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Total Files Size (in bytes):			65435707		
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.					

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): Edwin S. Olson et al.

Title: SORBENTS FOR THE OXIDATION AND REMOVAL OF MERCURY

Docket No.: 4820.001US9

Filed: May 8, 2018

Examiner: Unknown

Customer No.: 21186

Serial No.: 15/974,343

Due Date: N/A

Group Art Unit: Unknown

Confirmation No.: 1072

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

We are transmitting herewith the following attached items (as indicated with an "X"):

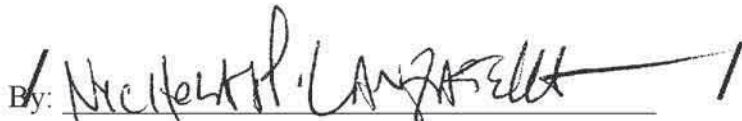
X Communication Concerning Prior and Copending Applications (2 pgs.)

X Information Disclosure Statement (2 pgs.), Form 1449 (19 pgs.) Copies of Cited References (325).

If not provided for in a separate paper filed herewith, please consider this a **PETITION FOR EXTENSION OF TIME** for sufficient number of months to enter these papers and please charge any additional fees or credit overpayment to Deposit Account No. 19-0743. If applicable, any papers or fees supplied herewith are considered to be timely filed pursuant to 37 C.F.R. § 1.7(a), the response period falling on a Federal Holiday, Saturday or Sunday being extended to the next succeeding business day.

SCHWEGMAN LUNDBERG & WOESSNER, P.A.

Customer No.: 21186

By: 
Nicholas P. Lanzatella
Reg. No. 63,803

S/N 15/974,343

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s):	Edwin S. Olson et al.	Examiner:	Unknown
Serial No.:	15/974,343	Group Art Unit:	Unknown
Filed:	May 8, 2018	Docket:	4820.001US9
Customer No.:	21186	Confirmation No.:	1072
Title:	SORBENTS FOR THE OXIDATION AND REMOVAL OF MERCURY		

COMMUNICATION CONCERNING PRIOR OR COPENDING APPLICATION(S)

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

Pursuant to the guidance of MPEP §§ 2001.06(b) and 2004(9), Applicant would like to bring the following additional application(s) to the Examiner's attention. The identification of these applications is not intended to suggest that the subject matter claimed in any listed application is, or has been, substantially similar to any claim or claims in the present application.

<u>Serial No./ Patent No.</u>	<u>Filing Date</u>	<u>Attorney Docket</u>	<u>Title</u>
11/209,163 7,435,286	August 22, 2005	4820.001US1	SORBENTS FOR THE OXIDATION AND REMOVAL OF MERCURY
12/201,595	August 29, 2008	4820.001US2	SORBENTS FOR THE OXIDATION AND REMOVAL OF MERCURY
12/419,219 8,168,147	April 6, 2009	4820.001US3	SORBENTS FOR THE OXIDATION AND REMOVAL OF MERCURY
13/427,665 8,512,655	March 22, 2012	4820.001US4	SORBENTS FOR THE OXIDATION AND REMOVAL OF MERCURY
13/966,768 8,821,819	August 14, 2013	4820.001US5	SORBENTS FOR THE OXIDATION AND REMOVAL OF MERCURY
14/318,270 9,757,689	June 27, 2014	4820.001US6	SORBENTS FOR THE OXIDATION AND REMOVAL OF MERCURY
14/712,558	May 14, 2015	4820.001US7	SORBENTS FOR THE OXIDATION AND REMOVAL OF MERCURY
15/951,970	April 12, 2018	4820.001US8	SORBENTS FOR THE OXIDATION AND REMOVAL OF MERCURY

15/589,359	May 8, 2017	4820.003US2	ACTIVATED CARBON SORBENT INCLUDING NITROGEN AND METHODS OF USING THE SAME
14/195,360 9,669,355	March 3, 2014	4820.003US1	ACTIVATED CARBON SORBENT INCLUDING NITROGEN AND METHODS OF USING THE SAME
15/382,114	December 16, 2016	4820.004US1	PROMOTED AMMONIUM SALT-PROTECTED ACTIVATED CARBON SORBENT PARTICLES FOR REMOVAL OF MERCURY FROM GAS STREAMS
15/449,112	March 3, 2017	4820.005US1	SORBENT COMPRISING CARBON AND NITROGEN AND METHODS OF USING THE SAME
12/429,058 8,652,235	April 23, 2009	4820.007US1	SORBENTS FOR THE OXIDATION AND REMOVAL OF MERCURY
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15/295,594	October 17, 2016	4820.007US3	SORBENTS FOR THE OXIDATION AND REMOVAL OF MERCURY
15/978,760	May 14, 2018	4820.007US4	SORBENTS FOR THE OXIDATION AND REMOVAL OF MERCURY
15/853,029	December 22, 2017	4820.018US1	SORBENTS FOR THE OXIDATION AND REMOVAL OF MERCURY

