(19) World Intellectual Property Organization

International Bureau



(43) International Publication Date 26 October 2006 (26.10.2006)

(10) International Publication Number WO 2006/113256 A3

(51) International Patent Classification: A61F 2/44 (2006.01)

(21) International Application Number:

PCT/US2006/013596

(22) International Filing Date: 11 April 2006 (11.04.2006)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data: 11/105,836

14 April 2005 (14.04.2005)

(71) Applicant (for all designated States except US): WAR-SAW ORTHOPEDIC, INC. [US/US]; 2500 Silveus Crossing, Warsaw, IN 46581 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): LIM, Roy, K. [US/US]; 7273 Great Oak Road, Germantown, TN 38138 (US). MACMILLAN, Michael [US/US]; 1240 Sunset Drive, Winter Park, FL 32789 (US).

(74) Agents: JOHNSON, Noreen, J. et al.; MS LC340, 710 Medtronic Parkway, Minneapolis, MN 55432 (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, KM, KN, KP, KR, KZ, 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, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

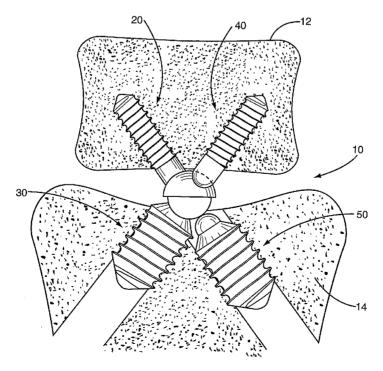
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, 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
- (88) Date of publication of the international search report: 15 March 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.

(54) Title: INTERVERTEBRAL JOINT



(57) Abstract: An intervertebral joint with one embodiment comprising a socket screw (20), a ball screw (30), and two support screws (40,50). The socket screw and ball screw form a socket joint between two vertebral members. A first support screw braces the socket screw. A second support screw braces the ball screw.



International application No. PCT/US2006/013596

INTERNATIONAL SEARCH REPORT

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. X Claims Nos.: 26-33 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
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 dld 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.: See annex
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: 1-3, 14, 16, 17

An orthopedic device comprising: a threaded shaft having a longitudinal axis; and a ball socket connected to the threaded shaft and oriented at an angle to the longitudinal axis of the threaded shaft, the threaded shaft includes a longitudinally extending guide hole.

2. claims: 4-11, 18-25

An orthopedic device assembly comprising: a socket screw including a threaded shaft and an angularly disposed ball socket; and a support screw including a shaft having seat formed in a first end thereof to engage and support said socket screw.

3. claims: 12, 13, 15

An orthopedice device comprising: a threaded shaft; and a rounded head connected to one end of the threaded shaft; the rounded head be offset from a longitudinal centerline extending through the threaded shaft.

INTERNATIONAL SEARCH REPORT

International application No PCT/US2006/013596

a. classi INV.	FICATION OF SUBJECT MATTER A61F2/44		
According to	o International Patent Classification (IPC) or to both national classificat	tion and IPC	
B. FIELDS	SEARCHED	- hala	
Minimum do A61F	ocumentation searched (classification system followed by classificatio	n symbols)	
	tion searched other than minimum documentation to the extent that su		rched
Electronic o	iata base consulted during the international search (name of data bas	se and, where practical, search terms used)	
EPO-In	iternal		
C. DOCUM	IENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the rele	evant passages	Relevant to claim No.
Х	US 2005/033434 A1 (BERRY BRET M) 10 February 2005 (2005-02-10) figures 2,6a-7b		1,3,14, 16,17
Υ	paragraph [0035] - paragraph [00	39]	2
X	US 5 993 486 A (TOMATSU ET AL) 30 November 1999 (1999-11-30) figures		1,3
Α	column 2, line 38 - column 3, li	ne 17	14,16,17
Х	US 6 375 684 B1 (KRIEK HANS RUDO 23 April 2002 (2002-04-23) figures 16-19 column 4, line 23 - line 59	OLF)	14
		-/	
X Fu	rther documents are listed in the continuation of Box C.	X See patent family annex.	
* Special "A" docur cons "E" earlie filing "L" docur whic citat "O" docur othe "P" docur	categories of cited documents: ment defining the general state of the art which is not sidered to be of particular relevance r document but published on or after the international grate grate in the document which may throw doubts on priority claim(s) or the scited to establish the publication date of another ion or other special reason (as specified) ment referring to an oral disclosure, use, exhibition or ar means ment published prior to the international filing date but r than the priority date claimed	"T" later document published after the interpriority date and not in conflict with cited to understand the principle or it invention "X" document of particular relevance; the cannot be considered novel or cannot involve an inventive step when the described of particular relevance; the cannot be considered to involve an indecument is combined with one or ments, such combination being obvious in the art. "&" document member of the same paten	the application but leavy underlying the claimed invention of the considered to be considered to be considered to be considered invention one other such docupous to a person skilled the family
Date of th	e actual completion of the international search 18 August 2006	Date of mailing of the international se	•
Name an	d mailing address of the ISA/	Authorized officer	
	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	Stach, Rainer	

4

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2006/013596

C(Continua	tion). DOCUMENTS CONSIDERED TO BE RELEVANT	PC1/032000/013390
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2002/038123 A1 (VISOTSKY JEFFREY L ET AL) 28 March 2002 (2002-03-28) figures paragraph [0026]	2
4	DE 197 55 369 A1 (ASAHI KOGAKU KOGYO K.K., TOKIO/TOKYO, JP) 18 June 1998 (1998-06-18) figures 3,7c column 2, line 26 - line 30 column 3, line 31 - line 51	1,2
	·	

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No PCT/US2006/013596

Patent document cited in search report		Publication date		Patent family member(s)		Publication date
US 2005033434	A1	10-02-2005	AU CA CN EP WO	200426312 253499 186349 165999 200501386	2 A1 2 A 5 A2	17-02-2005 17-02-2005 15-11-2006 31-05-2006 17-02-2005
US 5993486	A	30-11-1999	JР	1108986	9 A	06-04-1999
US 6375684	B1	23-04-2002	AT AU CA DE DE EP JP NL WO	225149 741944 6006398 2280119 69808438 69808438 0966240 2001511038 1005234 9834563	4 B2 8 A 9 A1 8 D1 8 T2 9 A1 8 T 4 C2	15-10-2002 13-12-2001 26-08-1998 13-08-1998 07-11-2002 12-06-2003 29-12-1999 07-08-2001 11-08-1998 13-08-1998
US 2002038123	A1	28-03-2002	NONE			
DE 19755369	A1	18-06-1998	FR GB JP	2757041 2320197 10165412	7 A	19-06-1998 17-06-1998 23-06-1998