

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
15 November 2007 (15.11.2007)

PCT

(10) International Publication Number
WO 2007/130257 A3

(51) International Patent Classification:

F26B 3/04 (2006.01) *A61F 2/06* (2006.01)
F26B 21/10 (2006.01) *B05D 1/00* (2006.01)

(21) International Application Number:

PCT/US2007/009115

(22) International Filing Date: 13 April 2007 (13.04.2007)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

11/418,696 4 May 2006 (04.05.2006) US
11/418,722 4 May 2006 (04.05.2006) US
11/418,723 4 May 2006 (04.05.2006) US

(71) Applicant (for all designated States except US): **ABBOTT CARDIOVASCULAR SYSTEMS INC.** [US/US]; 3200 Lakeside Drive, Santa Clara, California 95054-2807 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **MCNIVEN, Andrew** [CA/IE]; 3 Meadowlands, Clonmel (IE). **HUTER, Scott** [US/US]; 32013 Calle Marquis, Temecula, California 92592 (US). **AMICK, Joycelyn J.** [US/US]; 31201 Camino Verde, Temecula, California 92591 (US). **EPPERT, Joseph J.** [US/US]; 130 Fuerte Court, Hemet, California 92545 (US). **ESBECK, Thomas** [US/US]; 39710 Ranchwood Drive, Murrieta, California 92563 (US). **VAN SCIVER, Jason** [US/US]; 18510

Skyline Boulevard, Los Gatos, California 95033 (US). **GUERRIERO, Ryan** [US/US]; 36951 Red Oak Street, Winchester, California 92596 (US). **CHEN, Yung-Ming** [US/US]; 20200 Lucille Avenue #63, Cupertino, California 95014 (US). **GUTIERREZ, Celenia** [US/US]; 844 Hobie Lane, San Jose, California 95127 (US). **COULSON, Ian** [AU/US]; 1410 Pinecrest Creek, Boulder Creek, California 95006 (US). **HAROLD, Nathan** [US/US]; 1341 Mariposa Avenue, San Jose, California 95126 (US). **TOCHTERMAN, Andrew** [US/US]; 275 Hawthorne Avenue #140, Palo Alto, California 94301 (US).

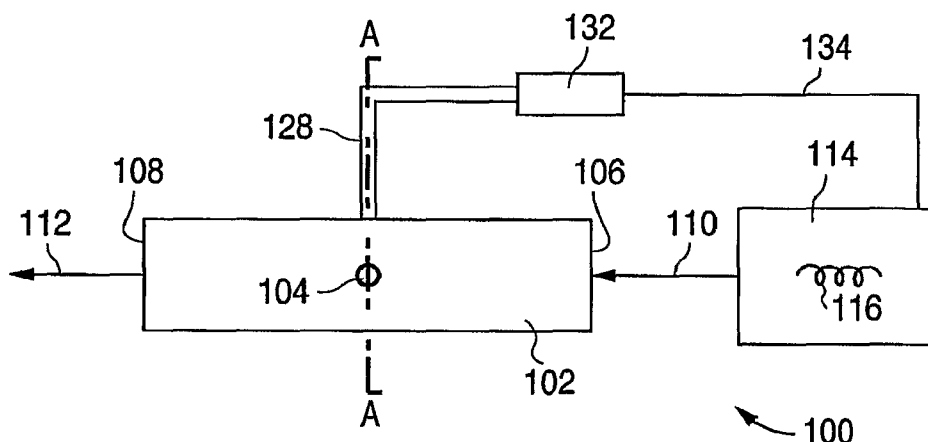
(74) Agent: **LUPKOWSKI, Mark**; Squire, Sanders & Dempsey L.L.P., 1 Maritime Plaza, Suite 300, San Francisco, CA 94111-3492 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BH, 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, 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, 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, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, 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,

[Continued on next page]

(54) Title: METHODS AND DEVICES FOR COATING STENT



(57) Abstract: A method of drying a stent (10), comprising : - disposing a stent in a chamber (102), the stent having a coating material including a polymer and a solvent applied to a surface of the stent; - directing a fluid stream (110) at the stent to remove at least a portion of the coating material; - measuring a temperature of the fluid stream at a location adjacent to the stent, and; - controlling a temperature of the fluid stream based on the measured temperature so as to maintain a desired temperature adjacent to the stent. An apparatus for carrying out the method is also disclosed.

WO 2007/130257 A3



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, MT, 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).

