

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
12 May 2005 (12.05.2005)

PCT

(10) International Publication Number
WO 2005/041784 A3

(51) International Patent Classification⁷: **A61B 17/122**

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(21) International Application Number:
PCT/US2004/033149

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(22) International Filing Date: 6 October 2004 (06.10.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
10/681,700 8 October 2003 (08.10.2003) 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, 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.

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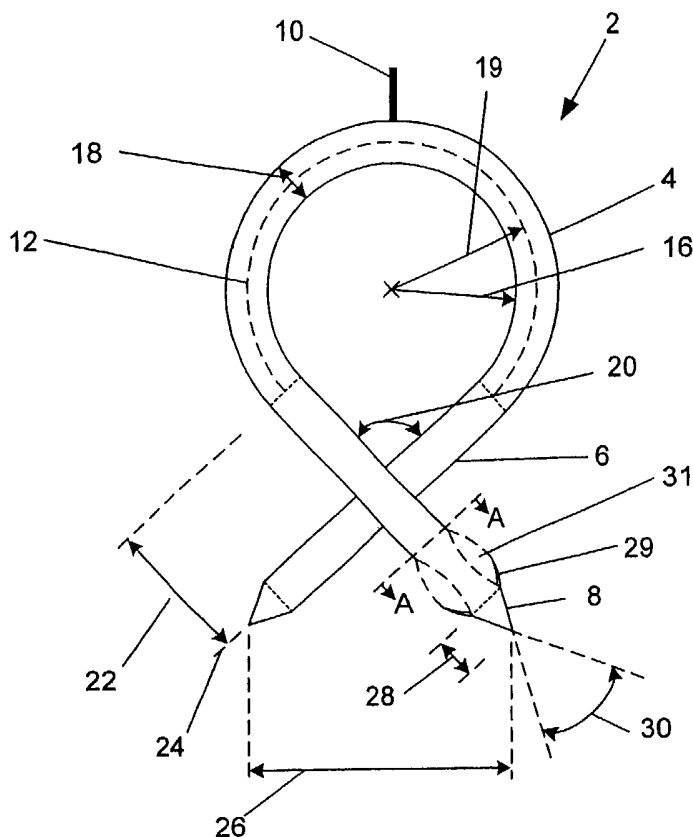
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(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH,

[Continued on next page]

(54) Title: ATTACHMENT DEVICE AND METHODS OF USING THE SAME



(57) Abstract: Devices for attaching a first mass and a second mass and methods of making and using the same are disclosed. The devices can be made from an resilient, elastic or deformable materials. The devices can be used to attach a heart valve ring to a biological annulus. The devices can also be used for wound closure or a variety of other procedures such as anchoring a prosthesis to surrounding tissue or another prosthesis, tissue repair, such as in the closure of congenital defects such as septal heart defects, tissue or vessel anastomosis, fixation of tissue with or without a reinforcing mesh for hernia repair, orthopedic anchoring such as in bone fusing or tendon or muscle repair, ophthalmic indications, laparoscopic or endoscopic tissue repair or placement of prostheses, or use by robotic devices for procedures such as those above performed remotely.

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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, IT, LU, 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).

— *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:
11 August 2005

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/US2004/033149

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A61B17/122

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)

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	FR 320 731 A (BROWN) 18 December 1902 (1902-12-18) figures -----	1,2
X	WO 03/053289 A (MILO) 3 July 2003 (2003-07-03) page 9, lines 13-31; figures 6a,6b -----	1,2
X	DE 197 11 288 A1 (WURSTER) 1 October 1998 (1998-10-01) figures 3-9,14,15 -----	1,2
A	EP 0 826 340 A (MEDINOV-AMP) 4 March 1998 (1998-03-04) figures 2,8,9,12 -----	1,2

 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

1 April 2005

Date of mailing of the international search report

01 JUL 2005

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2004/033149

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.: **11-15**
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 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, 2

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: 1,2

Attaching device comprising a base and only one leg

2. claims: 3-5

Attaching device comprising a base and two legs of different lengths

3. claims: 6-10

Attaching device comprising a curved base and two legs crossing each other in a relaxed configuration

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US2004/033149

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
FR 320731	A	NONE	
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WO 03053289	A	03-07-2003	EP 1465555 A1 13-10-2004
			WO 03053289 A1 03-07-2003
			US 2004236419 A1 25-11-2004
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DE 19711288	A1	01-10-1998	DE 29723736 U1 18-02-1999
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EP 0826340	A	04-03-1998	FR 2752720 A1 06-03-1998
			EP 0826340 A2 04-03-1998
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