

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
7 December 2006 (07.12.2006)

PCT

(10) International Publication Number
WO 2006/130194 A3

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

(21) International Application Number:
PCT/US2006/006886

(22) International Filing Date:
28 February 2006 (28.02.2006)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
11/139,253 27 May 2005 (27.05.2005) US

(71) Applicant (for all designated States except US): **BOSTON SCIENTIFIC SCIMED, INC.** [US/US]; One Scimed Place, Maple Grove, Minnesota 55311 (US).

(72) Inventors: **HOLMAN, Thomas**; 5621 Thomas Avenue South, Minneapolis, Minnesota 55410 (US). **WEBER, Jan**; 18112 89th Place North, Maple Grove, MN 55311 (US).

(74) Agent: **ANDERSON, William**; 6109 Blue Circle Drive, Suite 2000, Minnetonka, Minnesota 55343-9185 (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, 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, UZ, VC, VN, YU, ZA, ZM, ZW.

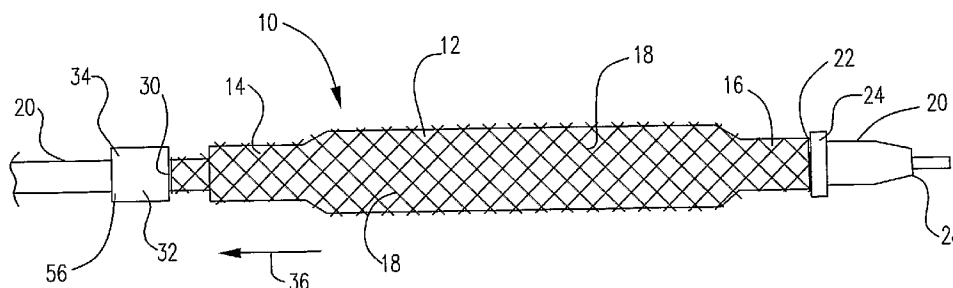
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, 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).

Published:
— with international search report

(88) Date of publication of the international search report:
1 February 2007

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: FIBER MESH CONTROLLED EXPANSION BALLOON CATHETER



(57) Abstract: A medical device having a catheter shaft (20) having a distal portion and a proximal portion, a medical balloon (12) co-axially mounted on the distal portion of the catheter shaft and a tubular mesh (18) wrapped around the balloon, wherein the mesh strengthens and reinforced the balloon and may be manipulation to dictate the shape of the balloon and to squeeze the balloon down onto the catheter shaft during deflation of the balloon.



WO 2006/130194 A3

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2006/006886A. 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 A61M

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	US 5 171 297 A (BARLOW ET AL) 15 December 1992 (1992-12-15) figure 5 column 2, line 58 - line 68 column 4, line 5 - line 45 -----	1-21
A	US 6 695 809 B1 (LEE JEONG S) 24 February 2004 (2004-02-24) figure 1 column 2, line 20 - line 22 -----	1-21
A	US 4 619 261 A (GUERRIERO ET AL) 28 October 1986 (1986-10-28) column 2, line 17 - line 46 figures 1,10 -----	1-21
	-/--	

 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

22 June 2006

Date of mailing of the international search report

27. 10. 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

Franz, Volker

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2006/006886

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 6 156 254 A (ANDREWS ET AL) 5 December 2000 (2000-12-05) figure 10 column 3, line 17 - line 33 column 4, line 51 - line 54 -----	1-21

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2006/006886

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.:

1-21

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: 1-21

Balloon catheter with free-floating mesh with restraining mechanism over the balloon. This solves the technical problem how to collapse the balloon after deflation.

2. claims: 22-26

Balloon catheter with free-floating mesh with first junctions where the crossing strands are fixed and second junctions where the crossing strands can slide relative to each other. This feature solves the technical problem how to expand the balloon into a predetermined shape.

3. claim: 27

Balloon catheter with free-floating mesh which strands which consist of plastic and elastic components. This feature solves the problem how to realize meshes with complex shapes, e.g. for bifurcated balloons.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2006/006886

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5171297	A	15-12-1992 US 5338299 A	16-08-1994
US 6695809	B1	24-02-2004 NONE	
US 4619261	A	28-10-1986 NONE	
US 6156254	A	05-12-2000 AT 253390 T	15-11-2003
		AU 3631797 A	25-02-1998
		CA 2262484 A1	12-02-1998
		DE 69726018 D1	11-12-2003
		DE 69726018 T2	12-08-2004
		EP 0959937 A1	01-12-1999
		ES 2208929 T3	16-06-2004
		WO 9805377 A1	12-02-1998
		JP 2001504359 T	03-04-2001