Respectfully submitted,

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Date 5-18-2018

By



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Reg. No. 63,803

S/N 15/974,343

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s):	Edwin S. Olson et al.	Examiner:	Unknown
Serial No.:	15/974,343	Group Art Unit:	Unknown
Filed:	May 8, 2018	Docket:	4820.001US9
Customer No.:	21186	Confirmation No.:	1072
Title:	SORBENTS FOR THE OXIDATION AND REMOVAL OF MERCURY		

INFORMATION DISCLOSURE STATEMENT

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

In compliance with the duty imposed by 37 C.F.R. § 1.56, and in accordance with 37 C.F.R. §§ 1.97 *et. seq.*, the enclosed materials are brought to the attention of the Examiner for consideration in connection with the above-identified patent application. Applicant respectfully requests that this Information Disclosure Statement be entered and the documents listed on the attached PTO 1449 Form be considered by the Examiner and made of record. Pursuant to the provisions of MPEP 609, Applicant requests that a copy of the PTO 1449 Form, initialed as being considered by the Examiner, be returned to the Applicant with the next official communication.

Pursuant to 37 C.F.R. § 1.97(b), it is believed that no fee or statement is required with the Information Disclosure Statement. However, if an Office Action on the merits has been mailed after filing of the application or after the filing of the most recent RCE, the Commissioner is hereby authorized to charge the required fees to Deposit Account No. 19-0743 in order to have this Information Disclosure Statement considered.

Pursuant to 37 C.F.R. § 1.98(a)(2), copies of cited U.S. Patents and Published Applications, and Non-Published Applications identifiable by USPTO Serial Number, are no longer required to be provided to the Office. Applicant acknowledges the requirement to submit copies of foreign patent documents and non-patent literature in accordance with 37 C.F.R. § 1.98(a)(2).

INFORMATION DISCLOSURE STATEMENT

Serial Number: 15/974,343

Filing Date: May 8, 2018

Title: SORBENTS FOR THE OXIDATION AND REMOVAL OF MERCURY

Page 2

Dkt: 4820.001US9

The Examiner is invited to contact the undersigned at the telephone number indicated if there are any questions regarding this communication.

Respectfully submitted,

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Date 5-18-2018

By



Nicholas P. Lanzatella

Reg. No. 63,803

RJC:jj

Electronic Acknowledgement Receipt

EFS ID:	32666239
Application Number:	15974343
International Application Number:	
Confirmation Number:	1072
Title of Invention:	SORBENTS FOR THE OXIDATION AND REMOVAL OF MERCURY
First Named Inventor/Applicant Name:	Edwin S. Olson
Customer Number:	21186
Filer:	Jordan Rivard Golomb/Jamie Johnson
Filer Authorized By:	Jordan Rivard Golomb
Attorney Docket Number:	4820.001US9
Receipt Date:	18-MAY-2018
Filing Date:	
Time Stamp:	15:51:26
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Non Patent Literature	0070_3338002us1_oarn_011911.pdf	593730 748aa0c06fe0fed9013dd5e7dbef31d19d160773	no	14

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Total Files Size (in bytes):			56094380		
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.					

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/12828

A. CLASSIFICATION OF SUBJECT MATTER		
IPC(7) : B01J 20/34, 38/48, 38/60, 38/62		
US CL : 502/22, 27, 28		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED		
Minimum documentation searched (classification system followed by classification symbols)		
U.S. : 502/22, 27, 28		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
NONE		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)		
Please See Continuation Sheet		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X, P --- Y, P	US 6,579,507 B2 (PAHLMAN et al) 17 June 2003 (17.06.2003), column 10, lines 39-67; column 40, lines 32-67.	1-3, 11-14, 17-22, 26-32, 36-38, 42-48, 55-58, and 62-69 ----- 4-10, 15, 16, 23-25, 33-35, 39-41, 49-51, and 59-61
X	US 6,475,451 B1 (LEPPIN et al) 05 November 2002 (05.11.2002), see abstract.	43-48
A	US 5,827,352 (ALTMAN et al) 27 October 1998 (27.10.1998), see abstract and entire patent.	1-69
Y	US 5,480,619 (JOHNSON et al) 02 January 1996 (02.01.1996), see abstract, col . 4, lines 30-35.	7-10, 15, 16, 23-25, 33-35, 39-41, 49-51 and 59-61
Y	US 4,196,173 (deJong et al.) 01 April 1980 (01.04.1980), see abstract.	4-6
☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.		
* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family		
Date of the actual completion of the international search		Date of mailing of the international search report
22 September 2004 (22.09.2004)		22 OCT 2004
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner of Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230		Authorized officer Jonas N. Strickland Telephone No. 571-272-1700

