)	Total Claims Allowed: 9	
(Legal Instruments Examiner) (Date)		O.G. Print Claim(s) 1	O.G. Print Fig. 4

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
	1		31		61		91		121		151		181
	2		32		62		92		122		152		182
	3		33		63		93		123		153		183
	4		34		64		94		124		154		184
	5		35		65		95		125		155		185
1	6		36		66		96		126		156		186
2	7		37		67		97		127		157		187
	8		38		68		98		128		158		188
3	9		39		69		99		129		159		189
4	10		40		70		100		130		160		190
	11		41		71		101		131		161		191
	12		42		72		102		132		162		192
5	13		43		73		103		133		163		193
6	14		44		74		104		134		164		194
7	15		45		75		105		135		165		195
8	16		46		76		106		136		166		196
9	17		47		77		107		137		167		197
	18		48		78		108		138		168		198
	19		49		79		109		139		169		199
	20		50		80		110		140		170		200
	21		51		81		111		141		171		201
	22		52		82		112		142		172		202
	23		53		83		113		143		173		203
	24		54		84		114		144		174		204
	25		55		85		115		145		175		205
	26		56		86		116		146		176		206
	27		57		87		117		147		177		207
	28		58		88		118		148		178		208
	29		59		89		119		149		179		209
	30		60		90		120		150		180		210

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventorship:	BLACKWELL, et al.	Examiner:	DUONG, Thanh P.
Serial No.:	12/178812	Group Art Unit:	1774
Filed:	July 24, 2008	Docket No.:	20305.0017US01
Title:	SPIN FORMED CATALYST		

CERTIFICATE OF TRANSMISSION:
I hereby certify that this paper is being transmitted by EFS-Web to the U.S. Patent and Trademark Office on November 23, 2012.
By: Maria K. Zamorano
Name: Maria K. Zamorano

APPELLANT'S BRIEF ON APPEAL

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Dear Sir:

This Brief is presented in support of the Notice of Appeal filed on May 23, 2012, from the final rejection of claims 6-7, 9-10, and 13-17 in the above-identified application, as set forth in the Final Office Action mailed November 23, 2011 and the Advisory Action mailed February 27, 2012.

Please charge Deposit Account No. 50-3478 in the amount of $630.00 to cover the required fee for filing this Brief.

I. REAL PARTY OF INTEREST UNDER 37 C.F.R. §41.37(c)(1)(i)

The Real Party of Interest is Cummins Filtration IP, Inc., residing at Minneapolis, Minnesota, which is the assignee of the above-identified application. The Assignment was recorded at the USPTO under reel/frame 021297/0156.

II. RELATED APPEALS AND INTERFERENCES UNDER 37 C.F.R. §41.37(c)(1)(ii)

The Appellants, Assignee, and the Assignee's legal representatives are unaware of any other appeals, interferences, or judicial proceedings that will affect, be directly affected by or have a bearing on the Board's decision in this Appeal.

III. SUMMARY OF THE CLAIMED SUBJECT MATTER UNDER 37 C.F.R. §41.37(c)(1)(ii)

Appellants' invention resides in features of claims 6 and 16, which are summarized below with reference to the specification as filed.

Claim 6.

Claim 6 is directed to a final product of a catalytic device (10) comprising a shell (12) having an inlet (11) and an outlet (13), the inlet (11) is in fluid communication with the outlet (13) through an opening extending through the shell (12) (Figs. 1 and 3, lines 14 to 20 on page 5);

a catalyst substrate (14) disposed within the opening and between the inlet (11) and outlet (13), the catalyst substrate (14) including a flow through structure in fluid communication with the inlet (11) and outlet (13) (Fig. 3, lines 21-22 on page 5), the catalyst substrate (14) having an outer surface (18) surrounding the flow through structure and that faces an inner surface of the shell (12) (Fig. 4, lines 1 to 4 on page 6), wherein a first end of the outer surface is bent over toward the flow through structure, so as to mechanically lock and seal the catalyst substrate in place (Fig. 4, lines 1 to 4 on page 7);

a mat (16) disposed between the outer surface of the catalyst substrate (14) and the inner surface of the shell (12) such that the mat is directly pressed against and sealed between the outer surface of the catalyst substrate (14) and the inner surface of the shell (12) (Fig. 4, lines 25-29 on page 7); and

the outer surface (18) having at least one retention barb (19) in direct contact with the mat (16) (Fig. 4, lines 5 to 7 on page 7);

the shell (12) is a spin formed member where the catalyst substrate (14) and mat (16) are disposed within the opening of the shell (12) and between the inlet (11) and outlet (13) when the shell (12) is spin formed (lines 20 to 29 on page 7).

Claim 16

Claim 16 is directed to a final product of a catalytic device (10) comprising:

a shell (12) having an inlet (11) and an outlet (13), the inlet (11) is in fluid communication with the outlet (13) through an opening extending through the shell (12) (Figs. 1 and 3, lines 14 to 20 on page 5);

a catalyst substrate (14) disposed within the opening and between the inlet (11) and outlet (13), the catalyst substrate (14) including a flow through structure in fluid communication with the inlet (11) and outlet (13) (Fig. 3, lines 21-22 on page 5), the catalyst substrate (14) having an outer surface (18) surrounding the flow through structure and that faces an inner surface of the shell (12) (Fig. 4, lines 1 to 4 on page 6); and

a mat (16) disposed between the outer surface of the catalyst substrate (14) and the inner surface of the shell (12) such that the mat (16) is directly pressed against the outer surface of the catalyst substrate and the inner surface of the shell (12) (Fig. 4, lines 25-29 on page 7), the outer surface (18) of the catalyst substrate including at least one retention barb (19) in direct contact with the mat (16) (Fig. 4, lines 5 to 7 on page 7);

the shell (2) is a spin formed member where the catalyst substrate (14) and mat (16) are disposed within the opening of the shell and between the inlet (11) and outlet (13) when the shell (12) is spin formed (lines 20 to 29 on page 7).

Claims 6 and 16 recite a catalyst device that is spin formed to have a specific structure; i.e. the specific structure includes the mat (2) and the catalyst substrate (14) with retention barb (19) disposed in the shell (2) as required by claims 6 and 16. The catalyst device as required by claims 6 and 16, can provide the advantages of decreasing reliance on catalyst substrate geometric certainty to achieve sealing of the catalyst substrate in the catalyst device (see e.g. page 3, lines 13 to 19). The catalyst device of claims 6 and 16 can also be configured to have shapes that satisfy OEM space constraints. Id. The catalyst device of claims 6 and 16 can also provide the advantages of providing a highly durable closed coupled catalyst, which can potentially reduce the peak stresses during manufacturing and assembly to ensure adequate substrate retention (see e.g. page 4, lines 8 to 16 on page 4).

IV. ARGUMENT
UNDER 37 C.F.R. §41.37(c)(1)(iv)

1. Claims 6-7, 9-10, 13-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bruck et al. (US 7,258,842, hereinafter "Bruck") in view of Ottle (US 4,160,010, hereinafter "Ottle") and Wagner et. Al. (US 2004/0213708, hereinafter "Wagner") and Li et al. (US 2004/0025431, hereinafter "Li").

Claims 6-7, 9-10, and 13-17 are not obvious. Appellants respectfully request reversal of the rejection, because a prima facie case of obviousness has not been shown for the following reasons. Claims 6 and 16 are addressed below and, for purposes of this appeal only, dependent claims 7, 9-10, 13-15 and 17 stand or fall together based on the remarks in support of claims 6 and 16 respectively.

In order for references to be combined in an obviousness rejection, there must be a source of motivation to modify the teachings of one reference using the teachings of other references. In *KSR International Co. v. Teleflex Inc.*, the Supreme Court reconfirmed that obviousness is not proved merely by demonstrating that each of its elements was, independently, known in the prior art. 550 U.S. 398, 419 (2006). The Court also reconfirmed the importance of identifying a reason that would have prompted a person of ordinary skill in the art in the relevant field to combine the elements in the way the claimed invention does. Id. at 417, 418. Often, it will be necessary for a court to look to interrelated teachings of multiple patents...in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue. Id. Post *KSR*, in *Ecolab, Inc. v. FMC Corp.*, the Federal Circuit, while citing *KSR*, held that a combination of known elements would have been prima facie obvious, if an ordinarily skilled artisan would have recognized an apparent reason to

combine those elements and would have known how to do so. 569 F.3d 1335, 1350 (Fed. Cir. 2009).

Claim 6

Claim 6 is directed to a catalytic device that is spin formed to have a specific structure. The catalytic device includes a catalyst substrate with retention barb and a mat disposed between the catalyst substrate and an inner surface of a shell. Claim 6 requires that the mat is sealed between the outer surface of the catalyst substrate and the inner surface of the shell. Moreover, claim 6 requires a first end of the outer surface of the catalyst substrate to bend over toward the flow through structure. Claim 6 also requires that the assembly, including the catalyst substrate, the shell and the mat, is spin formed to retain all the features.

The catalytic device of claim 6 can provide many advantages, including decreasing reliance on catalyst substrate geometric certainty to achieve sealing of the catalyst substrate in the catalyst device and providing a way to satisfy OEM space constraints. (see e.g. page 3, lines 13 to 19). The catalyst device of claim 6 can also provide a highly durable closed coupled catalyst, which can potentially reduce the peak stresses during manufacturing and assembly to ensure adequate substrate retention (see e.g. page 4, lines 8 to 16 on page 4).

Neither does Bruck teach all the features required by claim 6, nor does Bruck teach a spin formed product as required by claim 6. Bruck fails to teach or suggest a mat being directly pressed against the outer surface of the catalyst substrate and the inner surface of the shell, the outer surface having at least one retention barb in direct contact

with the mat, and the mat is sealed between the outer surface of the catalyst substrate and the inner surface of the shell as required by claim 6.

Bruck teaches a specific catalyst assembly with a fixed mounting (20) and a float mounting (21) with a mounting play (11) (see Fig. 1 of Bruck as duplicated hereunder, column 4 lines 45 to 50 of Bruck). The floating mounting (21) is disposed upstream of the fixed mounting (20). Id. Bruck teaches that the fixed mounting (20) can ensure that "the catalyst carrier body is permanently fixed in the housing." (See column 2 lines 14 to 16 of Bruck.) Bruck also teaches that the floating mounting (21), because of

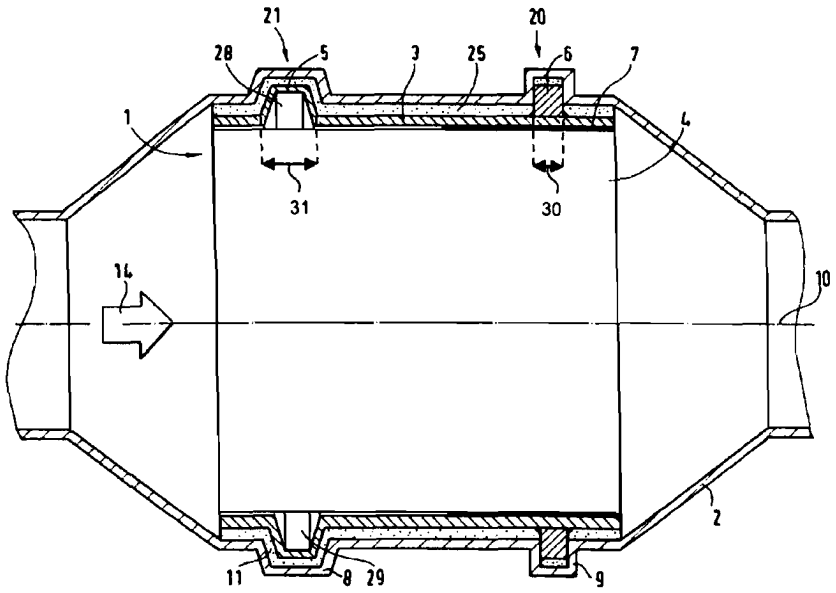

Fig. 1 of Bruck

the mounting play (11), permits expansions due to increase in temperature. (See column 2 lines 16 to 19 of Bruck.) The catalytic carrier body 1 is further surrounded by a filler material 25 (see column 4 lines 52 to 53 of Bruck). The filler material 25 is disposed at least in the floating mounting (21) to allow axial mounting play in axial direction (1) to

prevent vibration (see column 4 lines 47 to 48 of Bruck). Therefore, Bruck does not teach that the fill material (25) is "sealed" between the catalytic carrier body (1) and a shell (2) as claim 6 requires. Since Bruck requires the floating mounting (21) has the mounting play (11), Bruck fails to teach sealing the fill material (25) as claim 6 requires.

One of ordinary skill in the art would not have had any reason to modify Bruck further with the features of claim 6, including the mat being sealed between the outer surface of the catalyst substrate and the inner surface of the shell and the retention barb together in a spin formed product to retain such features, because Bruck already teaches a completely different assembly structure directed to a specific problem. Therefore, one of ordinary skill in the art would not have modified Bruck to obtain the features of the catalytic device of claim 6.

Further, even assuming one skilled in the art could modify Bruck, which is not conceded here, there is no reason to assume that one would have obtained the spin formed product as claim 6 requires.

Bruck teaches that the specific structure as disclosed in Bruck is to be assembled in a specific way. Bruck teaches that the catalyst assembly includes the fixing mounting (20) and the float mounting (21) that require the protuberances (5) and (6) on the catalyst carrier body (1) to match the recesses (8) and (9) on the housing (2). To achieve the structure, Bruck first teaches that the housing (2) is pre-shaped with recesses (8) and (9) as two half-shells (26). (See Fig. 4 of Bruck as duplicated hereunder, and column 5 lines 28-45 of Bruck.) Bruck then teaches that the two half-shells (26) are connected to one another after the catalyst carrier body (1) including protuberances (5) and (6), and mat (not shown in Fig. 4) have been disposed in the interior of housing (2). Id. Bruck

teaches that this specific way of assembly is particularly suitable for the filler material, "which surrounds the catalyst carrier body 1 and prevents structure-borne vibrations from being transmitted from the housing 2 to the casting tube 3, to be disposed therein." (See column 5 lines 37 to 45 of Bruck.)

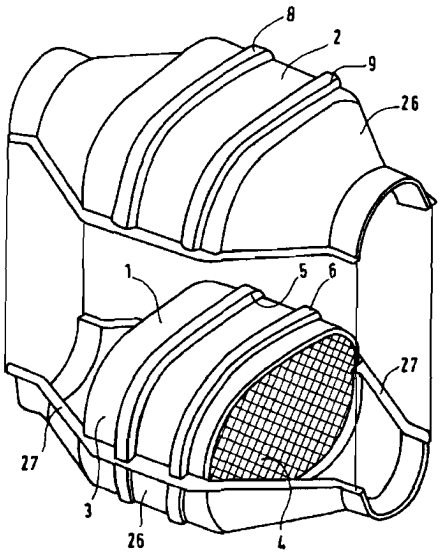

Fig. 4 of Bruck

One of ordinary skill in the art would not have had any reason to modify Bruck with a spin form process and/or look at the teachings of Bruck for a spin form process, because Bruck teaches the specific process including using two half-shells (26) to make the whole catalyst structure. Bruck also teaches that the specific process is particularly suitable for the catalyst structure as taught in Bruck. There is no reason to modify the structure of Bruck to a spin formed product, as claim 6 requires. Further, one would not have looked at Bruck to obtain the spin formed product with the features as required by claim 6, including the retention barb and sealing the mat. There is no apparent reason to

assume that the structure of Bruck would have been suitable or recognized as suitable as a spin formed product.

Li is relied upon in the Office Action for its spin form process. (See page 4 of the Office Action.) However, nothing in Li teaches or suggests that the spin form process would be suitable for modifying Bruck.

Bruck teaches a fixing mounting (20) and a floating mounting (21). As illustrated in the duplicated Fig. 1 of Bruck, the fixing mounting (20) and the floating mounting (21) includes sharp angular bends. Particularly, the fixing mounting (20) includes vertical wall structures. These vertical wall structures of the fixing mounting (20) are necessary in Bruck to ensure that the recess 9 and the protuberance 5 can be aligned together to form the fixing mounting (20). This kind of vertical wall structures generally cannot be made by the spin form process as taught in Li.

Moreover, Bruck teaches pre-shaping the half shells (26) and the catalyst carrier body (1) and then assembling the pre-shaped components into the final catalyst assembly. (See column 5 lines 28-45 of Bruck). Bruck teaches that this process is particularly suitable for assembling the catalyst structure as taught in Bruck. The spin form process as taught in Li generally requires components to be pre-assembled then be processed by the spin form process. Therefore, one skilled in the art would not have combined the spin form process as taught in Li with Bruck. In the Office Action, it is incorrectly assumed that the spin form process as taught in Li would have been suitable for modifying Bruck. Further, there is no apparent reason that one would have modified Bruck with Li to obtain a catalytic device as claim 6 requires.

Ottle and Wagner were relied upon in the Office Action for the bent over structure to retain the catalyst substrate as required in claim 6. (See page 3, lines 11 to 16 of the Office Action.) However, Ottle and Wagner are not particularly relevant to claim 6. Particularly, Ottle and Wagner do not teach a spin formed product as required by claim 6.

