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- (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, BR, BW, BY, BZ, CA, CH, 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, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

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(54) Title: METHODS AND DEVICES FOR FOLLOW-UP CARE AND TREATMENT OF A PNEUMOSTOMA

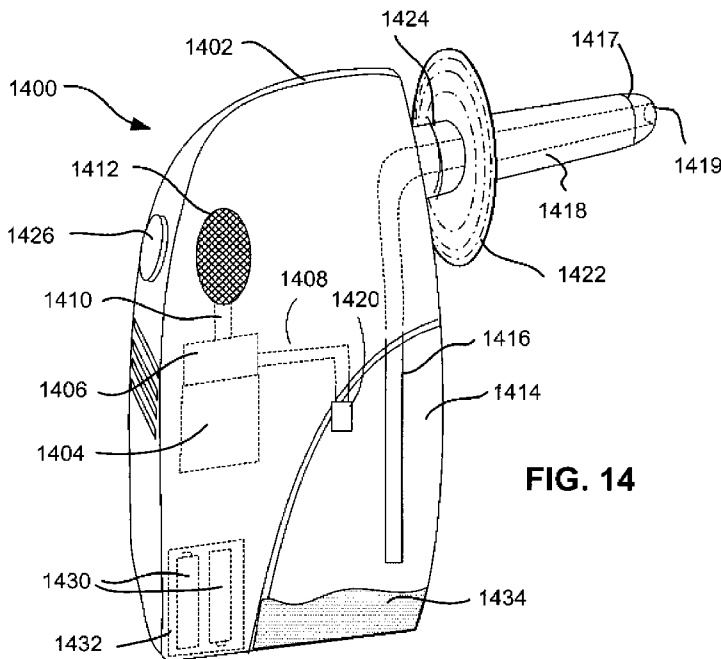


FIG. 14

(57) Abstract: A pneumostoma assessment and treatment system includes devices for aftercare of a pneumostoma and for additional patient care utilizing a pneumostoma. The system utilizes a number of medical devices and modalities to assess the health and functionality of the pneumostoma, the lungs and/or the patient as a whole. In response to an assessment of the health and functionality of the pneumostoma, lungs and patient, the tissues of pneumostoma may be treated with a treatment device and utilizing one or more different modalities to preserve or enhance the health and function of the pneumostoma and/or treat other conditions of the patient.

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— *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))*

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A. CLASSIFICATION OF SUBJECT MATTER*A61M 16/00(2006.01)i, A61M 36/04(2006.01)i*

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)

IPC A61B 10/00, A61B 1/32, A62B 9/06, A61M 16/00, A61M 5/32

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

Korean Utility models and applications for Utility models since 1975

Japanese Utility models and applications for Utility models since 1975

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal), PAJ & Keyword: pneumothorax, aspiration, probe and lung

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2001-70114 A1 (RITA MEDICAL SYSTEMS INC.) 27 SEPTEMBER 2001 See abstract, page 12-40, claims 1-106, figures 4-28.	62-65
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Y		1-33, 36, 52-61
Y	US 2006-0107961 A1 (DON TANAKA) 25 MAY 2006 See the whole document.	1-33, 36
Y	US 6,461,296 B1 (ASHVIN H. DESAI) 8 OCTOBER 2002 See paragraphs 10-11, claims 1-12, figure 19..	52-61
A	US 2004-0237966 A1 (DON TANAKA) 2 DECEMBER 2004 See the whole document.	1-65
A	WO 1995-18642 A1 (OMIRANA, OMAR) 13 JULY 1995 See the whole document.	1-65
A	WO 1998-32380 A1 (UNIVERSITY OF MASSACHUSETTS et al.) 30 JULY 1998 See the whole document.	1-65

 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 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

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Name and mailing address of the ISA/KR

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2009/034406

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 4,592,741 A1 (MICHEL J. VINCENT) 3 JUNE 1986 See the whole document.	1-65
A	US 5,478,333 A (RICHARD E. ASHERMAN, Jr.) 26 DECEMBER 1995 See the whole document.	1-65

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 the extra 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 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.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2009/034406

