

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
19 October 2006 (19.10.2006)

PCT

(10) International Publication Number
WO 2006/110615 A3

- (51) International Patent Classification:
A61B 17/03 (2006.01)
- (21) International Application Number:
PCT/US2006/013224
- (22) International Filing Date: 10 April 2006 (10.04.2006)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
11/103,096 11 April 2005 (11.04.2005) US
- (71) Applicant (for all designated States except US): **ST. JUDE MEDICAL PUERTO RICO B.V.** [NL/NL]; Drentesraat 20, NL-1802 HK Amsterdam (NL).
- (72) Inventor; and
- (75) Inventor/Applicant (for US only): **FORSBERG, Andrew, Thomas** [US/US]; 2917 33rd Avenue S, Minneapolis, Minnesota 55406 (US).
- (74) Agent: **FOSTER, L., Grant**; Holland & Hart LLP, P.O. Box 11583, Salt Lake City, Utah 84110 (US).

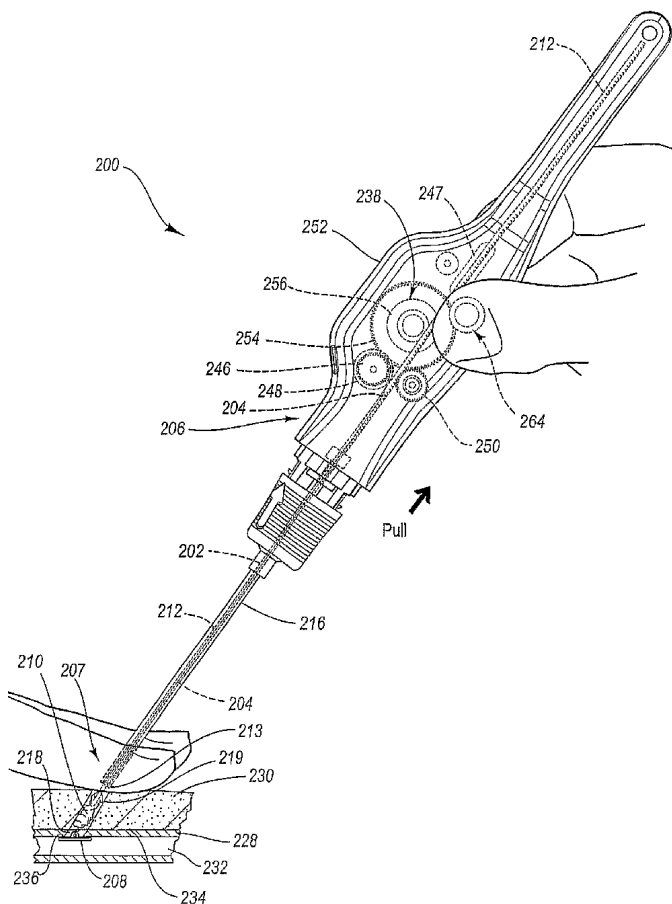
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, 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).

Declarations under Rule 4.17:

— as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))

[Continued on next page]

(54) Title: TISSUE PUNCTURE CLOSURE DEVICE WITH AUTOMATIC TORQUE SENSING TAMPING SYSTEM



(57) Abstract: Methods and apparatus for sealing a puncture or incision formed percutaneously in tissue separating two internal portions of the body of a living being with an anchor, a sealing plug and a filament connecting the anchor and sealing plug are disclosed. The methods and apparatus provide for automatic tamping of the sealing plug. In addition, torque required to tamp the sealing plug is automatically sensed and gear ratios of an automatic tamping device are automatically changed in response to sensed changes in torque. A planetary transmission may be used to automatically change gear ratios in response to the changes in torque.

WO 2006/110615 A3



— *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*

Published:

— *with international search report*

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

16 April 2009

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US06/13224

A. CLASSIFICATION OF SUBJECT MATTER

IPC: **A61B 17/03**(2006.01)

USPC: 606/213;74/113;475/125

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)
U.S. : Please See Continuation Sheet

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)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A,P	US 2005/0085851 A1 (FIEHLER et al) 21 April 2005 (21.04.2005)	1-35
A	US 4,729,260 A (DUDDEN) 08 March 1988 (08.03.1988)	1-35
A	US 2003/0060846 A1 (EGNELOV et al) 27 March 2003 (27.03.2003)	1-35
A	US 5,222,974 A (KENSEY et al) 29 June 1993 (29.06.1993)	1-35
A	US 5,411,520 A (NASH et al) 02 May 1995 (02.05.1995)	1-35
T	US 2006/0265006 A1 (WHITE et al) 23 November 2006 (23.11.2006)	1-35

Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents:	"T"
"A" document defining the general state of the art which is not considered to be of particular relevance	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
"E" earlier application or patent published on or after the international filing date	"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
"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)	"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
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

17 June 2008 (17.06.2008)

Date of mailing of the international search report

08 JUL 2008

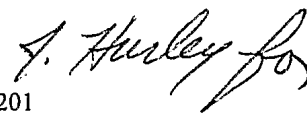
Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Facsimile No. (571) 273-3201

Authorized officer

KATHERINE M. DOWE
Telephone No. 571-272-3201



INTERNATIONAL SEARCH REPORT

International application No.

PCT/US06/13224

Continuation of B. FIELDS SEARCHED Item 1:
606/213, 124, 139, 140, 142, 144-146, 169, 171, 177, 178;
74/113;475/125