

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
12 January 2012 (12.01.2012)

(10) International Publication Number
WO 2012/006161 A3

- (51) **International Patent Classification:**
A61B 17/04 (2006.01)
- (21) **International Application Number:**
PCT/US201 1/042384
- (22) **International Filing Date:**
29 June 201 1 (29.06.201 1)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**

61/398,699	29 June 2010 (29.06.2010)	US
61/432,755	14 January 201 1 (14.01 .201 1)	US
61/461,490	18 January 201 1 (18.01 .201 1)	US
61/443,142	15 February 201 1 (15.02.201 1)	US
13/095,192	27 April 201 1 (27.04.201 1)	US

[US/US]; 1302 Wrights Lane East, West Chester, PA 19380 (US). **HENRICHSEN, Kevin** [US/US]; 1302 Wrights Lane East, West Chester, PA 19380 (US). **MANOS, Jamie** [US/US]; 1302 Wrights Lane East, West Chester, PA 19380 (US). **LARSEN, Scott** [US/US]; 1302 Wrights Lane East, West Chester, PA 19380 (US). **SINGHATAT, Wamis** [US/US]; 1302 Wrights Lane East, West Chester, PA 19380 (US).

(71) **Applicant (for CA only): SYNTHES USA, LLC** [US/US]; 1302 Wrights Lane East, West Chester, PA 19380 (US).

(74) **Agents: BAILEY, David, R.** et al; Woodcock Washburn LLP, Cira Centre, 12th Floor, 2929 Arch Street, Philadelphia, PA 19104-2891 (US).

(71) **Applicant (for all designated States except CA, US): SYNTHES GMBH** [CH/CH]; Eimattstrasse 3, CH-4436 Oberdorf(CH).

(81) **Designated States (unless otherwise indicated, for every kind of national protection available):** AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

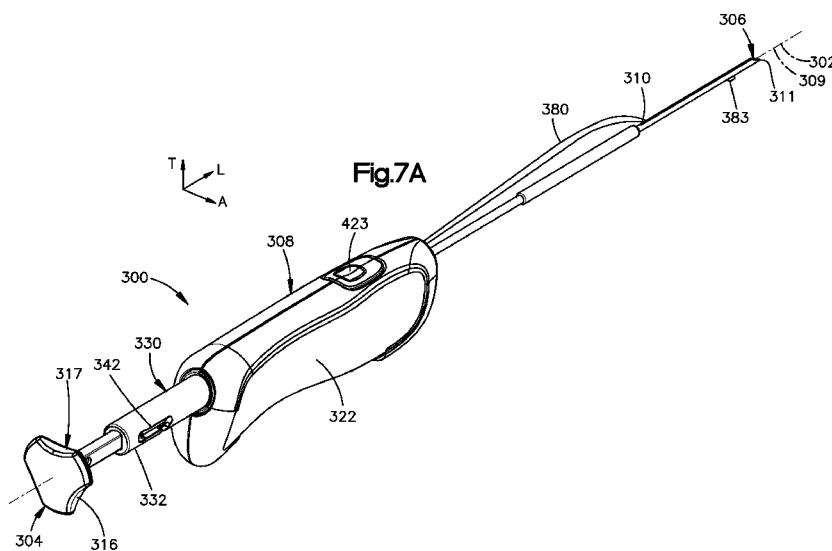
(72) **Inventors; and**

(84) **Designated States (unless otherwise indicated, for every kind of regional protection available):** ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU,

(75) **Inventors/Applicants (for US only): OVERES, Tom** [NL/CH]; Langendorfstrasse 2, CH-45 13 Langendorf (CH). **TALBOT, James** [US/US]; 1302 Wrights Lane East, West Chester, PA 19380 (US). **VENNARD, Daniel**

[Continued on next page]

(54) **Title:** INSERTION INSTRUMENT FOR ANCHOR ASSEMBLY



(57) **Abstract:** An insertion instrument is configured to eject a pair of anchor bodies across an anatomical gap so as to approximate the gap. The insertion instrument can include a single cannula that retains the pair of anchor bodies in a stacked relationship, or a pair of adjacent cannulas that each retain respective anchor bodies. The insertion instrument can be actuated so as to eject the anchor bodies into respective target anatomical locations.



