

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
26 May 2006 (26.05.2006)

PCT

(10) International Publication Number
WO 2006/055101 A3

(51) International Patent Classification:
H01M 8/04 (2006.01) H01M 8/24 (2006.01)

KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(21) International Application Number:
PCT/US2005/034657

(22) International Filing Date:
27 September 2005 (27.09.2005)

(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, IS, IT, LT, LU, LV, 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).

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
10/988,740 15 November 2004 (15.11.2004) US

Declarations under Rule 4.17:

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

(71) Applicant: 3M INNOVATIVE PROPERTIES COMPANY [US/US]; 3M Center, Post Office Box 33427, Saint Paul, Minnesota 55133-3427 (US).

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

(72) Inventor: ANDERSON, Robert, D.; 3M Center, Post Office Box 33427, Saint Paul, Minnesota 55133-3427 (US).

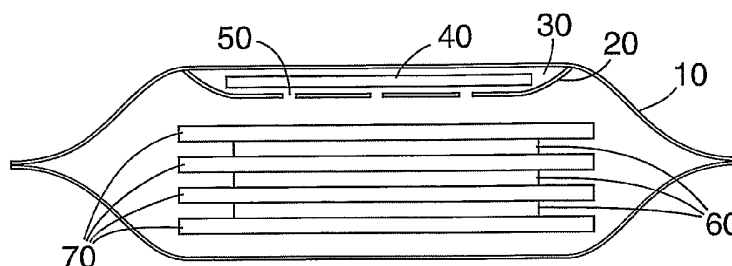
(74) Agents: DAHL, Philip, Y. et al.; 3M Center, Office of Intellectual Property Counsel, Post Office Box 33427, Saint Paul, Minnesota 55133-3427 (US).

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

(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, JP, KE,

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: FUEL CELL COMPONENT STORAGE OR SHIPMENT



(57) Abstract: An article is provided comprising: a) a fuel cell stack comprising at least one port, and b) a humidifying element in communication with the port. The humidifying element may be comprised in a humidifying device, which may form a seal with the port. In another aspect, an article is provided comprising a container, a humidifying element contained within the container, and a fuel cell membrane electrode assembly (MEA) contained within the container. In another aspect, an article is provided comprising a container, a humidifying element contained within the container, and a fuel cell unit cell assembly (UCA) contained within the container. The humidifying element may or may not be contained in a subpocket of the container, which may or may not be impervious to water or substantially impervious to water.

WO 2006/055101 A3

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2005/034657

A. CLASSIFICATION OF SUBJECT MATTER
INV. H01M8/04 H01M8/24

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, 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 2002/041985 A1 (SHIMANUKI HIROSHI ET AL) 11 April 2002 (2002-04-11) abstract; figures 1,7,8 paragraphs [0031] - [0035]	1-3,5
X	DE 100 06 472 A1 (SIEMENS AG) 23 August 2001 (2001-08-23) abstract; figures 1,2 column 5, lines 43-54 - column 6, lines 17-25	1,3,4,6
X	PATENT ABSTRACTS OF JAPAN vol. 2000, no. 12, 3 January 2001 (2001-01-03) -& JP 2000 260456 A (SANYO ELECTRIC CO LTD), 22 September 2000 (2000-09-22) abstract; figure 1 the whole document	7-18
	----- -/--	

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 document 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.
- *G* document member of the same patent family

Date of the actual completion of the international search

16 June 2006

Date of mailing of the international search report

26/06/2006

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

Chme1a, E

INTERNATIONAL SEARCH REPORT

 International application No
 PCT/US2005/034657

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 1 065 742 A (TOYOTA JIDOSHA KABUSHIKI KAISHA) 3 January 2001 (2001-01-03) abstract paragraph [0033]	7,8,10, 12
X	----- US 4 952 297 A (HICKS ET AL) 28 August 1990 (1990-08-28) abstract; claims 1,2,4; figure 2 column 4, lines 1,2	7,8,10, 12
A	----- US 6 555 262 B1 (KAISER MARK ET AL) 29 April 2003 (2003-04-29) abstract; figure 5 column 8, lines 47-67	1-18
A	----- PATENT ABSTRACTS OF JAPAN vol. 1997, no. 12, 25 December 1997 (1997-12-25) -& JP 09 223507 A (MATSUSHITA ELECTRIC IND CO LTD), 26 August 1997 (1997-08-26) abstract; figure 1 -----	1-18

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2005/034657

Box 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 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 fee, this Authority did not invite payment of any additional fee.
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.

No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International Application No. PCT/US2005 /034657

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

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

1. claims: 1-6

-An article as described in claim 1 characterised by a fuel cell port, the humidifying element being in communication therewith.

2. claims: 7-18

-An article as described in claims 7 and 13 characterised by a container.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No PCT/US2005/034657
--

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2002041985	A1	11-04-2002	CA 2358553 A1 05-04-2002
			DE 10148610 A1 02-05-2002
			JP 2002184439 A 28-06-2002
DE 10006472	A1	23-08-2001	CA 2399938 A1 16-08-2001
			WO 0159863 A2 16-08-2001
			EP 1258047 A2 20-11-2002
			JP 2003523057 T 29-07-2003
JP 2000260456	A	22-09-2000	NONE
EP 1065742	A	03-01-2001	NONE
US 4952297	A	28-08-1990	NONE
US 6555262	B1	29-04-2003	AT 268946 T 15-06-2004
			AU 3492701 A 20-08-2001
			CA 2398777 A1 16-08-2001
			CN 1398438 A 19-02-2003
			DE 60103739 D1 15-07-2004
			DE 60103739 T2 07-07-2005
			EP 1258048 A1 20-11-2002
			JP 2003523058 T 29-07-2003
			WO 0159865 A1 16-08-2001
JP 09223507	A	26-08-1997	JP 3731234 B2 05-01-2006