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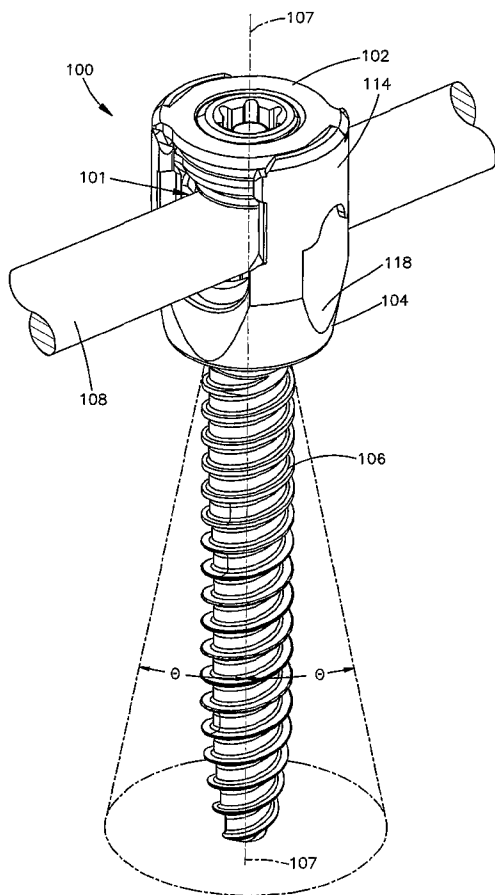
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[Continued on next page]

(54) Title: BONE ANCHOR WITH LOCKING CAP AND METHOD OF SPINAL FIXATION



(57) Abstract: A bone anchor (100) for attaching a rod (108) to a bone has an anchor member (106) for attachment to the bone and an anchor head (104) having a U-shaped opening for receiving the rod. The bone anchor also includes a locking cap (102) that has a main body (900) and a set screw (1000). Advantageously, in one embodiment the locking cap preferably is designed such that a single tool can be used to lock the locking cap in place on the anchor body preferably with a 90° turn and preferably then drive the set screw to clamp the rod. The locking cap also preferably non-threadingly engages the anchor body. The anchor body preferably has an inclined surface on its top surface which elastically deflects extending tabs on the main body to secure the locking cap to the anchor body. A method of implantation and assembly of the bone anchor are also described.

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER INV. A61B17/70		
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 2003/187434 A1 (LIN CHIH-I) 2 October 2003 (2003-10-02)	1-3, 6-11, 17-20
Y	paragraph [0036]; figures 1-3,9,10	1,10,11, 15,16
X	US 6 652 526 B1 (ARAFILES RUBEN P) 25 November 2003 (2003-11-25)	1,2,6-9, 17-20
Y	figures 1,4	1,11,15, 16
X	WO 96/39972 A (DANEK MEDICAL, INC) 19 December 1996 (1996-12-19) page 9; figures 2,12	1,6,7,9
X	US 6 077 262 A (SCHLAEPFER ET AL) 20 June 2000 (2000-06-20) column 3, lines 55-62; figures 2,3	1,6-8
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<input checked="" type="checkbox"/>	Further documents are listed in the continuation of Box C.	<input checked="" type="checkbox"/> 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 December 2006		Date of mailing of the international search report 20/12/2006
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 Assion, Jean-Charles

INTERNATIONAL SEARCH REPORT

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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 1 388 323 A (BIEDERMANN MOTECH GMBH) 11 February 2004 (2004-02-11) paragraphs [0009] - [0012]; figure 3	1
A	US 2004/138662 A1 (LANDRY MICHAEL E ET AL) 15 July 2004 (2004-07-15) figures 17B,18B	1,9
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Y	column 3; figure 1	10
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Y	figure 7	10,15

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2006/015692

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.:

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: 1-9,17-20

bone anchor having a locking cap comprising a main body and a set screw

2. claims: 10-16,21-26

bone anchor comprising a collet and a sleeve

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2006/015692

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Information on patent family members

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