Ottle is directed to a device for purifying exhaust gases of an internal combustion engine (See the Abstract of Ottle.) However, nothing in Ottle teaches or suggests a spin form product or a structure that resembles the catalyst device as claim 6. Therefore, Ottle does not teach or provide any motivation for one skilled in the art to modify Bruck to obtain a spin formed product, as required by claim 6.

Wagner is directed to a process of making an exhaust-treatment core apparatus. It teaches a process of using two rollers (100, 102) to shape a flat sheet into a three-dimensional structure. (See Figs. 5A and 5B, paragraphs [0052] and [0053].) Wagner does not teach a process to modify a pre-assembled structure to form a final product, as claim 6 requires. In fact, the process as taught in Wagner clearly cannot be used to modify a pre-assembled catalyst device because the two rollers (100, 102) have to be configured to form a sandwich configuration for a sheet to be processed. Id. Therefore, Wagner also does not teach or provide a motivation for one skilled in the art to modify Bruck to obtain a spin formed product, as required by claim 6.

Moreover, even assuming one skilled in the art could have combined the teachings of Bruck and Li, which is not conceded here, there is still lack of an apparent reason or motivation to modify Bruck with Ottle and Wagner to obtain the features of

claim 6, including the retention barb, bent over structures retained in a spin formed product.

Bruck teaches a complete catalyst device, which requires the fix mounting (20) to retain the catalyst carrier body (1). There is no apparent reason to further modify Bruck with the specific bent over structure as taught in Ottle and Wagner to retain the catalyst carrier body (1). Without the teaching of the instant application, one skilled in the art would not have any reason to modify Bruck with the bent over structure, as claim 6 requires. In the Office Action, it is incorrectly assumed that one skilled in the art would have combined the features of Ottle and Wagner with Bruck.

As a conclusion, Bruck is directed to a completely different catalyst assembly, and one would not have modified it with any of Li, Ottle and/or Wagner to obtain the spin formed product required by claim 6. There is no reason to assume that the spin form process as taught in Li would have been suitable for modifying Bruck. In the Office Action, it is incorrectly assumed that the spin form process as taught in Li is suitable for modifying Bruck.

Ottle and Wagner do not teach or provide any motivation to modify Bruck to obtain a spin formed product as required by claim 6. Further, it is incorrectly assumed in the Office Action that the features as taught in Ottle and Wagner would have been suitable for modifying Bruck. Therefore, claim 6 is not obvious in view of Bruck, Li, Ottle and Wagner. The combination of the teachings of Bruck, Li, Ottle and Wagner, as alleged in the Office Action, is impermissible hindsight.

Moreover, claim 6 can provide the advantages of decreasing reliance on catalyst substrate geometric certainty to achieve sealing of the catalyst substrate in the catalyst

device, to satisfy OEM space constraints. (See e.g. page 3, lines 13 to 19.) The catalyst device of claim 6 can also provide the advantages of providing a highly durable closed coupled catalyst, which can potentially reduce the peak stresses during manufacturing and assembly to ensure adequate substrate retention (see e.g. page 4, lines 8 to 16 on page 4). None of the references disclose a spin formed structure of claim 6, and do not recognize such advantages that can be enjoyed by claim 6.

Claim 16

Claim 16 also requires many features of claim 6, including that the catalytic device is made by disposing a catalyst substrate into a shell, and a mat between the catalyst substrate and an inner surface of the shell, and then the assembly including the catalyst substrate, the shell and the mat is spin formed. Claim 16 also requires a retention barb. Claim 16 is not obvious over Bruck, Li, Ottle and Wagner for the similar reasons discussed above with respect to claim 6. Namely, there would have had no apparent reason for one skilled in the art to modify Bruck to obtain the features of claim 16. One skilled in the art would also not have modified Bruck to obtain a spin formed product, and there is no apparent reason that one would have recognized a spin form process as being suitable for the product of Bruck. Further, Ottle and Wagner do not teach or provide any motivation to modify Bruck to obtain a spin formed product as required by claim 16. Claim 16 is not obvious over Bruck, Li, Ottle and Wagner.

Appellants submit that the rejection is untenable for the reasons set forth above and should be reversed. Please charge any additional fees or credit any overpayment to Deposit Account No. 50-3478.

Respectfully submitted,

HAMRE, SCHUMANN, MUELLER & LARSON, P.C.
P.O. Box 2902
Minneapolis, MN 55402-0902
(612) 455-3800

Dated: November 23, 2012

By: _____
Name: Bryan A. Wong
Reg. No. 50,836
BAW/yik

V. CLAIMS APPENDIX

UNDER 37 C.F.R. §41.37(c)(1)(v)

6. A catalytic device comprising:

a shell having an inlet and an outlet, the inlet is in fluid communication with the outlet through an opening extending through the shell;

a catalyst substrate disposed within the opening and between the inlet and outlet, the catalyst substrate including a flow through structure in fluid communication with the inlet and outlet, the catalyst substrate having an outer surface surrounding the flow through structure and that faces an inner surface of the shell, wherein a first end of the outer surface is bent over toward the flow through structure, so as to mechanically lock and seal the catalyst substrate in place;

a mat disposed between the outer surface of the catalyst substrate and the inner surface of the shell such that the mat is directly pressed against and sealed between the outer surface of the catalyst substrate and the inner surface of the shell; and

the outer surface having at least one retention barb in direct contact with the mat,

the shell is a spin formed member where the catalyst substrate and mat are disposed within the opening of the shell and between the inlet and outlet when the shell is spin formed.

7. The device of claim 6, wherein the shell is a spin formed member that is at least generally elliptically shaped but other than a circle shape.

9. The device of claim 6, wherein the mat is at least one of a ceramic and a metallic material.

10. The device of claim 6, wherein the mat is substantially disposed about the outer surface of the catalyst substrate.

13. The device of claim 6, wherein the catalyst substrate includes a catalyst coating disposed on surfaces in fluid communication with the inlet and outlet.

14. The device of claim 6, wherein the shell includes a spin formed outer surface having portions proximate the inlet and outlet and a portion between the portions proximate the inlet and outlet, the portions proximate the inlet and outlet have a smaller dimension than the portion between the inlet and outlet.

15. The device of claim 6, wherein a second end of the outer surface is bent over toward the flow through structure.

16. A catalytic device comprising:

a shell having an inlet and an outlet, the inlet is in fluid communication with the outlet through an opening extending through the shell;

a catalyst substrate disposed within the opening and between the inlet and outlet, the catalyst substrate including a flow through structure in fluid communication with the

inlet and outlet, the catalyst substrate having an outer surface surrounding the flow through structure and that faces an inner surface of the shell; and

a mat disposed between the outer surface of the catalyst substrate and the inner surface of the shell such that the mat is directly pressed against the outer surface of the catalyst substrate and the inner surface of the shell, the outer surface of the catalyst substrate including at least one retention barb in direct contact with the mat;

the shell is a spin formed member where the catalyst substrate and mat are disposed within the opening of the shell and between the inlet and outlet when the shell is spin formed.

17. The device of claim 16, wherein the retention barb mechanically retains the mat between the catalyst substrate and a middle portion of the shell, and the middle portion of the shell extends towards ends of the catalyst substrate and is planar.

Electronic Patent Application Fee Transmittal

Application Number:	12178812
Filing Date:	24-Jul-2008
Title of Invention:	SPIN FORMED CATALYST
First Named Inventor/Applicant Name:	Bryan E. Blackwell
Filer:	Bryan A. Wong/Maria Zamorano
Attorney Docket Number:	20305.0017US01

Filed as Large 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:				
Filing a brief in support of an appeal	1402	1	630	630
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension - 4 months with $0 paid	1254	1	2010	2010
Miscellaneous:				
			Total in USD ($)	**2640**

Electronic Acknowledgement Receipt

EFS ID:	14298090
Application Number:	12178812
International Application Number:	
Confirmation Number:	7029
Title of Invention:	SPIN FORMED CATALYST
First Named Inventor/Applicant Name:	Bryan E. Blackwell
Customer Number:	52835
Filer:	Bryan A. Wong/Maria Zamorano
Filer Authorized By:	Bryan A. Wong
Attorney Docket Number:	20305.0017US01
Receipt Date:	23-NOV-2012
Filing Date:	24-JUL-2008
Time Stamp:	18:00:45
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$2640
RAM confirmation Number	723
Deposit Account	503478
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 1.16 (National application filing, search, and examination fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)					
File Listing:					
Document Number	**Document Description**	**File Name**	**File Size(Bytes)/ Message Digest**	**Multi Part /.zip**	**Pages (if appl.)**
1	Extension of Time	PETITION_FOR_EXTENSION_OF_TIME.pdf	14770 8020820d475fbf57404ce513d424aa9a6617a489	no	1
Warnings:					
Information:					
2	Appeal Brief Filed	APPEAL_BRIEF.pdf	190703 fe7b109b9ccb52929683784fb83481bd3a524eaa	no	19
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	32628 19e6968b50e9c84eb402ba3df67f2da77103ef22	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	238101		

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.

<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.

<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.

<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.

S/N 12/178812 PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventorship:	BLACKWELL, et al.	Examiner:	DUONG, Thanh P.
Serial No.:	12/178812	Group Art Unit:	1774
Filed:	July 24, 2008	Docket No.:	20305.0017US01
Title:	SPIN FORMED CATALYST		

CERTIFICATE OF TRANSMISSION
I hereby certify that this paper is being transmitted by EFS Web to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on November 23, 2012.
By
Name: Maria K. Zamorano

PETITION FOR EXTENSION OF TIME

Mail Stop: Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Dear Sir:

In accordance with the provisions of 37 C.F.R. §1.136(a), it is respectfully requested that a four-month extension of time be granted in which to respond to the Advisory Action mailed February 27, 2012 and Notice of Appeal filed May 23, 2012, said period of response being extended from July 23, 2012 to November 23, 2012.

Please charge Deposit Account No. 50-3478 in the amount of $2,010.00 to cover the required extension fee for a large entity.

Respectfully submitted,

52835
PATENT TRADEMARK OFFICE

HAMRE, SCHUMANN, MUELLER & LARSON, P.C.
P.O. Box 2902
Minneapolis, MN 55402-0902
(612) 455-3800

Dated: November 23, 2012

By: _____
Name: Bryan A. Wong
Reg. No. 50,836
BAW/yik

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	BLACKWELL, et al.	Examiner:	DUONG, Thanh P.
Serial No.:	12/178812	Group Art Unit:	1774
Filed:	July 24, 2008	Docket No.:	20305.0017US01
Title:	SPIN FORMED CATALYST		

CERTIFICATE OF TRANSMISSION:
I hereby certify that this paper is being transmitted by EFS-Web to the U.S. Patent and Trademark Office on May 23, 2012.
By: Maria K. Zamorano
Name: Maria K. Zamorano

NOTICE OF APPEAL FROM THE EXAMINER TO THE BOARD OF PATENT APPEALS AND INTERFERENCES

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

Dear Sir:

In accordance with 37 C.F.R. § 41.31(a), Applicant(s) hereby appeal to the Board of Patent Appeals and Interferences from the final rejection of claims 6-17 in the above-identified application, as set forth in the Office Action mailed November 23, 2011.

Please charge Deposit Account No. 50-3478 in the amount of $620.00 to cover the required fee for filing the Notice of Appeal as set forth under 37 C.F.R. § 41.20(b)(1).

Also enclosed is a Petition for a three-month extension of time to respond to the final rejection, thereby extending said period of response from February 23, 2012 to May 23, 2012.

Please charge any additional fees or credit any overpayment to Deposit Account No. 50-3478.

Respectfully submitted,

HAMRE, SCHUMANN, MUELLER & LARSON, P.C.
P.O. Box 2902
Minneapolis, MN 55402-0902
(612) 455-3800

Dated: May 23, 2012

By: _____
Name: Bryan A. Wong
Reg. No. 50,836
BAW/mkz

S/N 12/178812 PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	BLACKWELL, et al.	Examiner:	DUONG, Thanh P.
Serial No.:	12/178812	Group Art Unit:	1774
Filed:	July 24, 2008	Docket No.:	20305.0017US01
Title:	SPIN FORMED CATALYST		

CERTIFICATE OF TRANSMISSION
I hereby certify that this paper is being transmitted by EFS Web to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on May 23, 2012.

By: Maria K. Zamorano
Name: Maria K. Zamorano

PETITION FOR EXTENSION OF TIME

Mail Stop: AMENDMENT
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Dear Sir:

In accordance with the provisions of 37 C.F.R. §1.136(a), it is respectfully requested that a three-month extension of time be granted in which to respond to the outstanding Office Action mailed November 23, 2011, said period of response being extended from February 23, 2012 to May 23, 2012.

Please charge Deposit Account No. 50-3478 in the amount of $1,270.00 to cover the required extension fee for a large entity.

Respectfully submitted,

HAMRE, SCHUMANN, MUELLER & LARSON, P.C.
P.O. Box 2902
Minneapolis, MN 55402-0902
(612) 455-3800

52835
PATENT TRADEMARK OFFICE

Dated: May 23, 2012

By: _____
Name: Bryan A. Wong
Reg. No. 50,836
BAW/mkz

Electronic Patent Application Fee Transmittal

Application Number:	12178812
Filing Date:	24-Jul-2008
Title of Invention:	SPIN FORMED CATALYST
First Named Inventor/Applicant Name:	Bryan E. Blackwell
Filer:	Bryan A. Wong/Maria Zamorano
Attorney Docket Number:	20305.0017US01

Filed as Large 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:				
Notice of appeal	1401	1	620	620
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension - 3 months with $0 paid	1253	1	1270	1270
Miscellaneous:				
			Total in USD ($)	**1890**

Electronic Acknowledgement Receipt

EFS ID:	12850243
Application Number:	12178812
International Application Number:	
Confirmation Number:	7029
Title of Invention:	SPIN FORMED CATALYST
First Named Inventor/Applicant Name:	Bryan E. Blackwell
Customer Number:	52835
Filer:	Bryan A. Wong/Maria Zamorano
Filer Authorized By:	Bryan A. Wong
Attorney Docket Number:	20305.0017US01
Receipt Date:	23-MAY-2012
Filing Date:	24-JUL-2008
Time Stamp:	17:22:25
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$1890
RAM confirmation Number	4834
Deposit Account	503478
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 1.16 (National application filing, search, and examination fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Notice of Appeal Filed	NOTICE_OF_APPEAL.pdf	15758 b01641e8e2a603eb00584799cd21a17405b5e14f	no	1
Warnings:					
Information:					
2	Extension of Time	PETITION_FOR_EXTENSION_OF_TIME.pdf	14630 0779b064e307ac0ec412ef3f1e9c244eeb76973a	no	1
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	32519 c07daff066ed487566309c41b71ffbbf910f668d	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	62907		

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.

<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.

<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.

<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.

UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office

Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

SERIAL NUMBER	FILING DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NO.
12178812			

EXAMINER	
ART UNIT	PAPER NUMBER

DATE MAILED:

Please find below a communication from the EXAMINER in charge of this application.

Commissioner of Patents

The holding of abandonment mailed April 4, 2012 has been withdrawn.

/Veronica Augburn-Seaforth/
Veronica Augburn-Seaforth, SLIE
Technology Center 1700

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.
12/178,812	07/24/2008	Bryan E. Blackwell	20305.0017US01	7029

52835 7590 04/04/2012

HAMRE, SCHUMANN, MUELLER & LARSON, P.C.
ATTENTION: CENTRAL DOCKET
P.O. BOX 2902
MINNEAPOLIS, MN 55402-0902

EXAMINER	
DUONG, THANH P	

ART UNIT	PAPER NUMBER
1774	

MAIL DATE	DELIVERY MODE
04/04/2012	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)
	12/178,812	BLACKWELL ET AL.
	Examiner	Art Unit
	TOM P. DUONG	1774

-- 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 *23 November 2011*.
   (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 (a) 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, the assignee of the entire interest, or all of the applicants.

5. ☐ The letter of express abandonment which is signed by an attorney or agent (acting in a representative capacity under 37 CFR 1.34(a)) 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:

/TOM P DUONG/
Primary Examiner, Art Unit 1774

Petitions to revive under 37 CFR 1.137(a) or (b), 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.

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.
12/178,812	07/24/2008	Bryan E. Blackwell	20305.0017US01	7029

52835 7590 02/27/2012

HAMRE, SCHUMANN, MUELLER & LARSON, P.C.
P.O. BOX 2902
MINNEAPOLIS, MN 55402-0902

EXAMINER	
DUONG, THANH P	

ART UNIT	PAPER NUMBER
1774	

MAIL DATE	DELIVERY MODE
02/27/2012	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.

Advisory Action Before the Filing of an Appeal Brief	**Application No.** 12/178,812	**Applicant(s)** BLACKWELL ET AL.
	Examiner TOM P. DUONG	**Art Unit** 1774

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

THE REPLY FILED 23 February 2012 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

1. ☒ The reply was filed after a final rejection, but prior to or on the same day as filing a Notice of Appeal. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114. The reply must be filed within one of the following time periods:
   a) ☒ The period for reply expires *3* months from the mailing date of the final rejection.
   b) ☐ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.

   Examiner Note: If box 1 is checked, check either box (a) or (b). ONLY CHECK BOX (b) WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

NOTICE OF APPEAL

2. ☐ The Notice of Appeal was filed on _____. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37 CFR 41.37(a).