Form PCT/ISA/210 (second sheet) (July 1998)

Continuation of B. FIELDS SEARCHED Item 3:

EAST, WEST search terms: sorbent, regeneration, mercury, acid, water, solvent, solution, liquid, reactivation

Electronic Acknowledgement Receipt

EFS ID:	32666563
Application Number:	15974343
International Application Number:	
Confirmation Number:	1072
Title of Invention:	SORBENTS FOR THE OXIDATION AND REMOVAL OF MERCURY
First Named Inventor/Applicant Name:	Edwin S. Olson
Customer Number:	21186
Filer:	Jordan Rivard Golomb/Jamie Johnson
Filer Authorized By:	Jordan Rivard Golomb
Attorney Docket Number:	4820.001US9
Receipt Date:	18-MAY-2018
Filing Date:	
Time Stamp:	16:05:25
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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Total Files Size (in bytes):	29317995
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New Applications Under 35 U.S.C. 111

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

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

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

New International Application Filed with the USPTO as a Receiving Office

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

Electronic Acknowledgement Receipt

EFS ID:	32666807
Application Number:	15974343
International Application Number:	
Confirmation Number:	1072
Title of Invention:	SORBENTS FOR THE OXIDATION AND REMOVAL OF MERCURY
First Named Inventor/Applicant Name:	Edwin S. Olson
Customer Number:	21186
Filer:	Jordan Rivard Golomb/Jamie Johnson
Filer Authorized By:	Jordan Rivard Golomb
Attorney Docket Number:	4820.001US9
Receipt Date:	18-MAY-2018
Filing Date:	
Time Stamp:	16:16:40
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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Electronic Acknowledgement Receipt

EFS ID:	32667989
Application Number:	15974343
International Application Number:	
Confirmation Number:	1072
Title of Invention:	SORBENTS FOR THE OXIDATION AND REMOVAL OF MERCURY
First Named Inventor/Applicant Name:	Edwin S. Olson
Customer Number:	21186
Filer:	Jordan Rivard Golomb/Jamie Johnson
Filer Authorized By:	Jordan Rivard Golomb
Attorney Docket Number:	4820.001US9
Receipt Date:	18-MAY-2018
Filing Date:	
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Application Type:	Utility under 35 USC 111(a)

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Total Files Size (in bytes):			78906182		
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.					

Electronic Acknowledgement Receipt

EFS ID:	32669333
Application Number:	15974343
International Application Number:	
Confirmation Number:	1072
Title of Invention:	SORBENTS FOR THE OXIDATION AND REMOVAL OF MERCURY
First Named Inventor/Applicant Name:	Edwin S. Olson
Customer Number:	21186
Filer:	Jordan Rivard Golomb/Jamie Johnson
Filer Authorized By:	Jordan Rivard Golomb
Attorney Docket Number:	4820.001US9
Receipt Date:	18-MAY-2018
Filing Date:	
Time Stamp:	19:17:25
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Foreign Reference	0019_de_202012003747u1.pdf	17736678	no	94
			a8ac82dab8cca60b0e59385100faee0e26520ffa		

Warnings:

Exhibit 2044

Page 177

Information:					
2	Non Patent Literature	0153_3338016us2_rerr_031616.pdf	704560	no	5
			622a2d6f91316889c00637655baf2a13fe9160b3		
Warnings:					
Information:					
3	Non Patent Literature	0154_4820001us7_adar_021218.pdf	1084770	no	8
			3deb780868280eccbb9ac6485185d2f0e63d7bc1		
Warnings:					
Information:					
4	Non Patent Literature	0155_4820001us7_exir_030518.pdf	380728	no	3
			8a69f63e35989b9c6b943677fe31957740272772		
Warnings:					
Information:					
5	Non Patent Literature	0156_4820001us7_foar_120617.pdf	1121711	no	9
			8923381e13467a7a4de360ab8733d3eb77851041		
Warnings:					
Information:					
6	Non Patent Literature	0157_4820001us7_oarn_070617.pdf	887769	no	7
			653864e3edab9ff2093212c29c0a2a5e441d652d		
Warnings:					
Information:					
7	Non Patent Literature	0166_4820005us1_adar_04242018.pdf	499388	no	3
			b89373bf64f7ecc3439a194a58b30d21b92789c9		
Warnings:					
Information:					
8	Non Patent Literature	0167_4820005us1_foar_021518.pdf	1470658	no	13
			5f7c9d465058fbd546d67c70f689584655650859		
Warnings:					
Information:					

