



(43) International Publication Date
31 January 2013 (31.01.2013)

- (51) **International Patent Classification:**
A61M 39/10 (2006.01) *A61M 39/22* (2006.01)
A61M 39/08 (2006.01)
- (21) **International Application Number:**
PCT/US2012/048515
- (22) **International Filing Date:**
27 July 2012 (27.07.2012)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
13/192,630 28 July 2011 (28.07.2011) US
- (71) **Applicant (for all designated States except US):** **APPLIED MEDICAL TECHNOLOGY, INC.** [US/US];
8000 Katherine Blvd., Brecksville, OH 44141 (US).
- (72) **Inventors; and**
- (75) **Inventors/Applicants (for US only):** **WILLIAMS, Derek, M.** [US/US]; 3130 Meier Place, Cuyahoga Falls, OH 44221 (US). **PHILLIPS, Grant, W.** [US/US]; 3663 Whitethorn Circle, Richfield, OH 44286 (US).
- (74) **Agents:** **COOPER, Lorri, W.** et al.; Peame & Gordon LLP, 1801 East 9th Street, Suite 1200, Cleveland, OH 44114-3108 (US).
- (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, BN, 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, QA, RO, RS, RU, RW, 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.

- (84) **Designated States (unless otherwise indicated, for every kind of regional protection available):** ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, 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, 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).

Published:

- with international search report (Art. 21(3))
- 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))

- (88) **Date of publication of the international search report:**
25 April 2013

(54) **Title:** COUPLING FOR MEDICAL FLUIDS

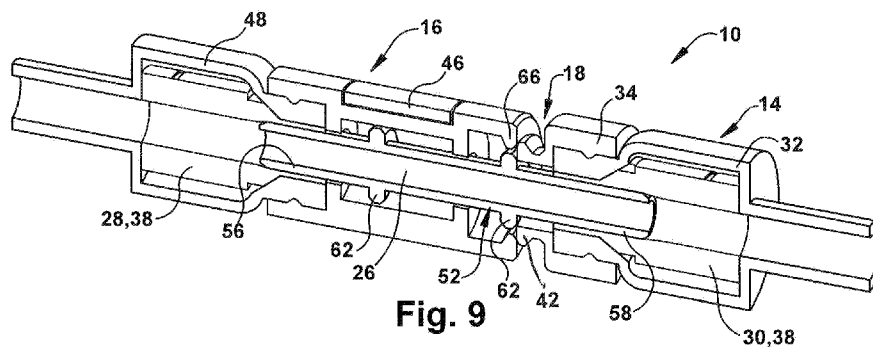


Fig. 9

(57) **Abstract:** A coupling apparatus includes a first component having a first non-mechanical valve, a second component having a second non-mechanical valve, and a third component having a first end for coupling with the first valve and a second end for coupling with the second valve. The third component has an elongated bore such that when the first end is coupled to the first valve and the second end is coupled to the second valve, a passageway is defined therethrough. The coupling apparatus includes a breakaway portion disposed between the third component and the second component and the first and second valves automatically close when the second and third components are separated from one another.



INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2012/048515**A. CLASSIFICATION OF SUBJECT MATTER*****A61M 39/10(2006.01)i, A61M 39/08(2006.01)i, A61M 39/22(2006.01)i***

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)

A61M 39/10; A61M 31/00; A61M 39/22; A61M 5/24; A61M 39/06; A61M 39/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) & Keywords:coupling,non-mechanical valve

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2009-0163892 A1 (MCMICHAEL, DONALD J. et al.) 25 June 2009 See paragraphs [0029],[0031], fig. 2B.	1-22
A	US 2006-0149213 A1 (RAYBUCK, JOHN) 06 July 2006 See paragraphs [0044],[0050],[0051], figs. 2,9.	1-22
A	US 2010-0318039 A1 (HALL, KRISTIAN et al.) 16 December 2010 See paragraph [0025], fig. 2A.	1-22
A	US 2002-0032433 A1 (LOPEZ, GEORGE A.) 14 March 2002 See paragraphs [0044],[0047],[0055], figs. 2,3,4,5,13.	1-22
A	WO 00-29061 A1 (ARTHESYS) 25 May 2000 See claim 1, page 8, lines 1,2,11-12, page 9, lines 16-24, figs. 5,6.	1-22