AMENDMENTS

3. ☐ The proposed amendment(s) filed after a final rejection, but prior to the date of filing a brief, will not be entered because
   (a) ☐ They raise new issues that would require further consideration and/or search (see NOTE below);
   (b) ☐ They raise the issue of new matter (see NOTE below);
   (c) ☐ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
   (d) ☐ They present additional claims without canceling a corresponding number of finally rejected claims.

   NOTE: _____. (See 37 CFR 1.116 and 41.33(a)).
4. ☐ The amendments are not in compliance with 37 CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).
5. ☐ Applicant's reply has overcome the following rejection(s): _____.
6. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
7. ☒ For purposes of appeal, the proposed amendment(s): a) ☐ will not be entered, or b) ☒ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.
   The status of the claim(s) is (or will be) as follows:
   Claim(s) allowed: _____.
   Claim(s) objected to: _____.
   Claim(s) rejected: *as stated in Final Office Action*.
   Claim(s) withdrawn from consideration: _____.

AFFIDAVIT OR OTHER EVIDENCE

8. ☐ The affidavit or other evidence filed after a final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).
9. ☐ The affidavit or other evidence filed after the date of filing a Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing a good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).
10. ☐ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

REQUEST FOR RECONSIDERATION/OTHER

11. ☒ The request for reconsideration has been considered but does NOT place the application in condition for allowance because: See Continuation Sheet.
12. ☐ Note the attached Information *Disclosure Statement*(s). (PTO/SB/08) Paper No(s). _____
13. ☐ Other: _____.

/TOM P DUONG/
Primary Examiner, Art Unit 1774

The request for reconsideration filed on 2/23/2012 has been carefully considered; however, the argument is not persuasive. Thus, the final office action is maintained.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Bryan E. Blackwell et al.	Examiner:	Thanh P. Duong
Serial No.:	12/178,812	Group Art Unit:	1774
Filed:	July 24, 2008	Docket No.:	20305.0017US01
Title:	Spin Formed Catalyst		

CERTIFICATE TRANSIMISSION:
I hereby certify that this paper is being transmitted by EFS Web to the United States Patent & Trademark Office on February 23, 2012.

By: Maria K. Zamorano
Name: Maria K. Zamorano

Amendment & Response After Final

Mail Stop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Dear Sir:

In response to the Office Action mailed November 23, 2011, Applicants respectfully request entry and consideration of the amendments and remarks.

Amendments to the Claims begin on page 2 of this paper.

Remarks begin on page 5 of this paper.

OK TO ENTER: /TD/

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Bryan E. Blackwell et al.	Examiner:	Thanh P. Duong
Serial No.:	12/178,812	Group Art Unit:	1774
Filed:	July 24, 2008	Docket No.:	20305.0017US01
Title:	Spin Formed Catalyst		

CERTIFICATE TRANSIMISSION:
I hereby certify that this paper is being transmitted by EFS Web to the United States Patent & Trademark Office on February 23, 2012.

By: Maria K. Zamorano
Name: Maria K. Zamorano

Amendment & Response After Final

Mail Stop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Dear Sir:

In response to the Office Action mailed November 23, 2011, Applicants respectfully request entry and consideration of the amendments and remarks.

Amendments to the Claims begin on page 2 of this paper.

Remarks begin on page 5 of this paper.

Amendments to the Claims:

1. (Withdrawn) A method of spin forming a catalytic device comprising:

disposing a mat about an outer surface of a catalyst substrate;

inserting the catalyst substrate and mat inside a shell, such that the mat is between the shell and the catalyst substrate; and

spin forming the shell, catalyst substrate, and mat.

2. (Withdrawn) The method of claim 1, wherein the step of spin forming further comprises spin forming the shell, catalyst substrate, and mat into at least a generally elliptical shape but other than a circle shape.

3. (Withdrawn) The method of claim 1, wherein the step of spin forming further comprises sealing the mat between the shell and the catalyst substrate.

4. (Withdrawn) The method of claim 1, wherein the step of spin forming further comprises directly contacting the mat with an outer surface of the catalyst substrate and with an inner surface of the shell.

5. (Withdrawn) The method of claim 1, wherein the step of spin forming further comprises forming an outer surface of the shell having portions proximate the inlet and outlet and a portion between the portions proximate the inlet and outlet, the portions proximate the inlet and outlet are spin formed with a smaller dimension than the portion between the inlet and outlet.

6. (Currently Amended) A catalytic device comprising:

a shell having an inlet and an outlet, the inlet is in fluid communication with the outlet through an opening extending through the shell;

a catalyst substrate disposed within the opening and between the inlet and outlet, the catalyst substrate including a flow through structure in fluid communication with the inlet and outlet, the catalyst substrate having an outer surface surrounding the flow through structure and that faces an inner surface of the shell, wherein a first end of the outer surface is bent over

toward the flow through structure, so as to mechanically lock and seal the catalyst substrate in place;

~~and~~

a mat disposed between the outer surface of the catalyst substrate and the inner surface of the shell such that the mat is directly pressed against and sealed between the outer surface of the catalyst substrate and the inner surface of the shell; and

the outer surface having at least one retention barb in direct contact with the mat,

the shell is a spin formed member where the catalyst substrate and mat are disposed within the opening of the shell and between the inlet and outlet when the shell is spin formed.

7. (Original) The device of claim 6, wherein the shell is a spin formed member that is at least generally elliptically shaped but other than a circle shape.

8. (Cancelled)

9. (Original) The device of claim 6, wherein the mat is at least one of a ceramic and a metallic material.

10. (Original) The device of claim 6, wherein the mat is substantially disposed about the outer surface of the catalyst substrate.

11-12. (Cancelled)

13. (Original) The device of claim 6, wherein the catalyst substrate includes a catalyst coating disposed on surfaces in fluid communication with the inlet and outlet.

14. (Original) The device of claim 6, wherein the shell includes a spin formed outer surface having portions proximate the inlet and outlet and a portion between the portions proximate the inlet and outlet, the portions proximate the inlet and outlet have a smaller dimension than the portion between the inlet and outlet.

15. (Previously Presented) The device of claim 6, wherein a second end of the outer surface is bent over toward the flow through structure.

16. (Previously Presented) A catalytic device comprising:

a shell having an inlet and an outlet, the inlet is in fluid communication with the outlet through an opening extending through the shell;

a catalyst substrate disposed within the opening and between the inlet and outlet, the catalyst substrate including a flow through structure in fluid communication with the inlet and outlet, the catalyst substrate having an outer surface surrounding the flow through structure and that faces an inner surface of the shell; and

a mat disposed between the outer surface of the catalyst substrate and the inner surface of the shell such that the mat is directly pressed against the outer surface of the catalyst substrate and the inner surface of the shell, the outer surface of the catalyst substrate including at least one retention barb in direct contact with the mat;

the shell is a spin formed member where the catalyst substrate and mat are disposed within the opening of the shell and between the inlet and outlet when the shell is spin formed.

17. (Previously Presented) The device of claim 16, wherein the retention barb mechanically retains the mat between the catalyst substrate and a middle portion of the shell, and the middle portion of the shell extends towards ends of the catalyst substrate and is planar.

Remarks

This Amendment is in response to the Office Action mailed November 23, 2011. Claim 6 is amended to incorporate the features of claims 8, 11 and 12. No new matter is added and Applicants submit that the addition of dependent claims 8, 11 and 12 into claim 6 does not create new issues. Claims 8, 11 and 12 are cancelled. Claims 1 to 7, 9, 10, and 13 to 17 are pending. Reconsideration is respectfully requested in view of the above amendments and the following remarks.

Claim Rejections – 35 USC § 103

Claims 6 to 11, and 13 to 17 are rejected under 35 USC § 103 as being unpatentable over Bruck et al. (US7,258,842, hereinafter "Bruck") in view of Ottle (US4,160,010), Wagner et al. (US2004/0213708, hereinafter "Wagner") and Li et al. (The Office Action refers to a reference of Li et al. (US2004/002531). (Page 2 of the Office Action) Applicants assume that this is a typographic error and the rejection is in view of Li et al. (US 2004/0025341, hereinafter "Li.")) Applicants respectfully traverse the rejections.

Claim 6 recites a catalytic device with a specific structure. Claim 6 requires an outer surface that is bent over toward the flow through structure to "mechanically lock and seal the catalyst substrate," and "a mat disposed between the outer surface of the catalyst substrate and the inner surface of the shell" and the mat to be "directly pressed against and sealed between the outer surface of the catalyst substrate and the inner surface of the shell." Claim 6 also recites a shell that is "spin formed" where "the catalyst substrate and mat are disposed within the opening of the shell...when the shell is spin formed."

A catalyst device according to claim 6 at least provides the advantages of a spin formed structure having the catalyst substrate locked and sealed within the structure and the mat sealed between the outer surface of the catalyst substrate and the inner surface of the shell. This structure "can potentially reduce the peak stresses during manufacturing and assembly to ensure adequate substrate retention." In addition, the flow through structure may be "effectively captured within the packing (shell) using the spin formation process," and "[s]uch a structure can avoid or minimize deformation of the catalyst substrate in general and/or its mantle." (Lines 10 to 16 on page 4.)

Claim 6 is patentable because the features of claim 6 are not disclosed or rendered obvious by the prior art references separately or in combination. The rejection relies on Bruck as the primary reference from which several modifications are alleged while applying secondary references Li, Ottle, and Wagner. However, there is no suggestion or reason to modify Bruck as alleged by the rejection.

Bruck has many deficiencies, some of which were acknowledged in the Office Action. Bruck fails to teach or suggest a bent over structure to mechanically lock and seal the catalyst substrate as claim 6 requires. Bruck fails to teach or suggest a mat being directly pressed against the outer surface of the catalyst substrate and the inner surface of the shell as claim 6 requires, and fails to teach or suggest that a mat is sealed between the outer surface of the catalyst substrate and the inner surface of the shell as claim 6 requires. Rather, Bruck teaches that a filler material 25 is disposed at least in the floating mounting 21 to allow axial mounting play in axial direction 10, indicating the floating mounting 21 is not a seal but to prevent vibration. (Column 4 lines 47 to 48 of Bruck.)

Li does not cure these deficiencies of Bruck. Nothing in Li teaches a bent over structure to mechanically lock and seal the catalyst substrate. Li discloses annular seals 24. (Figs. 2 and 5, paragraph [0019] of Li.) However, Li teaches that the seals 24 restrict gas flow through the mat 20, and they are positioned at longitudinal ends of the mat 20. However, this does not satisfy claim 6, Li does not teach that a mat is sealed between the outer surface of the catalyst substrate and the inner surface of the shell as claim 6 required. At best, Li is silent regarding the mat being pressed directly against the outer surface of the catalyst substrate and the inner surface of the shell as claim 6 requires.

Ottle and Wagner are relied upon for the bent over structure as required in claim 6 in the Office Action. However, Ottle and Wagner also fail to cure the deficiencies of Bruck and Li. Ottle teaches a compacted insulation material 28 that aids in the positioning of the catalyst carrier 22. (Figs. 1 and 2, lines 59 to 61 of Ottle.) However, Ottle fails to teach that the mat being pressed against and sealed between the outer surface of the catalyst substrate and the inner surface of the shell as claim 6 requires. Wagner teaches a sealing member 34, however the sealing member is located inside the casing 24 of the substrate 22. (Fig. 1A, paragraph [0055] of Wagner.) Therefore, Wagner does not teach a mat being pressed against and sealed between the outer surface of the catalyst substrate and the inner surface of the shell as claim 6 requires.

Accordingly, Bruck, Li, Wagner and Ottle, whether considered individually or in combination, at least fail to teach or otherwise render obvious all the elements of claim 6.

Furthermore, one would not have considered modifying Bruck with the spin forming described in Li as the rejection alleges. Bruck is not at all directed to a spin formed structure, but is to a specific catalyst assembly that requires specific components to assemble it. (Column 4, lines 33-37, and column 5, lines 28-45.) Bruck in fact includes multiple parts for its shell that require assembly and the reference is in no way relevant to spin formation. (See Figures 1 and 4 provided below.) Bruck teaches that a carrier body 1 mounted to the housing 2 by a fixed mounting 20 and a flexible mounting 21. Bruck teaches a fixed mounting 20 formed by the protuberance 6 of the carrier body 1 and the recess 9 of the housing 2; and a flexible mounting 21 formed by protuberances 5 on the carrier body 1 and the recesses 8 of the housing 2. (See Column 4 lines 41 to 52 and Figure 1 of Bruck as duplicated hereunder.) "[T]he protuberance 5, 6 extends at least partially into a corresponding recess 8, 9." (Column 5 lines 14-19 of Bruck.) Bruck further teaches a filler material 25 disposed "between the side surfaces of the protuberances and the side surfaces of the recesses, at least in the at least one floating mounting." (Column 3 lines 9-11 of Bruck.) The filler material 25 surrounds the catalyst carrier body 1. (Column 4 lines 51-54 of Bruck.)

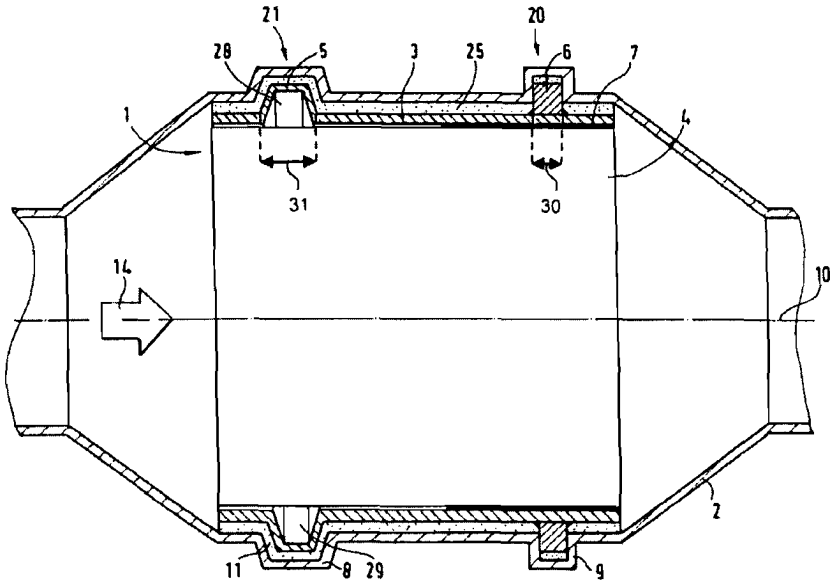

Figure 1 of Bruck

In order to achieve the structure of Bruck, Bruck specifically teaches that the housing 2 is pre-shaped with recesses 8, 9 as two half-shells. (Figure 4 as duplicated hereunder, and column 5 lines 30-34 of Bruck.) The two pre-shaped half-shells are to be connected together. Therefore, Bruck teaches a shell construction as shown in Figure 4 below that requires assembly. There is nothing in Bruck teaching or suggesting a device that is relevant to spin formation, much less the sealing and retention features of claim 6 in a spin formed shell as claim 6 recites.

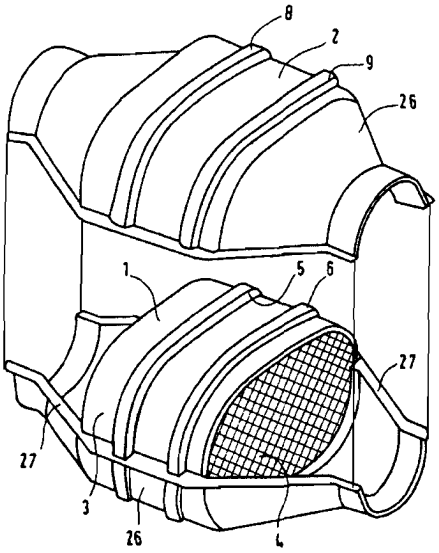

Figure 4 of Bruck

It is acknowledged that Li teaches a spin formed method. However, Bruck teaches a specific catalyst structure that requires assembly, and there is no reason that one of ordinary skill in the art would not have looked at a spin formed method as taught in Li to modify the structure of Bruck.

This is further evident in the shape of the sell in Bruck. Bruck teaches recesses 8, 9 in the housing 2. As shown in Figure 1 above, the shapes of the recesses contain sharp angular bends. Particularly, recess 9 of the fix mounting 20 as shown in Figure 1 has vertical wall structures with sharp angles. One of ordinary skill in the art would not have considered a spin formed method as taught in Li as being suitable for constructing such a complex outer structure with such shape angular bends, and would not have considered using a spin formed method to get the recesses that Bruck's shell needs for assembly and retention.

Furthermore, Bruck requires the two half-shells of the housing 2 to be shaped *before* assembly. (Column 5 lines 30 to 34 of Bruck.) In contrast, the spin formed method as taught in Li is carried out to form the shape of the shell *after* all of the components of the catalytic converter are pre-assembled, which is contrary to the pre-shaping requirements of the housing 2 in Bruck. (See for example paragraphs [0021] and [0022] of Li.) One of ordinary skill in the art would not have looked to combine Bruck and Li as suggested by the Office Action because the spin formed method as taught in Li is not compatible with the pre-shaping requirements as taught in Bruck.

