(19) World Intellectual Property Organization

International Bureau





(43) International Publication Date 26 May 2006 (26.05.2006)

(51) International Patent Classification:

A61B 17/10 (2006.01) A61B 17/04 (2006.01)

A61B 17/08 (2006.01)

(21) International Application Number:

PCT/US2005/041924

(22) International Filing Date:

18 November 2005 (18.11.2005)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

60/628,774 18 November 2004 (18.11.2004) US 60/671,510 15 April 2005 (15.04.2005) US

- (71) Applicant (for all designated States except US): CAYENNE MEDICAL, INC. [US/US]; 8541 E. Anderson Drive, Suite 100, Scottsdale, AZ 85255 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): MONTGOMERY, Kenneth, D. [US/US]; 62 East Broadway, Roslyn, NY 11576 (US). FLEISCHMAN, Sidney [US/US]; 1147 Scholastic Circle, Durham, NC 27713 (US). WHAYNE, James, G. [US/US]; 1200 Pinehurst Drive, Chapel Hill, NC 27517 (US). OHASHI, Kevin, L. [US/US]; 60 Orchard Street, Jamaica Plain, MA 02130 (US). DOMINGO, Nicanor [US/US]; 531 Moreland Way, Santa Clara, CA 95054 (US). WRIGHT, John [US/US]; 3219 Central Avenue, Suite 102, Kearney, NE 68847 (US). HARPER, Derek, J. [US/US]; 6856 Buttonwood Lane, Goleta, CA 93117 (US). CROCKETT, Heber [US/US]; 3219 Central Avenue, Suite 102, Kearney, NE 68847 (US).
- (74) Agent: MOAZZAM, Fariborz; Moazzam & Latimer LLP, 1474 North Point Village Center, #320, Reston, VA 20194-1190 (US).

(10) International Publication Number WO 2006/055823 A3

- (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).

Declarations under Rule 4.17:

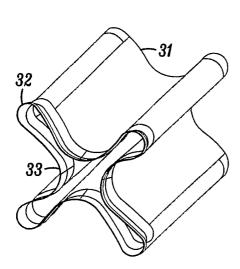
- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))
- of inventorship (Rule 4.17(iv))

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: 8 September 2006

[Continued on next page]

(54) Title: DEVICES, SYSTEMS AND METHODS FOR MATERIAL FIXATION



(57) Abstract: Devices, systems and methods for fixation of tendon to bone are described. An exemplary surgical implant is a modified bone anchor that is able to grasp the tendon and hold it firmly in a bone tunnel. Once deployed, the anchor delivers lateral compression to the tendon, providing direct tendon to bone compression to facilitate healing. The anchor has different versions which allow it to be attached to the tendon prior to insertion into the bone tunnel, or be inserted between tendon arms when the surgical procedure dictates. The resulting tendon to bone compression allows for the firm fixation in a manner markedly simpler than traditional techniques. A modification of this anchor can also allow the anchor to grasp and hold suture. This variation facilitates the technique for knotless rotator cuff repair.



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/US05/41924

A. CLASSIFICATION OF SUBJECT MATTER IPC: A61B 17/10(2006.01);A61B 17/08(2006.01);A61B 17/04(2006.01)			
USPC: 606/142,151,232 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) U.S.: 606/151,232			
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)			
C. DOC	JMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages		Relevant to claim No.
X	US 6,656,183 B2 (COLLERAN et al) 02 December 2003 (02.12.2003), see figure 2C		1-10,12-17,19 and 20
Y	•		11 and 18
Y	US 2003/0204204 A1 (BONUTTI) 30 October 2003 (30.10.2003), figure 4		11 and 18
	-		
<u> </u>	i i i i i i i i i i i i i i i i i i i	Constant family among	
	documents are listed in the continuation of Box C.	See patent family annex. "T" later document published after the inter	entional filing data or priority
* 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 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)		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 cl considered novel or cannot be considered 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	
"O" document referring to an oral disclosure, use, exhibition or other means		obvious to a person skilled in the art	
"P" document published prior to the international filing date but later than the priority date claimed		"&" document member of the same patent family	
Date of the actual completion of the international search 14 June 2006 (14.06.2006)		Date of mailing of the international search report 18 JUL 2006	
	ailing address of the ISA/US	Authorized officer // //	
Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450		Eduardo C. Robert U, Suby	
Ale	xandria, Virginia 22313-1450 . (571) 273-3201	Telephone No. (703) 308-0858 U	