

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
2 December 2004 (02.12.2004)

PCT

(10) International Publication Number
WO 2004/103219 A3

(51) International Patent Classification⁷: **A61F 2/06**

(21) International Application Number:
PCT/US2004/014016

(22) International Filing Date: 6 May 2004 (06.05.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
10/438,409 15 May 2003 (15.05.2003) US

(71) Applicant (for all designated States except US): **SCIMED LIFE SYSTEMS, INC.** [US/US]; One Scimed Place, Maple Grove, MN 55311-1566 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **DIMATTEO, Kristian** [US/US]; 25 Carleton Road, Waltham, MA 02451 (US). **SPIRIDIGLIOZZI, John** [US/US]; 225 Norwood Street, Sharon, MA 02067 (US). **THISTLE, Robert, C.** [US/US]; 35 Laurie Lane, Bridgewater, MA 02324 (US).

(74) Agents: **GALLO, Anna-Lisa** et al.; Hoffmann & Baron, LLP, 6900 Jericho Turnpike, Syosset, NY 11791 (US).

(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, 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).

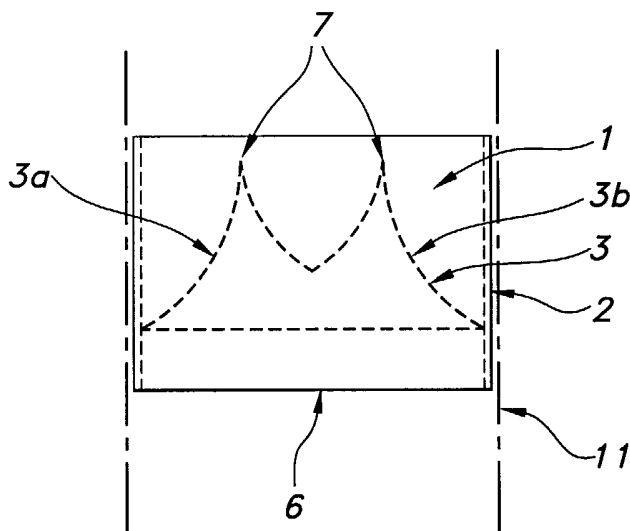
Published:

- 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:
17 March 2005

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: IMPROVED SEALABLE ATTACHMENT ON ENDOVASCULAR STENT TO GRAFT



(57) Abstract: An endovascular prosthesis (1) of the present invention includes an expandable stent (2) and a means for sealably attaching a tubular graft to the stent within the stent's lumen. The means of sealably attaching a graft includes membranes (3), foams, polymeric materials and combinations thereof. Additionally, the present invention includes methods of forming an endovascular prosthesis and methods of implanting an endovascular prosthesis within a vessel to provide sealable securement of a tubular graft within the stent's lumen.

