

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
28 December 2006 (28.12.2006)

PCT

(10) International Publication Number
WO 2006/138027 A3

(51) International Patent Classification:
A61F 2/84 (2006.01)

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(21) International Application Number:
PCT/US2006/020073

(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,
KG, KM, KN, 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.

(22) International Filing Date: 22 May 2006 (22.05.2006)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
11/152,951 14 June 2005 (14.06.2005) US

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(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).

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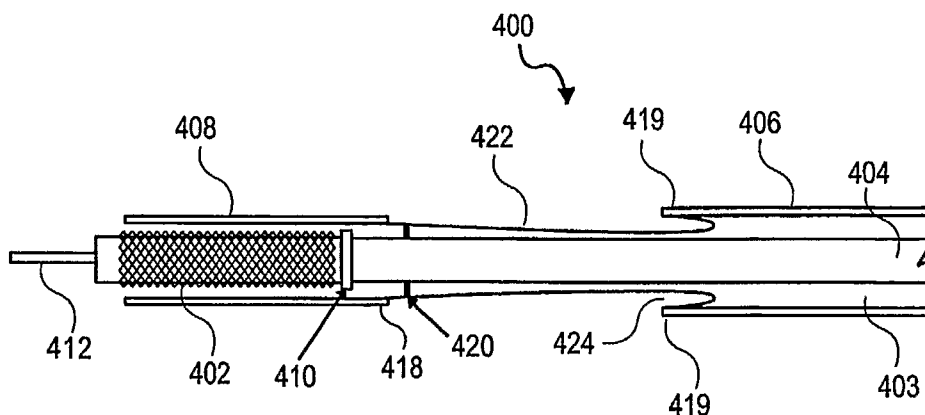
Published:

— with international search report

(88) Date of publication of the international search report:
12 April 2007

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

(54) Title: A DELIVERY SYSTEM FOR A DEVICE SUCH AS A STENT



(57) Abstract: A delivery system for a medical device. The delivery system comprises an inner member, a retractable sheath disposed over the inner member and being slideable over the inner member, and a retraction member coupled to the retractable sheath and disposed at least in portion within the retractable sheath, the retraction member being slideable over the inner member. An axial movement of the retraction member retracts or actuates the retractable member.

WO 2006/138027 A3

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2006/020073

A. CLASSIFICATION OF SUBJECT MATTER
INV. A61F2/84

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)
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.
X	WO 95/11055 A (SCIMED LIFESYSTEMS INC [US]; EUTENEUER CHARLES L [US]; FRASER PHLAYNE) 27 April 1995 (1995-04-27) page 15, line 12 - line 26 figure 16	1-4
X	US 6 113 608 A (MONROE LANCE A [US] ET AL) 5 September 2000 (2000-09-05) column 3, lines 30-67 column 6, lines 19,20 column 7, lines 1,30-61 column 8, lines 4,5 figures 1,2	5-17,26
X	US 5 817 101 A (FIEDLER GARY R [US]) 6 October 1998 (1998-10-06) column 6, lines 1-37 figures 5,6	5-17,26
-/--		

☒ 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.

& document member of the same patent family

Date of the actual completion of the international search

20 December 2006

Date of mailing of the international search report

03/01/2007

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INTERNATIONAL SEARCH REPORT

International application No
PCT/US2006/020073

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,X	US 6 942 682 B2 (VRBA ANTHONY C [US] ET AL) 13 September 2005 (2005-09-13) column 6, lines 9-34 -----	5-17,26
X	US 5 534 007 A (ST GERMAIN JON P [US] ET AL) 9 July 1996 (1996-07-09) column 3, line 60 - column 4, line 24 column 4, lines 51-65 figure 2 -----	5-17,26
X	WO 00/78249 A (SCIMED LIFE SYSTEMS INC [US]) 28 December 2000 (2000-12-28) page 3, lines 1-16 figures 2,4 -----	29-33
X	US 5 935 135 A (BRAMFITT JOHN [US] ET AL) 10 August 1999 (1999-08-10) column 3, line 52 - column 4, line 14; figure 2 -----	29-33
X	WO 99/47075 A (MEDICORP SA [FR]; MARIANNE MICKAEL [FR]) 23 September 1999 (1999-09-23) page 5, lines 6-9 page 6, lines 8-11 figure 2 -----	29-33
X	US 2003/114915 A1 (MAREIRO WAYNE [US] ET AL MAREIRO WAYNE [US] ET AL) 19 June 2003 (2003-06-19) paragraphs [0041], [0042] figure 1 -----	29-33
X	US 2005/090887 A1 (PRYOR JACK D [US]) 28 April 2005 (2005-04-28) paragraphs [0019], [0020] figures 1,11,12 -----	5-7, 10-15, 18-20, 22,26-28
A	US 5 662 703 A (YUREK MATTHEW T [US] ET AL) 2 September 1997 (1997-09-02) column 8, line 66 - column 9, line 31 figures 13,14 -----	1-4
P,A	US 2006/030923 A1 (GUNDERSON RICHARD C [US]) 9 February 2006 (2006-02-09) abstract; figures 1,2 -----	1-4
A	US 6 254 611 B1 (VRBA ANTHONY C [US]) 3 July 2001 (2001-07-03) column 4, line 43 - line 64 column 5, line 43 figure 10 -----	1-4
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INTERNATIONAL SEARCH REPORT

