

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
12 September 2008 (12.09.2008)

PCT

(10) International Publication Number  
**WO 2008/109625 A3**

- (51) International Patent Classification:  
A61B 17/04 (2006.01)
- (21) International Application Number:  
PCT/US2008/055840
- (22) International Filing Date: 5 March 2008 (05.03.2008)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:  
11/715,710 8 March 2007 (08.03.2007) US
- (71) Applicant (for all designated States except US):  
**ETHICON ENDO-SURGERY, INC** [US/US]; 4545  
Creek Road, Cincinnati, Ohio 45242 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **SPIVEY, James T.**  
[US/US]; 542 Missouri Avenue, Cincinnati, Ohio 45226  
(US). **STEFANCHIK, David** [US/US]; 5792 Cabernet  
Court, Morrow, Ohio 45152 (US). **SWAIN, Christopher  
Paul** [GB/GB]; 41 Willow Road, London NW3 1TN (GB).
- (74) Agents: **JOHNSON, Philip S.** et al.; One Johnson & John-  
son Plaza, New Brunswick, New Jersey 08933 (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, CA,  
CH, 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, PG, PH,  
PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV,  
SY, 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, 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, HR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL,  
NO, 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  
— before the expiration of the time limit for amending the  
claims and to be republished in the event of receipt of  
amendments
- (88) Date of publication of the international search report:  
19 February 2009



**WO 2008/109625 A3**

(54) Title: SURGICAL SUTURE ANCHORS AND DEPLOYMENT DEVICE

(57) Abstract: A suture anchor (10) is provided which includes a hollow member (26) having an outer surface defining an enclosure (12) therein, the member having a longitudinal axis (2) and a slot (20) through a portion of the outer surface in a direction transverse to the longitudinal axis, the slot providing an opening into the enclosure. The suture anchor further includes a one-way valve (30) positioned within the enclosure at the slot (20) to allow entry of a suture (44) through the slot into the enclosure and to prevent the exit of the suture from the enclosure. A device (50) is provided for deploying the suture anchor. The deployment device includes an elongate hollow member (52) having a suture anchor release zone (72) positioned at the distal end thereof, a launch bar having at least a portion thereof positioned in the release zone, wherein the launch bar is movable within the release zone between a resting position and a launching position and is operatively connected to an actuation member positioned proximally to the elongate member. The hollow elongate member defines a housing for receiving a plurality of suture anchors in tandem along the longitudinal axis of the hollow member, wherein each of the suture anchors is configured for release from the release zone when such suture anchor is positioned within the release zone upon movement of the launch bar from the resting position to the launching position.

## INTERNATIONAL SEARCH REPORT

International application No

PCT/US2008/055840

**A. CLASSIFICATION OF SUBJECT MATTER**  
 INV. A61B17/04

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)  
 A61B

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.
A	FR 2 731 610 A (AMP DEV [FR]) 20 September 1996 (1996-09-20) figures 1a,1c,1d pages 1-7	1-7
A	US 2006/200199 A1 (BONUTTI PETER M [US] ET AL) 7 September 2006 (2006-09-07) paragraphs [0007] - [0012]; figure 10	1-7
A	EP 1 013 229 A (DEPUY ORTHOPAEDICS INC [US] ETHICON INC [US]) 28 June 2000 (2000-06-28) figures 1,13,14 paragraph [0007]	1-7



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

20 August 2008

Date of mailing of the international search report

05/01/2009

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

Grieb, Christian

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US2008/055840

## 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.: 14, 15  
because they relate to subject matter not required to be searched by this Authority, namely:  
Rule 39.1(iv) PCT - Method for treatment of the human or animal body by surgery
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 allsearchable 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.:

see additional sheet(s)

### 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: 1-7

Suture anchor comprising a hollow member with a slot and one-way valve;

---

2. claims: 8-13

Suture anchor deployment device comprising a launch bar and a housing suitable for receiving a plurality of suture anchors;

---

3. claims: 16-18

method of sterilizing and storing a suture tag deployment device;

---

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No PCT/US2008/055840
---

Patent document cited in search report	Publication date	Publication date	Patent family member(s)	Publication date
FR 2731610	A	20-09-1996	NONE	
US 2006200199	A1	07-09-2006	NONE	
EP 1013229	A	28-06-2000	AT 330542 T	15-07-2006
			AU 760681 B2	22-05-2003
			AU 6539499 A	29-06-2000
			CA 2293017 A1	23-06-2000
			DE 69932026 T2	21-12-2006
			JP 4173265 B2	29-10-2008
			JP 2000210298 A	02-08-2000