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United States Patent and Trademark Office

January 26, 2017

THIS IS TO CERTIFY THAT ANNEXED HERETO IS A TRUE COPY FROM THE RECORDS OF THE UNITED STATES PATENT AND TRADEMARK OFFICE OF THOSE PAPERS OF THE BELOW IDENTIFIED PATENT APPLICATION THAT MET THE REQUIREMENTS TO BE GRANTED A FILING DATE UNDER 35 USC 111.

APPLICATION NUMBER: 15/053,209

FILING DATE: February 25, 2016

THE COUNTRY CODE AND NUMBER OF YOUR PRIORITY APPLICATION, TO BE USED FOR FILING ABROAD UNDER THE PARIS CONVENTION, IS US15/053,209

**By Authority of the
Under Secretary of Commerce for Intellectual Property
and Director of the United States Patent and Trademark Office**




JOHN A BURSON
Certifying Officer

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number
15/053,209

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	280
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	600
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	720
TOTAL CLAIMS (37 CFR 1.16(j))	27 minus 20 =	*			OR	x 80 =	560
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3 minus 3 =	*				x 420 =	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
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	2160

APPLICATION AS AMENDED - PART II

(Column 1)		(Column 2)	(Column 3)	SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
AMENDMENT A	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)	ADDITIONAL FEE(\$)
Total (37 CFR 1.16(i))	*	Minus	**	=		OR	x	=
Independent (37 CFR 1.16(h))	*	Minus	***	=		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		OR	OTHER THAN SMALL ENTITY	
AMENDMENT B	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)	ADDITIONAL FEE(\$)
Total (37 CFR 1.16(i))	*	Minus	**	=		OR	x	=
Independent (37 CFR 1.16(h))	*	Minus	***	=		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 NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
15/053,209	02/25/2016	1776	2160	Case 7653	27	3

CONFIRMATION NO. 4788

FILING RECEIPT



41669
BABCOCK & WILCOX POWER GENERATION GROUP, INC.
PATENT DEPARTMENT
20 SOUTH VAN BUREN AVENUE
BARBERTON, OH 44203

Date Mailed: 03/10/2016

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)

Robert E Snyder, Uniontown, OH;

Applicant(s)

The Babcock & Wilcox Company, Barberton, OH

Power of Attorney:

Eric Marich--32265
Michael Seymour--54436
Christopher Smith--71151

Domestic Applications for which benefit is claimed - None.

A proper domestic benefit claim must be provided in an Application Data Sheet in order to constitute a claim for domestic benefit. See 37 CFR 1.76 and 1.78.

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: No

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: 03/10/2016

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 15/053,209**

Projected Publication Date: 08/31/2017

Non-Publication Request: No

Early Publication Request: No

Title

FABRIC FILTER LOUVER ASSEMBLY

Preliminary Class

055

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

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TO PROSECUTE APPLICATIONS BEFORE THE USPTO**

The Applicant, Babcock & Wilcox Power Generation Group, Inc., hereby appoints the following attorneys to prosecute this application and to transact all business in the U.S. Patent and Trademark Office connected therewith: (1) Eric Marich, Reg. No. 32,265; (2) Michael J. Seymour, Reg. No. 54,436; and (3) Christopher L. Smith, Reg. No. 71,151.

Signature



Eric Marich, Attorney-in-Fact
Babcock & Wilcox Power Generation Group, Inc.
20 S. Van Buren Avenue
Barberton, OH 44203