Ottle and Wagner are relied upon for the bent over structure as required in claim 6 in the Office Action. However, Ottle and Wagner as discussed earlier still fail to cure the deficiencies of Bruck and Li. Ottle and Wagner at least fail to teach that the mat being pressed against and sealed between the outer surface of the catalyst substrate and the inner surface of the shell as claim 6 requires. Further, Ottle and Wagner also fail to teach or suggest a spin formed method and therefore do not cure the deficiencies of Bruck regarding the spin forming method.

Accordingly, Bruck, Li, Wagner and Ottle, whether considered individually or in combination, at least fail to teach or otherwise render obvious all the elements of claim 6. Claim 6 is therefore patentable at least for this reason.

Claims 7, 9, 10, and 13 to 15 depend from claim 6 ultimately. These claims are patentable along with claim 6, and need not be separately distinguished at this time. Applicants are not conceding the relevance of the rejections to the features of these claims.

Claim 16 is another independent claim. Similar to claim 6, claim 16 recites a specific structure and method combination that requires a mat being "directly pressed against the outer surface of the catalyst substrate and the inner surface of the shell" and "a spin formed member where the catalyst substrate and mat are disposed within the opening of the shell and between the inlet and outlet when the shell is spin formed." Since Bruck, Li, Ottle and Wagner do not teach or otherwise render obvious all the features in claim 6, claim 16 is patentable for at least similar reasons as specified with respect to claim 6. Dependent claim 17 is patentable along with claim 16. Applicants are not conceding the relevance of the rejections to the features of claim 17.

Conclusion

In view of the above, favorable reconsideration in the form of a notice of allowance is respectfully requested. Any questions regarding this communication can be directed to the undersigned at (612) 455-3811.

Respectfully submitted,

HAMRE, SCHUMANN, MUELLER & LARSON, P.C.
P.O. Box 2902
Minneapolis, MN 55402-0902
(612) 455-3800

Dated: February 23, 2012

By: _____
Name: Bryan A. Wong
Reg. No. 50836

BAW/xw/mkz

Electronic Acknowledgement Receipt

EFS ID:	12142558
Application Number:	12178812
International Application Number:	
Confirmation Number:	7029
Title of Invention:	SPIN FORMED CATALYST
First Named Inventor/Applicant Name:	Bryan E. Blackwell
Customer Number:	52835
Filer:	Bryan A. Wong/Maria Zamorano
Filer Authorized By:	Bryan A. Wong
Attorney Docket Number:	20305.0017US01
Receipt Date:	23-FEB-2012
Filing Date:	24-JUL-2008
Time Stamp:	14:09:59
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		AFTER-FINAL_AMENDMENT.pdf	107110 fbf755bccb0917890f54fefee2fd75b0ffc391b1	yes	10

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Amendment After Final	1	1
	Claims	2	4
	Applicant Arguments/Remarks Made in an Amendment	5	10
Warnings:			
Information:			
	Total Files Size (in bytes):	107110	

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.

PTO/SB/06 (07-06)
Approved for use through 1/31/2007. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 12/178,812	Filing Date 07/24/2008	☐ To be Mailed

APPLICATION AS FILED – PART I

	(Column 1)	(Column 2)	SMALL ENTITY ☐		OR	OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE ($)	FEE ($)		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =		OR	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =			X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 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).						
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT	02/23/2012	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 14	Minus	** 20	= 0	X $ =		OR	X $60=	0
	Independent (37 CFR 1.16(h))	* 3	Minus	***3	= 0	X $ =		OR	X $250=	0
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	0

AMENDMENT		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =		OR	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =		OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	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.

Legal Instrument Examiner:
/ANNIE SINGLETON/

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/178,812	07/24/2008	Bryan E. Blackwell	20305.0017US01	7029

52835 7590 11/23/2011

HAMRE, SCHUMANN, MUELLER & LARSON, P.C.
P.O. BOX 2902
MINNEAPOLIS, MN 55402-0902

EXAMINER	
DUONG, THANH P	

ART UNIT	PAPER NUMBER
1774	

MAIL DATE	DELIVERY MODE
11/23/2011	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.

Office Action Summary	Application No.	Applicant(s)	
	12/178,812	BLACKWELL ET AL.	
	Examiner	Art Unit	
	TOM DUONG	1774	

-- 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 *07 September 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) *1-17* is/are pending in the application.

5a) Of the above claim(s) *1-5* is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *6-17* 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: _____.

DETAILED ACTION

Applicant's remarks and amendments filed on September 07, 2011 have been carefully considered. Claims 6 and 11 have been amended. New claims 15-17 have been added. Claims 1-17 are pending in this application.

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 negatived by the manner in which the invention was made.

1. Claims 6-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bruck et al. (7,258,842) in view of Ottle (4,160,010) and Wagner et al. (2004/0213708) and Li et al. (2004/002531).

Regarding claims 6-7, 10, and 14-17, Bruck et al. discloses a catalytic device (Fig. 1) comprising: a shell (2) having an inlet and an outlet, the inlet is in fluid communication with the outlet through an opening extending through the shell (2); a catalyst substrate (1) disposed within the opening and between the inlet and outlet, the catalyst substrate (1) including a flow through structure in fluid communication with the inlet and outlet, the catalyst substrate (1) having an outer surface (3) surrounding the flow through structure and that faces an inner surface of the shell (2); and a mat (25) disposed between the outer surface (3) of the catalyst substrate (1) and the inner surface of the shell; and a mat (25) disposed between the outer surface of the catalyst

substrate (1) and the inner surface of the shell (2) such that the mat is directly pressed against the outer surface of the catalyst substrate and the inner surface of the shell (20, 21), the outer surface of the catalyst substrate (1) including at least one retention barb (5) in direct contact with the mat (25); and wherein the retention barb (5) mechanically retains the mat between the catalyst substrate (1) and middle portion of the shell (2), and the middle portion of the shell (2) extends toward ends of the catalyst substrate (1) and is planar (Fig. 1, Col. 2, lines 9-64).

Bruck et al. does not disclose the first end of the outer surface is bent over toward the flow through structure, so as to mechanically lock and seal the catalyst substrate in place.

Ottle teaches that it is conventional to provide outer foil sheet 30" which extends beyond and radially inward the end of the catalyst carrier to in order to secure the carrier in place.

Likewise, Wagner et al. teaches that it is conventional to provide a casing 24 with end flanges which overlap the opposite end faces 39, 41 of the substrate 22 and assist in retaining the substrate within the casing 24.

Thus, it would have been obvious in view of Ottle and/or Wagner et al. to one having ordinary skill in the art to modify the device of Bruck et al. with inwardly extended foil sheet as taught by Ottle and/or casing with end flanges as taught by Wagner et al. in order to secure and/or retain the catalyst substrate in place.

Bruck et al. does not expressly disclose the shell is a “spin formed” member.

Li et al. teaches that it is conventional to provide a spin formed catalytic converter and such method of spin formed allows the metal housing to be formed into noncircular shapes in order to accommodate different shapes of the catalyst substrates (Figs. 1-6).

Thus, it would have been obvious in view of Li et al. to one having ordinary skill in the art to modify the device of Bruck et al. with a spin formed shell as taught by Li et al. in order to gain the above advantage.

Regarding claims 8 and 11-12, Bruck et al. discloses that the protuberances (5, 6) and the side surfaces of the recesses (8, 9) facilitate in sealing and fixation of the mounting material (25). The protuberance or retention barb of the outer surface (3) pressed the mat (25) against the shell to facilitate in sealing and fixing the mounting material.

Regarding claims 6 and 9-12, Li et al. discloses the use of conventional ceramic mat and it would have been obvious to utilize such a ceramic mat or other known equivalent mat materials in the device of Bruck et al. in order to insulate the catalyst substrate.

Regarding claim 13, it appears that Bruck et al. discloses a catalyst coating in the catalyst substrate being the fact that Bruck et al. discloses a catalyst carrier body. In any event, it is conventional to provide a catalyst coating on the carrier body and it would have been obvious to do so here in order to provide an active catalytic layer in the carrier body to facilitate in converting harmful gases such as NOx, CO, hydrocarbon, and etc., to less harmful gases.

Response to Arguments

Applicant's arguments with respect to claims 6-17 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). 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 date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TOM DUONG whose telephone number is (571)272-2794. The examiner can normally be reached on 8:00AM - 4:30PM (IFP).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Walter Griffin can be reached on (571) 272-1447. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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.

/Tom P. Duong/
Primary Examiner, Art Unit 1774

Notice of References Cited	Application/Control No. 12/178,812	Applicant(s)/Patent Under Reexamination BLACKWELL ET AL.	
	Examiner TOM DUONG	Art Unit 1774	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-4,160,010	07-1979	Ottle, Walter	422/180
*	B	US-2004/0213708	10-2004	Wagner et al.	422/180
	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	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		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.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Bryan E. Blackwell et al.	Examiner:	Thanh P. Duong
Serial No.:	12/178,812	Group Art Unit:	1774
Filed:	July 24, 2008	Docket No.:	20305.0017US01
Title:	Spin Formed Catalyst		

CERTIFICATE TRANSIMISSION:
I hereby certify that this paper is being transmitted by EFS Web to the United States Patent & Trademark Office on September 7, 2011.

By: Maria K. Zamorano
Name: Maria K. Zamorano

AMENDMENT AND RESPONSE

Mail Stop: AMENDMENT
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Dear Sir:

In response to the Office Action mailed June 7, 2011, Applicants respectfully request entry and consideration of the amendments and remarks.

Amendments to the Claims are shown in the listing of claims that begins on page 2 of this paper.

Remarks begin on page 5 of this paper.

Amendments to the Claims:

1. (Withdrawn) A method of spin forming a catalytic device comprising:

disposing a mat about an outer surface of a catalyst substrate;

inserting the catalyst substrate and mat inside a shell, such that the mat is between the shell and the catalyst substrate; and

spin forming the shell, catalyst substrate, and mat.

2. (Withdrawn) The method of claim 1, wherein the step of spin forming further comprises spin forming the shell, catalyst substrate, and mat into at least a generally elliptical shape but other than a circle shape.

3. (Withdrawn) The method of claim 1, wherein the step of spin forming further comprises sealing the mat between the shell and the catalyst substrate.

4. (Withdrawn) The method of claim 1, wherein the step of spin forming further comprises directly contacting the mat with an outer surface of the catalyst substrate and with an inner surface of the shell.

5. (Withdrawn) The method of claim 1, wherein the step of spin forming further comprises forming an outer surface of the shell having portions proximate the inlet and outlet and a portion between the portions proximate the inlet and outlet, the portions proximate the inlet and outlet are spin formed with a smaller dimension than the portion between the inlet and outlet.

6. (Currently Amended) A catalytic device comprising:

a shell having an inlet and an outlet, the inlet is in fluid communication with the outlet through an opening extending through the shell;

a catalyst substrate disposed within the opening and between the inlet and outlet, the catalyst substrate including a flow through structure in fluid communication with the inlet and outlet, the catalyst substrate having an outer surface surrounding the flow through structure and that faces an inner surface of the shell, wherein a first end of the outer surface is bent over

toward the flow through structure, so as to mechanically lock and seal the catalyst substrate in place; and

a mat disposed between the outer surface of the catalyst substrate and the inner surface of the shell,

the shell is a spin formed member where the catalyst substrate and mat are disposed within the opening of the shell and between the inlet and outlet when the shell is spin formed.

7. (Original) The device of claim 6, wherein the shell is a spin formed member that is at least generally elliptically shaped but other than a circle shape.

8. (Original) The device of claim 6, wherein the mat is sealed between the outer surface of the catalyst substrate and the inner surface of the shell.

9. (Original) The device of claim 6, wherein the mat is at least one of a ceramic and a metallic material.

10. (Original) The device of claim 6, wherein the mat is substantially disposed about the outer surface of the catalyst substrate.

11. (Currently Amended) The device of claim 6, wherein ~~the outer surface of the catalyst substrate is a mantle, such that~~ the mat is directly pressed against ~~the mantle~~ the outer surface of the catalyst substrate and the inner surface of the shell.

12. (Original) The device of claim 11, wherein the mantle includes at least one retention barb in direct contact with the mat.

13. (Original) The device of claim 6, wherein the catalyst substrate includes a catalyst coating disposed on surfaces in fluid communication with the inlet and outlet.

14. (Original) The device of claim 6, wherein the shell includes a spin formed outer surface having portions proximate the inlet and outlet and a portion between the portions proximate the

inlet and outlet, the portions proximate the inlet and outlet have a smaller dimension than the portion between the inlet and outlet.

15. (New) The device of claim 6, wherein a second end of the outer surface is bent over toward the flow through structure.

16. (New) A catalytic device comprising:

a shell having an inlet and an outlet, the inlet is in fluid communication with the outlet through an opening extending through the shell;

a catalyst substrate disposed within the opening and between the inlet and outlet, the catalyst substrate including a flow through structure in fluid communication with the inlet and outlet, the catalyst substrate having an outer surface surrounding the flow through structure and that faces an inner surface of the shell; and

a mat disposed between the outer surface of the catalyst substrate and the inner surface of the shell such that the mat is directly pressed against the outer surface of the catalyst substrate and the inner surface of the shell, the outer surface of the catalyst substrate including at least one retention barb in direct contact with the mat;

the shell is a spin formed member where the catalyst substrate and mat are disposed within the opening of the shell and between the inlet and outlet when the shell is spin formed.

17. (New) The device of claim 16, wherein the retention barb mechanically retains the mat between the catalyst substrate and a middle portion of the shell, and the middle portion of the shell extends towards ends of the catalyst substrate and is planar.

Remarks

This Amendment is in response to the Office Action mailed June 7, 2011. Claims 1 to 5 are withdrawn. Claim 6 is amended, and support for the amendment can be found for example at page 7 lines 2-4 and in Fig. 4. Claim 11 is amended, and support for the amendment can be found for example at page 6 lines 23-29 and in Fig. 4. Claims 15 - 17 are new. Support for claim 15 can be found for example at page 7 lines 2-4 and in Fig. 4. Support for claim 16 can be found for example at pages 5-6 and in Figs. 1-4, and in original claims 6, 11 and 12. Support for claim 17 can be found for example at page 7 lines 5-7 and Fig. 4. Claims 1-17 are pending. Reconsideration is respectfully requested in view of the above amendments and the following remarks.

Claim Rejections – 35 USC § 103

Claims 6-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bruck et al. (US 7,258,842, hereinafter "Bruck") in view of Li et al. (US 2004/0025341, hereinafter "Li"). (The Office Action refers to a reference of Li et al. (2004/002531). (Page 2 of the Office Action) Applicants assume that this is a typographic error and the rejection is over Bruck in view of Li et al. (US 2004/0025341.) Applicants respectfully traverse the rejection in view of the amendments.

Claim 6 is an independent claim. The amended claim 6 recites a device that includes a "catalyst substrate having an outer surface surrounding the flow through structure..., wherein a first end of the outer surface of the catalyst substrate is bent over toward the flow through structure, so as to mechanically lock and seal the catalyst substrate in place..." Neither Bruck nor Li teaches similar features. Therefore Bruck and Li, whether considered independently or in combination, fail to teach or render obvious all the features required by claim 6. Amended claim 6 is patentable at least for this reason.

Claim 6 also recites a shell that is "spin formed" and further requires that "the catalyst substrate and mat are disposed within the opening of the shell...*when* the shell is spin formed."

The Office Action acknowledges that Bruck fails to disclose the shell is "spin formed," but alleges that one of ordinary skill in the art would have combined a spin-forming method as taught in Li with the teaching of Bruck. (Page 3 of the Office Action.) Applicants respectfully

disagree with this conclusion. One of ordinary skill in the art would not have combined Bruck and Li.

Bruck is directed to a catalyst assembly with a carrier body 1 and a housing 2. (Column 4, lines 33-37 of Bruck) The carrier body 1 has a protuberance 5, 6, and the housing 2 has recess 8, 9, wherein "the protuberance 5, 6 extends at least partially into a corresponding recess 8, 9. (Column 5 lines 14-19 of Bruck.) To assemble this structure, Bruck firstly teaches that the housing 2 is pre-constructed with recess 8, 9 and as two half-shells. (Figure 4, and column 5 lines 30-34 of Bruck.) Secondly, Bruck teaches that the two half shells are to be connected together after the carrier body 1 has been disposed in the interior of the housing 2 so that the recess 8, 9 can be matched with protuberance 5 and 6. (Figure 4, and column 5 lines 30-37 of Bruck.) Therefore, Bruck requires the housing 2 to be constructed *before* assembly.