International application No
PCT/US2006/020073

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 02/38084 A2 (SCIMED LIFE SYSTEMS INC [US]) 16 May 2002 (2002-05-16) page 10, line 31 - page 11, line 11 figure 4 -----	1-4
A	WO 98/57692 A (SOLAR RONALD J [US]) 23 December 1998 (1998-12-23) abstract -----	5-17,26
P,A	US 2005/228438 A1 (SACHAR RAVISH [US] ET AL) 13 October 2005 (2005-10-13) abstract -----	5-17
A	WO 2004/098462 A (ANGIOMED AG [DE]; DORN JUERGEN [DE]) 18 November 2004 (2004-11-18) abstract figure 2 -----	18
A	WO 95/23008 A (QUERALS & FINE INC [US]) 31 August 1995 (1995-08-31) figure 20 -----	18

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2006/020073

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.: 34-53
because they relate to subject matter not required to be searched by this Authority, namely:
Claims 34-48: Rule 39.1(iv) PCT - Method for treatment of the human or animal body by surgery
Claims 49-53: Novelty overflow.
2. ☒ Claims Nos.: 49-53
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:
see FURTHER INFORMATION sheet PCT/ISA/210
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.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box II.1

Claims Nos.: 34-53

Claims 34-48: Rule 39.1(iv) PCT - Method for treatment of the human or animal body by surgery

Claims 49-53: Novelty overflow.

Continuation of Box II.2

Claims Nos.: 49-53

The initial phase of the search revealed a very large number of documents relevant to the issue of novelty. So many documents were retrieved that it is impossible to determine which parts of the claims may be said to define subject-matter for which protection might legitimately be sought (Article 6 PCT).

The applicant's attention is drawn to the fact that claims relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure. If the application proceeds into the regional phase before the EPO, the applicant is reminded that a search may be carried out during examination before the EPO (see EPO Guideline C-VI, 8.5), should the problems which led to the Article 17(2) declaration be overcome.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

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

1. claims: 1-4

Catheter assembly with outer and inner member, a slideable retractable sheath, a flexible intermediary member and a seal

2. claims: 5-28

Catheter assembly with inner member, a slideable retractable sheath and a compressible member.

3. claims: 29-33

Device with outer member, a delivery member, an expandable members configured to have prongs to hold a medical device when inflated.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2006/020073

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 9511055	A	27-04-1995	AT 288298 T	15-02-2005
			CA 2174750 A1	27-04-1995
			DE 69434259 D1	10-03-2005
			DE 69434259 T2	09-02-2006
			EP 0746375 A1	11-12-1996
			JP 3566963 B2	15-09-2004
			JP 9503945 T	22-04-1997
US 6113608	A	05-09-2000	NONE	
US 5817101	A	06-10-1998	AT 244544 T	15-07-2003
			AU 742912 B2	17-01-2002
			AU 5836998 A	17-09-1998
			CA 2231927 A1	13-09-1998
			DE 69816172 D1	14-08-2003
			DE 69816172 T2	15-04-2004
			EP 0875216 A2	04-11-1998
			JP 3773351 B2	10-05-2006
			JP 10258124 A	29-09-1998
			US 6056759 A	02-05-2000
US 6942682	B2	13-09-2005	US 2003176910 A1	18-09-2003
US 5534007	A	09-07-1996	AT 245951 T	15-08-2003
			CA 2219658 A1	21-11-1996
			DE 69629289 D1	04-09-2003
			DE 69629289 T2	09-06-2004
			EP 0825839 A1	04-03-1998
			JP 3725550 B2	14-12-2005
			JP 11505162 T	18-05-1999
			WO 9636298 A1	21-11-1996
WO 0078249	A	28-12-2000	AT 276715 T	15-10-2004
			CA 2371871 A1	28-12-2000
			DE 60014072 D1	28-10-2004
			DE 60014072 T2	22-09-2005
			EP 1185218 A1	13-03-2002
			JP 2003502108 T	21-01-2003
			US 6280412 B1	28-08-2001
			US 2002007192 A1	17-01-2002
US 5935135	A	10-08-1999	NONE	
WO 9947075	A	23-09-1999	AU 3268499 A	11-10-1999
			DE 69924100 D1	14-04-2005
			DE 69924100 T2	13-04-2006
			ES 2239849 T3	01-10-2005
US 2003114915	A1	19-06-2003	NONE	
US 2005090887	A1	28-04-2005	NONE	
US 5662703	A	02-09-1997	AT 232067 T	15-02-2003
			AU 4632196 A	30-10-1996
			CA 2218072 A1	17-10-1996
			DE 69626108 D1	13-03-2003
			DE 69626108 T2	20-11-2003
			EP 0820259 A1	28-01-1998

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2006/020073

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5662703	A	WO 9632078 A1 JP 3199383 B2 JP 10507675 T	17-10-1996 20-08-2001 28-07-1998
US 2006030923	A1	09-02-2006 WO 2006020028 A1	23-02-2006
US 6254611	B1	03-07-2001 NONE	
WO 0238084	A2	16-05-2002 AU 3062002 A CA 2436193 A1 EP 1333778 A2 JP 2004531289 T US 2006015135 A1	21-05-2002 16-05-2002 13-08-2003 14-10-2004 19-01-2006
WO 9857692	A	23-12-1998 CA 2290990 A1 EP 0989877 A1 JP 2002505608 T US 6004328 A	23-12-1998 05-04-2000 19-02-2002 21-12-1999
US 2005228438	A1	13-10-2005 NONE	
WO 2004098462	A	18-11-2004 CA 2525198 A1 EP 1622542 A1 MX PA05012013 A US 2006265047 A1	18-11-2004 08-02-2006 03-02-2006 23-11-2006
WO 9523008	A	31-08-1995 AU 6765694 A	11-09-1995