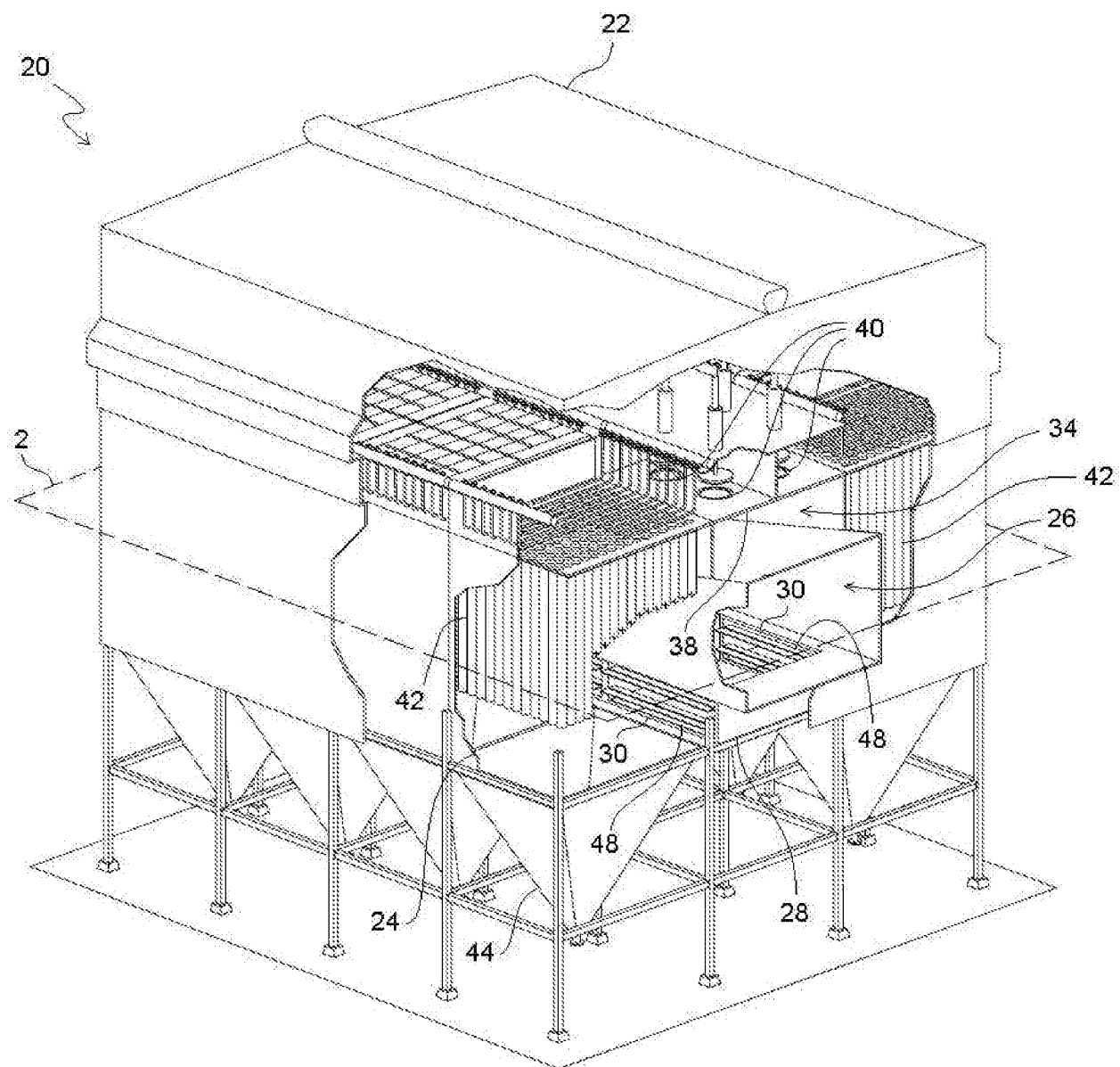


FIG. 1

206

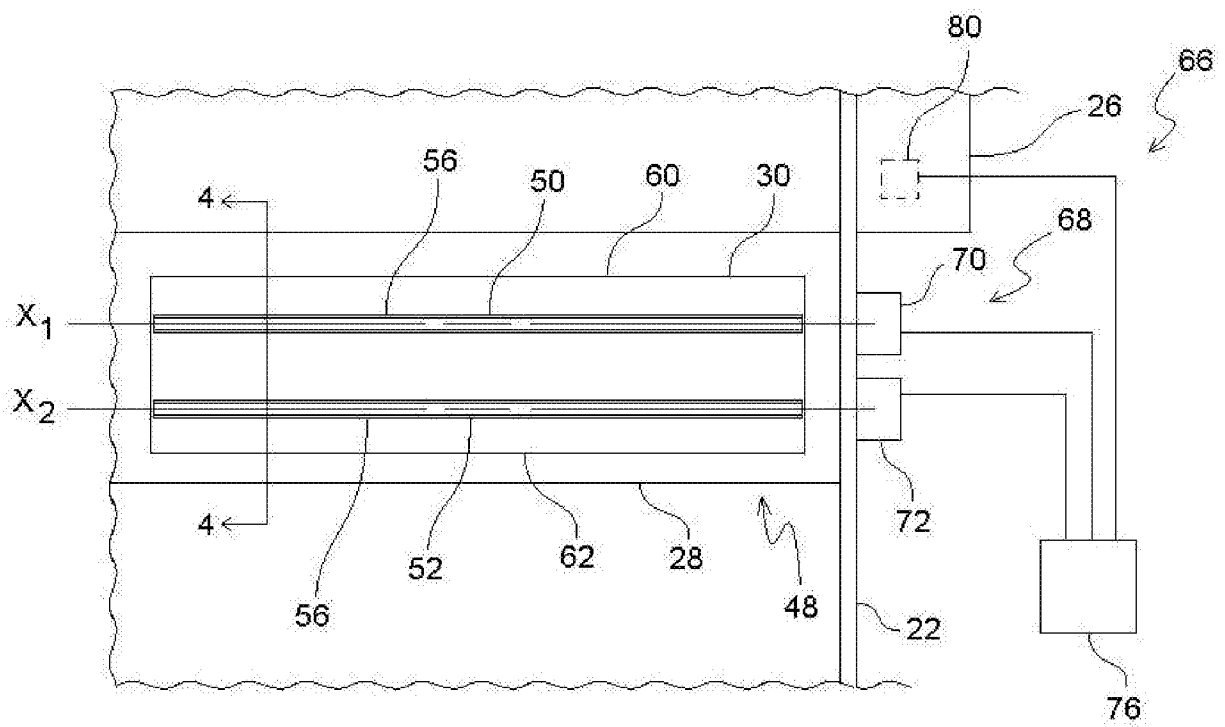


FIG. 3

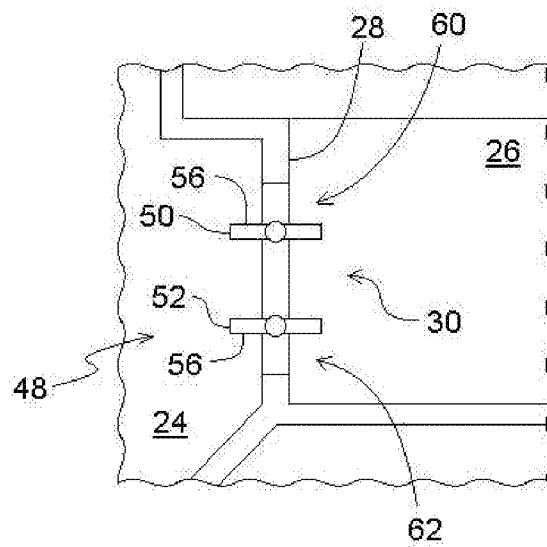


FIG. 4

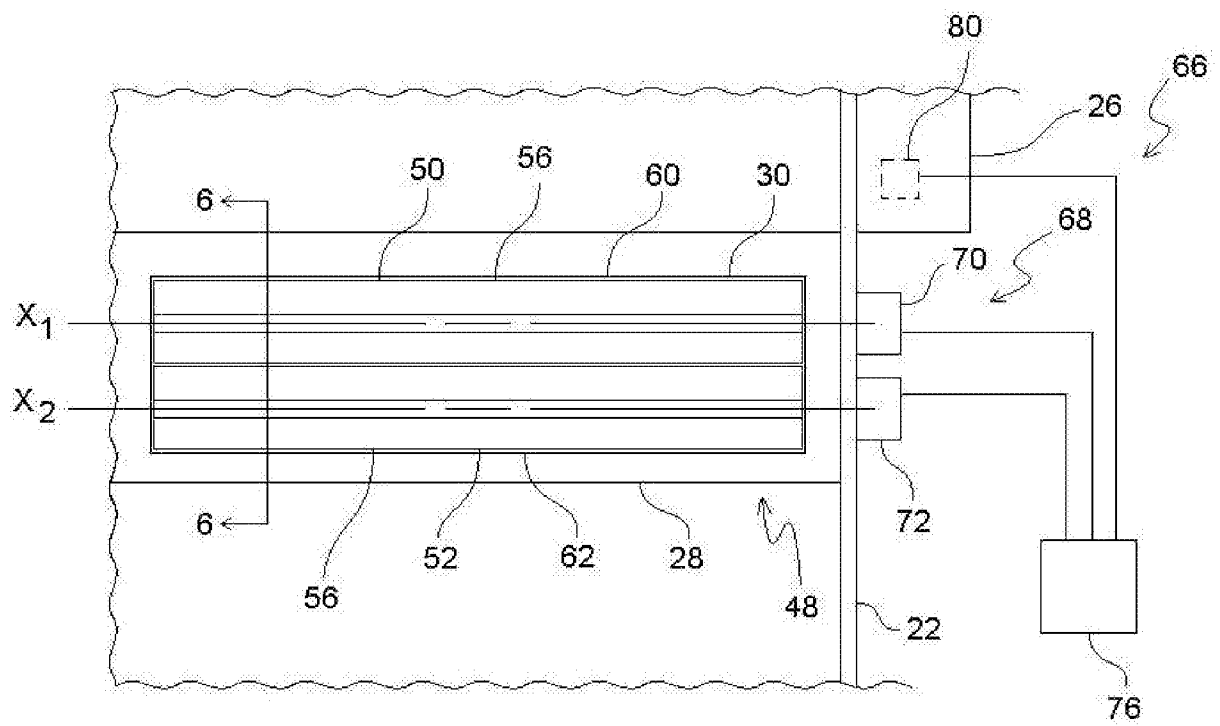


FIG. 5

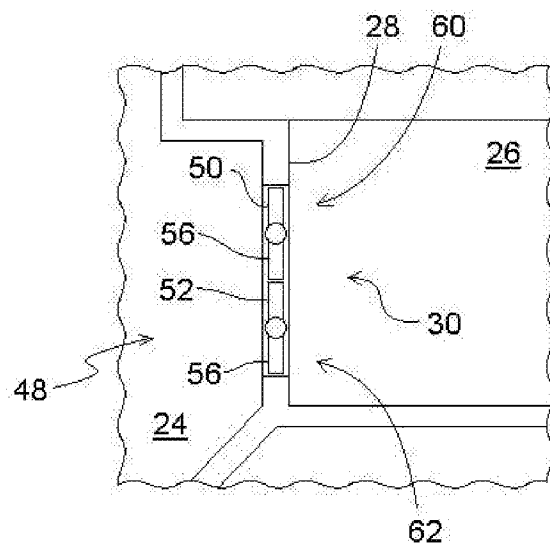


FIG. 6

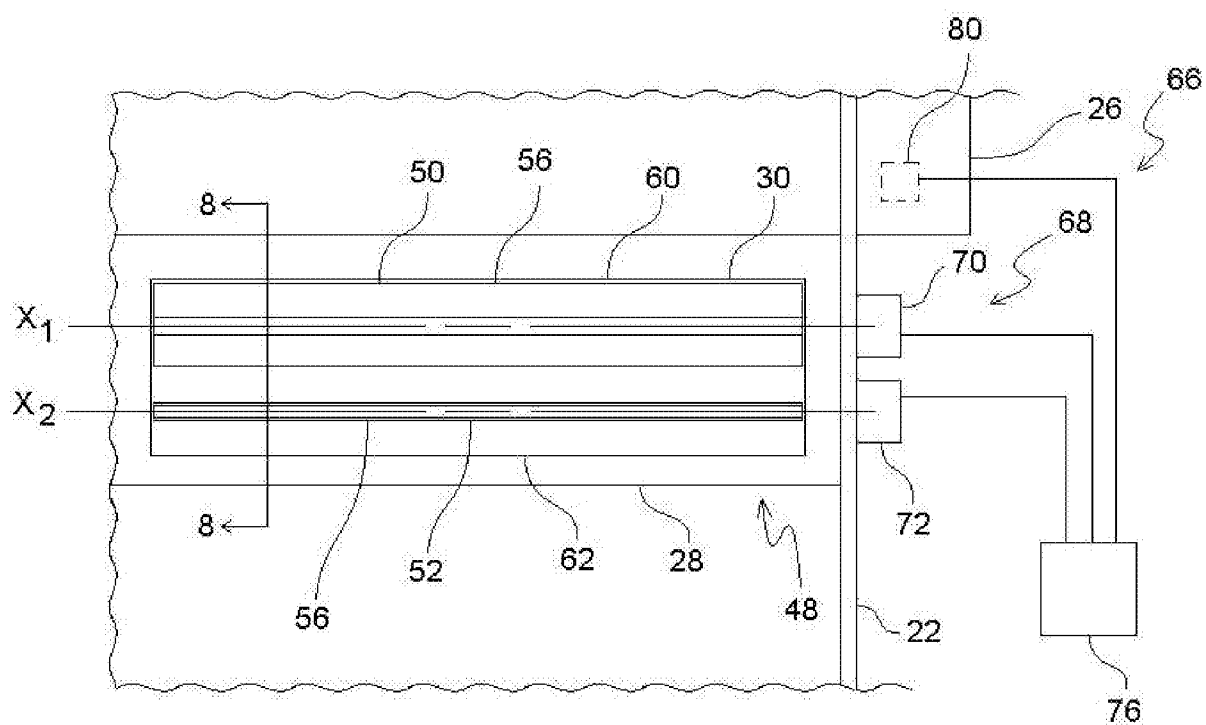


FIG. 7

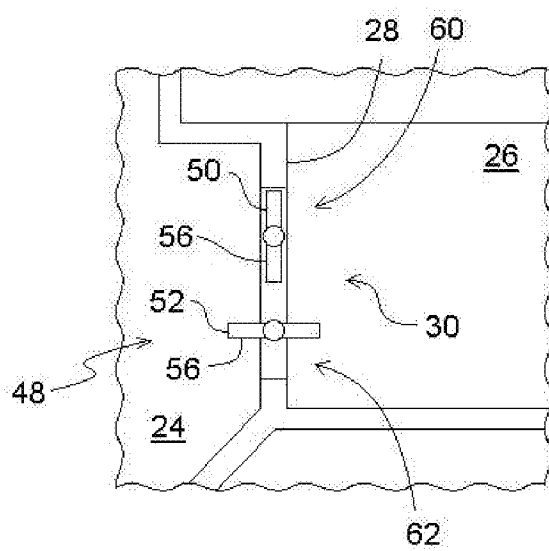


FIG. 8

Electronic Patent Application Fee Transmittal

Application Number:				
Filing Date:				
Title of Invention:	FABRIC FILTER LOUVER ASSEMBLY			
First Named Inventor/Applicant Name:	Robert E Snyder			
Filer:	Eric Marich/Nataleigh Lasrado			
Attorney Docket Number:	Case 7653			
Filed as Large Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Utility application filing	1011	1	280	280
Utility Search Fee	1111	1	600	600
Utility Examination Fee	1311	1	720	720
Pages:				
Claims:				
Claims in Excess of 20	1202	7	80	560
Miscellaneous-Filing:				
Petition:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				2160

Electronic Acknowledgement Receipt

EFS ID:	25020067
Application Number:	15053209
International Application Number:	
Confirmation Number:	4788
Title of Invention:	FABRIC FILTER LOUVER ASSEMBLY
First Named Inventor/Applicant Name:	Robert E Snyder
Customer Number:	41669
Filer:	Eric Marich/Nataleigh Lasrado
Filer Authorized By:	Eric Marich
Attorney Docket Number:	Case 7653
Receipt Date:	25-FEB-2016
Filing Date:	
Time Stamp:	13:43:54
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	\$2160
RAM confirmation Number	16160
Deposit Account	501813
Authorized User	LASRADO, NATALEIGH