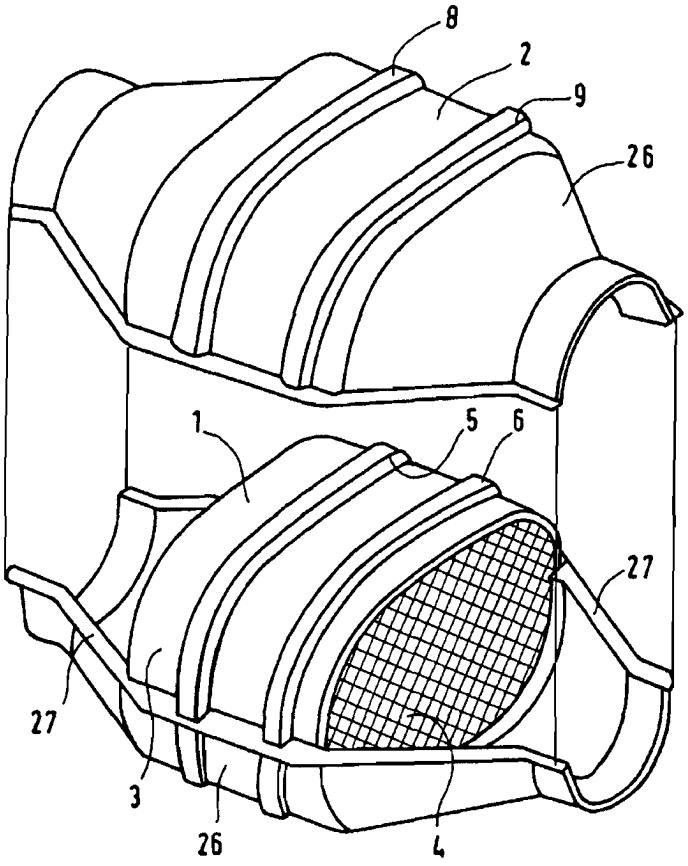

Figure 4 of Bruck

Li is directed to a spin forming method. The Office Action apparently asserts that it would have been obvious to modify the device of Bruck with a spin formed shell as taught by Li.

(Page 3 of the Office Action.) As taught in Li, the spin forming is carried out to construct the shape of the tube 22 *after* all of the components of the catalytic converter are pre-assembled, which is contrary to the preconstruction of the housing 2 in Bruck. (See for example paragraphs [0021] and [0022] of Li.) One of ordinary skill in the art would not have looked to modify Bruck with Li as suggested by the Office Action because the pre-assembly requirement for the spin forming method is not compatible with the teaching of Bruck.

Rather, Bruck teaches a structural configuration of catalyst assembly and a specific way to assemble the configuration, namely with its specific protuberance 5, 6/recess 8, 9 structure. (See for example column 5 lines 28-45.) Therefore, there is no reason that one would look to modify Bruck as the rejection states. Li, on the other hand, teaches a method to modify the shape of an assembled catalyst assembly. (See for example Abstract of Li.) One of ordinary skill in the art would not have considered Li in view of the teaching of Bruck as suggested by the Office Action.

Furthermore, Bruck teaches a recess 8, 9 in the housing 2. As shown in Figure 1, the

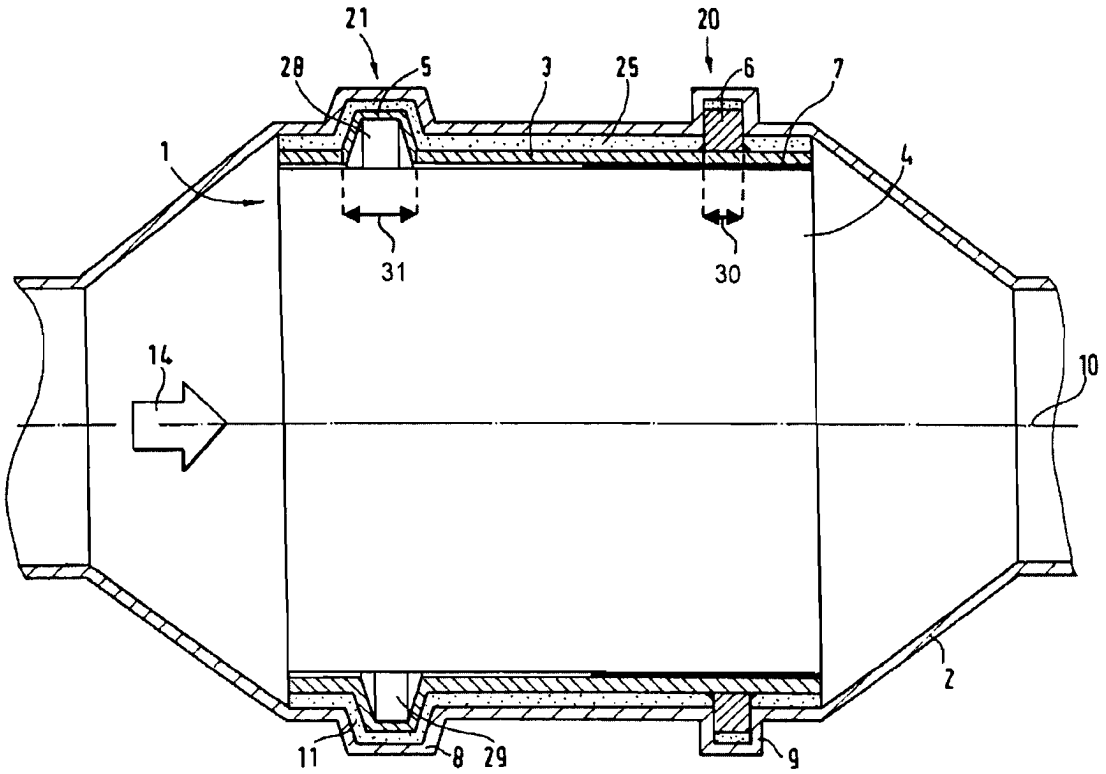

Figure 1 of Bruck

shape of the recess contains sharp angular bends. Particularly, recess 9 as shown in Figure 1 has vertical wall structures with sharp angles. One of ordinary skill in the art would not have considered using a spin forming method to construct such a complex outer structure because spin forming would be used to make such sharp angular bends. Accordingly, one of ordinary skill in the art would not have combined the teaching of Bruck and Li together.

Consequently, one of ordinary skill in the art would not have looked to combine the teachings of Li with Bruck. Claim 6 is therefore patentable at least for the foregoing reasons. Claims 7 to 14 depend from claim 6 ultimately. These claims are patentable along with claim 6, and need not be separately distinguished at this time. Applicants are not conceding the relevance of the rejections to the remaining features of the rejected claims.

New Claims 15, 16 and 17

Claim 15 depends from claim 6 and therefore is patentable at least for the reasons cited for claim 6. Further, claim 15 requires that "a second end of the outer surface of the catalyst substrate is bent over toward the flow through structure." Bruck and Li, whether considered independently or in combination, fail to teach or render obvious this required feature. Therefore, claim 15 is also patentable independently because of this feature.

Claim 16 is an independent claim and includes substantially the same features of claims 6, 11 and 12; and requires, in part, that "the shell is a spin formed member" and "the outer surface of the catalyst substrate includes at least one retention barb in direct contact with the mat...." Neither Bruck nor Li alone discloses all the features required by claim 16. In addition, as discussed above one of ordinary skill in the art also would not have combined the teachings of Bruck and Li. Therefore, claim 16 is patentable over Bruck and Li.

Claim 17 dependents from claim 16 and therefore is patentable for at least the same reasons cited for claim 16. Moreover, claim 17 requires that "the retention barb mechanically retains the mat between the catalyst substrate and a middle portion of the shell, and the middle portion of the shell extends towards ends of the catalyst substrate and is planar." These features are not taught or rendered obvious by either Bruck or Li alone or in combination. Therefore, claim 17 is patentable over Bruck and Li because of these features independently.

Conclusion

In view of the above, favorable reconsideration in the form of a notice of allowance is respectfully requested. Any questions regarding this communication can be directed to the undersigned at (612) 455-3811.

Respectfully submitted,

HAMRE, SCHUMANN, MUELLER & LARSON, P.C.
P.O. Box 2902
Minneapolis, MN 55402-0902
(612) 455-3800

Dated: September 7, 2011

By: /Bryan A. Wong/
Name: Bryan A. Wong
Reg. No. 50836

BAW/xw/mkz

Electronic Acknowledgement Receipt

EFS ID:	10897378
Application Number:	12178812
International Application Number:	
Confirmation Number:	7029
Title of Invention:	SPIN FORMED CATALYST
First Named Inventor/Applicant Name:	Bryan E. Blackwell
Customer Number:	52835
Filer:	Bryan A. Wong/Maria Zamorano
Filer Authorized By:	Bryan A. Wong
Attorney Docket Number:	20305.0017US01
Receipt Date:	07-SEP-2011
Filing Date:	24-JUL-2008
Time Stamp:	17:39:11
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		AMENDMENT_AND_RESPONSE.pdf	96849 5380c93f8427616f46a874f279c6869ed12bf995	yes	9

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Claims	1	4
	Applicant Arguments/Remarks Made in an Amendment	5	9
Warnings:			
Information:			
	Total Files Size (in bytes):	96849	

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.

PTO/SB/06 (07-06)
Approved for use through 1/31/2007. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 12/178,812	Filing Date 07/24/2008	☐ To be Mailed

APPLICATION AS FILED – PART I

	(Column 1)	(Column 2)	SMALL ENTITY ☐		OR	OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE ($)	FEE ($)		RATE ($)	FEE ($)
☒ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	**310**
☒ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	**510**
☒ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	**210**
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =		OR	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =			X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 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).						
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	**1030**

APPLICATION AS AMENDED – PART II

AMENDMENT		(Column 1)		(Column 2)	(Column 3)	SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
	09/07/2011	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 17	Minus	** 20	= 0	X $ =		OR	X $52=	0
	Independent (37 CFR 1.16(h))	* 3	Minus	***3	= 0	X $ =		OR	X $220=	0
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	**0**

AMENDMENT		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =		OR	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =		OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	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.

Legal Instrument Examiner:
/LELAND WATKINS/

UNITED STATES PATENT AND TRADEMARK OFFICE

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www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/178,812	07/24/2008	Bryan E. Blackwell	20305.0017US01	7029

52835 7590 06/07/2011

HAMRE, SCHUMANN, MUELLER & LARSON, P.C.
P.O. BOX 2902
MINNEAPOLIS, MN 55402-0902

EXAMINER	
DUONG, THANH P	

ART UNIT	PAPER NUMBER
1774	

MAIL DATE	DELIVERY MODE
06/07/2011	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.

Office Action Summary	Application No.	Applicant(s)	
	12/178,812	BLACKWELL ET AL.	
	Examiner	Art Unit	
	TOM DUONG	1774	

-- 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 *03 May 2011*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ 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

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) *1-5* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *6-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ 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).

11)☐ 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

12)☐ 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: _____.

DETAILED ACTION

Election/Restrictions

Applicant's election with traverse of Group I (claims 6-14) in the reply filed on May 3, 2011 is acknowledged. The traversal is on the ground(s) that Group I substantially include the features of at least the independent device claim I of Group II and therefore, search and consideration of Group I along with Group II would not be a serious burden. This is not found persuasive because Groups I and II are distinct and/or independent which acquired a separate class and/or subclass. There would be a serious burden in examination and/or search if a restriction is not required.

The requirement is still deemed proper and is therefore made FINAL.

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 negatived by the manner in which the invention was made.

1. Claims 6-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bruck et al. (7,258,842) in view of Li et al. (2004/002531).

Regarding claims 6-7, 10, and 14, Bruck et al. discloses a catalytic device (Fig. 1) comprising: a shell (2) having an inlet and an outlet, the inlet is in fluid communication with the outlet through an opening extending through the shell (2); a catalyst substrate (1) disposed within the opening and between the inlet and outlet, the catalyst substrate

(1) including a flow through structure in fluid communication with the inlet and outlet, the catalyst substrate (1) having an outer surface (3) surrounding the flow through structure and that faces an inner surface of the shell (2); and a mat (25) disposed between the outer surface (3) of the catalyst substrate (1) and the inner surface of the shell.

Bruck et al. does not expressly disclose the shell is a “spin formed” member.

Li et al. teaches that it is conventional to provide a spin formed catalytic converter and such method of spin formed allows the metal housing to be formed into noncircular shapes in order to accommodate different shapes of the catalyst substrates (Figs. 1-6).

Thus, it would have been obvious in view of Li et al. to one having ordinary skill in the art to modify the device of Bruck et al. with a spin formed shell as taught by Li et al. in order to gain the above advantage.

Regarding claims 8 and 11-12, Bruck et al. discloses that the protuberances (5, 6) and the side surfaces of the recesses (8, 9) facilitate in sealing and fixation of the mounting material (25). The protuberance or retention barb of the outer surface (3) pressed the mat (25) against the shell to facilitate in sealing and fixing the mounting material.

Regarding claims 6 and 9-12, Li et al. discloses the use of conventional ceramic mat and it would have been obvious to utilize such a ceramic mat or other known equivalent mat materials in the device of Bruck et al. in order to insulate the catalyst substrate.

Regarding claim 13, it appears that Bruck et al. discloses a catalyst coating in the catalyst substrate being the fact that Bruck et al. discloses a catalyst carrier body. In any event, it is conventional to provide a catalyst coating on the carrier body and it

would have been obvious to do so here in order to provide an active catalytic layer in the carrier body to facilitate in converting harmful gases such as NOx, CO, hydrocarbon, and etc., to less harmful gases.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TOM DUONG whose telephone number is (571)272-2794. The examiner can normally be reached on 8:00AM - 4:30PM (IFP).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Walter Griffin can be reached on (571) 272-1447. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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.

/Tom P. Duong/
Primary Examiner, Art Unit 1774

Notice of References Cited	Application/Control No. 12/178,812	Applicant(s)/Patent Under Reexamination BLACKWELL ET AL.	
	Examiner TOM DUONG	Art Unit 1774	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-2004/0025341	02-2004	Li et al.	29/890
	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	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		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.

Receipt date: 11/17/2008

Date Filed: November 17, 2008

FORM PTO/SB/08 *Substitute for form 1449/PTO*	Docket Number:	Application Number:
INFORMATION DISCLOSURE STATEMENT BY APPLICANT	20069.0070US01	12/178812
	Applicant: BLACKWELL et al.	
(Use several sheets if necessary)	Filing Date: July 24, 2008	Group Art Unit: 1797

U.S. PATENT DOCUMENTS

Examiner Initial	Cite No.	Document Number	Kind Code	Publication Date (yyyy-mm-dd)	Name of Patentee or Applicant	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear

FOREIGN PATENT DOCUMENTS

Examiner Initial	Cite No.	Country	Document Number	Kind Code	Publication Date	Name of Patentee or Applicant	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	Translation

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

	1	James F. Unruh, "Design of Durable Catalytic Converters from Mat Material Coupon Fragility Data, 18-9291." Southwest Research Institute. Obtained from http://www.swri.org/3pubs/IRD2002/18-9291.htm, prior to July 24, 2008	N/A
	2	3M™ Interam® Overview. Obtained from http://solutions.3m.com/wps/portal/3M/en_US/Interam/Home/About/Overview prior to July 24, 2008	N/A

52835
Customer Number

EXAMINER	/Tom Duong/	DATE CONSIDERED	06/02/2011

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; draw line through citation if not in conformance and not considered. Include copy of this form for next communication to the Applicant.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /TD/

Search Notes	Application/Control No.	Applicant(s)/Patent under Reexamination
	12/178,812	BLACKWELL ET AL.
	Examiner	Art Unit
	TOM DUONG	1774

SEARCHED			
Class	Subclass	Date	Examiner
422	177 179 180	6/2/2011	TD

INTERFERENCE SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES (INCLUDING SEARCH STRATEGY)		
	DATE	EXMR
Palm Search Eden Search East Search Text Search Inventor Search	6/2/2011	TD

S/N 12/178812 PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	BLACKWELL	Examiner:	DUONG, THANH P.
Serial No.:	12/178812	Group Art Unit:	1774
Filed:	July 24, 2008	Docket No.:	20305.0017US01
Title:	SPIN FORMED CATALYST		

CERTIFICATE OF TRANSMISSION
I hereby certify that this paper is being transmitted by EFS Web to the United States Patent & Trademark Office on May 3, 2011.
By:
Name: Meegan M. Zane

RESPONSE TO RESTRICTION REQUIREMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Dear Sir:

Applicants hereby elect Group II, device claims 6-14, in response to the Restriction Requirement mailed April 4, 2011. Applicants traverse the restriction and request reconsideration in that the method claims of Group I substantially include the features of at least the independent device claim 1 of Group II and therefore, search and consideration of Group I along with Group II would not be a serious burden. Should the restriction be maintained, Applicants request that the non-elected method claims be rejoined in the event that the product claim is found allowable.

An early and favorable action on the merits is requested. Please charge any additional fees or credit any overpayment to Deposit Account No. 50-3478.

Respectfully submitted,

52835
PATENT TRADEMARK OFFICE

HAMRE, SCHUMANN, MUELLER & LARSON, P.C.
P.O. Box 2902
Minneapolis, MN 55402-0902
(612) 455-3800

Dated: May 3, 2011

By: _____
Bryan A. Wong
Reg. No. 50,836
BAW/mmz

Electronic Acknowledgement Receipt

EFS ID:	10005814
Application Number:	12178812
International Application Number:	
Confirmation Number:	7029
Title of Invention:	SPIN FORMED CATALYST
First Named Inventor/Applicant Name:	Bryan E. Blackwell
Customer Number:	52835
Filer:	Bryan A. Wong/Meegan Zane
Filer Authorized By:	Bryan A. Wong
Attorney Docket Number:	20305.0017US01
Receipt Date:	03-MAY-2011
Filing Date:	24-JUL-2008
Time Stamp:	10:33:13
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Response to Election / Restriction Filed	Response_to_Restriction_Requirement.pdf	16282 5730d183657e5910b043d9b6002145b617d3c07e	no	1

Warnings:	
Information:	

Total Files Size (in bytes):	16282

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.