WO 2012/006161 A3

LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK,
SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,
GW, ML, MR, NE, SN, TD, TG).

— *before the expiration of the time limit for amending the
claims and to be republished in the event of receipt of
amendments (Rule 48.2(h))*

Published:

— *with international search report (Art. 21(3))*

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

22 March 2012

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2011/042384

A. CLASSIFICATION OF SUBJECT MATTER INV. A61B17/04 ADD.		
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) A61B		
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 practical, search terms used) EPO-Internal		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 944 739 A (ZLOCK STEPHEN W [US] ET AL) 31 August 1999 (1999-08-31) col umn 7; figures 4, 15,26,27 ,28,32 -----	1,2,59, 60, 70-72 ,83
X	EP 1 938 760 AI (OLYMPUS MEDICAL SYSTEMS CORP [JP]) 2 July 2008 (2008-07-02) paragraphs [0070] , [0075] , [0110] ; f i g u r e s 46,47 ,49 ,51,52, 102 -----	1-9, 17, 33-38, 59,93 ,94 60
Y	Wo 2006/039296 A2 (USGI MEDICAL INC [US] ; SAADAT VAHID [US] ; WESTRA HENDRI K S [US] ; LAM C) 13 April 2006 (2006-04-13) page 46 - page 48; f i g u r e s 3A,3B, 13A, 13B,24A,28G,37-40D,41-49B,61C -----	60
A	-/--	1,59,70, 93
<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex.		
* 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 document 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 16 January 2012		Date of mailing of the international search report 06/02/2012
Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016		Authorized officer Assi on, Jean-Charles

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2011/042384

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:

see additional sheet

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 an 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. :

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.

INTERNATIONAL SEARCH REPORT

International application No

PCT/US2011/042384

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2010/094425 A1 (BENTLEY ISHMAEL [US] ET AL) 15 April 2010 (2010-04-15)	59-67, 70-77, 83,84, 86-90, 93,94
A	paragraph [0157] - paragraphs [0199] - [0216]; figures 8C,11B,12B,15-17,48A,48B,48D,55A,69,72 -----	1
X	US 2004/153074 A1 (BOJARSKI RAYMOND A [US] ET AL) 5 August 2004 (2004-08-05)	59-67
A	figures 1,2A,2B,3,4,6A,6C,7,10D,17E -----	1,93
X	W0 2005/065553 A1 (LINVATEC CORP [US]) 21 July 2005 (2005-07-21)	59-67
A	figure 11 -----	1
A	US 2009/306711 A1 (STONE KEVIN T [US] ET AL) 10 December 2009 (2009-12-10)	1
	figures 1A.1B.3A -----	
A	US 2002/115999 A1 (MCDEVITT DENNIS [US] ET AL) 22 August 2002 (2002-08-22)	1
	figures 5,6,39,46 -----	
A	US 2007/185532 A1 (STONE KEVIN T [US] ET AL) 9 August 2007 (2007-08-09)	1
	figures 3,4,6,7C,7F,11A -----	
X	US 4 994 028 A (LEONARD ROBERT J [US] ET AL) 19 February 1991 (1991-02-19)	59-66
	figures 1,2 -----	
X	W0 2009/126781 A1 (TALMO PAUL A [US]; LOVUOLO MICHAEL [US]; JELLISON THOMAS A [US]) 15 October 2009 (2009-10-15)	70-72, 74,75
	figures 7,8A,8C,8F,9C -----	
X,P	US 2011/082472 A1 (HARRIS JASON L [US] ET AL) 7 April 2011 (2011-04-07)	70-72, 74,75, 83-86
	paragraph [0116]; figures 4,41 -----	
A	W0 99/22648 A1 (ETHICON INC [US]) 14 May 1999 (1999-05-14)	70
	figures 6,6A -----	
A	US 2008/140092 A1 (STONE KEVIN T [US] ET AL) 12 June 2008 (2008-06-12)	93-95, 98,99, 102,103
	paragraph [0080]; figures 1A,26B -----	
	-/--	

