

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
1 February 2007 (01.02.2007)

PCT

(10) International Publication Number
WO 2007/014119 A3

- (51) **International Patent Classification:**
A61B 17/56 (2006.01) A61B 17/90 (2006.01)
- (21) **International Application Number:**
PCT/US2006/028586
- (22) **International Filing Date:** 20 July 2006 (20.07.2006)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
60/701,660 22 July 2005 (22.07.2005) US
11/362,366 23 February 2006 (23.02.2006) US
- (71) **Applicant (for all designated States except US):** VERTIFLEX, INC. [US/US]; 1954 Kellogg Avenue, Suite 100, Carlsbad, California 92008 (US).
- (72) **Inventors; and**
- (75) **Inventors/Applicants (for US only):** ALTARAC, Moti [IL/US]; 67 Coriander, Irvine, California 92603 (US). REGLOS, Joey Camia [PH/US]; 22896 Willard Avenue, Lake Forest, California 92630 (US). HAYES, Stanley Kyle [US/US]; 26721 Magdalena Lane, Mission Viejo, California 92691 (US). FLAHERTY, J. Christopher [US/US]; 242 Ipswich Road, Topsfield, Massachusetts 01983 (US).

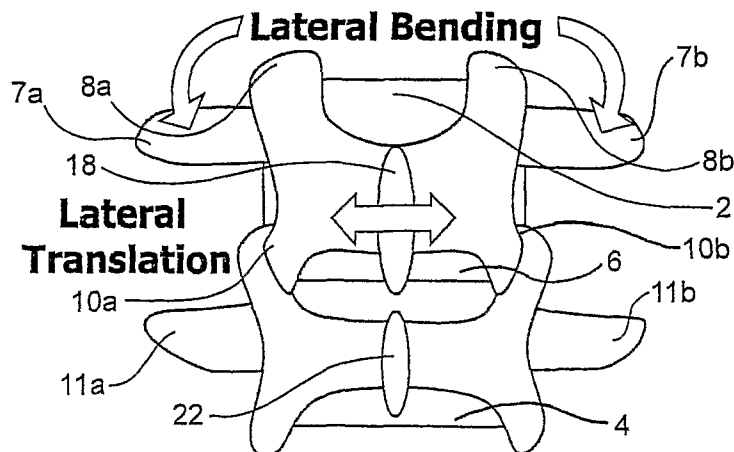
- (74) **Agent:** LUKAS, Rimas, T.; Vertiflex, Inc., 1954 Kellogg Ave., Suite 100, Carlsbad, CA 92008 (US).
- (81) **Designated States (unless otherwise indicated, for every kind of national protection available):** AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SY, 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, 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, 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
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

[Continued on next page]

(54) **Title:** SYSTEMS AND METHODS FOR STABILIZATION OF BONE STRUCTURES



(57) **Abstract:** Methods, systems, devices and tools for placing bone stabilization components in a patient are provided. The systems and devices have a reduced number of discrete components that allow placement through small incisions and tubes. More particularly, the present invention is directed to systems and methods of treating the spine, which eliminate pain and enable spinal motion, which effectively mimics that of a normally functioning spine. Methods are also provided for stabilizing the spine and for implanting the subject systems.

WO 2007/014119 A3





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

27 September 2007

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/US06/28586

A. CLASSIFICATION OF SUBJECT MATTER IPC(8) - A61B 17/56; 17/90 (2007.01) USPC - 606/61, 72, 73, 237; 623/17.11, 17.14, 17.16 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(8) - A61B 17/56; 17/90 (2007.01) USPC - 606/61, 72, 73, 237; 623/17.11, 17.14, 17.1		
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 practicable, search terms used) MicroPatent		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X -- Y	US 2005/0124991 A1 (JAHNG) 09 June 2005 (09.06.2005) entire document	1-3, 5-6, 9-21, 23-30, 32-40, 48-50, 56-88, 91-93, 95-109, 111-116, 120-128, 133, 139-141, 145-154, 157-161, 164, 177-183, 185, 249-259, 309 ----- 7, 22, 41-47, 57, 94, 110-111, 155-156, 174-176
Y	US 5,776,135 A (ERRICO et al) 07 July 1998 (07.07.1998) entire document	7, 22, 41-47, 94, 110-111, 155-156
Y	US 6,558,390 B2 (CRAGG) 06 May 2003 (06.05.2003) entire document	174-176
Y	US 5,522,843 A (ZANG) 04 June 1996 (04.06.1996) entire document	57
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/>		
* 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 "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 13 April 2007		Date of mailing of the international search report 27 JUL 2007
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201		Authorized officer: Blaine R. Copenheaver PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US06/28586

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.:
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 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 1-199, 249-259, 309, drawn to a receiving assembly.

Group II, claims 200-224, drawn to a second hinged assembly.

Group III, claims 225-238, 271-286, drawn to method of using a guidewire to secure a receiving assembly to the bone.

Group IV, claims 239-241, drawn to a method using a guidewire to secure a second hinged assembly to the bone.

Group V, claims 242-248, drawn to method of adjusting an implant using a cannula.

Group VI, claims 260-270, 287-288, drawn to a third assembly comprising a dual rod system.

Group VII, claims 289-295, drawn to a screw and coupler.

Group VIII, claims 296-308, drawn to a seat.

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.:
1-199, 249-259, 309

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.