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New International Application Filed with the USPTO as a Receiving Office

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PTO/SB/06 (07-06)
Approved for use through 1/31/2007. 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	Filing Date	☐ To be Mailed
12/178,812	07/24/2008	

APPLICATION AS FILED – PART I

	(Column 1)	(Column 2)	SMALL ENTITY ☐ RATE ($)	SMALL ENTITY ☐ FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY FEE ($)
FOR	NUMBER FILED	NUMBER EXTRA					
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =		OR	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =			X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 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).						
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT	05/03/2011	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 14	Minus	** 20	=	X $ =		OR	X $ =	
	Independent (37 CFR 1.16(h))	* 2	Minus	***3	=	X $ =		OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

AMENDMENT		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =		OR	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =		OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	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.

Legal Instrument Examiner:
/DEANNA L. RORIE/

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.**

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

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.
12/178,812	07/24/2008	Bryan E. Blackwell	20305.0017US01	7029

52835 7590 04/04/2011

HAMRE, SCHUMANN, MUELLER & LARSON, P.C.
P.O. BOX 2902
MINNEAPOLIS, MN 55402-0902

EXAMINER	
DUONG, THANH P	

ART UNIT	PAPER NUMBER
1774	

MAIL DATE	DELIVERY MODE
04/04/2011	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.

Office Action Summary	Application No.	Applicant(s)	
	12/178,812	BLACKWELL ET AL.	
	Examiner	Art Unit	
	TOM P. DUONG	1774	

-- 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 *1* 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 _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ 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

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *1-14* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ 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).

11)☐ 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

12)☐ 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: _____.

DETAILED ACTION

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1-5, drawn to a method of spin forming a catalytic device, classified in class 29, subclass 890.

II. Claims 6-14, drawn to a catalytic device, classified in class 422, subclass 180.

Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make another and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case, the process as claimed can be used to make another and materially different product such as a honeycomb filter other than a catalytic device.

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 and there would be a serious search and/or examination burden if restriction were not required because at least the following reason(s) apply:

The inventions listed are distinct and acquired a different class and/or subclass and there would be a serious burden search and/or examination burden if restriction were not required.

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 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 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).

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. 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.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TOM P. DUONG whose telephone number is (571)272-2794. The examiner can normally be reached on 8:00AM - 4:30PM (IFP).

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/Tom P. Duong/
Primary Examiner, Art Unit 1774

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
12/178,812	07/24/2008	Bryan E. Blackwell	20069.0070US01

CONFIRMATION NO. 7029

52835
HAMRE, SCHUMANN, MUELLER & LARSON, P.C.
P.O. BOX 2902
MINNEAPOLIS, MN 55402-0902

PUBLICATION NOTICE

OC00000039901524

Title:SPIN FORMED CATALYST

Publication No.US-2010-0021356-A1
Publication Date:01/28/2010

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 Managment, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

Electronic Acknowledgement Receipt

EFS ID:	4297372
Application Number:	12178812
International Application Number:	
Confirmation Number:	7029
Title of Invention:	SPIN FORMED CATALYST
First Named Inventor/Applicant Name:	Bryan E. Blackwell
Customer Number:	52835
Filer:	Bryan A. Wong/Lauren Sindt
Filer Authorized By:	Bryan A. Wong
Attorney Docket Number:	20069.0070US01
Receipt Date:	17-NOV-2008
Filing Date:	24-JUL-2008
Time Stamp:	10:55:26
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		IDS.pdf	47415 d986a3b1e7f3386c5342e5e26a892e3f3f5e464e	yes	4

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Information Disclosure Statement Letter	1	3
	Information Disclosure Statement (IDS) Filed (SB/08)	4	4

Warnings:					
Information:					
2	NPL Documents	NPL1.pdf	82121 94a0b111793ec8bb5beaa4792cfadd6b663fdc5f	no	3
Warnings:					
Information:					
3	NPL Documents	NPL2.pdf	30000 743f88de528a14bf2c28eaa6b5f1fad6a3b8e173	no	1
Warnings:					
Information:					
		Total Files Size (in bytes):	159536		

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S/N 12/178812 PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	BLACKWELL et al.	Examiner:	Unknown
Serial No.:	12/178812	Group Art Unit:	1797
Filed:	July 24, 2008	Docket No.:	20069.0070US01
Title:	SPIN FORMED CATALYST		

CERTIFICATE OF TRANSMISSION
I hereby certify that this paper is being transmitted by EFS Web to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on November 7, 2008.

By: _____
Name: Lauren Sindt

INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Sir:

With regard to the above-identified application, the items of information listed on the enclosed Form PTO/SB/08 are brought to the attention of the Examiner. Copies of any foreign patent or non-patent literature documents are enclosed.

A concise explanation of the relevance of each non-English language document or other information is as follows (37 C.F.R. §1.98(a)(3)):

N/A

In accordance with the provisions of 37 C.F.R. §1.97, this statement is being filed (CHECK ONE):

☒ (1) within three (3) months of the Filing Date, before the mailing date of a First Office Action on the merits, or before the mailing date of a First Office Action on the merits after the filing of a request for continued examination under 37 C.F.R. §1.114; or

☐ (2) after the period defined in (1) but before the mailing date of a Final Rejection or Notice of Allowance, and

- ☐ the requisite Statement is below, OR
- ☐ the requisite fee of $180.00 under Rule 1.17(p) is included herein, or

☐ (3) or after the mailing date of a Final Rejection or Notice of Allowance but on before the payment of the Issue Fee, AND the requisite Statement is below AND the requisite fee of $180.00 under Rule 1.17(p) is included herein.

STATEMENT

Applicants hereby state that:

☐ Each item of information contained in the Information Disclosure Statement was first cited in a communication from a foreign patent office in a counterpart application or by the USPTO in a related application not more than three months prior to the filing date of the Information Disclosure Statement

☐ If this box is checked, Applicant provides the following:

Certification Under 37 C.F.R. §1.704(d)

In accordance with 37 C.F.R. §1.704(d), the undersigned hereby certifies that each item listed on the enclosed Form PTO/SB/08 was first 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 C.F.R. §1.56(c) more than thirty (30) days prior to the filing of this Information Disclosure Statement.

☐ The Examiner is hereby advised of the following co-pending U.S. applications. A copy of each U.S. patent application publication (if published) or application (if not published) is enclosed.

Application No.	Filing Date	Group

No representation is made that a reference is "prior art" within the meaning of 35 U.S.C. §§ 102 and 103 and Applicants reserve the right, pursuant to 37 C.F.R. § 1.131 or otherwise, to establish that the reference(s) are not "prior art." Moreover, Applicants do not represent that a reference has been thoroughly reviewed or that any relevance of any portion of a reference is intended.

Consideration of the items listed is respectfully requested. Pursuant to the provisions of M.P.E.P. 609, it is requested that the Examiner return a copy of the attached Form PTO/SB/08, marked as being considered and initialed by the Examiner, to the undersigned with the next official communication.

FEE AUTHORIZATION

Should any fee associated with the submission of this paper not be attached hereto as a check, the Commissioner is authorized to charge the missing fee to our Deposit Account, No. 50-3478. Any overpayments should be credited to said Deposit Account.

Respectfully submitted,

HAMRE, SCHUMANN, MUELLER & LARSON, P.C.
P.O. Box 2902
Minneapolis, MN 55402-0902
(612) 455-3800

Dated: November 17, 2008

By: _____
Bryan A. Wong
Reg. No. 50,836
BAW/ls

Date Filed: November 17, 2008

FORM PTO/SB/08 *Substitute for form 1449/PTO*	Docket Number:	Application Number:
INFORMATION DISCLOSURE STATEMENT BY APPLICANT	20069.0070US01	12/178812
	Applicant: BLACKWELL et al.	
(Use several sheets if necessary)	Filing Date: July 24, 2008	Group Art Unit: 1797

U.S. PATENT DOCUMENTS

Examiner Initial	Cite No.	Document Number	Kind Code	Publication Date (yyyy-mm-dd)	Name of Patentee or Applicant	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear

FOREIGN PATENT DOCUMENTS

Examiner Initial	Cite No.	Country	Document Number	Kind Code	Publication Date	Name of Patentee or Applicant	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	Translation

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

	1	James F. Unruh, "Design of Durable Catalytic Converters from Mat Material Coupon Fragility Data, 18-9291." Southwest Research Institute. Obtained from http://www.swri.org/3pubs/IRD2002/18-9291.htm, prior to July 24, 2008	N/A
	2	3M™ Interam® Overview. Obtained from http://solutions.3m.com/wps/portal/3M/en_US/Interam/Home/About/Overview prior to July 24, 2008	N/A

52835
Customer Number

EXAMINER	DATE CONSIDERED

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; draw line through citation if not in conformance and not considered. Include copy of this form for next communication to the Applicant.

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	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
12/178,812	07/24/2008	1797	1030	20069.0070US01	14	2

CONFIRMATION NO. 7029

52835
HAMRE, SCHUMANN, MUELLER & LARSON, P.C.
P.O. BOX 2902
MINNEAPOLIS, MN 55402-0902

FILING RECEIPT

Date Mailed: 08/05/2008

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)

Bryan E. Blackwell, Franklin, IN;
Eric L. Reeck, Columbus, IN;
Howard S. Savage, Columbus, IN;

Assignment For Published Patent Application

CUMMINS FILTRATION IP, INC., Minneapolis, MN

Power of Attorney: The patent practitioners associated with Customer Number 52835

Domestic Priority data as claimed by applicant

Foreign Applications

If Required, Foreign Filing License Granted: 08/01/2008

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 12/178,812**

Projected Publication Date: 01/28/2010

Non-Publication Request: No

Early Publication Request: No

Title

SPIN FORMED CATALYST

Preliminary Class

422

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 AssetsControl, 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).

UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: BLACKWELL et al.
Attorney Docket: 20069.0070US01
Title: SPIN FORMED CATALYST

CERTIFICATE OF TRANSMISSION
I hereby certify that the papers listed below are being transmitted by EFS Web to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on July 24, 2008.

By: _____
Name: Lauren Sindt

52835
CUSTOMER NUMBER

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

Sir:

The following papers are transmitted herewith:

☒ Transmittal sheet containing Certificate of Transmission;
☒ Utility Patent Application including: Description - 10 pages; Claims - 3 pages; Abstract – 1 page; Drawings – 2 sheets;
☒ Signed Combined Declaration and Power of Attorney;
☒ Application Data Sheet ;

CLAIMS AS FILED

Number of Claims Filed	No.	In Excess of		Extra		Rate		Fee
Total Claims	14	20				50.00	=	-----
Independent Claims	2	3				210.00	=	-----
Multiple Dependent Claims Fee							=	-----
Basic Filing Fee							=	310.00
Search Fee							=	510.00
Examination Fee							=	210.00
Utility Application Size Fee		100				260.00	=	-----
Total							=	$1030

Please charge Deposit Account 50-3478 in the amount of $1030 to cover the filing fees calculated above.
Please charge any additional fees or credit overpayment to Deposit Account No. 50-3478.

Hamre, Schumann, Mueller & Larson, P.C.
P.O. Box 2902, Minneapolis, MN 55402-2902
612.455-3800

By: _____
Name: Bryan A. Wong
Reg. No.: 50,836
Initials: BAW/ls

UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: BLACKWELL et al.
Attorney Docket: 20069.0070US01
Title: SPIN FORMED CATALYST

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By: _____
Name: Lauren Sindt

52835
CUSTOMER NUMBER

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

Sir:

The following papers are transmitted herewith:

☒ Transmittal sheet containing Certificate of Transmission;
☒ Utility Patent Application including: Description - 10 pages; Claims - 3 pages; Abstract – 1 page; Drawings – 2 sheets;
☒ Signed Combined Declaration and Power of Attorney;
☒ Application Data Sheet ;

CLAIMS AS FILED

Number of Claims Filed	No.	In Excess of		Extra		Rate		Fee
Total Claims	14	20				50.00	=	-----
Independent Claims	2	3				210.00	=	-----
Multiple Dependent Claims Fee							=	-----
Basic Filing Fee							=	310.00
Search Fee							=	510.00
Examination Fee							=	210.00
Utility Application Size Fee		100				260.00	=	-----
Total							=	$1030

Please charge Deposit Account 50-3478 in the amount of $1030 to cover the filing fees calculated above.
Please charge any additional fees or credit overpayment to Deposit Account No. 50-3478.

Hamre, Schumann, Mueller & Larson, P.C.
P.O. Box 2902, Minneapolis, MN 55402-2902
612.455-3800

By: _____
Name: Bryan A. Wong
Reg. No.: 50,836
Initials: BAW/ls

PTO/SB/14 (07-07)
Approved for use through 06/30/2010. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	20069.0070US01
	Application Number	
Title of Invention	SPIN FORMED CATALYST	

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.

Secrecy Order 37 CFR 5.2

☐ 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.)

Applicant Information:

Applicant 1 Remove

Applicant Authority	◉ Inventor	○ Legal Representative under 35 U.S.C. 117	○ Party of Interest under 35 U.S.C. 118

Prefix	Given Name	Middle Name	Family Name	Suffix
	Bryan	E.	Blackwell	

Residence Information (Select One) ◉ US Residency ○ Non US Residency ○ Active US Military Service

City	Franklin	State/Province	IN	Country of Residence[i]	US

Citizenship under 37 CFR 1.41(b)[i]	US

Mailing Address of Applicant:

Address 1	2747 South County Road 25W		
Address 2			
City	Franklin	State/Province	IN
Postal Code	46131	Country[i]	US

Applicant 2 Remove

Applicant Authority	◉ Inventor	○ Legal Representative under 35 U.S.C. 117	○ Party of Interest under 35 U.S.C. 118

Prefix	Given Name	Middle Name	Family Name	Suffix
	Eric	L.	Reeck	

Residence Information (Select One) ◉ US Residency ○ Non US Residency ○ Active US Military Service

City	Columbus	State/Province	IN	Country of Residence[i]	US

Citizenship under 37 CFR 1.41(b)[i]	US

Mailing Address of Applicant:

Address 1	2019 Iroquois Trail		
Address 2			
City	Columbus	State/Province	IN
Postal Code	47203	Country[i]	US

Applicant 3 Remove

Applicant Authority	◉ Inventor	○ Legal Representative under 35 U.S.C. 117	○ Party of Interest under 35 U.S.C. 118

Prefix	Given Name	Middle Name	Family Name	Suffix
	Howard	S.	Savage	

Residence Information (Select One) ◉ US Residency ○ Non US Residency ○ Active US Military Service

City	Columbus	State/Province	IN	Country of Residence[i]	US

PTO/SB/14 (07-07)
Approved for use through 06/30/2010. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	20069.0070US01
	Application Number	
Title of Invention	SPIN FORMED CATALYST	

Citizenship under 37 CFR 1.41(b) [i]	US		
Mailing Address of Applicant:			
Address 1	3324 Richland		
Address 2			
City	Columbus	**State/Province**	IN
Postal Code	47203	**Country[i]**	US

All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the **Add** button. Add

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below. For further information see 37 CFR 1.33(a).

☐ **An Address is being provided for the correspondence Information of this application.**

Customer Number	52835		
Email Address		Add Email	Remove Email

Application Information:

Title of the Invention	SPIN FORMED CATALYST		
Attorney Docket Number	20069.0070US01	**Small Entity Status Claimed**	☐
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)	2	**Suggested Figure for Publication (if any)**	

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S. C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32).
Enter either Customer Number or complete the Representative Name section below. If both sections are completed the Customer Number will be used for the Representative Information during processing.

Please Select One:	◉ Customer Number	○ US Patent Practitioner	○ Limited Recognition (37 CFR 11.9)

PTO/SB/14 (07-07)
Approved for use through 06/30/2010. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	20069.0070US01
	Application Number	
Title of Invention	SPIN FORMED CATALYST	

Customer Number	52835

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, or 365(c) or indicate National Stage entry from a PCT application. Providing this information in the application data sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78(a)(2) or CFR 1.78(a)(4), and need not otherwise be made part of the specification.

Prior Application Status			Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button. Add

Foreign Priority Information:

This section allows for the applicant to claim benefit of foreign priority and to identify any prior foreign application for which priority is not claimed. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55(a).

Remove

Application Number	Country [i]	Parent Filing Date (YYYY-MM-DD)	Priority Claimed
			◉ Yes ○ No

Additional Foreign Priority Data may be generated within this form by selecting the **Add** button. Add

Assignee Information:

Providing this information in the application data sheet does not substitute for compliance with any requirement of part 3 of Title 37 of the CFR to have an assignment recorded in the Office.

Assignee 1 Remove

If the Assignee is an Organization check here. ☒

Organization Name	Cummins Filtration IP, Inc.		
Mailing Address Information:			
Address 1	1400 73rd Avenue NE		
Address 2			
City	Minneapolis	**State/Province**	MN
Country [i] US		Postal Code	55432
Phone Number		Fax Number	
Email Address			

Additional Assignee Data may be generated within this form by selecting the **Add** button. 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.