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 CFR 1.16 (National application filing, search, and examination fees)

Charge any Additional Fees required under 37 CFR 1.17 (Patent application and reexamination processing fees)

Charge any Additional Fees required under 37 CFR 1.19 (Document supply fees)

Charge any Additional Fees required under 37 CFR 1.20 (Post Issuance fees)

Charge any Additional Fees required under 37 CFR 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		Case_7653_Application.pdf	176486 fafb843b558dda1ed9065407abb9fe5bc070cd5a	yes	16
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Specification		1	10	
	Claims		11	15	
	Abstract		16	16	
Warnings:					
Information:					
2	Application Data Sheet	Case_7653_ADS.pdf	1818841 af20708110ce0a7dbc2cb7d6537697c674a55c61	no	7
Warnings:					
Information:					
3	Oath or Declaration filed	Case_7653_Declaration_Executed.pdf	79804 a6798c059685695c2e97da991d5cf13434250997	no	2
Warnings:					
The page size in the PDF is too large. The pages should be 8.5 x 11 or A4. If this PDF is submitted, the pages will be resized upon entry into the Image File Wrapper and may affect subsequent processing					
Information:					
4	Power of Attorney	Power_of_Attorney_4_BWPGG_ONLY.pdf	152256 035c8e6956345dfe1c611de3a444f2e749ad3721	no	1
Warnings:					
Information:					
5	Drawings-only black and white line drawings	Case_7653_Drawings.pdf	438634 41172fb566d79113b2ef75e0538ebede0ad0adaa	no	5
Warnings:					
Information:					

6	Fee Worksheet (SB06)	fee-info.pdf	36576	no	2
			fbe727b499dfbc1943eb70fc6d33b5c09cec a9e7		
Warnings:					
Information:					
Total Files Size (in bytes):				2702597	
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.					

FABRIC FILTER LOUVER ASSEMBLY

FIELD

[0001] The present invention relates generally to a louver assembly, and, more particularly, to a louver assembly for a fabric filter.

BACKGROUND

[0002] Fabric filters (also known as baghouses) are generally employed to separate particulate matter from gas streams. For example, fabric filters can be used to separate fly ash and other undesirable particulate matter from a boiler flue gas stream. The filtration of the particulate matter from particulate-laden gas is carried out using filter elements that comprise a porous fabric material and are suspended within one or more compartments of the fabric filter. The gas stream is directed into the fabric filter through an inlet manifold and then passes through the porous fabric material of the filter bags before exiting the fabric filter through an outlet manifold. As the gas stream passes through the porous fabric material of a filter element, the particulate material will separate from the gas stream and be collected within a hopper of the fabric filter located below the filter element.

SUMMARY

[0003] In accordance with a first aspect, a fabric filter for separating particulate matter from a gas stream includes a filter compartment and an inlet opening for delivering at least a portion of the gas stream to the filter compartment. The fabric filter further includes one or more filter elements within the filter compartment and a louver assembly for providing access for the at least a portion of the gas stream to said filter compartment. The louver assembly has a first louver associated with the inlet opening and movable between a first-louver-first position and a first-louver-second position. The louver assembly has a second louver associated with the inlet opening and movable between a second-louver-first position and a second-louver-second position. The first louver and the second louver are movable independent of each other to facilitate or restrict fluid communication through said opening.

[0004] In accordance with a second aspect, an operating assembly is provided for a louver assembly of a fabric filter that includes a first louver associated with an inlet opening of the fabric filter that is movable between a first-louver-first position and a first-louver-second position and a second louver associated with the inlet opening that is movable between a second-louver-first position and a second-louver-second position. The operating

assembly has a drive assembly that is configured to be placed in operable communication with the first louver or the second louver and is operable to move the first louver or the second louver independently of the other.

[0005] In accordance with a third aspect a method is provided of operating a louver assembly for a fabric filter that includes a first louver associated with an inlet opening of the fabric filter that is movable between a first-louver-first position and a first-louver-second position and a second louver associated with the inlet opening that is movable between a second-louver-first position and a second-louver-second position. The method comprises moving the first louver independently of the second louver in order to adjust a proportion of open area of said opening that is open to fluid communication therethrough.

[0006] These and other non-limiting aspects of the disclosure are more particularly described below. For a better understanding of the embodiments disclosed herein, reference is made to the accompanying drawings and description forming a part of this disclosure.

BRIEF DESCRIPTION OF THE DRAWINGS

[0007] The embodiments disclosed herein may take form in various components and arrangements of components, and in various process operations and arrangements of process operations. The drawings are only for purposes of illustrating preferred embodiments and are not to be construed as limiting. The foregoing and other aspects will become apparent to those skilled in the art to which the present examples relate upon reading the following description with reference to the accompanying drawings, in which:

[0008] **FIG. 1** is a perspective view of an example fabric filter partially broken away to show interior details;

[0009] **FIG. 2** is a horizontal cross-section view of the fabric filter taken through plane 2 in **FIG. 1**;

[0010] **FIG. 3** is a view of an example louver assembly of the fabric filter in one state;

[0011] **FIG. 4** is a cross-section view of the louver assembly taken along line 4-4 in **FIG. 3**;

[0012] **FIG. 5** is a view of the louver assembly of **FIG. 3**, but in another state;

[0013] **FIG. 6** is a cross-section view of the louver assembly taken along line 6-6 in **FIG. 5**;

[0014] **FIG. 7** is a view of the louver assembly of **FIG. 3**, in yet another state; and

[0015] FIG. 8 is a cross-section view of the louver assembly taken along line 8-8 in FIG. 7.

DETAILED DESCRIPTION

[0016] A more complete understanding of the components, processes, systems, methods and apparatuses disclosed herein can be obtained by reference to the accompanying drawings. The figures are merely schematic representations based on convenience and the ease of demonstrating the present disclosure, and is, therefore, not intended to indicate relative size and dimensions of the devices or components thereof and/or to define or limit the scope of the exemplary embodiments.

[0017] Although specific terms are used in the following description for the sake of clarity, these terms are intended to refer only to the particular structure of the embodiments selected for illustration in the drawings, and are not intended to define or limit the scope of the disclosure. In the drawings and the following description below, it is to be understood that like numeric designations refer to components of like function.

[0018] The singular forms "a," "an," and "the" include plural referents unless the context clearly dictates otherwise.

[0019] As used in the specification, various devices and parts may be described as "comprising" other components. The terms "comprise(s)," "include(s)," "having," "has," "can," "contain(s)," and variants thereof, as used herein, are intended to be open-ended transitional phrases, terms, or words that do not preclude the possibility of additional components.

