



(51) International Patent Classification:

B01D 46/00 (2006.01) **F02C 7/05** (2006.01)
B01D 46/12 (2006.01) **F02C 7/18** (2006.01)

(21) International Application Number:

PCT/US2016/041086

(22) International Filing Date:

6 July 2016 (06.07.2016)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

62/188,890 6 July 2015 (06.07.2015) US
15/192,224 24 June 2016 (24.06.2016) US

(71) Applicant: **DRESSER-RAND COMPANY** [US/US]; 500 Paul Clark Drive, Olean, New York 14760 (US).

(72) Inventor: **MAIER, William C.**; 6959 Schuyler Road, Almond, New York 14804 (US).

(74) Agents: **BASU, Rana et al.**; Siemens Corporation- Intellectual Property Dept., 3501 Quadrangle Blvd. Ste. 230, Orlando, Florida 32817 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY,

BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Published:

- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

(88) Date of publication of the international search report:
16 February 2017

(54) Title: MOTIVE AIR CONDITIONING SYSTEM FOR GAS TURBINES

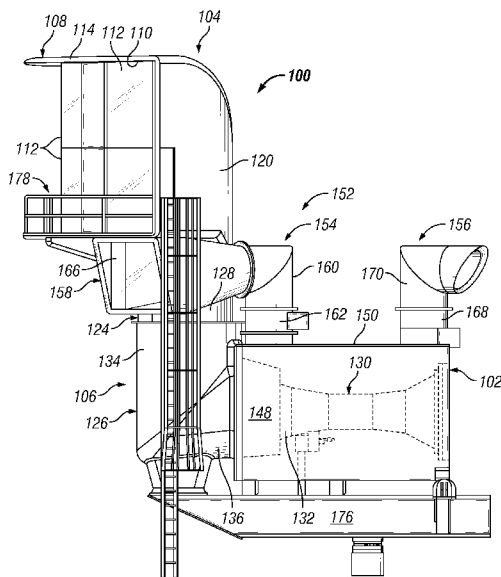


FIG. 1A

(57) Abstract: A motive air conditioning system for a gas turbine assembly is provided. The motive air conditioning system may include an inlet flow channel configured to be fluidly coupled with the gas turbine assembly. The motive air conditioning system may also include a filtration assembly fluidly coupled with the inlet flow channel and configured to filter motive air. The filtration assembly may include a plurality of filter modules disposed adjacent one another and further disposed circumferentially about a longitudinal axis of the inlet flow channel.

WO 2017/007809 A3

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2016/041086

A. CLASSIFICATION OF SUBJECT MATTER
INV. B01D46/00 B01D46/12 F02C7/05 F02C7/18
ADD.
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)
B01D F02C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2013/092798 A1 (BOYCE MARK EDWARD [US]) 18 April 2013 (2013-04-18) figures 1,2	1-4
X	US 2013/139516 A1 (VITI FILIPPO [IT] ET AL) 6 June 2013 (2013-06-06) paragraphs [0041] - [0052]; figure 5	14-16, 18,19
Y		11-13, 17,20
X	US 2011/209622 A1 (HINER STEPHEN DAVID [GB] ET AL) 1 September 2011 (2011-09-01) figures 3,4	1,5-10
Y	paragraphs [0014] - [0020]	11-13, 17,20
X	US 2014/137524 A1 (JARRIER ETIENNE RENÉ PASCAL [GB]) 22 May 2014 (2014-05-22) figure 1	1
A		6-10
	----- -/--	

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 but 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 9 January 2017	Date of mailing of the international search report 13/01/2017
---	--

Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer Ingelbrecht, Peter
--	--

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2016/041086

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-13, 20

Air intake filtration system for gas turbine having a plurality of filter elements disposed circumferentially about a longitudinal axis of the gas turbine inlet flow channel

2. claims: 14-19

Air intake filtration system for gas turbine having a ventilation system comprising a blower configured to direct ventilation air at least partially through an enclosure of the gas turbine engine

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2016/041086

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2008/173276 A1 (BARNARD RICHARD S [US] ET AL) 24 July 2008 (2008-07-24) figures 1-10	1-4
X	----- US 2011/290116 A1 (JARRIER ETIENNE RENE PASCAL [GB] ET AL) 1 December 2011 (2011-12-01) abstract; figure 1	1
X	----- US 4 515 609 A (CUVELIER LEON [BE]) 7 May 1985 (1985-05-07) figures 1,2	1
X	----- US 3 815 342 A (WATTS H) 11 June 1974 (1974-06-11) figures 1,2	1

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No PCT/US2016/041086

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2013092798	A1	18-04-2013	EA 201400474 A1 30-09-2014
			EP 2768600 A2 27-08-2014
			US 2013092798 A1 18-04-2013
			WO 2013103416 A2 11-07-2013

US 2013139516	A1	06-06-2013	CA 2797209 A1 02-06-2013
			CN 103133142 A 05-06-2013
			EA 201201531 A1 30-07-2013
			EP 2599967 A1 05-06-2013
			JP 2013117226 A 13-06-2013
			KR 20130062254 A 12-06-2013
			RU 2012151221 A 10-06-2014
			US 2013139516 A1 06-06-2013

US 2011209622	A1	01-09-2011	CN 102188862 A 21-09-2011
			US 2011209622 A1 01-09-2011

US 2014137524	A1	22-05-2014	CN 103816745 A 28-05-2014
			DE 102013112790 A1 22-05-2014
			KR 20140064663 A 28-05-2014
			US 2014137524 A1 22-05-2014

US 2008173276	A1	24-07-2008	EP 1874626 A2 09-01-2008
			IL 186605 A 24-03-2013
			JP 4861407 B2 25-01-2012
			JP 2008537049 A 11-09-2008
			US 2008173276 A1 24-07-2008
			WO 2006113388 A2 26-10-2006

US 2011290116	A1	01-12-2011	NONE

US 4515609	A	07-05-1985	NONE

US 3815342	A	11-06-1974	NONE