PTO/SB/14 (07-07)
Approved for use through 06/30/2010. 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 contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	20069.0070US01
	Application Number	
Title of Invention	SPIN FORMED CATALYST	

Signature	//Bryan A. Wong//			Date (YYYY-MM-DD)	2008-07-24
First Name	Bryan A.	Last Name	Wong	Registration Number	50836

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.

Attorney Docket No. 20069.0070US01

HAMRE, SCHUMANN, MUELLER & LARSON, P.C.

United States Patent Application

COMBINED DECLARATION AND POWER OF ATTORNEY

As a below named inventor I hereby declare that: my residence, post office address and citizenship are as stated below next to my name; that

I verily believe I am the original, first and sole inventor (if only one name is listed below) or a joint inventor (if plural inventors are named below) of the subject matter which is claimed and for which a patent is sought on the invention entitled: SPIN FORMED CATALYST

The specification of which
a. ☒ is attached hereto
b. ☐ was filed on as application serial no. and was amended on (if applicable) (in the case of a PCT-filed application) described and claimed in international no. filed and as amended on (if any), which I have reviewed and for which I solicit a United States patent.

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I hereby claim foreign priority benefits under Title 35, United States Code, § 119/365 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on the basis of which priority is claimed:

a. ☒ no such applications have been filed.
b. ☐ such applications have been filed as follows:

FOREIGN APPLICATION(S), IF ANY, CLAIMING PRIORITY UNDER 35 USC § 119			
COUNTRY	**APPLICATION NUMBER**	**DATE OF FILING (day, month, year)**	**DATE OF ISSUE (day, month, year)**
ALL FOREIGN APPLICATION(S), IF ANY, FILED BEFORE THE PRIORITY APPLICATION(S)			
COUNTRY	**APPLICATION NUMBER**	**DATE OF FILING (day, month, year)**	**DATE OF ISSUE (day, month, year)**

I hereby claim the benefit under Title 35, United States Code, § 120/365 of any United States and PCT international application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge the duty to disclose information that is material to patentability as defined in Title 37, Code of Federal Regulations, § 1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application.

U.S. APPLICATION NUMBER	**DATE OF FILING (day, month, year)**	**STATUS (patented, pending, abandoned)**

I hereby claim the benefit under Title 35, United States Code § 119(e) of any United States provisional application(s) listed below:

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I acknowledge the duty to disclose information that is material to the patentability of this application in accordance with Title 37, Code of Federal Regulations, § 1.56 (reprinted below):

§ 1.56 Duty to disclose information material to patentability.

(a) A patent by its very nature is affected with a public interest. The public interest is best served, and the most effective patent examination occurs when, at the time an application is being examined, the Office is aware of and evaluates the teachings of all information material to patentability. Each individual associated with the filing and prosecution of a patent application has a duty of candor and good faith in dealing with the Office, which includes a duty to disclose to the Office all information known to that individual to be material to patentability as defined in this section. The duty to disclose information exists with respect to each pending claim until the claim is canceled or withdrawn from consideration, or the application becomes abandoned. Information material to the patentability of a claim that is canceled or withdrawn from consideration need not be submitted if the information is not material to the patentability of any claim remaining under consideration in the application. There is no duty to submit information which is not material to the patentability of any existing claim. The duty to disclose all information known to be material to patentability is deemed to be satisfied if all information known to be material to patentability of any claim issued in a patent was cited by the Office or submitted to the Office in the manner prescribed by §§ 1.97(b)-(d) and 1.98. However, no patent will be granted on an application in connection with which fraud on the Office was practiced or attempted or the duty of disclosure was violated through bad faith or intentional misconduct. The Office encourages applicants to carefully examine:

(1) prior art cited in search reports of a foreign patent office in a counterpart application, and

(2) the closest information over which individuals associated with the filing or prosecution of a patent application believe any pending claim patentably defines, to make sure that any material information contained therein is disclosed to the Office.

(b) Under this section, information is material to patentability when it is not cumulative to information already of record or being made of record in the application, and

(1) It establishes, by itself or in combination with other information, a prima facie case of unpatentability of a claim;

or

(2) It refutes, or is inconsistent with, a position the applicant takes in:

(i) Opposing an argument of unpatentability relied on by the Office, or

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A prima facie case of unpatentability is established when the information compels a conclusion that a claim is unpatentable under the preponderance of evidence, burden-of-proof standard, giving each term in the claim its broadest reasonable construction consistent with the specification, and before any consideration is given to evidence which may be submitted in an attempt to establish a contrary conclusion of patentability.

(c) Individuals associated with the filing or prosecution of a patent application within the meaning of this section are:

(1) Each inventor named in the application:

(2) Each attorney or agent who prepares or prosecutes the application; and

(3) Every other person who is substantively involved in the preparation or prosecution of the application and who is associated with the inventor, with the assignee or with anyone to whom there is an obligation to assign the application.

(d) Individuals other than the attorney, agent or inventor may comply with this section by disclosing information to the attorney, agent, or inventor.

(e) In any continuation-in-part application, the duty under this section includes the duty to disclose to the Office all information known to the person to be material to patentability, as defined in paragraph (b) of this section, 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.

I hereby appoint the attorney(s) and/or patent agent(s) associated with the following customer number to prosecute this application and to transact all business in the Patent and Trademark Office connected herewith.

52835
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SPIN FORMED CATALYST

Field

This disclosure relates to catalytic devices and methods for forming the same. Particularly, the disclosure relates to spin forming a catalytic device, where a mat is disposed between a shell of the catalyst device and its catalyst substrate.

Background

Aftertreatment devices are well known and used for the aftertreatment of engine exhaust gases and materials in, for example, various internal combustion engine applications such as heavy duty diesel engines. Closed coupled catalysts, for example, are useful for handling and/or removing exhaust materials including carbon monoxide, unburned hydrocarbons, and soot present in the exhaust stream of an engine, and are useful for converting nitric oxide to nitrogen dioxide to enable passive regeneration of a diesel particulate filter or to enhance conversion in selective catalytic reduction systems.

In the example of closed coupled catalysts, current formation techniques include rolling a metal shell over a catalyst substrate. Joining a metallic closed coupled catalyst to the greater exhaust system also rely on formation of mechanical couplings such as flanges or weldments. Such techniques, however, can require extensive tooling which is proved to be less cost effective. For example, in addition to formation of the shell and catalyst substrate, current designs also need a plurality of components such as welded end cones to connect to the main shell and catalyst substrate, in order to satisfy multiple junctions. The resulting catalyst is overall costly and complicated to produce.

Due to original equipment manufacturer space constraints, the need to package catalyst substrates in smaller and sometimes unique spaces is increasing. Catalyst devices, for example closed coupled catalysts, are being produced that are not always in the shape of a conventional circle. For example, other elliptical and other odd shapes that are not the shape of a circle are often desired.

As an alternative to the current rolling and joining techniques, spin formed metallic packages have been contemplated as another approach to manufacturing

aftertreatment devices. In general, spin forming is known as a very flexible manufacturing method that minimizes tooling expense versus other traditional methods. Spin forming techniques typically employ discs or tubes of metal that are rotated at high speeds and are cold formed (i.e. at ambient temperature) into a die to shape an outside diameter or onto a mandrel to shape an inside diameter. Spin forming has been known to be useful in generally forming circle shaped components, but has not been suitably developed in the area of catalyst formation.

Unfortunately, current attempts to produce aftertreatment devices using spin forming techniques form the shell directly to the catalyst substrate. This formation technique results in, for example metal to metal contact between the shell and the mantle of the catalyst substrate, or perhaps metal to ceramic contact between the shell and the substrate. Such direct contact between the shell and the catalyst substrate can have a propensity to vibrate during extended operation either creating acute noise, vibration, and harshness (NVH) issues, or resulting in chronic failure of the overall device due to mechanical fatigue. Further, a viable joint between the inside of the shell and the outside of the catalyst substrate cannot consistently be achieved. As a result, leakage of exhaust gas and blowby around or past the catalyst substrate without being treated can lead to degradation of emissions performance. In examples where a ceramic catalyst substrate is employed, the use of spin forming the shell and the catalyst substrate in direct contact can also cause cracking of the catalyst substrate and render it unworkable. Catalyst washcoat spalling and loss of catalyst chemical performance can present further problems in such designs. These drawbacks are of particular concern for catalyst devices that are of an elliptical or other odd shape and that are not the shape of a circle. Where OEMs require catalyst devices with geometry that cannot be defined by a single parameter such as a radius, such current attempts are not practicable.

Ceramic mats have been used to seal various catalyst substrates in for example a diesel oxidation catalyst (DOC), diesel particulate filter (DPF), selective catalytic reduction (SCR) systems, NO_x adsorber catalyst (NAC), partial filter and urea hydrolysis catalyst (UHC), and precious metals catalysts. These catalysts, however, do not undergo a spin forming process. Rather, these rigid elements are captured by sizing

the compliant mat with the rigid aftertreatment shell to achieve appropriate gap bulk density (GBD) targets required for element retention.

Despite existing technology, there remains a challenge to bring to production and to improve upon catalyst devices such as closed coupled catalysts, in terms of acceptable reliability and durability, and while capably taking advantage of spin forming production techniques.

Summary

An improved catalytic device and method for producing the same are described that can be used in, for example heavy duty diesel engines. A catalytic device that is spin formed is generally described, where a mat is disposed between a shell of the catalyst device and its catalyst substrate during the forming process.

One inventive concept of the disclosure herein is the use of the mat, so that spin forming can be employed to form a catalyst device. Sealing can be achieved with a decreased reliance on catalyst substrate geometric certainty, and without the need for first sizing. Such concepts are particularly desirable for the formation of closed coupled catalysts (CCC), which often are being produced in shapes that are not of a conventional circle due to OEM space constraints, for example a generally elliptical component other than a circle shape.

In one embodiment, a method of spin forming a catalytic device includes disposing a mat about an outer surface of a catalyst substrate. The catalyst substrate and the mat are inserted inside a shell, where the mat is between the shell and the catalyst substrate. The shell, catalyst substrate, and mat are spin formed.

In some embodiments, the shell, catalyst substrate, and mat are spin formed into at least a generally elliptical shape but generally other than a circle shape.

In one embodiment, a catalytic device includes a shell having an inlet and an outlet that are in fluid communication with an opening extending through the shell. The shell is a spin formed member. A catalyst substrate is disposed within the opening and between the inlet and outlet. The catalyst substrate includes a flow through structure in fluid communication with the inlet and outlet and surrounded by an outer surface. A

mat is disposed between the outer surface of the catalyst substrate and the inner surface of the shell, where the catalyst substrate and mat are disposed within the opening of the shell and between the inlet and outlet when the shell is spin formed.

In some embodiments, the shell is a spin formed member that is at least generally elliptically shaped but generally less than a circle shape.

The combination of a mat covering the catalyst substrate during the spin forming process can provide for a robust and flexible solution in the formation of catalyst devices, such as those for use in tighter or lower clearance spaces (i.e. CCC). For example, the disclosure herein can provide a low cost option for producing a highly durable closed coupled catalyst, which can potentially reduce the peak stresses during manufacturing and assembly to ensure adequate substrate retention. The disclosure herein can also potentially eliminate or at least reduce cold working of the catalyst substrate mantle such as in metallic substrates. Also, a low cost option can be enjoyed where the catalyst substrate is effectively captured within the packaging (shell) using the spin formation process. Such a structure can avoid or minimize deformation of the catalyst substrate in general and/or its mantle.

The inventive concepts herein also can provide improved sealing properties with the use of the mat than would a direct metal to metal seal between the catalyst substrate and shell alone. As a result, less gas and blowby material leak past the catalyst substrate. Sound attenuation capability can be achieved with the presence of the mat, versus previous direct metal to metal contact between the mantle of the catalyst substrate and the packaging material (shell).

Brief Description of the Drawings

Fig. 1 shows a side view of one embodiment of a catalytic device.

Fig. 2 shows an end view of the catalytic device of Fig. 1.

Fig. 3 is a sectional view of the catalytic device from line 3-3 of Fig. 2.

Fig. 4 is a partial sectional view of the catalytic device taken from Fig. 3.

Detailed Description

Figs. 1-4 illustrate a catalytic device 10 that can be used in, for example emissions systems of heavy duty diesel engines. Generally, the catalytic device 10 is spin formed where a mat is disposed between a shell of the catalyst device and its catalyst substrate during the spin forming process.

The methods and devices described herein can be applicable to spin formed catalysts of both circle and non-circle shapes (e.g. elliptical shape or shapes other than a circle). While the description herein sometimes refers to shapes other than a circle, the shape of the catalyst device is not meant to be limiting and can be made as any shape that can be spin formed to accommodate original equipment manufacturer OEM space constraints. It also will be appreciated that while the descriptions refer to closed coupled catalysts, the descriptions herein can be applicable to catalytic devices other than closed coupled catalysts.

As one particular example, the catalytic device 10 shown herein is a closed coupled catalyst produced with a shape that can be generally elliptical or of another complex geometry that is not a circle. The catalytic device 10 includes a shell 12 having an inlet 11 and an outlet 13. The inlet 11 is in fluid communication with the outlet 13 through an opening 15 extending through the shell 12. The shell 12 is a spin formed member. As shown, the shell 12 is at least generally elliptically shaped but generally other than a circle shape, and which will further be discussed below.

A catalyst substrate 14 is disposed within the opening 15 and between the inlet 11 and outlet 13. The catalyst substrate 14 includes a flow through structure in fluid communication with the inlet 11 and outlet 13. The flow through structure can have a plurality of flow channels and take on various configurations, for example a honeycomb configuration or various channeled foil configurations, which are well known in the catalyst substrate art. In some embodiments, the catalyst substrate 14 includes a catalyst coating disposed on surfaces in fluid communication with the inlet 11 and outlet 13. Catalyst coatings are well known for facilitating treatment of exhaust material and need not be further described.

As shown, the catalyst substrate 14 has an outer surface 18 surrounding the flow through structure and that faces an inner surface of the shell 12. A mat 16 is disposed between the outer surface 18 of the catalyst substrate 14 and the inner surface of the shell 12. Preferably, the mat substantially surrounds the outer surface 18 of the catalyst substrate 14. As shown, the catalyst substrate 14 and mat 16 are disposed within the opening 15 of the shell 12 and between the inlet 11 and outlet 13. The catalyst substrate 14 and mat 16 are inserted into the shell 12 and the entire assembly is spin formed to the desired shape.

In some embodiments, the mat 16 is at least one of a ceramic and a metallic material, for example stainless wool or various ceramics. It will be appreciated that the material for the mat 16 is not meant to be limiting. The mat 16 can be any relatively compliant material or layer as compared to the more rigid shell 12 and catalyst substrate 14. The mat 16 also is any material that can withstand a high level of mechanical and thermal stress, such as vibration at 75 *g* or higher and high temperature exhaust gases. In some examples, the mat 16 can have a thickness of approximately 12-20mm before spin formation and a compressed thickness of about 5-10mm after spin formation. It will be appreciated that the thickness of the mat 16 may vary as desired and/or necessary. Generally, the mat 16 acts similar to a pad between the catalyst substrate 14 and the shell 12, and as a gasket to help seal the joint between the catalyst substrate 14 and the shell 12.

As described, one preferred design of the catalytic device 10 is spin formed into at least a generally elliptical shape but generally other than a circle shape. During formation, the mat 16 is sealed between the outer surface 18 of the catalyst substrate 14 and the inner surface of the shell 14. The outer surface 18 can be a mantle, where the mat 16 is directly pressed against the mantle and the inner surface of the shell 12 during spin formation. Generally, the mat 16 is pressed between the shell 12 and the catalyst substrate 14 during this sizing operation. That is, the shell 12, which can be a metallic shell, is squeezed down on the mat 16 and catalyst substrate 14 to attain necessary gap bulk density GBD requirements. In some cases, the mat 16 can be compressed, where the size of the catalyst substrate 14 is fixed. For example, an

uncompressed mat is wrapped around the substrate and then compressed during spin formation to reach appropriate GBD requirements. In other embodiments, the mantle of the catalyst substrate 14 also can be formed or bent over to mechanically lock and seal the catalyst substrate 14 in place (see e.g. Fig. 4).

As also shown in Fig. 4, the mantle can include at least one retention barb 19 in direct contact with the mat 16. The retention barb 19 can further help mechanically retain the mat 16 between the catalyst substrate 14 and the shell 12. The mantle also may employ other structures such as end rings or diameter reducers that reduce the shell to mechanically retain the mat 16 between the catalyst substrate 14 and the shell 12. However, it will be appreciated that the retention barb 19 shown is merely exemplary. Other implementations may not include a retention barb 19 at all. For example, the mat 16 can be suitably retained and sealed between the shell 12 and the catalyst substrate 14 by spin formation alone.

When the catalytic device 10 has been formed, Figs. 1 and 3 show that the shell 12 includes a spin formed outer surface having portions 31, 33 proximate the inlet 11 and outlet 13 and a portion 35 between the portions 31, 33 proximate the inlet 11 and outlet 13. The portions 31, 33 proximate the inlet 11 and outlet 13 have a smaller dimension than the portion 35 between the inlet 11 and outlet 13, for example, after being spin formed into an oval like shape (see Fig. 2).