— *before the expiration of the time limit for amending the
claims and to be republished in the event of receipt of
amendments*

Published:

— *with international search report*

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

3 April 2008

INTERNATIONAL SEARCH REPORT

International application No

PCT/US2007/009115

A. CLASSIFICATION OF SUBJECT MATTER

INV. F26B3/04 F26B21/10 A61F2/06 B05D1/00

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)

F26B A61F

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 6 979 348 B2 (SUNDAR RANGARAJAN [US]) 27 December 2005 (2005-12-27) column 7, lines 35-60; figures 3,4 -----	1-6
Y	WO 95/27878 A (TIEGEL RALPH G [US]; WEGNER PAUL C [US]) 19 October 1995 (1995-10-19) claims 23,24; figure 4 -----	1-6
A	EP 1 518 570 A (MEDTRONIC VASCULAR INC [US]) 30 March 2005 (2005-03-30) paragraph [0047]; figure 3 -----	1,3
A	US 2005/010282 A1 (THORNTON RONAN M [IE] ET AL) 13 January 2005 (2005-01-13) paragraph [0063] ----- -/--	1

☒ 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

17 October 2007

Date of mailing of the international search report

15/02/2008

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

Silvis, Henk

INTERNATIONAL SEARCH REPORT

International application No

PCT/US2007/009115

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 6 322 847 B1 (ZHONG SHENG-PING [US] ET AL) 27 November 2001 (2001-11-27) the whole document -----	1
A	US 6 214 115 B1 (TAYLOR ALISTAIR STEWART [GB] ET AL) 10 April 2001 (2001-04-10) claim 10 -----	1
A	US 2004/079354 A1 (TAKEDA TAKANORI [JP]) 29 April 2004 (2004-04-29) the whole document -----	1
A	US 3 419 062 A (PETRUS HUYSMANS CORNELIS) 31 December 1968 (1968-12-31) the whole document -----	1
A	US 6 605 154 B1 (VILLAREAL PLARIDEL K [US]) 12 August 2003 (2003-08-12) -----	
A	US 5 642 571 A (PARK DAE-IN [KR]) 1 July 1997 (1997-07-01) -----	
A	US 2005/144806 A1 (YOSHIDA FUTOSHI [JP]) 7 July 2005 (2005-07-07) -----	

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2007/009115

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 additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers allsearchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search reportcovers 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.:

see annex

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.

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

Method and apparatus for drying a coated stent

2. claims: 7-11

Fixture for supporting a stent during weighing comprising a pan

3. claims: 12-18

Method of coating a stent comprising passing the stent by a spray nozzle

4. claims: 19-35

Method of coating a stent being supported by a support element, and device for supporting the stent during coating

5. claims: 36-39

Apparatus for supporting a stent comprising support rods

6. claims: 40-42

Device for supporting a stent comprising a filament including a spiral coiled portion

7. claims: 43-47

Stent support for supporting a stent during coating comprising a tubular member

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2007/009115

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 6979348	B2	27-12-2005	US 2006009834 A1 US 2004249437 A1	12-01-2006 09-12-2004
WO 9527878	A	19-10-1995	AU 2379395 A DE 69529551 D1 DE 69529551 T2 EP 0708904 A1	30-10-1995 13-03-2003 20-11-2003 01-05-1996
EP 1518570	A	30-03-2005	US 2005070997 A1	31-03-2005
US 2005010282	A1	13-01-2005	NONE	
US 6322847	B1	27-11-2001	AU 4803900 A CA 2370824 A1 EP 1185380 A2 JP 2003500087 T WO 0066189 A2 US 6156373 A	17-11-2000 09-11-2000 13-03-2002 07-01-2003 09-11-2000 05-12-2000
US 6214115	B1	10-04-2001	AT 239556 T AU 5054499 A CA 2337534 A1 DE 69907686 D1 DE 69907686 T2 WO 0004999 A1 JP 2002521178 T	15-05-2003 14-02-2000 03-02-2000 12-06-2003 26-02-2004 03-02-2000 16-07-2002
US 2004079354	A1	29-04-2004	JP 2004144421 A	20-05-2004
US 3419062	A	31-12-1968	BE 669508 A CH 457282 A DE 1629103 A1 GB 1106997 A NL 6511619 A SE 324348 B	31-05-1968 21-01-1971 20-03-1968 11-03-1966 01-06-1970
US 6605154	B1	12-08-2003	US 2003207020 A1	06-11-2003
US 5642571	A	01-07-1997	CN 1143824 A DE 19615401 A1 JP 8313152 A	26-02-1997 24-10-1996 29-11-1996
US 2005144806	A1	07-07-2005	JP 2005195897 A	21-07-2005