(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
10 May 2012 (10.05.2012)

WIPO | PCT

(10) International Publication Number
WO 2012/061809 A3

(51) **International Patent Classification**:
*A61F 2/00* (2006.01) *A61M 25/01* (2006.01)
*A61F 2/84* (2006.01) *A61B 17/00* (2006.01)
*A61F 2/24* (2006.01)

(21) **International Application Number**:
PCT/US2011/059586

(22) **International Filing Date**:
7 November 2011 (07.11.2011)

(25) **Filing Language**: English

(26) **Publication Language**: English

(30) **Priority Data**:

| | | |
|---|---|---|
| 61/410,877 | 6 November 2010 (06.11.2010) | US |
| 61/431,384 | 10 January 2011 (10.01.2011) | US |
| 61/451,899 | 11 March 2011 (11.03.2011) | US |
| 13/240,793 | 22 September 2011 (22.09.2011) | US |

(71) **Applicant** *(for all designated States except US)*: **MEHR MEDICAL LLC** [US/US]; 39 Abbot Street, Andover, Massachusetts 01810 (US).

(72) **Inventor; and**
(75) **Inventor/Applicant** *(for US only)*: **RAFIEE, Nasser** [US/US]; 39 Abbot Street, Andover, Massachusetts 01810 (US).

(74) **Agent**: **POLLACK, Brian R.**; Chadbourne & Parke LLP, 30 Rockefeller Plaza, New York, New York 10112 (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, 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, 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, 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))*

*[Continued on next page]*

(54) **Title**: METHODS AND SYSTEMS FOR DELIVERING PROSTHESES USING RAIL TECHNIQUES

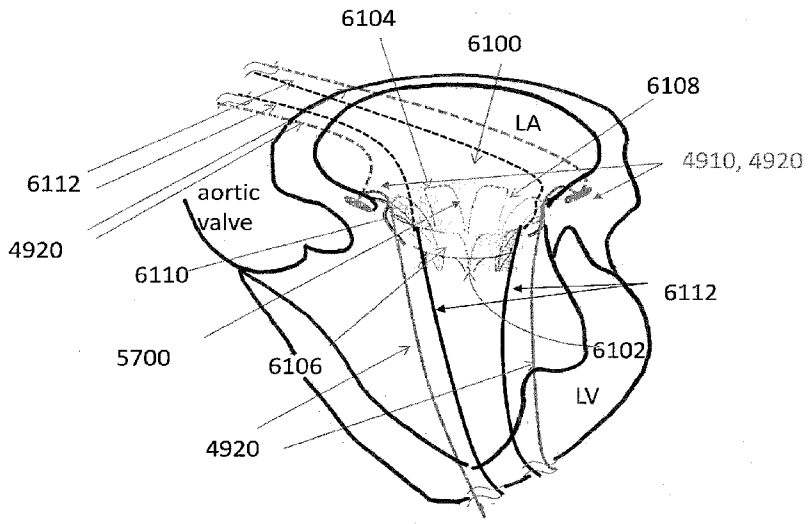


Figure 61A

(57) **Abstract**: Exemplary embodiments provide methods and systems for delivering a prosthesis to a target location in a lumenal system of a patient. At least one tether is secured proximate the target location to serve as a rail, and a prosthesis is advanced along the rail to the target location and secured in place. Exemplary methods and systems provide for repair of the mitral and tricuspid valves, as well as abdominal aortic aneurysms, stomach valves, fallopian tubes and the pulmonary system, among others. Also disclosed are various prostheses suitable for use with the disclosed methods and systems.

WO 2012/061809 A3

— *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**:
19 July 2012

**INTERNATIONAL SEARCH REPORT**

International application No.
**PCT/US2011/059586**

**A. CLASSIFICATION OF SUBJECT MATTER**

***A61F 2/00(2006.01)i, A61F 2/84(2006.01)i, A61F 2/24(2006.01)i, A61M 25/01(2006.01)i, A61B 17/00(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)

A61F 2/00; A61F 2/24; A61F 2/06

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: prosthesis, heart valve, tether, tubular member, delivery system, fastening mechanism, loop, shaft, retractable sheath, conduit, resorbable material.