9	Non Patent Literature	0168_4820005us1_oarn_092717.pdf	1936500	no	17
			347021e2600464042c89a8d5e1e223313769f4b4		
Warnings:					
Information:					
10	Non Patent Literature	0173_4820003us2_oarn_022118.pdf	1669971	no	15
			bad0b54720cf47f7fa8e175b7ee0e71978053716		
Warnings:					
Information:					
11	Non Patent Literature	0176_3338021wo1_p326_091715.pdf	1879833	no	14
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Warnings:					
Information:					
12	Non Patent Literature	0191_4820006ca1_oarmisc_083117.pdf	364865	no	4
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Information:					
13	Non Patent Literature	0193_3338016ca1_oarmisc_122216.pdf	1805782	no	5
			e3ba06c1df6432974ef485fab6855870a0b94974		
Warnings:					
Information:					
14	Non Patent Literature	0194_2871422aarmisc_022718_20180226.pdf	713571	no	53
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Warnings:					
Information:					
15	Non Patent Literature	0195_2871422aarmisc20170621_response_as_filed_004062004220170621.pdf	2381254	no	41
			b2ba89be1fa4f2883fecf2b3afe183873845610		
Warnings:					
Information:					

16	Non Patent Literature	0198_cn_response_1_20_12.pdf	163517	no	10
			51bfdba965131660ac37a51da0694c8adde d87d4		
Warnings:					
Information:					
17	Non Patent Literature	0203_4820003cn1_oarmisc_071217.pdf	697630	no	8
			c2b12372892bc938c9a9fd2fbb350db10d1 b6609		
Warnings:					
Information:					
18	Non Patent Literature	0205_3338021cn1_oarmisc_122316.pdf	3209592	no	39
			277daba330f8d9b4d026685b9caec84816a 4d171		
Warnings:					
Information:					
19	Non Patent Literature	0209_norit_darco_fgd_product_sheet.pdf	6905	no	2
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Warnings:					
Information:					
20	Non Patent Literature	0250_4820006ep1_oarmisc_042417.pdf	655151	no	8
			afec2b28863ed88e1aa0b580720f4be3f153 ae97		
Warnings:					
Information:					
Total Files Size (in bytes):			39370833		

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New Applications Under 35 U.S.C. 111

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

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

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New International Application Filed with the USPTO as a Receiving Office

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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
15/974,343	05/08/2018	1736	1720	4820.001US9	16	1

CONFIRMATION NO. 1072

FILING RECEIPT



0000000100034131

21186

SCHWEGMAN LUNDBERG & WOESSNER, P.A.
P.O. BOX 2938
MINNEAPOLIS, MN 55402

Date Mailed: 06/06/2018

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**

Inventor(s)

Edwin S. Olson, Grand Forks, ND;
Michael J. Holmes, Thompson, ND;
John H. Pavlish, East Grand Forks, MN;

Applicant(s)

Midwest Energy Emissions Corp, Lewis Center, OH;

Power of Attorney: None

Domestic Priority data as claimed by applicant

This application is a CON of 15/951,970 04/12/2018
which is a CON of 14/712,558 05/14/2015
which is a CON of 14/318,270 06/27/2014 PAT 9757689 *
which is a CON of 13/966,768 08/14/2013 PAT 8821819
which is a CON of 13/427,665 03/22/2012 PAT 8512655
which is a CON of 12/419,219 04/06/2009 PAT 8168147
which is a CON of 12/201,595 08/29/2008 ABN
which is a CON of 11/209,163 08/22/2005 PAT 7435286
which claims benefit of 60/605,640 08/30/2004
(*)Data provided by applicant is not consistent with PTO records.

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see <http://www.uspto.gov> for more information.) - None.

Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 06/05/2018

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 15/974,343**

Projected Publication Date: 09/13/2018

Non-Publication Request: No

Early Publication Request: No

Title

SORBENTS FOR THE OXIDATION AND REMOVAL OF MERCURY

Preliminary Class

423

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

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 (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

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The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign Assets Control, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

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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).

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The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor

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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875						Application or Docket Number 15/974,343	
APPLICATION AS FILED - PART I							
(Column 1)		(Column 2)		SMALL ENTITY		OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE(\$)	FEE(\$)	OR	RATE(\$)	FEE(\$)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	300
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A			N/A	660
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	760
TOTAL CLAIMS (37 CFR 1.16(i))	16	minus 20 = *			OR	x 100 =	0.00
INDEPENDENT CLAIMS (37 CFR 1.16(h))	1	minus 3 = *				x 460 =	0.00
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						0.00
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							0.00
			TOTAL			TOTAL	1720
* If the difference in column 1 is less than zero, enter "0" in column 2.							
APPLICATION AS AMENDED - PART II							
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY	
AMENDMENT A	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)	OR	RATE(\$)
	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))					OR	
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					OR	
			TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY	
AMENDMENT B	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)	OR	RATE(\$)
	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))					OR	
	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 found in the appropriate box in column 1.							



