

(19) World Intellectual Property
Organization
International Bureau



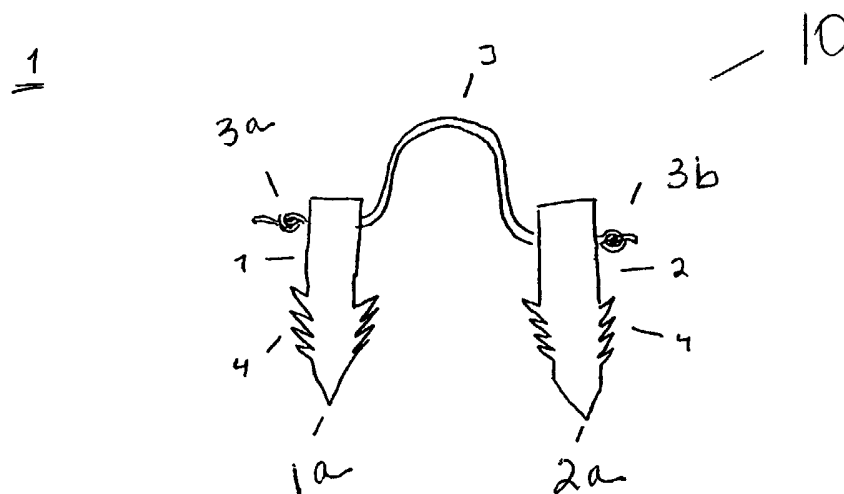
(43) International Publication Date
29 July 2004 (29.07.2004)

PCT

(10) International Publication Number
WO 2004/062459 A3

- (51) International Patent Classification⁷: **A61B 17/064**, 17/04
- (21) International Application Number: PCT/EP2004/000079
- (22) International Filing Date: 8 January 2004 (08.01.2004)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data: 10/338,685 9 January 2003 (09.01.2003) US
- (71) Applicant (for all designated States except US): **LIN-VATEC BIOMATERIALS OY** [FI/FI]; Hermiankatu 6-8L, FIN-33720 Tampere (FI).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **SHELTON, Walter** [US/US]; 1250 Shadow Wood Drive, Brandon. MS 39047 (US). **NUUTINEN, Juha-Pekka** [FI/US]; 700 Lower State Road, Apt. 22 B-3, North Wales, PA 19454 (US).
- (74) Agent: **BEETZ & PARTNER**; Steindorfstrasse 10, 80538 München (DE).
- (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, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, 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, 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, IT, LU, MC, NL, 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
- (88) Date of publication of the international search report: 21 October 2004
- 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.

(54) Title: SUTURE ANCHOR DEVICE AND METHOD OF USING



(57) Abstract: The present invention provides a suture arrow device (10) for repairing tissue or attaching matter to tissue. The suture arrow device (10) comprises at least two tissue arrows or implantation members (1, 2) connected by a connecting member (3) which preferably is a suture thread. The invention further provides an insertion instrument for installing the suture arrow device (10) into tissue. The suture arrow device (10) and the insertion instrument may be combined in an installation kit.

WO 2004/062459 A3

INTERNATIONAL SEARCH REPORT

International Application No
PCT/EP2004/000079

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 A61B17/064 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)
IPC 7 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)

EP0-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 4 997 436 A (OBERLANDER) 5 March 1991 (1991-03-05) column 3, line 38 - line 57; figure 1 -----	1-3,5-9, 15
X	US 2002/169452 A1 (TORMALA) 14 November 2002 (2002-11-14) paragraph [0058] - paragraph [0060]; figures 1e,8c,8d -----	1-3,5-9, 11,15, 20,23,28
X	EP 0 513 736 A (USSC) 19 November 1992 (1992-11-19) column 4, line 38 - line 49; figure 1 -----	1-3,5-9, 15,19, 20,23,28
X	WO 98/07374 A (HAYHURST) 26 February 1998 (1998-02-26) figure 13 -----	1-3, 5-10,17, 23

Further documents are listed in the continuation of box C.

Patent family members are listed in 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

19 May 2004

Date of mailing of the international search report

05 AUG 2004

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

Barton, S

INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP2004/000079

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.:
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 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.:
1-3, 5-11, 15-17, 19, 20, 23, 28

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: 1-3,5-11,15-17,19,20,23,28

Suture anchor device in particular with more than two connected anchor elements

2. claims: 1,4,14,21,22,23

Suture anchor device with adjustable length flexible connecting member

3. claims: 1,12,13,23-27

Suture anchor device with axial though holes through anchor elements, and introducer with corresponding spike

4. claims: 1,18,23,24

Suture anchor device with axial recess

INTERNATIONAL SEARCH REPORT

International Application No
PCT/EP2004/000079

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
US 4997436	A	05-03-1991	CA	2004658 A1	05-06-1991
			JP	2927475 B2	28-07-1999
			JP	3195546 A	27-08-1991
			EP	0432320 A1	19-06-1991
			US	5002562 A	26-03-1991
			US	5154189 A	13-10-1992

US 2002169452	A1	14-11-2002	WO	02091928 A1	21-11-2002
			EP	1395181 A1	10-03-2004

EP 0513736	A	19-11-1992	US	5269783 A	14-12-1993
			CA	2066914 A1	14-11-1992
			DE	69201400 T2	13-07-1995
			EP	0513736 A1	19-11-1992
			US	5374268 A	20-12-1994
			US	5643319 A	01-07-1997
			US	6190401 B1	20-02-2001

WO 9807374	A	26-02-1998	US	5810848 A	22-09-1998
			AU	730185 B2	01-03-2001
			AU	4150297 A	06-03-1998
			BR	9711356 A	18-01-2000
			CA	2263968 A1	26-02-1998
			EP	0955904 A1	17-11-1999
			JP	2000516513 T	12-12-2000
			WO	9807374 A1	26-02-1998