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|---|---|---|
| X | US 2005-0143809 A1 (AMR SALAHIEH et al.) 30 June 2005<br>See paragraphs 0075, 0076, and 0147-0157; Figs. 1A-2C, 4A, 4B, 10-13, and 50A-51B. | 29,31 |
| Y | | 33 |
| A | | 30,32,34-47 |
| Y | US 2003-0065386 A1 (KEVIN SHAUN WEADOCK) 03 April 2003<br>See paragraph 0022. | 33 |
| A | | 29-32,34-47 |
| X | US 2010-0036479 A1 (ALEXANDER J. HILL et al.) 11 February 2010<br>See paragraph 0047;Figs. 5, 8, 27, and 28. | 34,36,37 |
| A | | 29-33,35,38-47 |
| X | US 2001-0021872 A1 (STEVEN R. BAILEY and CHRISTOPHER T. BOYLE) 13 September 2001<br>See Figs. 1-20I. | 34 |
| A | | 29-33,35-47 |
| X | US 2002-0032481 A1 (SHLOMO GABBAY) 14 March 2002<br>See Figs. 12-18. | 34 |

☒ 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 | Date of mailing of the international search report |
|---|---|
| 25 MAY 2012 (25.05.2012) | **25 MAY 2012 (25.05.2012)** |
| Name and mailing address of the ISA/KR<br>Korean Intellectual Property Office<br>189 Cheongsa-ro, Seo-gu, Daejeon Metropolitan City, 302-701, Republic of Korea<br>Facsimile No. 82-42-472-7140 | Authorized officer<br>Heo, Joo-Hyung<br>Telephone No. 82-42-481-8150 |

Form PCT/ISA/210 (second sheet) (July 2009)

**INTERNATIONAL SEARCH REPORT**

International application No.
**PCT/US2011/059586**

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|---|---|---|
| A | | 29-33,35-47 |
| X | US 2007-0043435 A1 (JACQUES SEGUIN et al.) 22 February 2007 | 34 |
| A | See Figs. 13, 14, 18-22, and 36-40. | 29-33,35-47 |
| X | US 2008-0077234 A1 (MIKOLAJ WITOLD STYRC) 27 March 2008 | 34 |
| A | See Figs. 2 and 5-8. | 29-33,35-47 |
| A | US 2009-0005863 A1 ( WOLFGANG GOETZ and HOU-SEN LIM) 01 January 2009<br>See the whole document. | 29-47 |
| A | US 2008-0221672 A1 (DAVID G. LAMPHERE et al.) 11 September 2008<br>See the whole document. | 29-47 |
| A | US 2010-0249923 A1 (YOUSEF F. ALKHATIB and MICHAEL J. GIRARD) 30 September 2010<br>See the whole document. | 29-47 |

# INTERNATIONAL SEARCH REPORT

International application No.
**PCT/US2011/059586**

**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.: 1-28,48
because they relate to subject matter not required to be searched by this Authority, namely:
Claims 1-28 and 48 pertain to methods for treatment of the human body by surgery, and thus relate to a subject matter which this International Searching Authority is not required, under Article 17(2)(a)(i) of the PCT and Rule 39.1(iv) of the Regulations under the PCT, to search.

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:

1. ☐ As all required addtional 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 fee, this Authority did not invite payment of any additional fee.

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**

Information on patent family members

International application No.

**PCT/US2011/059586**

| Patent document cited in search report | Publication date | Patent family member(s) | Publication date |
|---|---|---|---|
| US 2005-0143809 A1 | 30.06.2005 | AU 2004-308508 B2 | 10.03.2011 |
| | | AU 2004-311967 B2 | 24.03.2011 |
| | | AU 2006-309251 A1 | 10.05.2007 |
| | | CA 2550509 A1 | 21.07.2005 |
| | | CA 2551111 A1 | 14.07.2005 |
| | | CA 2623814 A1 | 10.05.2007 |
| | | CN 100589779 C | 17.02.2010 |
| | | CN 101947146 A | 19.01.2011 |
| | | CN 102245256 A | 16.11.2011 |
| | | CN 1905846 A | 31.01.2007 |
| | | EP 1701668 A1 | 20.09.2006 |
| | | EP 1702247 A2 | 20.09.2006 |
| | | EP 1758523 A1 | 07.03.2007 |
| | | EP 1926455 A2 | 04.06.2008 |
| | | JP 04842144 B2 | 14.10.2011 |
| | | JP 2007-516039 A | 21.06.2007 |
| | | JP 2007-516055 A | 21.06.2007 |
| | | JP 2009-508641 A | 05.03.2009 |
| | | US 2005-0137686 A1 | 23.06.2005 |
| | | US 2005-0137687 A1 | 23.06.2005 |
| | | US 2005-0137688 A1 | 23.06.2005 |
| | | US 2005-0137689 A1 | 23.06.2005 |
| | | US 2005-0137690 A1 | 23.06.2005 |
| | | US 2005-0137691 A1 | 23.06.2005 |
| | | US 2005-0137692 A1 | 23.06.2005 |
| | | US 2005-0137693 A1 | 23.06.2005 |
| | | US 2005-0137694 A1 | 23.06.2005 |
| | | US 2005-0137695 A1 | 23.06.2005 |
| | | US 2005-0137696 A1 | 23.06.2005 |
| | | US 2005-0137697 A1 | 23.06.2005 |
| | | US 2005-0137698 A1 | 23.06.2005 |
| | | US 2005-0137699 A1 | 23.06.2005 |
| | | US 2005-0137701 A1 | 23.06.2005 |
| | | US 2005-0137702 A1 | 23.06.2005 |
| | | US 2005-0283231 A1 | 22.12.2005 |
| | | US 2006-0058872 A1 | 16.03.2006 |
| | | US 2006-0173524 A1 | 03.08.2006 |
| | | US 2006-0253191 A1 | 09.11.2006 |
| | | US 2007-0010876 A1 | 11.01.2007 |
| | | US 2007-0010877 A1 | 11.01.2007 |
| | | US 2007-0118214 A1 | 24.05.2007 |
| | | US 2007-0162107 A1 | 12.07.2007 |
| | | US 2007-0203503 A1 | 30.08.2007 |
| | | US 2007-0244552 A1 | 18.10.2007 |
| | | US 2008-0125859 A1 | 29.05.2008 |
| | | US 2008-0234814 A1 | 25.09.2008 |
| | | US 2009-0076598 A1 | 19.03.2009 |
| | | US 2009-0264997 A1 | 22.10.2009 |
| | | US 2010-0121434 A1 | 13.05.2010 |

