

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
30 November 2006 (30.11.2006)

PCT

(10) International Publication Number  
**WO 2006/128185 A3**

- (51) International Patent Classification:  
A61F 2/06 (2006.01)
- (21) International Application Number:  
PCT/US2006/020975
- (22) International Filing Date: 30 May 2006 (30.05.2006)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:  
60/685,433 27 May 2005 (27.05.2005) US

(71) Applicant (for all designated States except US): **HEART LEAFLET TECHNOLOGIES, INC.** [US/US]; 7351 Kirkwood Lane North Suite 104, Maple Grove, MN 55369 (US).

- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **WILSON, Robert, Foster** [US/US]; 3107 West Owasso Boulevard, Roseville,

MN 55113 (US). **GAINOR, John** [US/US]; 1273 Bibeau Road, White Bear Township, MN 55110 (US).

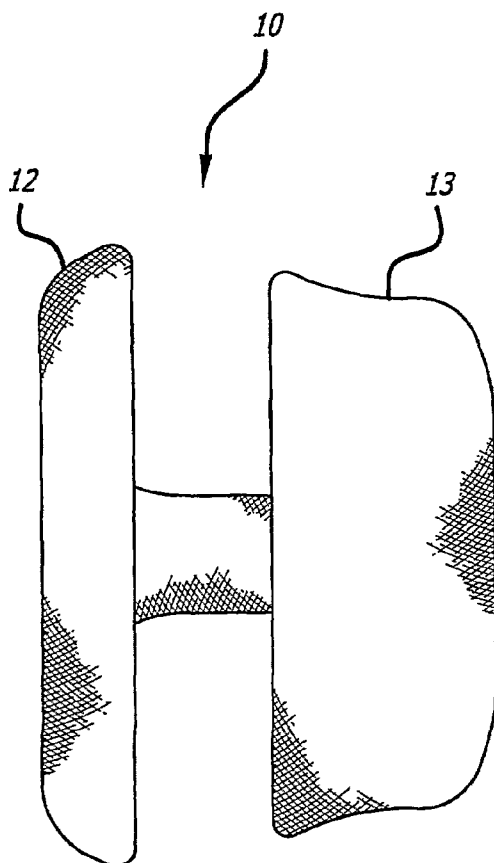
(74) Agent: **INSKEEP, James, W.**; INSKEEP INTELLECTUAL PROPERTY GROUP, INC., 2281 W. 190th Street, Ste. 200, Torrance, CA 90504 (US).

(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,

[Continued on next page]

(54) Title: INTRAVASCULAR CUFF



(57) Abstract: An intravascular cuff acts as a lining between a native vessel and an intravascular prosthetic device. During deployment, the ends of the cuff curl back upon themselves and are capable of trapping native tissue, such as valve leaflet tissue, between the ends. The cuff creates a seal between the vessel and the prosthetic, thereby preventing leakage around the prosthetic. The cuff also traps any embolic material dislodged from the vessel during expansion of the prosthetic.

WO 2006/128185 A3



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).

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


**Published:**

— with international search report

*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.*

**INTERNATIONAL SEARCH REPORT**

International application No.  
PCT/US06/20975

<p><b>A. CLASSIFICATION OF SUBJECT MATTER</b>                  IPC(8) - (2006.01) - A61F 2/06                  USPC - 623/1.14, 1.24                  According to International Patent Classification (IPC) or to both national classification and IPC</p>																										
<p><b>B. FIELDS SEARCHED</b></p> <p>Minimum documentation searched (classification system followed by classification symbols)                  IPC(8) (2006.01) - A61F 2/06; A61M 17/00                  USPC - 623/1.25, 1.22; 606/194, 195</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 practicable, search terms used)                  USPTO EAST System (US, USPG-PUB, EPO, DERWENT), MicroPatent, IP.com, DialogPro</p>																										
<p><b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b></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>US 6,652,578 B2 (BAILEY et al) 25 November 2003 (25.11.2003) entire document</td> <td>1-4, 13-18, 23-24</td> </tr> <tr> <td>Y</td> <td></td> <td>5-12, 19-22</td> </tr> <tr> <td>Y</td> <td>US 6,893,457 B2 (DONG) 17 May 2005 (17.05.2005) column 5, 9 and 10</td> <td>5-12, 19-22</td> </tr> <tr> <td>A</td> <td>US 6,719,781 B1 (KIM) 13 April 2004 (13.04.2004) entire document</td> <td>1-24</td> </tr> <tr> <td>A</td> <td>US 4,056,854 (BORETOS et al) 08 November 1977 (08.11.1977) entire document</td> <td>1-24</td> </tr> <tr> <td>A</td> <td>US 6,015,431 (THORNTON et al) 18 January 2000 (18.01.2000) entire document</td> <td>1-24</td> </tr> <tr> <td>A</td> <td>US 6,168,614 B1 (ANDERSEN et al) 02 January 2001 (02.01.2001) entire document</td> <td>1-24</td> </tr> </tbody> </table>			Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.	X	US 6,652,578 B2 (BAILEY et al) 25 November 2003 (25.11.2003) entire document	1-4, 13-18, 23-24	Y		5-12, 19-22	Y	US 6,893,457 B2 (DONG) 17 May 2005 (17.05.2005) column 5, 9 and 10	5-12, 19-22	A	US 6,719,781 B1 (KIM) 13 April 2004 (13.04.2004) entire document	1-24	A	US 4,056,854 (BORETOS et al) 08 November 1977 (08.11.1977) entire document	1-24	A	US 6,015,431 (THORNTON et al) 18 January 2000 (18.01.2000) entire document	1-24	A	US 6,168,614 B1 (ANDERSEN et al) 02 January 2001 (02.01.2001) entire document	1-24
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.																								
X	US 6,652,578 B2 (BAILEY et al) 25 November 2003 (25.11.2003) entire document	1-4, 13-18, 23-24																								
Y		5-12, 19-22																								
Y	US 6,893,457 B2 (DONG) 17 May 2005 (17.05.2005) column 5, 9 and 10	5-12, 19-22																								
A	US 6,719,781 B1 (KIM) 13 April 2004 (13.04.2004) entire document	1-24																								
A	US 4,056,854 (BORETOS et al) 08 November 1977 (08.11.1977) entire document	1-24																								
A	US 6,015,431 (THORNTON et al) 18 January 2000 (18.01.2000) entire document	1-24																								
A	US 6,168,614 B1 (ANDERSEN et al) 02 January 2001 (02.01.2001) entire document	1-24																								
<p><input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/></p>																										
<p>* Special categories of cited documents:</p> <table border="0"> <tr> <td style="vertical-align: top;"> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier application or patent 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> </td> <td style="vertical-align: top;"> <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>"&amp;" document member of the same patent family</p> </td> </tr> </table>			<p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier application or patent 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>"&amp;" document member of the same patent family</p>																						
<p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier application or patent 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>"&amp;" document member of the same patent family</p>																									
<p>Date of the actual completion of the international search</p> <p>18 October 2006</p>		<p>Date of mailing of the international search report</p> <p>27 NOV 2006</p>																								
<p>Name and mailing address of the ISA/US</p> <p>Mail Stop PCT, Attn: ISA/US, Commissioner for Patents                  P.O. Box 1450, Alexandria, Virginia 22313-1450                  Facsimile No. 571-273-3201</p>		<p>Authorized officer:                   Blaine R. Copenheaver</p> <p>PCT Helpdesk: 571-272-4300                  PCT OSP: 571-272-7774</p>																								