

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
28 October 2010 (28.10.2010)

(10) International Publication Number  
**WO 2010/124032 A3**

(51) International Patent Classification:

A61B 17/70 (2006.01) A61B 17/86 (2006.01)  
A61B 17/84 (2006.01)

(21) International Application Number:

PCT/US2010/031958

(22) International Filing Date:

21 April 2010 (21.04.2010)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

61/172,116 23 April 2009 (23.04.2009) US

(71) Applicant (for all designated States except US): **SPINAL ELEMENTS, INC.** [US/US]; 2744 Loker Avenue West, Suite 100, Carlsbad, CA 92010 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **BLAIN, Jason** [US/US]; 1266 Orchard Glen Circle, Encinitas, CA 92024 (US). **MARTIN, Greg** [US/US]; 270 Neptune, Encinitas, CA 92024 (US). **HOWARD, Steven** [US/US]; 5585 Via Bello, San Diego, CA 92111 (US).

(74) Agent: **DELANEY, Karoline, A.**; Knobbe, Martens, Olson & Bear, LLP, 2040 Main Street, 14th Floor, Irvine, CA 92614 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available):

AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, 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, PE, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, 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, LR, 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, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report (Art. 21(3))

(88) Date of publication of the international search report:

21 April 2011

(54) Title: TRANSVERSE CONNECTORS

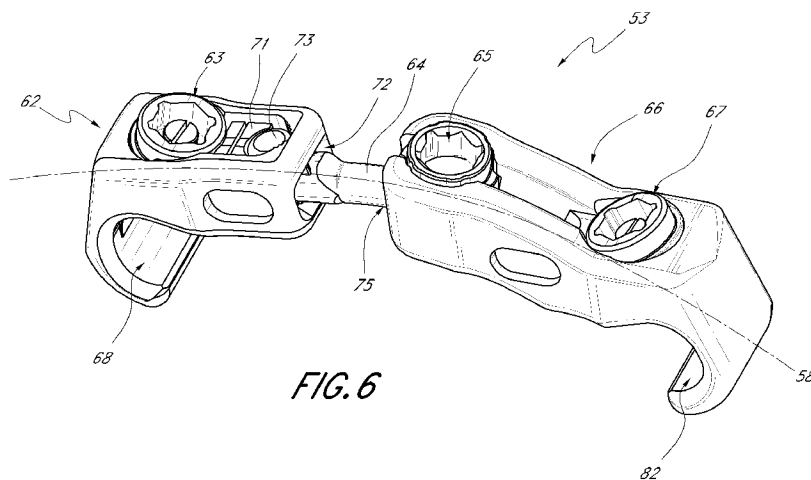


FIG. 6

(57) Abstract: Devices and methods are disclosed for treating the vertebral column. One embodiment provides a transverse connector for vertebral fixation systems comprising a first connector body comprising a first engaging member for engaging a first elongate member and a first locking member, a second connector body comprising a second engaging member for engaging a second elongate member, and a transverse rod coupled to the first connector body and the second connector body, thereby forming an articulation between a first end of the transverse rod and the first connector body, wherein the first locking member is configured to secure both the articulation and the first elongate member to the first connector body.



WO 2010/124032 A3

**A. CLASSIFICATION OF SUBJECT MATTER***A61B 17/70(2006.01)i, A61B 17/84(2006.01)i, A61B 17/86(2006.01)i*

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 17/70; A61B 17/00; A61B 17/58; A61B 17/56

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) &amp; Keywords: transvers connector, rod connector, orthopedic stabilization, spine

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 7485132 B1 (MCBRIDE G. GRADY et al.) 03 February 2009 See figs. 17-20, col.17 line 25-col.18 line 64	1-23
X	US 2005-0107789 A1 (THOMAS SWEENEY) 19 May 2005 See figs. 2-3, paragraphs 20-25	1,23
X	WO 2008-008853 A2 (PIONEER SURGICAL TECHNOLOGY et al.) 17 January 2008 See figs. 1-6, paragraphs 32-42	1-8,16-17,23
A	US 6171311 B1 (RICHELSOPH MARC) 09 January 2001 See figs. 1-3, col.2 line 41-col.3 line 50	1-23
A	WO 02-091931 A1 (INTERPORE CROSS INTERNATIONAL) 21 November 2002 See figs. 1-3E, claim 1	1-23

 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 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 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

"&amp;" document member of the same patent family


Date of the actual completion of the international search

30 DECEMBER 2010 (30.12.2010)

Date of mailing of the international search report

**30 DECEMBER 2010 (30.12.2010)**

Name and mailing address of the ISA/KR


 Korean Intellectual Property Office  
 Government Complex-Daejeon, 139 Seonsa-ro, Seo-  
 gu, Daejeon 302-701, Republic of Korea

Facsimile No. 82-42-472-7140

Authorized officer

OH Seung Jae

Telephone No. 82-42-481-8469



**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.  Claims Nos.: 24-26  
because they relate to subject matter not required to be searched by this Authority, namely:  
The subject matter of claim 24 is directed to a method of implanting a vertebral fixation device, which is a surgical method to treat human body. The steps of claim 24 fall into the category of a method for treatment of the human body by surgery, therapy or diagnostic methods. The same reasoning applies to claims 25-26, which are dependent on claim 24 [Article 17(2)(a)(i), Rule 39.1(iv) PCT].
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 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:

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 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.

**INTERNATIONAL SEARCH REPORT**

Information on patent family members

International application No.

**PCT/US2010/031958**

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 7485132 B1	03.02.2009	AU 1140802 A	22.04.2002
		AU 2002-11408 A1	22.04.2002
		AU 2002-211408 A8	22.04.2002
		US 2009-138047 A1	28.05.2009
		US 6872208 B1	29.03.2005
		US 6887241 B1	03.05.2005
		WO 02-30307 A2	18.04.2002
		WO 02-30307 A3	18.04.2002
		WO 02-30307A2	18.04.2002
		WO 02-30307A3	03.10.2002
US 2005-0107789 A1	19.05.2005	US 2005-107789 A1	19.05.2005
		US 7736370 B2	15.06.2010
		WO 2005-041863 A2	12.05.2005
		WO 2005-041863 A3	04.08.2005
WO 2008-008853 A2	17.01.2008	US 2008-015588 A1	17.01.2008
		WO 2008-008853 A2	17.01.2008
		WO 2008-008853 A3	17.01.2008
		WO 2008-008853 A3	09.04.2009
US 6171311 B1	09.01.2001	AT 243980 T	15.07.2003
		CA 2217517-A1	18.04.1998
		DE 69723197 D1	07.08.2003
		DE 69723197 T2	15.04.2004
		EP 0836836 A2	22.04.1998
		EP 0836836 A3	29.07.1998
		EP 0836836 B1	02.07.2003
		ES 2203760 T3	16.04.2004
		JP 10-243948 A	14.09.1998
		US 6328740 B1	11.12.2001
		US 6328741 B1	11.12.2001
WO 02-091931 A1	21.11.2002	AU 2002-342517 B2	02.02.2006
		EP 1397080 A1	17.03.2004
		EP 1397080 B1	31.08.2005
		US 2002-0032442 A1	14.03.2002
		US 6616668 B2	09.09.2003
		WO 0209-1931A1	21.11.2002