

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
12 July 2007 (12.07.2007)

PCT

(10) International Publication Number
WO 2007/078540 A3

(51) International Patent Classification:
A61B 17/04 (2006.01) **A61B 17/00** (2006.01)

(21) International Application Number:
PCT/US2006/046540

(22) International Filing Date:
6 December 2006 (06.12.2006)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
11/321,688 29 December 2005 (29.12.2005) US

(71) Applicant (for all designated States except US):
ETHICON, INC. [US/US]; U.S. Route #22, Somerville,
NJ 08876-0151 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **WEADOCK, Kevin, S.** [US/US]; 16 Strawberry Lane, Hillsborough,
New Jersey 08844 (US). **WELLMAN, Paris** [US/US];
61 Taurus Drive, Apt. 3A, Hillsborough, NJ 08844 (US).
WEISBERG, Martin [US/US]; 1018 Melrose Avenue,
Elkins Park, Pennsylvania 19027 (US). **PRENTICE, Philip** [US/US]; 39 Center Street, Annandale, New Jersey
08801 (US). **ADAMY, Earl** [US/US]; 12 Fox Fire Lane,
Clinton, New Jersey 08809 (US).

(74) Agents: **JOHNSON, Philip, S.** et al.; Johnson & Johnson,
One Johnson & Johnson Plaza, New Brunswick, New Jer-
sey 08933 (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, GT, HN, HR, HU, ID, IL, IN, IS,
JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS,
LT, LU, LV, LY, MA, MD, 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.

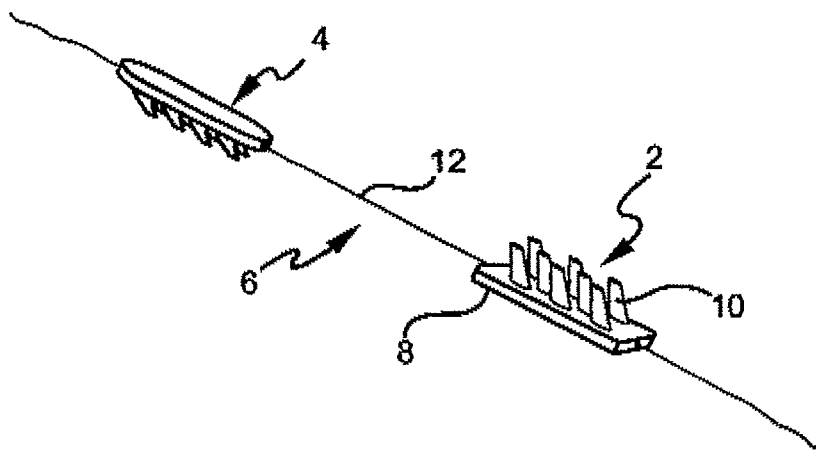
(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,
FR, GB, GR, HU, IE, IS, IT, LT,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



(57) Abstract: A device for attaching, relocating or reinforcing tissue includes a first tissue anchoring portion having a support plate and a plurality of barbs extending therefrom for engaging tissue at a first location, a second tissue anchoring portion having a support plate and a plurality of barbs extending therefrom for engaging tissue at a second location which is different from the first location, and a connection element, such as a suture or a mesh structure, interposed between and interconnecting the first tissue anchoring portion and the second tissue anchoring portion. The support plate of at least one of the first tissue anchoring portion and the second tissue anchoring portion may have longitudinally axially formed therethrough a bore for receiving the connecting element so that the surgeon may pull on the end of the connecting element to adjust the distance between the first tissue anchoring portion and the second tissue anchoring portion.



WO 2007/078540 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:

23 August 2007

INTERNATIONAL SEARCH REPORT

International application No

PCT/US2006/046540

A. CLASSIFICATION OF SUBJECT MATTER

INV. A61B17/04

ADD. A61B17/00

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.
X	US 3 385 299 A (LE ROY PIERRE L) 28 May 1968 (1968-05-28) the whole document	1-8, 15, 18, 19
X	WO 01/67944 A (ESPLIN MEDICAL INV S LLC [US]) 20 September 2001 (2001-09-20) page 7, line 24 - page 9, line 24; figures 2-5 figures 13a-14b	1-5, 8, 9
X	WO 2005/002452 A (GARVIN DENNIS D [US]) 13 January 2005 (2005-01-13) page 8, line 6 - page 10, line 19; figure 1 page 10, line 21 - page 11, line 4; figure 2a	1-5

☒ 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

12 April 2007

Date of mailing of the international search report

29/06/2007

Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Filali, Salima

INTERNATIONAL SEARCH REPORT

International application No

PCT/US2006/046540

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>EP 0 632 999 A (UNITED STATES SURGICAL CORP [US]) 11 January 1995 (1995-01-11) figures 1-5</p> <p>-----</p>	<p>1-3,6,8, 9</p>

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2006/046540

Box 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.: 24-29
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 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 fee, this Authority did not invite payment of any additional fee.
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 annex

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ 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: 1-9,15,18,19

A device for attaching tissue comprising at least a first tissue engagement means and a second tissue engagement means including a support plate having a plurality of barbs and a suture connection means.

2. claims: 10, 16, 17

A device for attaching tissue comprising a first tissue engagement means and a second tissue engagement means and a mesh connection means.

3. claims: 11, 20-23

A device for attaching tissue comprising at least a first tissue engagement means and a second tissue engagement means includes a mesh structure.

4. claim: 12

A device for attaching tissue comprising at least a first tissue engagement means and a second tissue engagement means includes a resilient pawl and wherein the connection means includes a ratchet teeth.

5. claims: 13, 14

A device for attaching tissue comprising a first tissue engagement means a second tissue engagement means, a third tissue engagement means and a connection means.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2006/046540

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 3385299	A	28-05-1968	NONE	
WO 0167944	A	20-09-2001	AU 4753501 A US 2001051815 A1	24-09-2001 13-12-2001
WO 2005002452	A	13-01-2005	US 2004267309 A1	30-12-2004
EP 0632999	A	11-01-1995	CA 2125839 A1 US 5500000 A	02-01-1995 19-03-1996