[0020] As used herein, approximating language may be applied to modify any quantitative representation that may vary without resulting in a change in the basic function to which it is related. Accordingly, a value modified by a term or terms, such as "about" and "substantially," may not be limited to the precise value specified, in some cases. The modifier "about" should also be considered as disclosing the range defined by the absolute values of the two endpoints. For example, the expression "from about 2 to about 4" also discloses the range "from 2 to 4."

[0021] To the extent that explanations of certain terminology or principles of the chemical looping arts, systems, processes, and related arts may be necessary to understand the present disclosure, the reader is referred to Steam/its generation and use, 40th Edition, Stultz and Kitto, Eds., Copyright 1992, The Babcock & Wilcox Company, and to Steam/its generation and use, 41st Edition, Kitto and Stultz, Eds., Copyright 2005, The Babcock &

Wilcox Company, and Steam/its generation and use, 42nd Edition, G.L. Tomei, Ed., Copyright 2015, The Babcock & Wilcox Company, the texts of which are hereby incorporated by reference as though fully set forth herein.

[0022] Referring to **FIGS. 1 & 2**, an example fabric filter (baghouse) **20** is shown that can be used to separate particulate matter from a gas stream. For example, the fabric filter **20** can be used with a boiler (not shown) that burns coal or other fossil fuels to produce steam for an electric generator. A by-product of the combustion process is flue gas, which can be exhausted from the boiler and released into the atmosphere. Most fossil fuels contain some quantity of non-combustibles that form particulate (e.g., ash) in the flue gas that needs to be collected before releasing the flue gas into the atmosphere. Accordingly, the example fabric filter **20** can be used to separate the particulate from the flue gas of the boiler before releasing the gas into the atmosphere.

[0023] The fabric filter **20** comprises a housing **22** and one or more filter compartments **24** provided within the housing **22**. The fabric filter **20** further comprises an inlet manifold **26** and one or more inlet portions **28** in communication with the manifold **26**, each having one or more inlet openings **30** for providing fluid communication between respective filter compartments **24** and the inlet manifold **26**, as illustrated schematically in **FIG. 2**. Each inlet opening **30** corresponds to a different filter compartment **24**, though in some examples, multiple inlet openings **30** may correspond to the same filter compartment **24**. The inlet portions **28** can form part of the inlet manifold **26** and/or the filter compartments **24** or the inlet portions **28** can be separate structures that are provided between the filter compartments **24** and the inlet manifold **26**.

[0024] The example fabric filter **20** further comprises an outlet manifold **34** and one or more outlet portions **38** having one or more outlet openings **40** for providing fluid communication between the filter compartments **24** and the outlet manifold **34**. Two outlet openings **40** correspond to each filter compartment **24** in the illustrated embodiment, though in some examples, one or more than two outlet openings **40** may correspond to each filter compartment **24**. The outlet portions **38** can form part of the outlet manifold **34** and/or the respective filter compartments **24** or the outlet portions **38** can be separate structures that are provided between the filter compartments **24** and the outlet manifold **34**.

[0025] The fabric filter **20** further comprises a plurality of filter elements **42** that each comprise a porous fabric material. The porous fabric material for each filter element **42** is shaped as a cylinder in the illustrated embodiment having one closed end and one open end to

form a filter bag, though other shapes are possible. Multiple filter elements **42** can be provided within each filter compartment **24**.

[0026] The fabric filter **20** is configured such that a gas stream from a source (e.g., a boiler) can be received by the inlet manifold **26** and delivered to one of the filter compartments **24** through its corresponding inlet opening **30**. The gas stream can then pass through the filter compartment **24** and be expelled therefrom via its corresponding outlet openings **40** into the outlet manifold **34**. The outlet manifold **34** can then direct and expel the gas stream into the atmosphere or some other structure downstream from the fabric filter **20**. In the present example, the outlet manifold **34** directs and expels the gas stream out a rear side of the fabric filter **20**, though other sides are possible in other embodiments.

[0027] The filter elements **42** for each filter compartment **24** are configured such that as the gas stream passes through the filter compartment **24** from its corresponding inlet opening **30** to its corresponding outlet openings **40**, the gas stream will pass through the porous fabric material of one of its filter elements **42**. As the gas stream passes through the porous fabric material, particulate within the gas stream can collect on the porous fabric material, thereby separating from the gas stream as the gas stream continues to travel through and out of the filter compartment **24**. The particulate matter will either remain on the porous fabric material or fall down from the porous fabric material into a hopper **44** of the filter compartment **24** provided below the filter elements **42**.

[0028] To assist in controlling the flow of the gas stream into the filter compartments **24**, the fabric filter **20** can have one or more louver assemblies **48** corresponding to each inlet portion **28** to control or regulate the flow of flue gas therethrough. As shown in **FIGS. 3-6**, each louver assembly **48** can have a first louver **50** and a second louver **52** that can both be associated with its corresponding inlet opening **30**. For example, the first louver **50** can be provided within the inlet opening **30** and movably mounted to the inlet portion **28** such that the first louver **50** is movable between a first-louver-first position (e.g., an open position, as shown in **FIGS. 3 & 4**) and a first-louver-second position (e.g., a closed position, as shown in **FIGS. 5 & 6**). Similarly, the second louver **52** can be provided within the inlet opening **30** and movably mounted to the inlet portion **28** such that the second louver **52** is movable between a second-louver-first position (e.g., an open position, as shown in **FIGS. 3 & 4**) and a second-louver-second position (e.g., a closed position, as shown in **FIGS. 5 & 6**). Each louver assembly **48** can have additional louvers that are also similarly mounted within its corresponding inlet opening **30**.

[0029] To move the first and second louvers **50**, **52** between positions, the first and second louvers **50**, **52** can be respectively rotatable about a first axis X_1 and a second axis X_2 , though other motions are possible in other examples such as linear or non-linear actuation or in-plane motion. The first and second axes X_1 , X_2 are both substantially horizontal/parallel and vertically spaced from each other. However, in some examples, the first and second axes X_1 , X_2 may be non-parallel and in some examples, one or both of the first and second axes X_1 , X_2 may have a non-horizontal orientation.

[0030] Each of the first and second louvers **50**, **52** has a panel member **56** that extends longitudinally along its respective axis X_1 , X_2 . As shown in **FIGS. 3 & 4**, when the first louver **50** is in its first-louver-first position, its panel member **56** will be substantially horizontal, thereby opening a top portion **60** of the inlet opening **30**. Similarly, when the second louver **52** is in its second-louver-first position, its panel member **56** will be substantially horizontal, thereby opening a bottom portion **62** of the inlet opening **30**. Meanwhile, as shown in **FIGS. 5 & 6**, when the first louver **50** is in its first-louver-second position, its panel member **56** will be rotated about 90° to a substantially vertical orientation, thereby closing the top portion **60** of the inlet opening **30**. Similarly, when the second louver **52** is in its second-louver-second position, its panel member **56** will be rotated about 90° to a substantially vertical orientation, thereby closing the bottom portion **62** of the inlet opening **30**. However, it should be appreciated that the panel members **56** of the first or second louvers **50**, **52** can have different orientations or different angles of displacement between positions.

