

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
10 April 2008 (10.04.2008)

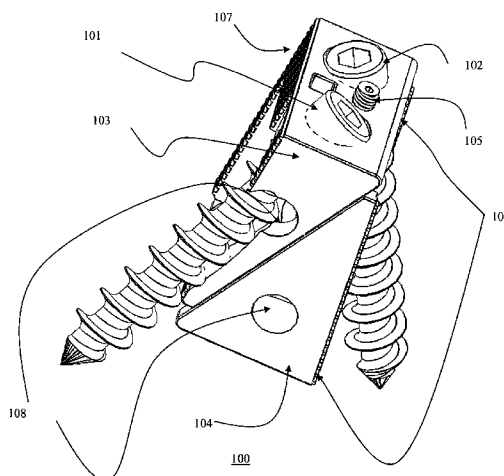
PCT

(10) International Publication Number
WO 2008/042303 A3

- (51) **International Patent Classification:**
A61F 2/44 (2006.01)
- (21) **International Application Number:**
PCT/US2007/021013
- (22) **International Filing Date:** 1 October 2007 (01.10.2007)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
11/536,815 29 September 2006 (29.09.2006) US
11/842,855 21 August 2007 (21.08.2007) US
- (63) **Related by continuation (CON) or continuation-in-part (CIP) to earlier application:**
US 11/842,855 (CIP)
Filed on 21 August 2007 (21.08.2007)
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- (81) **Designated States (unless otherwise indicated, for every kind of national protection available):** AE, AG, AL, AM, 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 (patent), 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, MT, 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:** BI-DIRECTIONAL FIXATING TRANSVERTEBRAL BODY SCREWS AND POSTERIOR CERVICAL AND LUMBAR INTERARTICULATING JOINT CALIBRATED STAPLING DEVICES FOR SPINAL FUSION



(57) **Abstract:** A self-drilling bone fusion screw apparatus is disclosed which includes at least first and second sliding boxes. A first screw member having a tapered end and a threaded body is disposed within the first sliding box, and a second screw member having a tapered end and a threaded body disposed within the second sliding box. An adjuster adjusts the height of the sliding boxes. The screw members are screwed into vertebral bodies in order to fuse the vertebral bodies together. A plurality of the self-drilling bone fusion screw apparatuses may be attached together and/or integrated via a plate or cage. Also disclosed is a cervical facet staple that includes a curved staple base and at least two prongs attached to the bottom surface of the curved staple base.

WO 2008/042303 A3



— *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:
18 September 2008

INTERNATIONAL SEARCH REPORT

International application No

PCT/US2007/021013

<p>A CLASSIFICATION OF SUBJECT MATTER IPC(8) - A61 F 2/44 (2008.04) USPC - 623/17.11 According to International Patent Classification (IPC) or to both national classification and IPC</p>																	
<p>B FIELDS SEARCHED</p> <p>Minimum documentation searched (classification system followed by classification symbols) IPC(8) - A61F 2/44 (2008 04) USPC - 17 11</p> <p>Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched</p> <p>Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) USPTO EAST System (US, USPG-PUB, EPO, DERWENT), PatBase</p>																	
<p>C DOCUMENTS CONSIDERED TO BE RELEVANT</p> <table border="1"> <thead> <tr> <th>Category*</th> <th>Citation of document, with indication, where appropriate, of the relevant passages</th> <th>Relevant to claim No</th> </tr> </thead> <tbody> <tr> <td>X</td> <td>US 5,290,312 A (KOJIMOTO et al) 01 March 1994 (01 03 1994) entire document</td> <td>1, 2</td> </tr> <tr> <td>Y</td> <td></td> <td>3-15, 24</td> </tr> <tr> <td>Y</td> <td>US 2005/0177235 A 1 (BAYNHAM et al) 11 August 2005 (11 08 2005) entire document</td> <td>6-9</td> </tr> <tr> <td>Y</td> <td>US 2002/0068977 A 1 (JACKSON) 06 June 2002 (06 06 2002) entire document</td> <td>10-15, 24</td> </tr> </tbody> </table>			Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No	X	US 5,290,312 A (KOJIMOTO et al) 01 March 1994 (01 03 1994) entire document	1, 2	Y		3-15, 24	Y	US 2005/0177235 A 1 (BAYNHAM et al) 11 August 2005 (11 08 2005) entire document	6-9	Y	US 2002/0068977 A 1 (JACKSON) 06 June 2002 (06 06 2002) entire document	10-15, 24
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<p>D Further documents are listed in the continuation of Box C <input type="checkbox"/></p> <table border="0"> <tr> <td> <ul style="list-style-type: none"> • 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 application or patent 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 </td> <td> <ul style="list-style-type: none"> "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 </td> </tr> </table>			<ul style="list-style-type: none"> • 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 application or patent 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 	<ul style="list-style-type: none"> "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 													
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<p>Date of the actual completion of the international search</p> <p>25 June 2008</p>		<p>Date of mailing of the international search report</p> <p>09 JUL 2008</p>															
<p>Name and mailing address of the ISA/US</p> <p>Mail Stop PCT, Attn ISA/US, Commissioner for Patents P O Box 1450, Alexandria, Virginia 22313-1450 Facsimile No 571-273-3201</p>		<p>Authorized officer</p> <p>Blaine R Copenheaver</p> <p>PCT Melpdjsk 571 272-4300 PCTOSP S71-272-7774</p>															

INTERNATIONAL SEARCH REPORT

International application No

PCT/US2007/021013

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 **I** Claims Nos
because they relate to subject matter not required to be searched by this Authority, namely

- 2 **D** 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 **D** 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

Group I, claims 1-15 and 24, drawn to a self drilling bone fusion screw apparatus comprising a first box and first and second screw members

Group II, claims 16-17 and 25, drawn to a tool assembly comprising a gripper and screw guide held in place by the plurality of prongs

Group III, claims 18-22, drawn to a cervical facet staple and impaction tool comprising an insertion member disposed on the top surface of the curved staple base

Group IV, claim 23, drawn to a lumbar facet staple comprising a pair of rotating arms and a ratchet attached to one of the rotating arms

- 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 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 1-15, 24

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