



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

(21) International Application Number:
PCT/US2010/037122

(22) International Filing Date:
2 June 2010 (02.06.2010)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
12/476,702 2 June 2009 (02.06.2009) US

(71) Applicant (for all designated States except US):
MEDTRONIC INC. [US/US]; c/o Medtronic Cardio-
Vascular, 8200 Coral Sea Street N.E., Mounds View,
Minnesota 55112 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **MILLWEE, Billie, J.** [US/US]; c/o Medtronic Inc., 710 Medtronic Parkway, Minneapolis, Minnesota 55432 (US). **CAPPS, Mark, J.** [US/US]; c/o Medtronic Inc., 710 Medtronic Parkway, Minneapolis, Minnesota 55432 (US). **SHAY, Janice, L.** [US/US]; c/o Medtronic Inc., 710 Medtronic Parkway, Minneapolis, Minnesota 55432 (US). **TAITAGUE, Debra, A.** [US/US]; c/o Medtronic Inc., 710 Medtronic Parkway, Minneapolis, Minnesota 55432 (US). **DOLAN, Mark** [US/US]; c/o Medtronic Vascular, 3576 Unocal Place, Santa Rosa, California 95403 (US). **EBERHARDT, Carol, E.** [US/US]; c/o Medtronic Inc., 710 Medtronic Parkway, Minneapolis, Minnesota 55432 (US).

(74) Agents: **HOHENSHELL, Jeffery** et al.; 8200 Coral Sea Street N.E., Mounds View, Minnesota 55112 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ,

[Continued on next page]

(54) Title: STENTED PROSTHETIC HEART VALVES

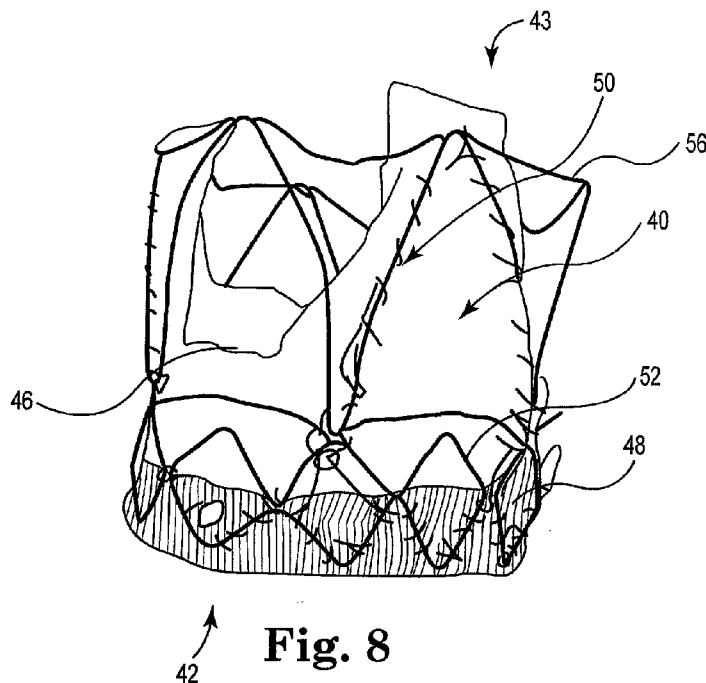


Fig. 8

[Continued on next page]



CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, 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, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, 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, LR, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU,

LV, MC, MK, MT, NL, NO, PL, PT, RO, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

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

3 February 2011

INTERNATIONAL SEARCH REPORT

International application No

PCT/US2010/037122

A. CLASSIFICATION OF SUBJECT MATTER

INV. A61F2/24

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)

EP0-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 2007/123658 A1 (MEDTRONIC INC [US]; EBERHARDT CAROL ELSA [US]; SHAY JANICE LYNN [US]) 1 November 2007 (2007-11-01) page 4, line 29 - page 5, line 15; figures 9-11	1-8
Y	US 2004/030378 A1 (KHOSRAVI FARHAD [US] ET AL) 12 February 2004 (2004-02-12) paragraph [0018]	1-8
A	WO 96/21404 A1 (PROGRAFT MEDICAL INC [US]; LILIP LAU [US]; MARONEY CHARLES T [US]) 18 July 1996 (1996-07-18) page 13 - page 14	1
A	US 2007/288086 A1 (KALMANN MENNO [NL] ET AL) 13 December 2007 (2007-12-13) the whole document	1
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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

1 September 2010

Date of mailing of the international search report

14/12/2010

Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040,
Fax: (+31-70) 340-3016

Authorized officer

Steiner, Bronwen

INTERNATIONAL SEARCH REPORT

International application No

PCT/US2010/037122

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 2004/093070 A1 (HOJEIBANE HIKMAT [US] ET AL) 13 May 2004 (2004-05-13) the whole document -----	1-8
A	US 2006/259137 A1 (ARTOF JASON [US] ET AL) 16 November 2006 (2006-11-16) the whole document -----	1-8
X,P	WO 2010/037141 A1 (CARDIAQ VALVE TECHNOLOGIES INC [US]) 1 April 2010 (2010-04-01) paragraphs [0007] - [0014], [0058] - [0098], [0120]; figures 1-9B,16A,16B -----	1-8

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2010/037122

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 all searchable 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 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.:

1-8

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: 1-8

A stented valve having a compressible and expandable stent and a bioprosthetic valve with outer portion having at least two commissure extensions at least one scalloped portion extending between the commissure extensions and an inner wall from which leaflets extend. The valve is positioned at least partially within the interior of the stent and the commissure extensions are secured to the stent structure with attachment material which is slideable along the stent structure.

2. claims: 9-13

A stented valve comprising a compressible and expandable stent structure with inflow and outflow, a tubular tissue material at least partially covering the external surface of the stent and extending beyond the outflow and a plurality of leaflets attached to the interior of the stent.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2010/037122

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2007123658 A1	01-11-2007	EP 2004095 A1 US 2007233228 A1	24-12-2008 04-10-2007
US 2004030378 A1	12-02-2004	NONE	
WO 9621404 A1	18-07-1996	AU 4757596 A	31-07-1996
US 2007288086 A1	13-12-2007	AU 2007353471 A1 EP 2155116 A1 JP 2010526580 T WO 2008140466 A1	20-11-2008 24-02-2010 05-08-2010 20-11-2008
US 2004093070 A1	13-05-2004	AU 2003228884 A1 CA 2485292 A1 EP 1667603 A1 JP 2005525171 T MX PA04011146 A WO 03094797 A1	11-11-2003 20-11-2003 14-06-2006 25-08-2005 01-07-2005 20-11-2003
US 2006259137 A1	16-11-2006	EP 2040645 A1 WO 2008010817 A1	01-04-2009 24-01-2008
WO 2010037141 A1	01-04-2010	US 2010082094 A1	01-04-2010