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/974,343	05/08/2018	Edwin S. Olson	4820.001US9	1072
21186 7590 07/06/2018 SCHWEGMAN LUNDBERG & WOESSNER, P.A. P.O. BOX 2938 MINNEAPOLIS, MN 55402 UNITED STATES OF AMERICA			EXAMINER ORLANDO, AMBER ROSE	
			ART UNIT 1776	PAPER NUMBER
			NOTIFICATION DATE 07/06/2018	DELIVERY MODE 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):

uspto@slwip.com
SLW@blackhillsip.com



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Doc Code:
TRACK1.GRANT

**Decision Granting Request for
Prioritized Examination
(Track I or After RCE)**

Application No.: 15/974,343

1. THE REQUEST FILED May 8, 2018 IS **GRANTED**.

The above-identified application has met the requirements for prioritized examination

- A. ☒ for an original nonprovisional application (Track I).
B. ☐ for an application undergoing continued examination (RCE).

2. **The above-identified application will undergo prioritized examination.** The application will be accorded special status throughout its entire course of prosecution until one of the following occurs:

- A. filing a **petition for extension of time** to extend the time period for filing a reply;
B. filing an **amendment to amend the application to contain more than four independent claims, more than thirty total claims**, or a multiple dependent claim;
C. filing a **request for continued examination**;
D. filing a notice of appeal;
E. filing a request for suspension of action;
F. mailing of a notice of allowance;
G. mailing of a final Office action;
H. completion of examination as defined in 37 CFR 41.102; or
I. abandonment of the application.

Telephone inquiries with regard to this decision should be directed to Cheryl Gibson-Baylor at (571)272-3213, Office of Petitions. In his/her absence, calls may be directed to Brian W. Brown, (571)272-5338.

Cheryl Gibson-Baylor
/Cheryl Gibson-Baylor/
[Signature]

Petitions Paralegal Specialist
(Title)

Office of Petitions: Decision Count Sheet

Mailing Month

7

Application No.

15974343



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:

GIBSON-BAYLOR, CHERYL

Count (1) - Palm Credit

15974343

Decision:

GRANT

FINANCE WORK NEEDED

☐ Select Check Box for YES

Decision Type:

643 - Track One request



Notes:

Count (2)

Decision:

n/a

FINANCE WORK NEEDED

☐ Select Check Box for YES

Decision Type:

NONE

Notes:

Count (3)

Decision:

n/a

FINANCE WORK NEEDED

☐ Select Check Box for YES

Decision Type:

NONE

Notes:

Initials of Approving Official (if required)

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

Printed on:

7/2/2018

Office of Petitions Internal Document - Ver. 5.0

Office of Petitions: Routing Sheet



Application No.

This application is being forwarded to your office for further processing. A decision has been rendered on a petition filed in this application, as indicated below. For details of this decision, please see the document PET.OP.DEC filed on the same date as this document.

☒ **GRANTED**

☐ **DISMISSED**

☐ **DENIED**



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/974,343	05/08/2018	Edwin S. Olson	4820.001US9	1072
21186 7590 07/27/2018 SCHWEGMAN LUNDBERG & WOESSNER, P.A. P.O. BOX 2938 MINNEAPOLIS, MINNESOTA 55402 UNITED STATES OF AMERICA			EXAMINER ORLANDO, AMBER ROSE	
			ART UNIT 1776	PAPER NUMBER
			NOTIFICATION DATE 07/27/2018	DELIVERY MODE ELECTRONIC

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

SLW@blackhillsip.com
uspto@slwip.com

Office Action Summary**Application No.**

15/974,343

Applicant(s)

Olson et al.

Examiner

AMBER R ORLANDO

Art Unit

1776

AIA Status

No

-- 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 MONTHS 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 05/08/2018.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on ____.
- 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) 1-10,14 and 21-25 is/are pending in the application.
5a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 6) ☐ Claim(s) ____ is/are allowed.
- 7) ☒ Claim(s) 1-10,14 and 21-25 is/are rejected.
- 8) ☐ Claim(s) ____ is/are objected to.
- 9) ☐ Claim(s) ____ are subject to restriction and/or election requirement

* If any claims have been determined allowable, 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.

Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☒ The drawing(s) filed on 05/08/2018 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).

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).

Certified copies:

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

** 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) ☒ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b)
Paper No(s)/Mail Date ____.
- 3) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____.
- 4) ☐ Other: ____.

Notice of Pre-AIA or AIA Status

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

Claim Rejections - 35 USC § 103

In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory basis for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

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

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

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under pre-AIA 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under pre-AIA 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and

invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of pre-AIA 35 U.S.C. 103(c) and potential pre-AIA 35 U.S.C. 102(e), (f) or (g) prior art under pre-AIA 35 U.S.C. 103(a).

Claim 1, 2, 5-8, 14 and 21-24 is/are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Nelson Jr. US 2004/00033716 in view of Comrie US 2007/0168213.