[0031] Preferably, the first and second louvers **50**, **52** are movable independent of each other. In other words, movement of one of the first and second louvers **50**, **52** does not necessitate or cause movement of the other. However, it is to be appreciated that the first and second louvers **50**, **52** may still be moved simultaneously even though simultaneous movement is not necessary or necessarily caused by movement of one of the first and second louvers **50**, **52**.

[0032] Because the first and second louvers **50**, **52** are movable independent of each other, the first and second louvers **50**, **52** can be moved in various different ways to achieve different configurations for the louver assembly **48** in order to facilitate or restrict fluid communication through the associated inlet opening **30** in order to regulate or affect the flow of flue gas therethrough. In particular, the first and second louvers **50**, **52** can be moved in order to adjust a proportion of the area of the inlet opening **30** that is open to fluid communication therethrough. The first and second louvers **50**, **52** can be moved

independently **50**, **52** in response to a gas-flow demand of gas through the inlet opening **30** or a cleaning or repair operation, either manually or automatically. For example, the louver assembly **48** can be altered between a first state, a second state, and a third state. In the first state, the first louver **50** is in the first-louver-first position, thereby opening the top portion **60** of the inlet opening **30**, while the second louver **52** is in the second-louver-first position, thereby opening the bottom portion **62** of the inlet opening, as shown in **FIGS. 3 & 4**. In the second state, the first louver **50** is in the first-louver-second position, thereby closing the top portion **60** of the inlet opening **30**, while the second louver **52** is in the second-louver-first position, thereby opening only the bottom portion **62** of the inlet opening **30**, as shown in **FIGS. 7 & 8**. In the third state, the first louver **50** is in the first-louver-second position, thereby closing the top portion **60** of the inlet opening **30**, while the second louver **52** is in the second-louver-second position, thereby closing the bottom portion **62** of the inlet opening, as shown in **FIGS. 5 & 6**.

[0033] When large loads (i.e., large volumetric flow rates) of gas are passing through the inlet opening **30**, the louver assembly **48** can be altered to the first state wherein both the top and bottom portions **60**, **62** of the inlet opening **30** are open to provide the largest area opening for the gas to pass through. The first state therefore can correspond to a relatively high gas-flow demand through the inlet opening **30**. However, when relatively smaller loads are passing through the inlet opening **30**, such a large area can result in a low velocity of gas passing through the inlet opening **30**, which can cause particulate matter within the gas to become dis-entrained from the slower moving gas stream and settle within the inlet portion **28** and/or inlet manifold **26**. This can result in clogging of the inlet portion **28** and/or inlet manifold **26**. To avoid this problem, the louver assembly **48** can be altered to the second state, which corresponds to a relatively lower gas-flow demand through the inlet opening **30**. In the second state, the top portion **60** of the inlet opening **30** will be closed while bottom portion **62** is open, thereby decreasing the area for the gas to pass through to produce a sufficiently high velocity of the gas stream passing through the inlet opening **30**. The high velocity can help keep particulate matter entrained in the gas stream until the gas stream reaches the filter elements **42**. Moreover, because the bottom portion **62** of the inlet opening **30** is open while the top portion **60** is closed, the gas stream will be directed along a lower portion of the inlet portion **28**, which can help pick up any solids that may have previously been deposited along the bottom of the inlet portion **28**.

[0034] In some instances, it may be desired to isolate a filter compartment **24** from the inlet manifold **26**. For example, it may be desired to isolate a filter compartment **24** from

the inlet manifold **26** during repair or cleaning of the filter compartment **24**. In such cases, the associated louver assembly **48** can be altered to the third state, wherein both the top portion **60** and the bottom portion **62** of the inlet opening **30** are both closed to isolate the filter compartment **24** from the inlet manifold **26**.

[0035] In some examples, the louver assembly **48** includes an operating assembly **66** having a drive assembly **68** that is configured to be placed in operative communication with the first louver **50** and/or second louver **52** and is operable to move the first louver **50** and/or second louver **52** independently of the other. For instance, the drive assembly **68** can have a first drive unit **70** that is operable to move the first louver **50** independently of the second louver **52** and/or a second drive unit **72** that is operable to move the second louver **52** independently of the first louver **50**. Alternatively, the operating assembly **66** can have a single drive unit that is operable to move one or both the first and second louvers **50**, **52**, either simultaneously or individually. The drive unit(s) of the drive assembly **68** may each include, e.g., a motor, a handle, a drive chain, or some other means that can be operable to move the first and/or second louvers **50**, **52**.

[0036] In some examples, the operating assembly **66** has a controller **76** that is configured to operate the drive assembly **68** to move its first and second louvers **50**, **52** and selectively alter the louver assembly **48** between states. For instance, the controller **76** can be configured to operate motors of the first and second drive units **70**, **72** to move the corresponding first and second louvers **50**, **52**. The controller **76** can be configured to operate the first and second drive units **70**, **72** either automatically as part of a control sequence or based on inputs that are manually provided.

[0037] In some instances, the controller **76** can be configured to operate the drive assembly **68** to selectively alter the louver assembly **48** between the first state and the second state based on a load parameter. For instance, the operating assembly **66** can include a sensor **80** configured to detect the load parameter and send a signal to the controller **76** based on the load parameter. The load parameter can be a volumetric or mass flow rate of gas passing through a portion of the fabric filter **20**, an electric output generated by the boiler and steam generator, an operating speed of a fan being used to draw gas through the fabric filter **20**, or any other parameter that can indicate a gas-flow demand that may be passing through the inlet opening **30**. The sensor **80** can be configured to detect the load parameter and send a signal to the controller **76** that indicates a condition of the load parameter. For example, in some instances, the load parameter may include a first condition wherein the load parameter is above a predetermined value **Y** and classified as a high-load condition. The sensor **80** can

be configured to detect the load parameter and send a signal to the controller 76 that indicates when the load parameter is at the first condition. In response to receiving the signal, the controller 76 can be configured to operate the drive assembly 68 to alter the louver assembly 48 to the first state wherein both the top portion 60 and bottom portion 62 of the inlet opening 30 are open. Thus, the louver assembly 48 can be altered to the first state when the load parameter is at the high-load condition. In other instances, the load parameter may include a second condition wherein the load parameter is below the predetermined value Y and classified as a low-load condition. The sensor 80 can be configured to detect the load parameter and send a signal to the controller 76 that indicates when the load parameter is at the second condition. In response to receiving the signal, the controller 76 can be configured to operate the drive assembly 68 to alter the louver assembly 48 to the second state wherein the top portion 60 of the inlet opening 30 is closed and the bottom portion 62 is open. Thus, the louver assembly 48 can be altered to the second state when the load parameter is at the low-load condition.