☐ Further documents are listed in the continuation of Box C.☒ 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 application or patent 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 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

28 FEBRUARY 2013 (28.02.2013)

Date of mailing of the international search report

28 FEBRUARY 2013 (28.02.2013)

Name and mailing address of the ISA/KR

Korean Intellectual Property Office
189 Cheongsu-ro, Seo-gu, Daejeon Metropolitan
City, 302-701, Republic of Korea

Facsimile No. 82-42-472-7140

Authorized officer

KANG, Sung Hyun

Telephone No. 82-42-481-8160



INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2012/048515

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2009-0163892 A1	25.06.2009	AU 2008-337167 A1 CA 2708162 A1 EP 2219721 A1 JP 2011-507573 A JP 2011-507573 T MX 2010006149 A US 8142418 B2 WO 2009-077881 A1	25.06.2009 25.06.2009 25.08.2010 10.03.2011 10.03.2011 23.06.2010 27.03.2012 25.06.2009
US 2006-0149213 A1	06.07.2006	AT 413901 T AU 2005-323127 A1 AU 2005-323127 B2 CA 2593373 A1 DE 602005011054 D1 DK 1835961 T3 EP 1835961 A1 EP 1835961 B1 ES 2315945 T3 HK 1109091 A1 JP 05-086811 B2 JP 2008-526308 A JP 2008-526308 T NO 20073869 A NO 20073869 B NZ 556694 A PT 1835961 E US 7651481 B2 WO 2006-073778 A1 ZA 200706204 A	15.11.2008 13.07.2006 06.01.2011 13.07.2006 24.12.2008 02.03.2009 26.09.2007 12.11.2008 01.04.2009 09.04.2009 14.09.2012 24.07.2008 24.07.2008 24.09.2007 24.09.2007 29.01.2010 12.02.2009 26.01.2010 13.07.2006 29.10.2008
US 2010-0318039 A1	16.12.2010	EP 2242533 A1 GB 0724827 D0 WO 2009-081180 A1	27.10.2010 30.01.2008 02.07.2009
US 2002-0032433 A1	14.03.2002	AT 194086 T AT 262361 T AU 1996-64441 B2 AU 1999-26998 A1 AU 1999-26998 B2 AU 1999-26998 C AU 1999-35083 A1 AU 3233193 A AU 744283 C BG 61386 B1 BG 98816 A BR 9206940 A CA 2124822 A1 CA 2124822 C CA 2193702 A1	15.07.2000 15.04.2004 08.07.1999 01.07.1999 21.02.2002 01.07.1999 19.08.1999 19.07.1993 02.06.2005 31.07.1997 31.05.1995 28.11.1995 24.06.1993 03.07.2007 04.01.1996

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2012/048515

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
		CA 2193702 C	13.10.2009
		CA 2588574 A1	24.06.1993
		CN 100591390 C	24.02.2010
		CN 1077654 A0	27.10.1993
		CN 1130238 C0	10.12.2003
		CN 1443579 A	24.09.2003
		CN 1443579 A0	24.09.2003
		CN 1915450 A	21.02.2007
		CN 1915450 C0	21.02.2007
		CZ 9401492 A3	16.11.1994
		DE 69231208 D1	03.08.2000
		DE 69231208 T2	22.02.2001
		DE 69233329 D1	29.04.2004
		DE 69233329 T2	05.08.2004
		DK 681493 T3	23.10.2000
		DK 988871 T3	24.05.2004
		EP 0681493 A1	15.11.1995
		EP 0681493 A1	07.06.2000
		EP 0681493 B1	28.06.2000
		EP 0712476 A1	22.09.1999
		EP 0771184 A1	23.01.2002
		EP 0771184 B1	04.09.2002
		EP 0988871 A2	29.03.2000
		EP 0988871 A3	24.05.2000
		EP 0988871 B1	24.03.2004
		EP 1181921 A2	27.02.2002
		EP 1181921 A3	06.03.2002
		ES 2147748 T3	01.10.2000
		ES 2215359 T3	01.10.2004
		FI 109661 B1	30.09.2002
		FI 942929 A	17.06.1994
		FI 942929 D0	17.06.1994
		GR 3034341 T3	29.12.2000
		HK 1009592 A1	23.01.2001
		HK 1059231 A1	24.09.2010
		HU 67968 A2	29.05.1995
		HU 9401728 D0	28.09.1994
		HU T67968 A	29.05.1995
		JP 03-573457 B2	06.10.2004
		JP 09-500563 A	21.01.1997
		JP 10-504736 A	12.05.1998
		JP 7505064 T	08.06.1995
		JP H075-05064-05064	08.06.1995
		KR 10-0273834 B1	15.12.2000
		KR 10-0441231 B1	12.10.2004
		MX 9207380 A	01.07.1993
		MX 9207380 A1	01.07.1993
		NO 310805 B1	03.09.2001
		NO 942318 A	17.08.1994
		NO 942318 D0	17.06.1994