For claims 1 and 2, the Nelson Jr. reference discloses a method for separating mercury from a mercury-containing gas, the method comprising: combusting a mixture of coal, to form the mercury-containing gas (paragraphs [0059] and [0060]); adding a particulate sorbent material comprising activated carbon into the mercury-containing gas; promoting at least a portion of the sorbent material by chemically reacting the sorbent material with Br_2 , HBr , Br or a combination thereof, in-flight, to form a promoted sorbent material (paragraphs [0044], [0044], [0059] and [0060]); chemically reacting mercury in the mercury-containing gas with the promoted sorbent material, to form a mercury-sorbent; and separating the mercury-sorbent from the mercury-containing gas (paragraph [0060]). The reference does not disclose combusting the coal in the presence of an additive that has been added to the coal, the additive comprising a bromide compound.

The Comrie reference discloses that the sorbent compositions can be added anywhere within the coal burning process, before, during or after (paragraph [0006]).

It would have been obvious to one having ordinary skill in the art before the invention was made to have modified the Nelson reference to include either rearranging steps, or repeat steps to have the combusting coal in the presence of the additive and activated carbon and comprising mixing the additive and the coal before combusting the coal so as to entrap the contaminants in the mercury containing gas rather than release them to the atmosphere (Comrie paragraph [0006]). Further the courts have held that selection of any order of performing process steps is prima facie obvious in the absence of new or unexpected results); In re Gibson, 39 F.2d 975, 5 USPQ 230.

For claim 3 Nelson reference further discloses that the mercury sorbents can be injected in a liquid slurry (paragraph [0064]).

With the combination of Comrie above, this would result in "the additive mixed with the coal is in a liquid" limitation of claim 3.

For claims 5 and 6, the promoted sorbent as disclosed by Nelson above would include active sites, wherein the active sites comprise halide anions bound to the activated carbon and active sites, wherein the active sites comprise carbocations bound to halide anions.

For claims 7 and 8, the sorbent being promoted is disclosed by Nelson above and would inherently chemically react the sorbent material with the additive in the mercury-containing gas comprises chemically reacting carbene species edge sites in the activated carbon with the additive as well as carbocations in the activated carbon of the mercury-sorbent accept electrons from mercury atoms of the mercury-sorbent. Each of the steps of the process are shown above. Therefore the result of performing those steps as shown by Nelson would inherently be the same, i.e. chemically reacting the sorbent material with the additive in the mercury-containing gas comprises chemically reacting carbene species edge sites in the activated carbon with the additive and carbocations in the activated carbon of the mercury-sorbent accept electrons from mercury atoms of the mercury-sorbent.

For claim 14, the Nelson reference discloses the activated carbon is chosen from powdered activated carbon, granular activated carbon, carbon black, carbon fiber, aerogel carbon, pyrolysis char, and combinations thereof (paragraph [0040]).

For claim 21, the Nelson reference does not disclose the coal and the additive are mixed at a location upstream of a combustion furnace where combustion occurs.

The Comrie reference discloses that the sorbent compositions (i.e. additives) can be added anywhere within the coal burning process, before, during or after (paragraph [0006]). This would include

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the coal and the additive are mixed at a location upstream of a combustion furnace where combustion occurs.

It would have been obvious to one having ordinary skill in the art before the invention was made to have modified the Nelson reference to include either rearranging steps, or repeat steps to have the combusting coal in the presence of the additive and activated carbon and comprising the coal and the additive are mixed at a location upstream of a combustion furnace where combustion occurs so as to entrap the contaminants in the mercury containing gas rather than release them to the atmosphere (Comrie paragraph [0006]). Further the courts have held that selection of any order of performing process steps is prima facie obvious in the absence of new or unexpected results); In re Gibson, 39 F.2d 975, 5 USPQ 230.

For claim 22, the limitations are the result of the method. As the method is disclosed by Nelson and Comrie as shown above, the result of such a combination would also occur, i.e. separating greater than 70 wt% of the mercury from the mercury-containing gas. Further the Nelson reference discloses 90% mercury removal (paragraph [0084]).

For claim 23 the limitations are the result of the method. As the method is disclosed by Nelson and Comrie as shown above, the result of such a combination would also occur, i.e. separating greater than 70 wt% of the mercury from the mercury-containing gas on the sorbent. Further the Nelson reference discloses 90% mercury removal (paragraph [0084]).

For claim 24, the Nelson reference does not explicitly state the sorbent material has a composition comprising from about 1 to about 30 grams of additive per 100 grams of activated carbon.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the sorbent material has a composition comprising from about 1 to about 30 grams of additive per 100 grams of activated carbon, since it has been held that where the general conditions of a

claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Claim 4 is/are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Nelson Jr. US 2004/00033716 and Comrie US 2007/0168213 as applied in claim 1 above, and further in view of Srinivasachar et al. US 6,848,374.