[0038] The controller 76 can be configured to operate the drive assembly 68 to selectively alter the louver assembly 48 between the first, second, and third states based on an operating condition. For example, when it is desired to isolate the corresponding filter compartment 24 of the louver assembly 48 from the inlet manifold 26 for an operation such as cleaning, a signal can be sent to the controller 76 indicating a cleaning operating condition. The signal can be sent via a user interface, a cleaning sensor, or some other means capable of sending a signal to the controller 76 to indicate a cleaning operating condition. In response to receiving the signal, the controller 76 can be configured to operate the drive assembly 68 to alter the louver assembly 48 to the third state wherein both the top portion 60 and bottom portion 62 of the inlet opening 30 are closed, thereby isolating the filter compartment 24 for cleaning. When it is desired to open one or both of the first and second louvers 50, 52 of the louver assembly 48 for a filtering operation, a signal can be sent to the controller 76 indicating a filtering operating condition. The signal can be sent via a user interface, a cleaning sensor, or some other means capable of sending a signal to the controller 76 to indicate that cleaning is over and the filter compartment 24 is ready for a filtering operation. In response to receiving the signal, the controller 76 can be configured to operate the drive assembly 68 to alter the louver assembly 48 between the first and second states based on a load parameter, as described above.

[0039] The invention has been described with reference to example embodiments described above. While various aspects and embodiments have been disclosed herein, other

aspects, embodiments, modifications and alterations will be apparent to those skilled in the art upon reading and understanding the preceding detailed description. The various aspects and embodiments disclosed herein are for purposes of illustration and are not intended to be limiting. It is intended that the present disclosure be construed as including all such aspects, embodiments, modifications and alterations insofar as they come within the scope of the appended claims or the equivalents thereof.

CLAIMS

What is claimed is:

1. A fabric filter for separating particulate matter from a gas stream comprising:
 - a filter compartment;
 - an inlet opening for delivering at least a portion of the gas stream to the filter compartment;
 - one or more filter elements within the filter compartment; and
 - a louver assembly for providing access for the at least a portion of the gas stream to said filter compartment, the louver assembly comprising:
 - a first louver associated with the inlet opening and movable between a first-louver-first position and a first-louver-second position, and
 - a second louver associated with the inlet opening and movable between a second-louver-first position and a second-louver-second position,wherein the first louver and the second louver are movable independent of each other to facilitate or restrict fluid communication through said opening.
2. The fabric filter according to claim 1, wherein the first louver is rotatable about a first axis and the second louver is rotatable about a second axis.
3. The fabric filter according to claim 2, wherein the first axis and second axis are substantially parallel and are spaced from each other.
4. The fabric filter according to claim 2, wherein in the first-louver-first position the first louver is substantially horizontal and in the first-louver-second position the first louver is substantially vertical.
5. The fabric filter according to claim 4, wherein in the second-louver-first position the second louver is substantially horizontal and in the second-louver-second position the second louver is substantially vertical.
6. The fabric filter according to claim 1, further comprising a drive assembly that is operable to move the first louver or the second louver independently of the other.

7. The fabric filter according to claim 6, wherein the drive assembly is operable to move the first louver and the second louver independently of each other.

8. The fabric filter according to claim 6, further comprising a controller configured to operate the drive assembly to selectively alter the louver assembly between a first state and a second state,

wherein in the first state the first louver is in the first-louver-first position and the second louver is in the second-louver-first position, thus substantially opening both first and second portions of the inlet opening, and

wherein in the second state the first louver is in the first-louver-second position and the second louver is in the second-louver-first position, thus substantially closing the first portion of the inlet opening and substantially opening the second portion of the inlet opening.

9. The fabric filter according to claim 8, wherein the controller is configured to operate the drive assembly to selectively alter the louver assembly between the first state, the second state, and a third state,

wherein in the third state, the first louver is in the first-louver-second position and the second louver is in the second-louver-second position, thus substantially closing both the first and second portions of the inlet opening.

10. The fabric filter according to claim 8, wherein the controller is configured to operate the drive assembly to selectively alter the louver assembly between the first state and the second state based on a load parameter.

11. The fabric filter according to claim 10, further comprising a sensor configured to detect the load parameter and send a signal to the controller based on the load parameter.

12. The fabric filter according to claim 1, wherein the one or more filter elements each comprises a porous fabric material and is configured such that as the portion of the gas stream passes through the filter compartment from the inlet opening to an outlet opening of the filter compartment, the portion of the gas stream passes through the porous fabric material of one of the one or more filter elements.

13. An operating assembly for a louver assembly of a fabric filter that comprises a first louver associated with an inlet opening of the fabric filter that is movable between a first-louver-first position and a first-louver-second position and a second louver associated with the inlet opening that is movable between a second-louver-first position and a second-louver-second position, the operating assembly comprising:

a drive assembly that is configured to be placed in operative communication with the first louver or the second louver and is operable to move the first louver or the second louver independently of the other in order to facilitate or restrict fluid communication through said opening.

14. The operating assembly according to claim 13, the drive assembly being operable to move the first louver and the second louver independently of each other.

15. The operating assembly according to claim 13, further comprising a controller configured to operate the drive assembly to selectively alter the louver assembly between a first state and a second state,

wherein in the first state the first louver is in the first-louver-first position and the second louver is in the second-louver-first position, thus substantially opening both first and second portions of the inlet opening, and

wherein in the second state the first louver is in the first-louver-second position and the second louver is in the second-louver-first position, thus substantially closing the first portion of the inlet opening and substantially opening the second portion of the inlet opening.

16. The operating assembly according to claim 15, wherein the controller is configured to operate the drive assembly to selectively alter the louver assembly between the first state, the second state, and a third state,

wherein in the third state the first louver is in the first-louver-second position and the second louver is in the second-louver-second position, thus substantially closing both the first and second portions of the inlet opening.

17. The operating assembly according to claim 15, wherein the controller is configured to operate the drive assembly to selectively alter the louver assembly between the first state and the second state based on a load parameter.

18. The operating assembly according to claim 17, further comprising a sensor configured to detect the load parameter and send a signal to the controller based on the load parameter.

19. The operating assembly according to claim 17, wherein the load parameter comprises a high load condition and the operating assembly comprises a sensor that is configured to detect the load parameter and send a signal that indicates when the load parameter is at the high load condition.