INTERNATIONAL SEARCH REPORT

International application No

PCT/US2011/042384

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>US 2009/069823 A1 (FOERSTER SETH A [US] ET AL) 12 March 2009 (2009-03-12)</p> <p>paragraphs [0055], [0063]; figures 1B, 2B, 4A, 4B, 8B, 8F</p> <p style="text-align: center;">-----</p>	<p>93-95, 98, 99, 102, 103, 106, 107, 111</p>

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2011/042384

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5944739	A	31-08-1999	NONE

EP 1938760	AI	02-07-2008	EP 1938760 AI 02-07-2008
			EP 1938761 AI 02-07-2008
			US 2008243148 AI 02-10-2008
			US 2009125039 AI 14-05-2009
			Wo 2007037326 AI 05-04-2007
			Wo 2007037335 AI 05-04-2007

wo 2006039296	A2	13-04-2006	EP 1804683 A2 11-07-2007
			US 2005251210 AI 10-11-2005
			US 2008177304 AI 24-07-2008
			wo 2006039296 A2 13-04-2006

US 2010094425	AI	15-04-2010	AU 2009303594 AI 22-04-2010
			EP 2346413 AI 27-07-2011
			US 2010094425 AI 15-04-2010
			wo 2010045179 AI 22-04-2010

US 2004153074	AI	05-08-2004	AU 2004211913 AI 26-08-2004
			AU 2010202255 AI 24-06-2010
			EP 1589880 A2 02-11-2005
			JP 2006516468 A 06-07-2006
			JP 2011143257 A 28-07-2011
			US 2004153074 AI 05-08-2004
			wo 2004071307 A2 26-08-2004

wo 2005065553	AI	21-07-2005	EP 1708626 AI 11-10-2006
			US 2005159762 AI 21-07-2005
			wo 2005065553 AI 21-07-2005

US 2009306711	AI	10-12-2009	NONE

US 2002115999	AI	22-08-2002	AU 777280 B2 07-10-2004
			AU 6359700 A 13-02-2001
			CA 2345035 AI 01-02-2001
			EP 1150615 A2 07-11-2001
			JP 4455795 B2 21-04-2010
			JP 2003505128 A 12-02-2003
			US 6319252 BI 20-11-2001
			US 2002115999 AI 22-08-2002
			US 2004220573 AI 04-11-2004
			US 2011152885 AI 23-06-2011
			US 2011152929 AI 23-06-2011
			wo 0106909 A2 01-02-2001

US 2007185532	AI	09-08-2007	US 2007185532 AI 09-08-2007
			US 2008065114 AI 13-03-2008
			US 2010268275 AI 21-10-2010

US 4994028	A	19-02-1991	NONE

wo 2009126781	AI	15-10-2009	EP 2278925 AI 02-02-2011
			US 2011202074 AI 18-08-2011
			wo 2009126781 AI 15-10-2009

US 2011082472	AI	07-04-2011	US 2011082472 AI 07-04-2011
			wo 2011043924 A2 14-04-2011

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No PCT/US2011/042384

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
wo 9922648	AI	14-05-1999	AU 737089 B2 09-08-2001 AU 9228998 A 24-05-1999 CA 2307773 AI 14-05-1999 EP 1032313 AI 06-09-2000 EP 1621136 A2 01-02-2006 JP 3572257 B2 29-09-2004 JP 2002527121 A 27-08-2002 JP 2004097849 A 02-04-2004 US 5944724 A 31-08-1999 Wo 9922648 AI 14-05-1999
us 2008140092	AI	12-06--2008	US 2008140092 AI 12-06-2008 US 2008140093 AI 12-06-2008 US 2011160767 AI 30-06-2011 US 2011160768 AI 30-06-2011
us 2009069823	AI	12-03--2009	DE 102008046561 AI 23-04-2009 GB 2452825 A 18-03-2009 US 2009069823 AI 12-03-2009 US 2011213417 AI 01-09-2011

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-58

insertion instrument having a first pusher and a second cannulated pusher

2. claims: 59-69

insertion instrument having a casing translatably fixed to the cannula

3. claims: 70-92

insertion instrument having a retention assembly configured to retain an end of a tensioning member

4. claims: 93-119

insertion instrument having two cannulas and two pusher members
