

(19)



(11)

EP 2 623 714 A3

(12)

EUROPEAN PATENT APPLICATION

(88) Date of publication A3:
18.12.2013 Bulletin 2013/51

(51) Int Cl.:
F01D 11/00 ^(2006.01) **F01D 25/12** ^(2006.01)
F01D 5/08 ^(2006.01)

(43) Date of publication A2:
07.08.2013 Bulletin 2013/32

(21) Application number: **12198418.1**

(22) Date of filing: **20.12.2012**

(84) Designated Contracting States:
**AL AT BE BG CH CY CZ DE DK EE ES FI FR GB
GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO
PL PT RO RS SE SI SK SM TR**
Designated Extension States:
BA ME

(72) Inventor: **Cook, Jason Nathaniel**
Greenville, SC South Carolina 29615 (US)

(74) Representative: **Cleary, Fidelma et al**
GPO Europe
GE International Inc.
The Ark
201 Talgarth Road
Hammersmith
London W6 8BJ (GB)

(30) Priority: **04.01.2012 US 201213343037**

(71) Applicant: **General Electric Company**
Schenectady, NY 12345 (US)

(54) Turbine cooling system

(57) A turbine cooling system is provided, having a compressor (20) for supplying cooling air, a forward turbine rotor wheel space (50), a high-pressure packing seal (HPPS) bypass cavity (60), and a metering device (46). The forward turbine rotor wheel space (50) is cooled by the cooling air supplied by the compressor. The HPPS bypass cavity (60) is in fluid communication with and receives a portion of the cooling air from the compressor,

and is in fluid communication with and supplies the cooling air to the forward turbine rotor wheel space. The metering device (46) is in operable communication with the forward turbine rotor wheel space (50) and the HPPS bypass cavity (60) to modulate the cooling air supplied to the forward turbine rotor wheel space from the HPPS bypass cavity. The metering device modulates the cooling air based on at least one operating condition of the turbine.

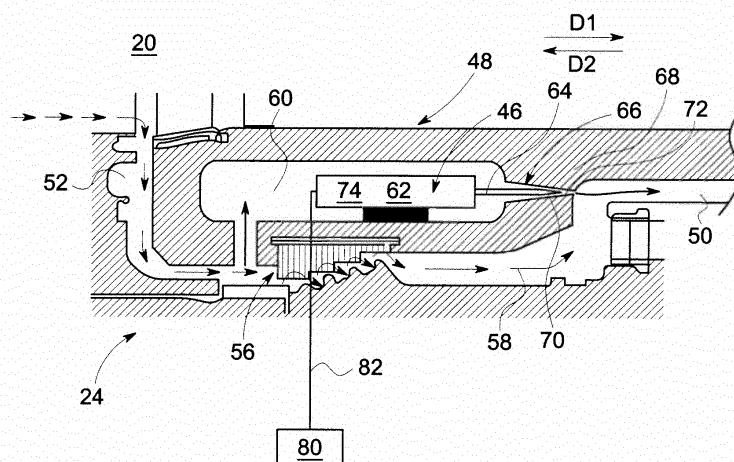


FIG. 2

EP 2 623 714 A3



EUROPEAN SEARCH REPORT

Application Number
EP 12 19 8418

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 7 445 424 B1 (EBERT TODD A [US] ET AL) 4 November 2008 (2008-11-04) * figures 2-8 *	1-13	INV. F01D11/00 F01D25/12 F01D5/08
X	----- US 2011/250057 A1 (LAURELLO VINCENT P [US] ET AL) 13 October 2011 (2011-10-13) * abstract; figures 1,2,7 *	1-13	
X	----- US 4 807 433 A (MACLIN HARVEY M [US] ET AL) 28 February 1989 (1989-02-28) * abstract; figures 1,2,4,5 *	1,12	
A	----- US 2011/162384 A1 (LANGDON II RICHARD HENRY [US] ET AL) 7 July 2011 (2011-07-07) * abstract; figures 1,6-9 *	1,12	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC)
			F01D
Place of search Munich		Date of completion of the search 12 November 2013	Examiner Avramidis, Pavlos
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			

1
EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 12 19 8418

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

12-11-2013

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 7445424	B1	04-11-2008	NONE
US 2011250057	A1	13-10-2011	NONE
US 4807433	A	28-02-1989	NONE
US 2011162384	A1	07-07-2011	CH 702540 A2 15-07-2011
		CN 102121420 A 13-07-2011	
		DE 102010061592 A1 14-07-2011	
		JP 2011140941 A 21-07-2011	
		US 2011162384 A1 07-07-2011	