**INTERNATIONAL SEARCH REPORT**

Information on patent family members

International application No.

**PCT/US2011/059586**

| Patent document cited in search report | Publication date | Patent family member(s) | Publication date |
|---|---|---|---|
| | | US 2010-0280495 A1 | 04.11.2010 |
| | | US 7329279 B2 | 12.02.2008 |
| | | US 7381219 B2 | 03.06.2008 |
| | | US 7445631 B2 | 04.11.2008 |
| | | US 7748389 B2 | 06.07.2010 |
| | | US 7780725 B2 | 24.08.2010 |
| | | US 7824442 B2 | 02.11.2010 |
| | | US 7824443 B2 | 02.11.2010 |
| | | US 7959666 B2 | 14.06.2011 |
| | | US 7959672 B2 | 14.06.2011 |
| | | US 7988724 B2 | 02.08.2011 |
| | | US 8048153 B2 | 01.11.2011 |
| | | US 8052749 B2 | 08.11.2011 |
| | | US 8062357 B2 | 22.11.2011 |
| | | US 8075614 B2 | 13.12.2011 |
| | | WO 2005-062980 A2 | 14.07.2005 |
| | | WO 2005-065585 A1 | 21.07.2005 |
| | | WO 2006-009690 A1 | 26.01.2006 |
| | | WO 2007-053243 A2 | 10.05.2007 |
| | | WO 2007-092354 A2 | 16.08.2007 |
| | | WO 2010-042950 A2 | 15.04.2010 |
| US 2003-0065386 A1 | 03.04.2003 | CA 2461852 A1 | 10.04.2003 |
| | | EP 1435879 A4 | 23.08.2006 |
| | | JP 2005-504585 T | 17.02.2005 |
| | | WO 03-028592 A1 | 10.04.2003 |
| US 2010-0036479 A1 | 11.02.2010 | AU 2009-240565 A1 | 29.10.2009 |
| | | CA 2722366 A1 | 29.10.2009 |
| | | CN 102083391 A | 01.06.2011 |
| | | EP 2282700 A1 | 16.02.2011 |
| | | KR 10-2011-0038617 A | 14.04.2011 |
| | | MX 2010011389 A | 14.01.2011 |
| | | US 2009-0281618 A1 | 12.11.2009 |
| | | WO 2009-132187 A1 | 29.10.2009 |
| US 2001-0021872 A1 | 13.09.2001 | AT 498373 T | 15.03.2011 |
| | | AU 2001-16165 B2 | 20.10.2005 |
| | | AU 2001-245884 B2 | 27.04.2006 |
| | | AU 2001-25844 B2 | 22.12.2005 |
| | | AU 2001-261455 B2 | 25.01.2007 |
| | | AU 2002-319631 B2 | 06.12.2007 |
| | | AU 2002-321909 B2 | 10.01.2008 |
| | | AU 2002-323009 B2 | 14.02.2008 |
| | | AU 2002-326894 B2 | 17.04.2008 |
| | | AU 2002-335625 B2 | 01.05.2008 |
| | | AU 2005-282316 A1 | 16.03.2006 |
| | | AU 2006-201194 B2 | 03.04.2008 |
| | | AU 2584401 A | 16.07.2001 |
| | | CA 2362439 C | 22.06.2010 |

**INTERNATIONAL SEARCH REPORT**

Information on patent family members

International application No.