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2012/048515

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
		NZ 246243 A	22.08.1997
		OA 10067 A	14.10.1996
		PT 681493 E	29.12.2000
		PT 681493 T	29.12.2000
		PT 988871 E	30.07.2004
		PT 988871 T	30.07.2004
		SK 74194 A3	13.09.1995
		US 05685866A A	11.11.1997
		US 05690612A A	25.11.1997
		US 05694686A A	09.12.1997
		US 05695466A A	09.12.1997
		US 05873862A A	23.02.1999
		US 05901942A A	11.05.1999
		US 05928204A A	27.07.1999
		US 06132403A A	17.10.2000
		US 2002-0138047 A1	26.09.2002
		US 2002-0143301 A1	03.10.2002
		US 2004-002684 A1	01.01.2004
		US 2004-0243070 A1	02.12.2004
		US 2004-073174 A1	15.04.2004
		US 2006-0200087 A1	07.09.2006
		US 2006-0200091 A1	07.09.2006
		US 2006-0200092 A1	07.09.2006
		US 2006-0200093 A1	07.09.2006
		US 2006-0206058 A1	14.09.2006
		US 2006-0206059 A1	14.09.2006
		US 2006-0206060 A1	14.09.2006
		US 2006-0229572 A1	12.10.2006
		US 2006-0264845 A1	23.11.2006
		US 2006-0264846 A1	23.11.2006
		US 2006-0264847 A1	23.11.2006
		US 2006-0264891 A1	23.11.2006
		US 2006-0264892 A1	23.11.2006
		US 6572592 B1	03.06.2003
		US 6599273 B1	29.07.2003
		US 6669673 B2	30.12.2003
		US 6682509 B2	27.01.2004
		US 6758833 B2	06.07.2004
		US 7713247 B2	11.05.2010
		US 7713248 B2	11.05.2010
		US 7713249 B2	11.05.2010
		US 7717883 B2	18.05.2010
		US 7717884 B2	18.05.2010
		US 7717885 B2	18.05.2010
		US 7717886 B2	18.05.2010
		US 7717887 B2	18.05.2010
		US 7722575 B2	25.05.2010
		US 7722576 B2	25.05.2010
		WO 93-11828 A1	24.06.1993
		WO 93-11828A1	24.06.1993

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2012/048515

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 00-29061 A1	25.05.2000	WO 95-03509 A3	02.02.1995
		WO 96-00053 A1	04.01.1996
		WO 96-00107 A1	04.01.1996
		AT 250956 T	15.10.2003
		AU 2000-22519 A1	05.06.2000
		AU 2000-22519 B2	25.09.2003
		CA 2351443 A1	25.05.2000
		CA 2351443 C	14.10.2008
		DE 69818681 D1	06.11.2003
		DE 69818681 T2	29.07.2004
		EP 1002553 A1	24.05.2000
		EP 1002553 B1	01.10.2003
		ES 2209083 T3	16.06.2004
		JP 04-241909 B2	18.03.2009
		JP 2002-529209 A	10.09.2002
		JP 2002-529209 T	10.09.2002
		US 7335182 B1	26.02.2008