For claim 4, the Nelson reference does not disclose the liquid is a hydrocarbon, a chlorinated hydrocarbon, supercritical carbon dioxide water, salt solution or a combination thereof.

The Srinivasachar et al. reference discloses that the promoter can be deposited on the carbon sorbent in many different ways including in solution as well as gaseous (column 6, lines 7-16).

It would have been obvious to one having ordinary skill in the art before the invention was made to have modified the Nelson reference to include the promoter can be deposited on the carbon sorbent in solution i.e. salt solution and water (Srinivasachar et al. column 6, lines 7-13) as these methods of deposition on the carbon are art recognized equivalents and so as to allow for the condensing/absorbing of the halogen on the sorbent.

Claim 4 is/are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Nelson Jr. US 2004/00033716 and Comrie US 2007/0168213 as applied in claim 3 above, and further in view of Srinivasachar et al. US 6,848,374.

For claim 9, the Nelson reference does not disclose the additive is substantially in vapor form in the mercury-containing gas.

The Srinivasachar et al. reference discloses the additive is substantially in vapor form in the mercury-containing gas (column 8, lines 13-21).

It would have been obvious to one having ordinary skill in the art to have modified the Nelson reference to include the additive is substantially in vapor form in the mercury-containing gas

(Srinivasachar et al. column 8, lines 13-21) so as to allow for the condensing/absorbing of the halogen on the sorbent.

Claim 10 is/are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Nelson Jr. US 2004/00033716 and Comrie US 2007/0168213 as applied in claim 1 above and further in view of Gadkaree US 6,136,749.

For claim 10, the Nelson reference does not disclose the additive comprises Ca, Na, or a combination thereof.

The Nelson reference does not disclose the additive comprises Ca, Na, or a combination thereof.

The Gadkaree reference discloses co-injecting an alkaline component into the mercury containing flue gas stream (Gadkaree column 3, lines 54-65). The Srinivasachar reference discloses the alkaline component is selection from the group consisting of alkali elements and alkaline earth elements (Srinivasachar column 6, lines 2-20).

It would have been obvious to one having ordinary skill in the art before the invention was made to have modified the Nelson reference to include co-injecting an alkaline component into the mercury containing flue gas stream, the alkaline component being selected from the group consisting of alkali elements and alkaline earth elements (as shown by Gadkaree and Srinivasachar above) so as to enhance the activity of the activated carbon catalyst.

Claim 25 is/are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Nelson Jr. US 2004/00033716 and Comrie US 2007/0168213 as applied in claim 1 above and further in view of Vosteen et al. US 6,878,358.

For claim 25, the Nelson reference discloses the method is a method for reducing mercury in the mercury-containing gas to a desired level, wherein separating the mercury-sorbent from the mercury-containing gas forms a cleaned gas (paragraph [0060]). The Nelson reference does not disclose monitoring the mercury content of the cleaned gas; and controlling, in response to the monitored

mercury content of the cleaned gas, an injection rate of injecting the sorbent into the mercury-containing gas, the sorbent composition, or a combination thereof, so that the mercury content of the cleaned gas is maintained at or below the desired level.

The Vosteen reference discloses monitoring the mercury content of the cleaned gas; and controlling, in response to the monitored mercury content of the cleaned gas, an injection rate of injecting the sorbent into the mercury-containing gas, the sorbent composition, or a combination thereof, so that the mercury content of the cleaned gas is maintained at or below the desired level (column 5, lines 47-63).

It would have been obvious to one having ordinary skill in the art before the invention was made to have modified the Nelson reference to include monitoring the mercury content of the cleaned gas; and controlling, in response to the monitored mercury content of the cleaned gas, an injection rate of injecting the sorbent into the mercury-containing gas, the sorbent composition, or a combination thereof, so that the mercury content of the cleaned gas is maintained at or below the desired level (Vosteen column 5, lines 47-63) so as to allow for the maximum amount of mercury to be removed from the waste gas stream.

Double Patenting

Claims 1-2 and 5-10, and 21-25 are rejected on the ground of nonstatutory double patenting as being unpatentable over claims 1, 3, 12, 13, 22 and 26 of U.S. Patent No. 7,435,286 ('286) in view of Comrie US 2007/0168213.

Claims 1, 2 and 21 of the current application corresponds to claim 1 of '286 except for combusting the coal in the presence of an additive that has been added to the coal, the additive comprising a bromide compound.

The Comrie reference discloses that the sorbent compositions can be added anywhere within the coal burning process, before, during or after (paragraph [0006]).

Claims 5-8 of the current application correspond to claim 1 of '286 for the same reasons as stated in the rejection above.

