

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
23 November 2006 (23.11.2006)

PCT

(10) International Publication Number
WO 2006/124649 A3

(51) International Patent Classification:
A61F 2/24 (2006.01)

(74) Agent: PISANO, Nicola, A.; Luce, Forward, Hamilton & Scripps, LLP, 11988 El Camino Real, Suite 200, San Diego, CA 92130 (US).

(21) International Application Number:
PCT/US2006/018514

(22) International Filing Date: 12 May 2006 (12.05.2006)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
11/128,826 13 May 2005 (13.05.2005) US

(71) Applicant (for all designated States except US):
COREVALVE, INC. [FR/FR]; 2 Jenner 100, Irvine, CA 92618 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): NGUYEN, Than [US/US]; 1132 Athens Avenue, Placentia, CA 92870 (US). NGUYEN, Hung [US/US]; 13929 Magnolia Street, Garden Grove, CA 92844 (US). NGUYEN, MyKim [US/US]; 1221 N Hastings Street, Santa Ana, CA 92703 (US). KOMATSU, Stanley [US/US]; 25412 Champlain Road, Laguna Hills, CA 92653 (US). MICHELIS, Robrecht [US/US]; 25782 Carlson Court, Laguna Hills, CA 92653 (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, US, UZ, VC, VN, YU, ZA, ZM, ZW.

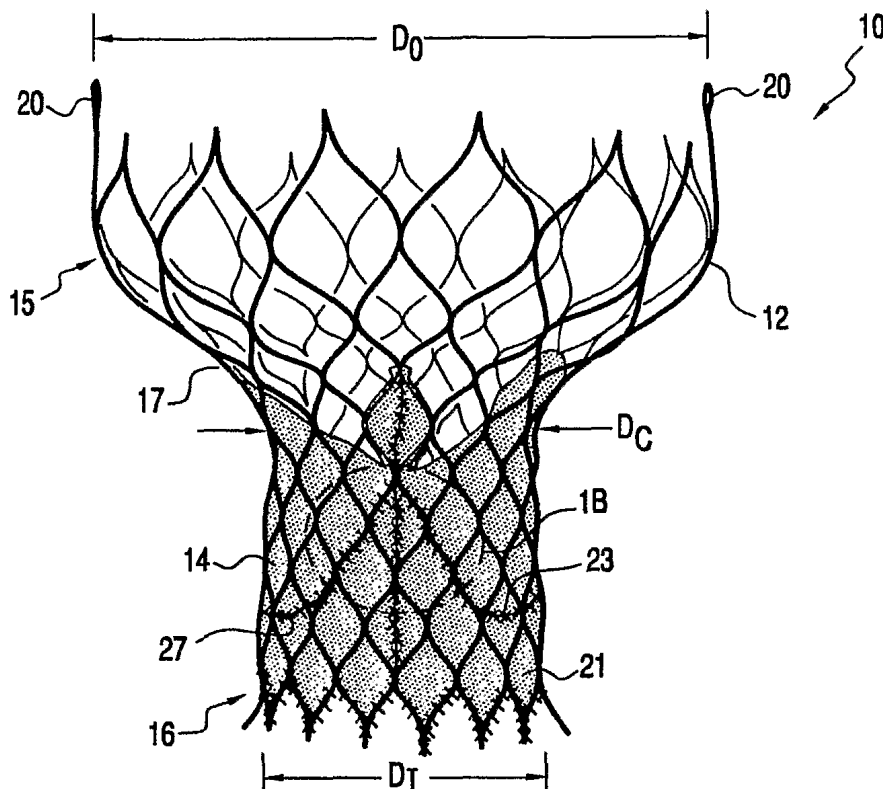
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT,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

[Continued on next page]

(54) Title: HEART VALVE PROTHESIS AND METHODS OF MANUFACTURE AND USE



(57) Abstract: A heart valve prosthesis is provided having a self-expanding multi-level frame that supports a valve body comprising a skirt and plurality of coapting leaflets. The frame transitions between a contracted delivery configuration that enables percutaneous transluminal delivery, and an expanded deployed configuration having an asymmetric hourglass shape. The valve body skirt and leaflets are constructed so that the center of coaptation may be selected to reduce horizontal forces applied to the commissures of the valve, and to efficiently distribute and transmit forces along the leaflets and to the frame. Alternatively, the valve body may be used as a surgically implantable replacement valve prosthesis.

Edwards v. Aortic Innovations
U.S. Patent 11,337,834
Edwards Ex. 1052

WO 2006/124649 A3



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

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.

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

22 March 2007

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US06/18514

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - A61F 2/24 (2006.01)

USPC - 623/2.18

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(8) A61F 2/24 (2006.01)

USPC - 623/2.14, 2.15, 2.16, 2.17, 2.18, 2.19, 2.38

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 practicable, search terms used)

USPTO WEST System (USGPB,USPT,USOC,EPAB,JPAB), MicroPatent, IP.com, DialogPro

Search terms: valve, leaflet, skirt, frame, stent, support, scaffold, supra-annularly, catenary, commissure, coaptation

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 93/18721 A1 (FISHER) 30 September 1993 (30.09.1993) entire document	27, 28, 31
Y		1-4, 7-8, 15-17, 19, 21-22, 29, 32, 33, 35-38, 40-41, 43-45
Y	US 6,454,799 B1 (SCHRECK) 24 September 2002 (24.09.2002) entire document	1-6, 9-11, 15-17, 19, 21-22, 27-29, 31-33, 35-38, 40-41, 43-45
Y	US 2004/0260389 A1 (CASE et al) 23 December 2004 (23.12.2004) entire document	1-6, 7-11, 15-17, 19, 21-22, 44-45
Y	WO 01/06959 A1 (GRIFFIN et al) 01 February 2001 (01.02.2001) entire document	16, 40
A	US 2005/0060029 A1 (LE et al) 17 March 2005 (17.03.2005) entire document	1-46
A	US 2005/0075725 A1 (ROWE) 7 April 2005 (07.04.2005) entire document	1-46



Further documents are listed in the continuation of Box C.



* 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 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 December 2006

Date of mailing of the international search report

24 JAN 2007

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US, Commissioner for Patents
P.O. Box 1450, Alexandria, Virginia 22313-1450
Facsimile No. 571-273-3201

Authorized officer:

Blaine R. Copenheaver

PCT Helpdesk: 571-272-4300

PCT OSP: 571-272-7774