20. The operating assembly according to claim 19, wherein in response to receiving the signal the controller is configured to operate the drive assembly to alter the louver assembly to the first state.

21. The operating assembly according to claim 17, wherein the load parameter comprises a low load condition and the operating assembly comprises a sensor that is configured to detect the load parameter and send a signal that indicates when the load parameter is at the low load condition.

22. The operating assembly according to claim 21, wherein in response to receiving the signal the controller is configured to operate the drive assembly to alter the louver assembly to the second state.

23. A method of operating a louver assembly for a fabric filter that comprises a first louver associated with an inlet opening of the fabric filter that is movable between a first-louver-first position and a first-louver-second position and a second louver associated with the inlet opening that is movable between a second-louver-first position and a second-louver-second position, the method comprising:

moving the first louver independently of the second louver in order to adjust a proportion of an area of said opening that is open to fluid communication therethrough.

24. The method according to claim 23, wherein the first and second louvers are moved independently in response to a gas-flow demand through said inlet opening.

25. The method according to claim 24, further comprising altering the louver assembly between a first state corresponding to a first gas-flow demand through the inlet opening and a second state corresponding to a second gas-flow demand through the inlet opening that is lower than the first gas flow demand,

wherein in the first state the first louver is in the first-louver-first position and the second louver is in the second-louver-first position, thus substantially opening both first and second portions of the inlet opening, and

wherein in the second state the first louver is in the first-louver-second position and the second louver is in the second-louver-first position, thus substantially closing the first portion of the inlet opening and substantially opening the second portion of the inlet opening.

26. The method according to claim 25, further comprising detecting a load parameter and altering the louver assembly between the first state and the second state based on the load parameter.

27. The method according to claim 26, further comprising altering the louver assembly to the first state when the load parameter corresponds to a high-load condition and altering the louver assembly to the second state when the load parameter corresponds to a low-load condition.

ABSTRACT

A fabric filter for separating particulate matter from a gas stream includes a filter compartment and an inlet opening for delivering at least a portion of the gas stream to the filter compartment. The fabric filter further includes one or more filter elements within the filter compartment and a louver assembly for providing access for the at least a portion of the gas stream to said filter compartment. The louver assembly has a first louver associated with the inlet opening and movable between a first-louver-first position and a first-louver-second position. The louver assembly has a second louver associated with the inlet opening and movable between a second-louver-first position and a second-louver-second position. The first louver and the second louver are movable independent of each other to facilitate or restrict fluid communication through said opening.

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	Case 7653
		Application Number	
Title of Invention	FABRIC FILTER LOUVER ASSEMBLY		
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.			

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☐	Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)
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Attorney Docket Number	Case 7653	Small Entity Status Claimed ☐	
Application Type	Nonprovisional		
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For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

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☐ 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.

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	Case 7653
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☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013. NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	Case 7653
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Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.				
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If the Assignee or Non-Applicant Assignee is an Organization check here. ☐				
Prefix	Given Name	Middle Name	Family Name	Suffix
Mailing Address Information For Assignee including Non-Applicant Assignee:				
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Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button.				
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Signature:

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications.				
Signature	/clsmith/		Date (YYYY-MM-DD)	2016-02-25
First Name	Christopher	Last Name	Smith	Registration Number
				71151
Additional Signature may be generated within this form by selecting the Add button.				
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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	Case 7653
		Application Number	
Title of Invention	FABRIC FILTER LOUVER ASSEMBLY		

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.

DECLARATION FOR UTILITY OR DESIGN PATENT APPLICATION
(37 CFR §1.63)

Rev: 04/09/13 (ams)

Attorney Docket No. 7653

As below named inventor, I hereby declare that: My residence, post office address and citizenship are as stated below next to my name. I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject, **FABRIC FILTER LOUVER ASSEMBLY**, the specification of which:

Check one ☒ is attached hereto

☐ was filed on _____ as United States or PCT International application Serial No. _____ and was amended on _____ (if applicable).

The above-identified application was made or authorized to be made by me.

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 acknowledge the duty to disclose to the United States Patent and Trademark Office (USPTO) all information known to me to be material to patentability as defined in 37 CFR §1.56, including for continuation-in-part applications, material information which became available between the filing date of the prior application and the national or PCT International filing date of the continuation-in-part application.

I hereby claim foreign priority benefits under 35 USC §119(a)-(d) or (f) or §365(b) of any foreign application(s) for patent or inventor's certificate, or under §365(a) of any PCT International application which designated at least one country other than the United States, listed below and have also identified below any foreign application for patent or inventor's certificate, or PCT International application, having a filing date before that of the application on which priority is claimed.

Prior Foreign Application(s)

(Number)	(Country)	(Day/Month/Year Filed)	Priority Claimed Yes ☐ No ☐
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I hereby claim the benefit under 35 USC §119(e) of any United States provisional applications:

(Application Serial No.)	(Month/Day/Year Filed)
--------------------------	------------------------

I hereby claim the benefit under 35 USC §120 of any United States application(s), or under §365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of 35 USC §112, I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR §1.56 which became available between the filing date of the prior application and the national or PCT International filing date of this application.

(Application Serial No.)	(Filing Date)	(Status—patented, pending, abandoned)
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I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith: (1) Eric Marich, Reg. No. 32,265; (2) Michael J. Seymour, Reg. No. 54,436; and (3) Christopher L. Smith, Reg. No. 71,151.

Address all telephone calls to **Christopher L. Smith** at telephone no. **(330) 860-6710**
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US PTO CUSTOMER NUMBER

41669 -
BWPGG

Authorization To Permit Access To Application by Participating Offices:

The undersigned hereby grants the USPTO authority to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the World Intellectual Property Office (WIPO), and any other intellectual property offices in which a foreign application claiming priority to the above-identified application is filed access to above-identified patent application. See 37 CFR §1.14(c) and (h).

In accordance with 37 CFR §1.14(h)(3), access will be provided to a copy of the above-identified with respect to: 1) the above-identified patent application-as-filed; 2) any foreign application to which the above-identified application claims priority under 35 USC 119(a)-(d) if a copy of the foreign application that satisfies the certified copy requirement of 37 CFR §1.55 has been filed in the above-identified patent application; and 3) any U.S. application from which benefit is sought in the above-identified application.

In accordance with 37 CFR §1.14(c), access may be provided to information concerning the date of filing the Authorization to Permit Access to Application by Participating Offices.

DECLARATION FOR UTILITY OR DESIGN PATENT APPLICATION
(37 CFR §1.63)

Rev: 04/09/13 (ame)

Attorney Docket No. 7653

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under §1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full name of sole or first inventor		
SNYDER, ROBERT E		
Inventor's signature		
		
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Post office address	3408 Killian Road	
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