

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
3 February 2005 (03.02.2005)

PCT

(10) International Publication Number
WO 2005/011038 A3

- (51) International Patent Classification:
H01M 8/04 (2006.01)
- (21) International Application Number:
PCT/JP2004/010079
- (22) International Filing Date: 8 July 2004 (08.07.2004)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
2003-279731 25 July 2003 (25.07.2003) JP
2003-324491 17 September 2003 (17.09.2003) JP
- (71) Applicant (for all designated States except US): NISSAN MOTOR CO., LTD. [JP/JP]; 2, Takara-cho, Kanagawa-ku, Yokohama-shi, Kanagawa 2210023 (JP).
- (72) Inventor; and
- (75) Inventor/Applicant (for US only): OKAMOTO, Masaru [JP/JP].
- (74) Agents: MIYOSHI, Hidekazu et al.; Toranomon Kotohira Tower, 2-8, Toranomon 1-chome, Minato-ku, Tokyo 105-0001 (JP).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM,

AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

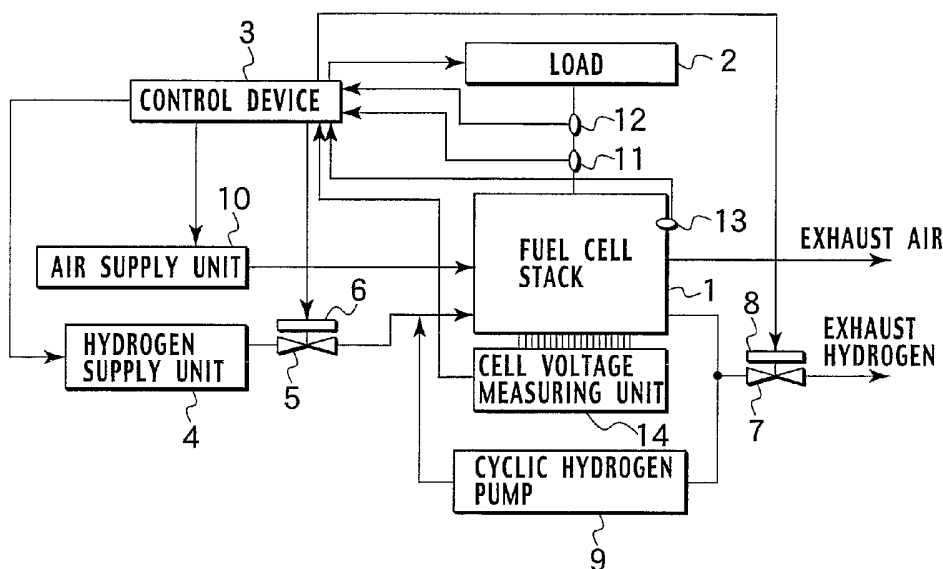
Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report:
10 August 2006

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.

(54) Title: DEVICE AND METHOD FOR CONTROLLING FUEL CELL AND FUEL CELL SYSTEM



(57) Abstract: A fuel cell system has a fuel cell generating power using a fuel gas and an oxidizing agent gas serving as materials of the system and a material supply section supplying the materials to the fuel cell. The power generated by the fuel cell is extracted to a load. A device for controlling the fuel cell system has: a material flow calculation section calculating a material flow supplied to the fuel cell so as to cause the fuel cell to generate the power of a required power generation amount; a material reduction limit detection section calculating a limit for reducing the material flow, based on a power generation state of the fuel cell; and a material flow change section controlling the material supply section so as to change the material flow calculated by the material flow calculation section to the limit calculated by the material reduction limit detection section.

WO 2005/011038 A3

INTERNATIONAL SEARCH REPORT

International Application No
PCT/JP2004/010079

A. CLASSIFICATION OF SUBJECT MATTER
INV. H01M8/04

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)
H01M

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 practical, search terms used)
EPO-Internal, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 3 753 780 A (FETTERMAN D,US) 21 August 1973 (1973-08-21) column 5, line 3 - line 43; figure 3a -----	1-21
X	EP 0 993 060 A (TOYOTA JIDOSHA KABUSHIKI KAISHA) 12 April 2000 (2000-04-12) claims 5-7,11-14 -----	1-21
X	PATENT ABSTRACTS OF JAPAN vol. 2002, no. 10, 10 October 2002 (2002-10-10) -& JP 2002 164068 A (DENSO CORP), 7 June 2002 (2002-06-07) cited in the application abstract -----	1-21
	----- -/--	

Further documents are listed in the continuation of box C. Patent family members are listed in annex.

° Special categories of cited documents :

<p>*A* document defining the general state of the art which is not considered to be of particular relevance</p> <p>*E* earlier document but published on or after the international filing date</p> <p>*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)</p> <p>*O* document referring to an oral disclosure, use, exhibition or other means</p> <p>*P* document published prior to the international filing date but later than the priority date claimed</p>	<p>*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</p> <p>*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</p> <p>*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.</p> <p>*Z* document member of the same patent family</p>
--	--

Date of the actual completion of the international search 9 June 2006	Date of mailing of the international search report 19/06/2006
---	---

Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Authorized officer Gregg, N
--	---

INTERNATIONAL SEARCH REPORT

International Application No
PCT/JP2004/010079

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 3 850 695 A (RHEIN H,DT ET AL) 26 November 1974 (1974-11-26) claim 1 -----	1,10,21
A	US 4 741 978 A (TAKABAYASHI ET AL) 3 May 1988 (1988-05-03) claim 1 -----	1,10,21
A	GB 1 304 092 A (ROBERT BOSCH GMBH) 24 January 1973 (1973-01-24) -----	
A	US 2002/051899 A1 (KESKULA DONALD H ET AL) 2 May 2002 (2002-05-02) -----	

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/JP2004/010079

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
US 3753780	A	21-08-1973	NONE		
EP 0993060	A	12-04-2000	CA	2282192 A1	02-04-2000
			US	6638652 B1	28-10-2003
JP 2002164068	A	07-06-2002	NONE		
US 3850695	A	26-11-1974	DE	2205543 A1	09-08-1973
			FR	2170275 A1	14-09-1973
			GB	1414409 A	19-11-1975
			IT	972944 B	31-05-1974
			JP	1065643 C	30-09-1981
			JP	48083338 A	07-11-1973
			JP	56009793 B	04-03-1981
			SE	388075 B	20-09-1976
US 4741978	A	03-05-1988	JP	63048768 A	01-03-1988
GB 1304092	A	24-01-1973	CH	508285 A	31-05-1971
			DE	1907737 A1	20-08-1970
			FR	2032734 A5	27-11-1970
			SE	357102 B	12-06-1973
US 2002051899	A1	02-05-2002	CA	2309025 A1	06-01-2001
			EP	1069636 A2	17-01-2001
			JP	3739635 B2	25-01-2006
			JP	2001043880 A	16-02-2001