(19) World Intellectual Property Organization

International Bureau





(43) International Publication Date 6 May 2004 (06.05.2004)

PCT

(10) International Publication Number WO 2004/037074 A3

(51) International Patent Classification⁷: A61B 17/70

(21) International Application Number:

PCT/US2003/035438

(22) International Filing Date: 24 October 2003 (24.10.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

10/280,489 25 October 2002 (25.10.2002) US

(71) Applicant: ENDIUS INCORPORATED [US/US]; 23 West Bacon Street, Plainville, OH 02762 (US).

- (72) Inventors: PAGLIUCA, James, J.; 184 Village Street, Millis, MA 02054 (US). UNGER, John, D.; 20 Farm Hill Road, Wrentham, MA 02093 (US). DAVISON, Thomas, W.; 20 Spruce Pond Road, Franklin, MA 02038 (US).
- (74) Agent: TAROLLI, James, L.; Tarolli, Sundheim, Covell & Tummino L.L.P., 526 Superior Avenue, Suite 1111, Cleveland, OH 44114-1400 (US).
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, 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, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW.

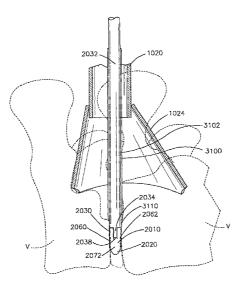
(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, 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: 22 July 2004

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: METHOD OF SECURING VERTEBRAE



(57) Abstract: A method of fixing first and second vertebrae of a patient includes inserting a first cannula (1020) into the body of the patient. A fusion device (2010, 2110) is moved through the cannula and inserted between the first and second vertebrae. First and second fasteners (4064) are moved through the cannula and secured to the first vertebra. A first fixation element (4650) is moved through the cannula and is fixed to the first and second fasteners. The fusion device (2010) has first and second ends (2070, 2072), upper and lower surfaces (2060, 2062), and first and second side surfaces (2070, 2072). The side surfaces extend along arcs from the first end of the fusion device to the second end. The upper and lower surfaces have teeth (2064, 2066) that extend between the side surfaces along secant lines of circles partially defined by the side surfaces.





INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/35438

A. CLASSIFICATION OF SUBJECT MATTER IPC(7) : A61B 17/70 US CL : 606/61				
	International Patent Classification (IPC) or to both na	tional classification and IPC		
B. FIELDS SEARCHED				
Minimum documentation searched (classification system followed by classification symbols) U.S.: 606/60, 61, 69-73, 90, 96, 99, 104, 190, 191, 198; 600/201, 203, 204, 206, 210, 235; 128/8989; 604/264				
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) Please See Continuation Sheet				
C. DOCUMENTS CONSIDERED TO BE RELEVANT				
Category *	Citation of document, with indication, where ap	opropriate, of the relevant passages	Relevant to claim No.	
X	US 2002/0065560 A1 (VARGA et al) 30 May 2002	(30.05.2002), See Figs. 1-3.	15, 16, 20, 24	
Α	US 6,306,170 B2 (RAY) 23 October 2001 (23.10.20	6,306,170 B2 (RAY) 23 October 2001 (23.10.2001), See the entire document.		
A	US 5,171,279 A (MATHEWS) 15 December 1992 (15.12.1992), See the entire document.			
			į.	
•				
Further documents are listed in the continuation of Box C. See patent family annex.				
		- Published and and	ed after the international filing date or priority	
"A" document of particu	t defining the general state of the art which is not considered to be talar relevance	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		
_	plication or patent published on or after the international filing date	considered novel or cannot be considered to involve an inventive step when the document is taken alone		
	t which may throw doubts on priority claim(s) or which is cited to the publication date of another citation or other special reason (as	"Y" document of particular relevance; the considered to involve an inventive step	when the document is	
"O" documen	t referring to an oral disclosure, use, exhibition or other means	combined with one or more other such being obvious to a person skilled in the		
"P" document published prior to the international filing date but later than the priority date claimed		"&" document member of the same patent family		
	ctual completion of the international search	Date of mailing of the international search report 26 MAY 2004		
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents			ila H. Veney leaves	
Ale	D. Box 1450 xandria, Virginia 22313-1450 D. (703) 305-3230		ldgal Specialist i. Center 3700	

Form PCT/ISA/210 (second sheet) (July 1998)

	PCT/US03/35438
INTERNATIONAL SEARCH REPORT	
	ì
Continuation of B. FIELDS SEARCHED Item 3:	
EAST	
search terms: spine, spinal, vertebra, vertebrae, fusion, cage, graft, implant, cannu	ula, retractor, fastener, screw, rod
· ·	
	1
	ı

Form PCT/ISA/210 (second sheet) (July 1998)