

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
5 February 2004 (05.02.2004)

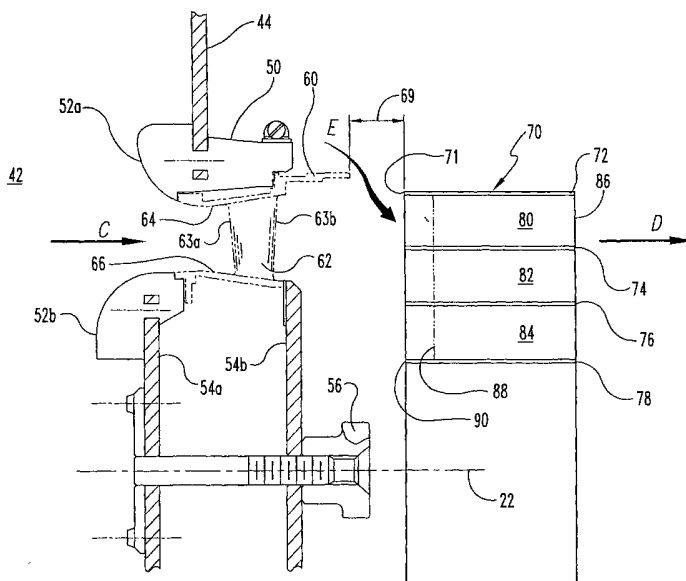
PCT

(10) International Publication Number
WO 2004/011887 A3

- (51) International Patent Classification⁷: **G01F 1/44**, (74) Agents: **DANILUCK, John, V.** et al.; Woodard, Emhardt, Naughton, Moriarty & McNett LLP, Bank One Center/Tower, Suite 3700, 111 Monument Circle, Indianapolis, IN 46204 (US).
- (21) International Application Number: PCT/US2003/009299
- (22) International Filing Date: 25 March 2003 (25.03.2003)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
60/367,182 25 March 2002 (25.03.2002) US
60/367,972 26 March 2002 (26.03.2002) US
60/426,960 15 November 2002 (15.11.2002) US
- (71) Applicant (for all designated States except US): **FLEMING AND ASSOCIATES, INC.** [US/US]; 1060 North Capitol Avenue, Suite E-100, Indianapolis, IN 46204-1007 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **FLEMING, Ronald, J.** [US/US]; 3290 East 48th Street, Indianapolis, IN 46205 (US). **FLEMING, August, E.** [US/US]; 3290 East 48th Street, Indianapolis, IN 46205 (US).
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Published:
— with international search report

[Continued on next page]

(54) Title: FLOW STABILIZER FOR FLOW BENCH



(57) Abstract: Apparatus and methods for airflow testing, especially for air testing of gas turbine components (60) on an airflow test bench (30). Various embodiments of the present invention include the use of a flow-stabilizing member (70) downstream of the component (60) being tested. Since the flow through or over the component (60) is subsonic, a flow-stabilizing member (70) placed down stream of the component (60) can have an effect on the flow conditions in or around the component (60) being tested. In one embodiment, the flow-stabilizing member (70) provides more consistent results during the testing of the component (60).



(88) Date of publication of the international search report:

12 August 2004

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/09299

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : G01F 1/44, G01M 3/04

US CL : 73/861.63, 49.7

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. : 73/861.63, 49.7, 861.52, 861.53, 204.22, 861.353, 118.2

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)
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	US 3,552,202 A (Kroeger et al) 05 January 1971 (05.01.1971), Fig. 1, column 2, lines 3-5.	1,5,6,7,13,14,17,26,30
---	---	-----
Y	Fig.1	2-4,8-12,16,18,19-25,28,29
Y	US 5,405,106 A (Chintamani et al) 11 April 1995 (11.04.1995), Fig.3.	2,3,19,20-25
Y	US 1,940,790 A (Diehl) 26 December 1933 (26.12.1933), Fig.1, column 1, lines 7-13.	10-12
Y	US 4,534,216 A (Fasano et al) 13 August 1985 (13.08.1985), Fig.1	16,18,24
Y	US 1,811,364 A (Olshevsky) 23 June 1931 (23.06.1931), Fig.1	8,9,28,29
Y,P	US 6,470,740 B2 (Li) 29 October 2002 (29.10.2002), Fig.2, column 3, lines 1-16.	20,25



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	"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
"E" earlier application or patent published on or after the international filing date	"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
"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)	"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
"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	"&" document member of the same patent family

Date of the actual completion of the international search

22 March 2004 (22.03.2004)

Date of mailing of the international search report **28 MAY 2004**

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Facsimile No. (703) 305-3230

Authorized officer

Edward Lefkowitz

Telephone No. (703)308-1782

INTERNATIONAL SEARCH REPORT

PCT/US03/09299

Continuation of B. FIELDS SEARCHED Item 3:

East

search terms: bench, vane, nozzle