As described the catalytic device 10 is spin formed, where the mat 16 is between the catalyst substrate 14 and the shell 12. Known spin forming manufacturing processes may be employed. In one embodiment, a catalytic device as described herein is produced by first disposing a mat about an outer surface of a catalyst substrate. The catalyst substrate and mat are inserted inside a shell, such that the mat is between the shell and the catalyst substrate. The shell, catalyst substrate, and mat are then spin formed. In some embodiments, the step of spin forming also includes sealing the mat between the shell and the catalyst substrate. In yet other embodiments, the step of spin forming includes directly contacting the mat with an outer surface of the catalyst substrate and with an inner surface of the shell.

Taking the example shown in Figs. 1-4, the step of spin forming can further include forming an outer surface of the shell 12 with portions 31, 33 proximate the inlet 11, and outlet 13 and a portion 35 between the portions 31, 33. The portions 31, 33 proximate the inlet 11 and outlet 13 are spin formed with a smaller dimension than the portion 31, 33 between the inlet 11 and outlet 13.

The catalytic device 10 can be mounted as part of a greater exhaust system through various connections, couplings, mounts, etc. Figs. 1-3 show one example of a mount configuration that would allow the catalytic device 10 to be mounted to the greater exhaust system. Couplers 22, 24 respectively are attached to the shell 12. The couplers 22, 24 are tubes or conduits that place the inlet 11, outlet 13, and catalyst substrate 14 in fluid communication with the greater exhaust system. As further shown, mounts 20 are disposed on a side of the shell 12. As one example, the mounts 20 can be rigidly attached to the shell 12. The mounts 20 allow for the catalytic device 10 to be connected to an engine that the device 10 is intended to be used in.

Temperature measurement components 26, such as a thermocouple or thermoster, are disposed within the flow path created by the catalytic device 10 and couplers 22, 24. In Figs. 2-3, one example is shown where one temperature measurement component 26 is connected on the shell 12 and proximate inlet 11 and one temperature measurement component 26 is connected on the coupler 24 and proximate the outlet 13. The temperature measurement components 26 help monitor exhaust temperature on both the inlet and outlet sides of the catalytic device 10. As shown, the temperature measurement components 26 may be connected using a nut and bolt connection. It will be appreciated that the manner in which the temperature measurement components 26 are connected and their location is meant to be non-limiting and can be suitably modified as desired and/or necessary. It also will be appreciated that other sensors may be employed, such as sensors for pressure, soot, oxygen, and NO_x.

In general, the disclosure herein provides for cold forming spin technology to be combined with catalytic element packaging in forming the shell around the catalytic substrate, where a mat is disposed between the catalyst substrate and the shell during the formation process. Among other benefits, the devices and methods disclosed herein can

increase catalyst substrate retention inside the shell, increase or at least maintain catalytic conversion efficiencies and fuel economy, and increase catalyst substrate and overall device durability. Furthermore, the devices and methods herein can decrease thermal losses and noise vibration and harshness (NVH).

As described, the combination of a mat covering the catalyst substrate during the spin forming process can provide for a robust and flexible solution in the formation of catalyst devices, such as those for use in tighter or lower clearance spaces (i.e. CCC). For example, the disclosure herein can provide a low cost option for producing a highly durable closed coupled catalyst, which can potentially reduce the peak stresses during manufacturing and assembly to ensure adequate substrate retention. For example, the disclosure herein can eliminate cracking in ceramic substrates, but also potentially eliminate or at least reduce cold working of the mantle such as when metallic substrates are used. Also, a low cost option can be enjoyed where the catalyst substrate is effectively captured within the packaging (shell) using the spin formation process. Such a structure can avoid or minimize deformation of the catalyst substrate in general and/or its mantle.

As a result, the inventive concepts herein can provide for a catalyst device that can be made with a shape to accommodate special OEM space constraints, which can be applicable to, for example, high volume, small sized catalysts. The disclosure herein applies to closed coupled catalysts and can also apply to other catalysts devices such as DOC, SCR, DPF catalysts.

The devices and methods described herein also allow for a catalyst device that can readily be joined with the greater exhaust system through an integrally formed one piece shell, which eliminates multiple components and multiple joints. The inventive concepts herein can provide for easier and cheaper assembly of a catalyst device, which is less prone to leakage in service, and is smaller and lighter. The descriptions herein can provide for overall easier engine production.

The invention may be embodied in other forms without departing from the spirit or novel characteristics thereof. The embodiments disclosed in this application are to be considered in all respects as illustrative and not limitative. The scope of the invention is indicated by the appended claims rather than by the foregoing description; and all changes which come within the meaning and range of equivalency of the claims are intended to be embraced therein.

Claims

1. A method of spin forming a catalytic device comprising:

disposing a mat about an outer surface of a catalyst substrate;

inserting the catalyst substrate and mat inside a shell, such that the mat is between the shell and the catalyst substrate; and

spin forming the shell, catalyst substrate, and mat.

2. The method of claim 1, wherein the step of spin forming further comprises spin forming the shell, catalyst substrate, and mat into at least a generally elliptical shape but other than a circle shape.

3. The method of claim 1, wherein the step of spin forming further comprises sealing the mat between the shell and the catalyst substrate.

4. The method of claim 1, wherein the step of spin forming further comprises directly contacting the mat with an outer surface of the catalyst substrate and with an inner surface of the shell.

5. The method of claim 1, wherein the step of spin forming further comprises forming an outer surface of the shell having portions proximate the inlet and outlet and a portion between the portions proximate the inlet and outlet, the portions proximate the inlet and outlet are spin formed with a smaller dimension than the portion between the inlet and outlet.

6. A catalytic device comprising:

a shell having an inlet and an outlet, the inlet is in fluid communication with the outlet through an opening extending through the shell;

a catalyst substrate disposed within the opening and between the inlet and outlet, the catalyst substrate including a flow through structure in fluid communication with the

inlet and outlet, the catalyst substrate having an outer surface surrounding the flow through structure and that faces an inner surface of the shell; and

a mat disposed between the outer surface of the catalyst substrate and the inner surface of the shell,

the shell is a spin formed member where the catalyst substrate and mat are disposed within the opening of the shell and between the inlet and outlet when the shell is spin formed.

7. The device of claim 6, wherein the shell is a spin formed member that is at least generally elliptically shaped but other than a circle shape.

8. The device of claim 6, wherein the mat is sealed between the outer surface of the catalyst substrate and the inner surface of the shell.

9. The device of claim 6, wherein the mat is at least one of a ceramic and a metallic material.

10. The device of claim 6, wherein the mat is substantially disposed about the outer surface of the catalyst substrate.

11. The device of claim 6, wherein the outer surface of the catalyst substrate is a mantle, such that the mat is directly pressed against the mantle and the inner surface of the shell.

12. The device of claim 11, wherein the mantle includes at least one retention barb in direct contact with the mat.

13. The device of claim 6, wherein the catalyst substrate includes a catalyst coating disposed on surfaces in fluid communication with the inlet and outlet.

14. The device of claim 6, wherein the shell includes a spin formed outer surface having portions proximate the inlet and outlet and a portion between the portions proximate the inlet and outlet, the portions proximate the inlet and outlet have a smaller dimension than the portion between the inlet and outlet.

5

Abstract

A catalytic device and method for forming a catalytic device are described. The devices and methods described can be used for emissions systems in heavy duty diesel engines. In particular, a method of spin forming a catalytic device generally includes disposing a mat about an outer surface of a catalyst substrate and inserting the catalyst substrate and mat inside a shell. The mat is between the shell and the catalyst substrate. The shell, catalyst substrate, and mat can be spin formed into at least a generally elliptical shape but generally other than a circle shape.

Fig. 1

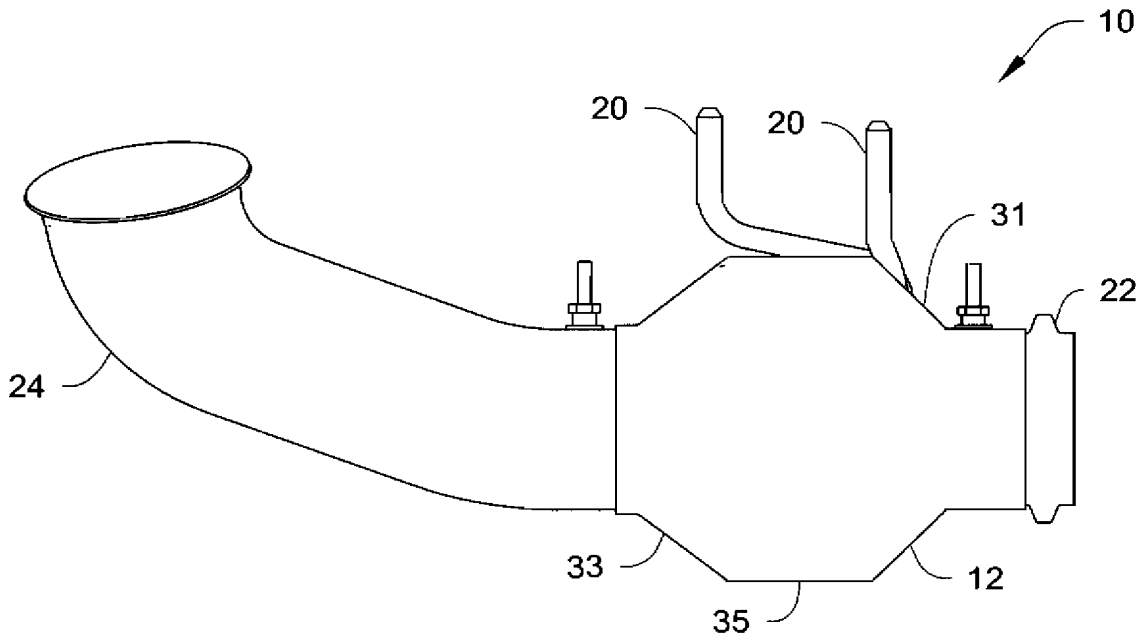


Fig. 2

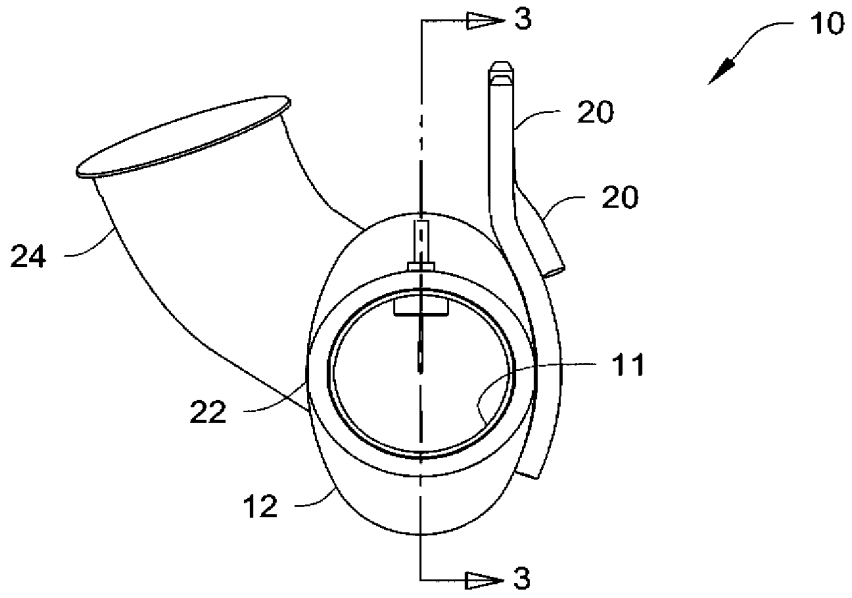


Fig. 3

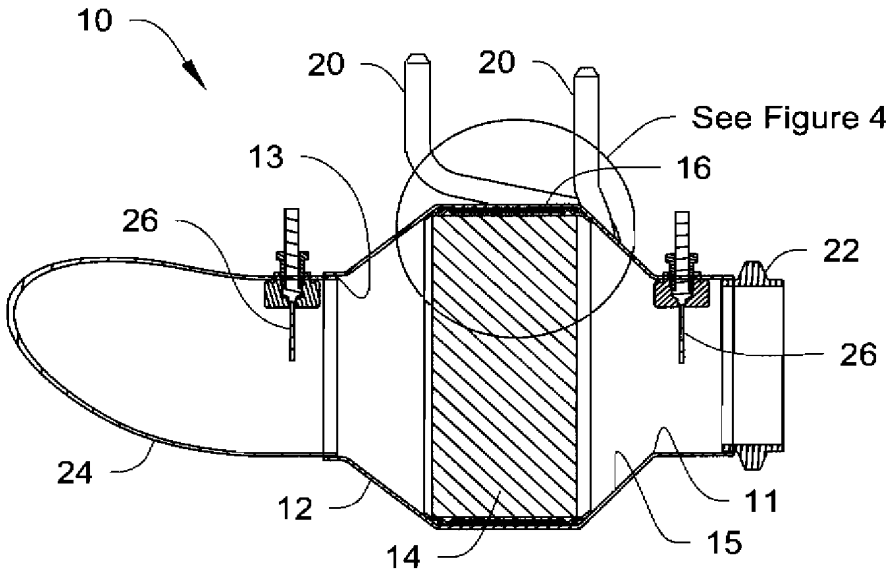
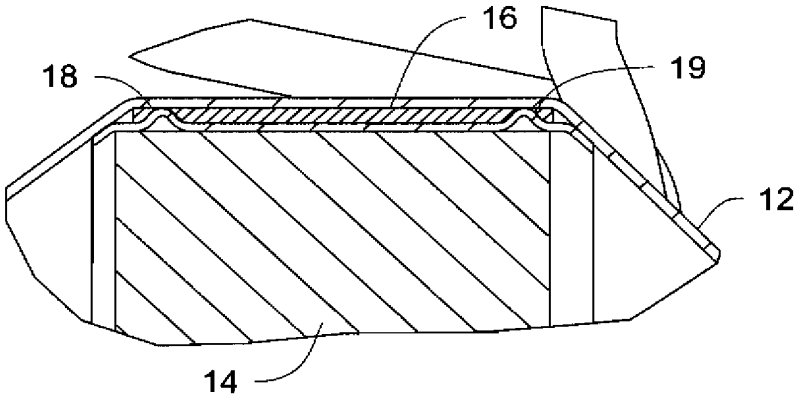


Fig. 4



Electronic Patent Application Fee Transmittal

Application Number:	
Filing Date:	
Title of Invention:	SPIN FORMED CATALYST
First Named Inventor/Applicant Name:	Bryan E. Blackwell
Filer:	Bryan A. Wong/Lauren Sindt
Attorney Docket Number:	20069.0070US01

Filed as Large Entity

Utility Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Utility application filing	1011	1	310	310
Utility Search Fee	1111	1	510	510
Utility Examination Fee	1311	1	210	210
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**1030**

Electronic Acknowledgement Receipt

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First Named Inventor/Applicant Name:	Bryan E. Blackwell
Customer Number:	52835
Filer:	Bryan A. Wong/Lauren Sindt
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Attorney Docket Number:	20069.0070US01
Receipt Date:	24-JUL-2008
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Time Stamp:	13:02:14
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Payment was successfully received in RAM	$1030
RAM confirmation Number	6935
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1	Transmittal of New Application	Trans.pdf	18030 2fff60a43b4c5b25585a71115ed0a1936310e501	no	1
Warnings:					
Information:					
2	Application Data Sheet	ADS.pdf	967049 1b948cdceabc3815f9853e8ee325ccbc9189aeee	no	5
Warnings:					
Information:					
3	Oath or Declaration filed	Dec.pdf	59215 15efb28916ce7164805ff7283e9006486678a484	no	4
Warnings:					
Information:					
4		Application.pdf	114211 80ca3b27dac85e0a1731ef07c7a4742b84ab7bc7	yes	16

Multipart Description/PDF files in .zip description

Document Description	Start	End
Specification	1	10
Claims	11	13
Abstract	14	14
Drawings-only black and white line drawings	15	16

Warnings:					
Information:					
5	Fee Worksheet (PTO-06)	fee-info.pdf	8347 2ddca4d722ec8fa2af757b196f97c2db70edaa84	no	2
Warnings:					
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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.

PTO/SB/06 (12-04)

Filing Date: 07/24/08

Approved for use through 7/31/2006. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

12/178,812

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY FEE ($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	310
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	510
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	210
TOTAL CLAIMS (37 CFR 1.16(i))	14 minus 20 =	0	X$ 25		OR	X$50	0
INDEPENDENT CLAIMS (37 CFR 1.16(h))	2 minus 3 =	* 0	X$105			X$210	0
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 1.16(s).						
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))			185			370	
			TOTAL	0		TOTAL	1030

* If the difference in column 1 is less than zero, enter "0" in column 2.

APPLICATION AS AMENDED – PART II

AMENDMENT A

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
Application Size Fee (37 CFR 1.16(s))									
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					N/A		OR	N/A	
					TOTAL ADD'T FEE		OR	TOTAL ADD'T FEE	

AMENDMENT B

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
Application Size Fee (37 CFR 1.16(s))									
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					N/A		OR	N/A	
					TOTAL ADD'T FEE		OR	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.**

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