It would have been obvious to one having ordinary skill in the art before the invention was made to have modified the '286 reference to include either rearranging steps, or repeat steps to have the combusting coal in the presence of the additive and activated carbon and comprising mixing the additive and the coal before combusting the coal so as to entrap the contaminants in the mercury containing gas rather than release them to the atmosphere (Comrie paragraph [0006]). Further the courts have held that selection of any order of performing process steps is prima facie obvious in the absence of new or unexpected results); In re Gibson, 39 F.2d 975, 5 USPQ 230.

Claim 9 of the current application corresponds to claim claims 1, 12 and 13 of '286.

Claim 3 of the current application corresponds to claim claims 1 and 3 of '286.

Claims 22 and 23 of the current application corresponds to claim claims 1 of '286.

Claim 24 of the current application corresponds to claim claims 1 and 26 of '286.

Claim 25 of the current application corresponds to claim claims 1, and 22 of '286.

Claims 3 and 4 are rejected on the ground of nonstatutory double patenting as being unpatentable over claims 1 of U.S. Patent No. 7,435,286 ('286) in view of Comrie US 2007/0168213 and Srinivasachar et al. US 6,848,374.

Claims 3 and 4 of the current application corresponds to claim 1 of '286 except for the additive mixed with the coal is in a liquid and the liquid is a hydrocarbon, a chlorinated hydrocarbon, supercritical carbon dioxide, water, salt solution, or a combination thereof.

The Srinivasachar et al. reference discloses that the promoter can be deposited on the carbon sorbent in many different ways including in solution as well as gaseous (column 6, lines 7-16).

It would have been obvious to one having ordinary skill in the art before the invention was made to have modified the '286 reference to include the promoter can be deposited on the carbon sorbent in

solution i.e. salt solution and water (Srinivasachar et al. column 6, lines 7-13) as these methods of deposition on the carbon are art recognized equivalents and so as to allow for the condensing/absorbing of the halogen on the sorbent.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AMBER ROSE ORLANDO whose telephone number is (571)270-3149. The examiner can normally be reached on Monday-Thursday 7:00-5:30.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at <http://www.uspto.gov/interviewpractice>.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on (571)272-1166. 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.

AMBER ROSE, ORLANDO
Primary Examiner
Art Unit 1776

/AMBER R ORLANDO/
Primary Examiner, Art Unit 1776

<i>Search Notes</i> 	Application/Control No. 15/974,343	Applicant(s)/Patent Under Reexamination Olson et al.
	Examiner AMBER R ORLANDO	Art Unit 1776

CPC - Searched*		
Symbol	Date	Examiner

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner
Text Search (SEE EAST SEARCH HISTORY)	07/23/2018	AO
IDS Search (EAST and DAV)	07/23/2018	AO
Inventor Search (EAST)	07/23/2018	AO

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner

/AMBER R ORLANDO/ Primary Examiner, Art Unit 1776	
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S/N 15/974,343**PATENT****IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Inventor(s):	Edwin S. Olson et al.	Examiner:	Unknown
Serial No.:	15/974,343	Group Art Unit:	Unknown
Filed:	May 8, 2018	Docket:	4820.001US9
Customer No.:	21186	Confirmation No.:	1072
Title:	SORBENTS FOR THE OXIDATION AND REMOVAL OF MERCURY		

COMMUNICATION CONCERNING PRIOR OR COPENDING APPLICATION(S)

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

Pursuant to the guidance of MPEP §§ 2001.06(b) and 2004(9), Applicant would like to bring the following additional application(s) to the Examiner's attention. The identification of these applications is not intended to suggest that the subject matter claimed in any listed application is, or has been, substantially similar to any claim or claims in the present application.

<u>Serial No./ Patent No.</u>	<u>Filing Date</u>	<u>Attorney Docket</u>	<u>Title</u>
11/209,163 7,435,286	August 22, 2005	4820.001US1	SORBENTS FOR THE OXIDATION AND REMOVAL OF MERCURY
12/201,595	August 29, 2008	4820.001US2	SORBENTS FOR THE OXIDATION AND REMOVAL OF MERCURY
12/419,219 8,168,147	April 6, 2009	4820.001US3	SORBENTS FOR THE OXIDATION AND REMOVAL OF MERCURY
13/427,665 8,512,655	March 22, 2012	4820.001US4	SORBENTS FOR THE OXIDATION AND REMOVAL OF MERCURY
13/966,768 8,821,819	August 14, 2013	4820.001US5	SORBENTS FOR THE OXIDATION AND REMOVAL OF MERCURY
14/318,270 9,757,689	June 27, 2014	4820.001US6	SORBENTS FOR THE OXIDATION AND REMOVAL OF MERCURY
14/712,558	May 14, 2015	4820.001US7	SORBENTS FOR THE OXIDATION AND REMOVAL OF MERCURY
15/951,970	April 12, 2018	4820.001US8	SORBENTS FOR THE OXIDATION AND REMOVAL OF MERCURY

/AMBER R ORLANDO/

07/23/2018

Exhibit 2044