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2001-070114 A1	27.09.2001	AU 4579401 A	03.10.2001
		AU 2001-245794 B2	06.04.2006
		AU 2001-45794 A1	16.03.2001
		AU 2001-245794 B2	16.03.2001
		CA 2402585 A1	27.09.2001
		EP 1265532 A1	18.12.2002
		JP 2003-534037 A	18.11.2003
		NZ 521908 A	28.05.2004
		US 06770070 B1	03.08.2004
US 2006-0107961 A1	25.05.2006	AT 399031 T	15.07.2008
		CA 2527517 A1	19.05.2006
		DE 602005007680 D1	07.08.2008
		EP 1658867 B1	25.06.2008
		EP 1658867 A1	24.05.2006
		JP 2006-142028 A	08.06.2006
US 06461296 B1	08.10.2002	AU 2003-249711 A1	23.01.2004
		AU 2003-284285 A1	04.05.2004
		AU 2003-249711 A1	02.07.2003
		AU 2003-284285 A1	17.10.2003
		CA 2167708 C	11.12.2001
		EP 0714487 A1	05.06.1996
		EP 0714487 B2	15.01.2003
		EP 1558326 A4	15.08.2007
		EP 0714487 B1	22.04.1998
		EP 1558326 A2	03.08.2005
		JP 09-501759 A	18.02.1997
		US 05662680 A	02.09.1997
		US 05861002 A	19.01.1999
		US 05972441 A	26.10.1999
		US 05976129 A	02.11.1999
		US 05976650 A	02.11.1999
		US 06025044 A	15.02.2000
		US 06027779 A	22.02.2000
		US 06027811 A	22.02.2000
		US 06159565 A	12.12.2000
		US 06231591 B1	15.05.2001
		US 06730081 B1	04.05.2004
		US 07279208 B1	09.10.2007
		US 07549424 B2	23.06.2009
		US 2003-0073908 A1	17.04.2003
		US 2003-0130575 A1	10.07.2003
		US 2004-0002647 A1	01.01.2004
US 2005-0255039 A1	17.11.2005		
US 2008-0021533 A1	24.01.2008		

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2009/034406

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
		WO 1995-005555 A1	23.02.1995
		WO 1995-034259 A1	21.12.1995
		WO 2004-004709 A1	15.01.2004
		WO 2004-035110 A2	29.04.2004
		WO 1996-013218 A1	09.05.1996
US 2004-0237966 A1	02.12.2004	EP 1481701 A1	01.12.2004
		JP 2004-358248 A	24.12.2004
		US 07533667 B2	19.05.2009
WO 1995-018642 A1	13.07.1995	AU 1563495 A	01.08.1995
		EP 0743865 A1	27.11.1996
		EP 0743865 A4	16.07.1997
		US 05897531 A	27.04.1999
WO 1998-032380 A1	30.07.1998	AU 6261198 A	18.08.1998
US 04592741 A1	03.06.1986	None	
US 05478333 A	26.12.1995	None	

This ISA found multiple inventions in this application as follows:

Group I: A medical device for treating a tissue inside a pneumostoma (Claims 1-10, 62).

Group II: A pneumostoma aspirator (Claims 11-20).

Group III: A pneumostoma aspirator without a tube (Claims 21-27)

Group IV: A pneumostoma management system (Claims 28-32).

Group V: A system for analyzing gases from a lung through the pneumostoma (Claims 33-35, 63).

Group VI: A system for imaging a lung of a patient through the pneumostoma (Claims 36-37, 64)

Group VII: A medical device for dilating a pneumostoma (Claims 38-40)

Group VIII: A suction-irrigation device adapted to remove a non-gaseous material from a pneumostoma (Claims 41-51, 65)

Group IX: An instrument for imaging a tissue inside a pneumostoma (Claims 52-61)

The single general concept linking Groups I-IX together is a medical insertion device through the pneumostoma.

This common concept is, however, described in WO 2001/70114 A1, 27 September 2001 (Rita medical systems INC.) and, therefore, does not represent any contribution over the prior art.

Hence, the inventions listed as Grpups I-IX do not relate to a single general inventive concept under PCT Rule 13.1 because the above mentioned common concept fails to make a contribution over the prior art within the meaning of PCT Rule 13.2.