(19) World Intellectual Property Organization

International Bureau



(43) International Publication Date 4 May 2006 (04.05.2006)

(10) International Publication Number WO 2006/047709 A3

(51) International Patent Classification: A61M 29/00 (2006.01)

(21) International Application Number:

PCT/US2005/038843

- (22) International Filing Date: 25 October 2005 (25.10.2005)
- (25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data: 10/975,555

27 October 2004 (27.10.2004) US

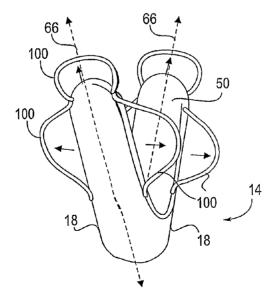
- (71) Applicant (for all designated States except US): EVALVE, INC. [US/US]; 4045 Campbell Avenue, Menlo Park, California 94025 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): GOLDFARB, Eric, A. [US/US]; 140 Jersey Street, San Francisco, California 94114 (US). RASCHDORF, Alfred, H., Jr. [US/US]; 3421a 16th Street, San Francisco, California 94114 (US). SARABIA, Jaime, E. [US/US]; 467 South 3rd Street, #1, San Jose, California 95112 (US). FAN, Sylvia, Wen Chin [US/US]; 1336 Capuchino Avenue, Burlingame, California 94010 (US). **DELL, Kent, D.** [US/US]; 1131 Grand Street,

Redwood City, California 94061 (US). KOMTEBEDDE, Jan [US/US]; 23360 Deerfield Road, Los Gatos, California 95033 (US). POWELL, Ferolyn, T. [US/US]; 55 Caselli Avenue, San Francisco, California 94114 (US).

- (74) Agents: THOMPSON, Lynn, M. et al.; Townsend and Townsend and Crew LLP, Two Embarcadero Center, 8th Floor, San Francisco, California 94111 (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, 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,

[Continued on next page]

(54) Title: FIXATION DEVICES FOR VARIATION IN ENGAGEMENT OF TISSUE



(57) Abstract: Devices, systems and methods are provided for tissue approximation and repair at treatment sites, particularly in those procedures requiring minimally-invasive or endovascular access to remote tissue locations. Fixation devices are provided to fix tissue in approximation with the use of distal elements. In some embodiments, the fixation devices have at least two distal elements and an actuatable feature wherein actuation of the feature varies a dimension of the at least two distal elements. In other embodiments, the fixation devices have at least two pairs of distal elements wherein the pairs of distal elements are moveable to engage tissue between opposed pairs of distal elements. Systems are also provided comprising fixation devices and accessories.



WO 2006/047709 A3



RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declaration under Rule 4.17:

— as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))

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: 5 July 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/US05/38843

A. CLAS	SSIFICATION OF SUBJECT MATTER				
IPC:	A61M 29/00(2006.01)				
USPC:	USPC: 606/198				
According to	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.: Please See Continuation Sheet					
Documentation	on searched other than minimum documentation to the	extent that such documents are included in	the fields searched		
		oment that sach documents are niciaded in	the fields scalefied		
Electronic da	ta base consulted during the international search (name	e of data base and, where practicable, scarch	terms used)		
Please See Continuation Sheet					
C. DOCI	IMPAIRS COMMITTEERS TO BE BELLEVILLE				
	JMENTS CONSIDERED TO BE RELEVANT				
Category *	Citation of document, with indication, where a	appropriate, of the relevant passages	Relevant to claim No.		
X, E	US 2003/0158604 A1 (Cauthen III et al) 21 August	2003 (21.08,2003), entire document.	1		
		,	-		
Y			19-23		
		İ			
Y	US 5,662,681 A (Nash et al) 02 September 1997 (02	19-23			
	59-61.				
X	US 4,007,743 A (Blake) 15 February 1977 (15.02.19	977), Figures 3 and 7-9, column 2, lines	13-16		
	37-52.	•			
X	US 5,849,019 A (Yoon) 15 December 1998 (15.12.1998), Figures 1-3, column 6, lines 20-27.				
		į			
		.			
İ					
Eurlbor	documents are listed in the continuation of Box C.				
		See patent family annex.			
* Sp	pecial categories of cited documents	"T" later document published after the intern			
"A" document	defining the general state of the art which is not considered to be of	date and not in conflict with the applicat principle or theory underlying the invent			
particular	relevance	· · · · · · · · · · · · · · · · · · ·			
"E" earlier app	lication or patent published on or after the international filing date	"X" document of particular relevance; the cla considered novel or cannot be considered	d to involve an inventive stop		
	•	when the document is taken alone	a to involve an inventive step		
"L" document	which may throw doubts on priority claim(s) or which is cited to he publication date of another citation or other special reason (as	"Y" document of particular relevance: the cla			
specified)	the publication date of another chanon of other special reason (as	"Y" document of particular relevance; the cla considered to involve an inventive step v			
"O" document	makamian ta an and Makaman and Alakaman Albaria	combined with one or more other such d	ocuments, such combination		
O document	referring to an oral disclosure, use, exhibition or other means	being obvious to a person skilled in the a	hrt .		
"P" document published prior to the international filing date but later than the		"&" document member of the same patent far	mily		
priority date claimed					
Date of the ac	tual completion of the international search	Date of mailing of the international search	report		
13 January 2007 (13.01,2007)		J 30 APR ZIIII/			
	iling address of the ISA/US	Authorized officer.			
Mail Stop PCT, Attn: ISA/US		VI DIMI			
Commissioner for Patents		Melanie Tyson Sharm D. Sieleal for			
P.O. Box 1450 Alexandria, Virginia 22313-1450		Telephone No. (571) 272-9062			
	(571) 273-3201	1010phono 110. (371) 272002	v		
	(3/1) 2/3-3201				

Form PCT/ISA/210 (second sheet) (April 2005)

INTERNATIONAL SEARCH REPORT	International application No. PCT/US05/38843			
	PC 170503/38843			
	•			
Continuation of D. PIEL DC CE A DCIUED Item 1.				
Continuation of B. FIELDS SEARCHED Item 1: 606/151, 153, 157, 158, 198, 205, 206, 207, 213, 215, 216, 232; 604/104, 105, 106, 107, 108, 109, 174, 164.3; 600/215; 24/328, 335, 336				
	,			
Continuation of B. FIELDS SEARCHED Item 3:				
EAST search terms: pontoon, flap, loop, clip, clamp, grasp, jaws, arms				