WO 2004/103219 A3

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US2004/014016

<p>A. CLASSIFICATION OF SUBJECT MATTER IPC 7 A61F2/06</p> <p>According to International Patent Classification (IPC) or to both national classification and IPC</p>																	
<p>B. FIELDS SEARCHED</p> <p>Minimum documentation searched (classification system followed by classification symbols) IPC 7 A61F</p> <p>Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched</p> <p>Electronic data base consulted during the international search (name of data base and, where practical, search terms used) EPO-Internal</p>																	
<p>C. DOCUMENTS CONSIDERED TO BE RELEVANT</p> <table border="1"> <thead> <tr> <th>Category °</th> <th>Citation of document, with indication, where appropriate, of the relevant passages</th> <th>Relevant to claim No.</th> </tr> </thead> <tbody> <tr> <td>X</td> <td>EP 1 086 665 A (CORDIS CORP) 28 March 2001 (2001-03-28) the whole document</td> <td>1-3, 5-13, 24-26, 30-33</td> </tr> <tr> <td>X</td> <td>US 6 325 819 B1 (PAVCNIK DUSAN ET AL) 4 December 2001 (2001-12-04) the whole document</td> <td>1,6-8, 10-13, 30,31</td> </tr> <tr> <td>P,X</td> <td>EP 1 325 717 A (CORDIS CORP) 9 July 2003 (2003-07-09) the whole document</td> <td>1,2, 5-13, 24-26, 30-33</td> </tr> <tr> <td></td> <td style="text-align: center;">----- -/--</td> <td></td> </tr> </tbody> </table>			Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.	X	EP 1 086 665 A (CORDIS CORP) 28 March 2001 (2001-03-28) the whole document	1-3, 5-13, 24-26, 30-33	X	US 6 325 819 B1 (PAVCNIK DUSAN ET AL) 4 December 2001 (2001-12-04) the whole document	1,6-8, 10-13, 30,31	P,X	EP 1 325 717 A (CORDIS CORP) 9 July 2003 (2003-07-09) the whole document	1,2, 5-13, 24-26, 30-33		----- -/--	
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.															
X	EP 1 086 665 A (CORDIS CORP) 28 March 2001 (2001-03-28) the whole document	1-3, 5-13, 24-26, 30-33															
X	US 6 325 819 B1 (PAVCNIK DUSAN ET AL) 4 December 2001 (2001-12-04) the whole document	1,6-8, 10-13, 30,31															
P,X	EP 1 325 717 A (CORDIS CORP) 9 July 2003 (2003-07-09) the whole document	1,2, 5-13, 24-26, 30-33															
	----- -/--																
<p><input checked="" type="checkbox"/> Further documents are listed in the continuation of box C. <input checked="" type="checkbox"/> Patent family members are listed in annex.</p>																	
<p>° Special categories of cited documents :</p> <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>"&" document member of the same patent family</p>																	
<p>Date of the actual completion of the international search 14 October 2004</p>		<p>Date of mailing of the international search report 17. 01. 2005</p>															
<p>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</p>		<p>Authorized officer Newman, B</p>															

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US2004/014016

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	EP 1 325 716 A (CORDIS CORP) 9 July 2003 (2003-07-09) the whole document -----	1,2, 5-13,17, 20-22

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US2004/014016

Patent document cited in search report	Publication date	Patent family member(s)	Publication date	
EP 1086665	A	28-03-2001	US 6270525 B1	07-08-2001
			AU 770040 B2	12-02-2004
			AU 6123600 A	29-03-2001
			CA 2320459 A1	24-03-2001
			EP 1086665 A1	28-03-2001
			JP 2001137354 A	22-05-2001

US 6325819	B1	04-12-2001	AU 738826 B2	27-09-2001
			AU 3985497 A	06-03-1998
			CA 2263694 A1	26-02-1998
			DE 69722940 D1	24-07-2003
			DE 69722940 T2	13-05-2004
			EP 0925043 A1	30-06-1999
			ES 2202635 T3	01-04-2004
			JP 2000516515 T	12-12-2000
WO 9807389 A1	26-02-1998			

EP 1325717	A	09-07-2003	US 2002058986 A1	16-05-2002
			CA 2415975 A1	08-07-2003
			EP 1325717 A2	09-07-2003
			JP 2003230580 A	19-08-2003

EP 1325716	A	09-07-2003	US 2002058985 A1	16-05-2002
			CA 2415818 A1	08-07-2003
			EP 1325716 A1	09-07-2003
			JP 2003230579 A	19-08-2003

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2004/014016

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.: 15, 16, 23
because they relate to subject matter not required to be searched by this Authority, namely:
Rule 39.1(iv) PCT - Method for treatment of the human or animal body by surgery
- 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.:
1-14, 17-22, 24-26, 30-33

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

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

1. claims: 1 - 14, 17 - 22, 24 - 26, 30 - 33

An expandable stent with a membrane across the lumen and a graft receiving member in the lumen.

2. claims: 27 - 29

An expandable stent with a graft attached to the distal end, and a second graft attached to the proximal end of the stent. The second graft has at least two lumens extending there through and a membrane extending transversely across each lumen.