**PCT/US2011/059586**

| Patent document cited in search report | Publication date | Patent family member(s) | Publication date |
|---|---|---|---|
| | | CA 2390942 C | 11.03.2008 |
| | | CA 2403341 C | 25.05.2010 |
| | | CA 2408801 A1 | 22.11.2001 |
| | | CA 2452571 C | 14.12.2010 |
| | | CA 2455417 A1 | 13.02.2003 |
| | | CA 2456697 C | 02.02.2010 |
| | | CA 2457012 C | 10.01.2012 |
| | | CA 2579604 A1 | 16.03.2006 |
| | | CN 101141935 A0 | 12.03.2008 |
| | | DE 60045632 D1 | 31.03.2011 |
| | | EP 1187582 B1 | 16.02.2011 |
| | | EP 1233725 B1 | 16.07.2008 |
| | | EP 1267749 B1 | 18.11.2009 |
| | | EP 1280565 A2 | 05.02.2003 |
| | | EP 1408895 B1 | 22.12.2010 |
| | | EP 1412016 A2 | 28.04.2004 |
| | | EP 1416978 B1 | 27.04.2011 |
| | | EP 1420717 B1 | 27.04.2011 |
| | | EP 1424959 A1 | 09.06.2004 |
| | | EP 1804718 A2 | 11.07.2007 |
| | | EP 1990028 A2 | 12.11.2008 |
| | | EP 2289466 A1 | 02.03.2011 |
| | | EP 2298249 A1 | 23.03.2011 |
| | | EP 2298252 A1 | 23.03.2011 |
| | | JP 03781591 B2 | 31.05.2006 |
| | | JP 04319540 B2 | 05.06.2009 |
| | | JP 04567332 B2 | 13.08.2010 |
| | | JP 04636794 B2 | 03.12.2010 |
| | | JP 2000-199809 A | 18.07.2000 |
| | | JP 2003-518984 A | 17.06.2003 |
| | | JP 2003-528690 A | 30.09.2003 |
| | | JP 2004-500167 A | 08.01.2004 |
| | | JP 2004-512059 A | 22.04.2004 |
| | | JP 2004-531355 A | 14.10.2004 |
| | | JP 2004-536672 A | 09.12.2004 |
| | | JP 2004-537359 A | 16.12.2004 |
| | | JP 2004-538097 A | 24.12.2004 |
| | | JP 2005-501653 A | 20.01.2005 |
| | | JP 2008-512213 A | 24.04.2008 |
| | | US 2001-0001834 A1 | 24.05.2001 |
| | | US 2001-0032013 A1 | 18.10.2001 |
| | | US 2002-0165576 A1 | 07.11.2002 |
| | | US 2002-0165600 A1 | 07.11.2002 |
| | | US 2003-0023300 A1 | 30.01.2003 |
| | | US 2003-0023303 A1 | 30.01.2003 |
| | | US 2003-0028210 A1 | 06.02.2003 |
| | | US 2003-0028246 A1 | 06.02.2003 |
| | | US 2003-0059640 A1 | 27.03.2003 |
| | | US 2003-0074053 A1 | 17.04.2003 |
| | | US 2003-0130718 A1 | 10.07.2003 |

**INTERNATIONAL SEARCH REPORT**

Information on patent family members

International application No.

**PCT/US2011/059586**

| Patent document cited in search report | Publication date | Patent family member(s) | Publication date |
|---|---|---|---|
| | | US 2004-0106976 A1 | 03.06.2004 |
| | | US 2004-0181252 A1 | 16.09.2004 |
| | | US 2005-0072544 A1 | 07.04.2005 |
| | | US 2005-0131521 A1 | 16.06.2005 |
| | | US 2005-0165468 A1 | 28.07.2005 |
| | | US 2006-0015175 A1 | 19.01.2006 |
| | | US 2006-0052865 A1 | 09.03.2006 |
| | | US 2006-0167543 A1 | 27.07.2006 |
| | | US 2007-0250156 A1 | 25.10.2007 |
| | | US 2008-0027388 A1 | 31.01.2008 |
| | | US 2008-0039932 A1 | 14.02.2008 |
| | | US 2008-0125853 A1 | 29.05.2008 |
| | | US 2008-0171214 A1 | 17.07.2008 |
| | | US 2009-0132022 A1 | 21.05.2009 |
| | | US 2010-0154197 A1 | 24.06.2010 |
| | | US 2010-0191317 A1 | 29.07.2010 |
| | | US 6348960 B1 | 19.02.2002 |
| | | US 6379383 B1 | 30.04.2002 |
| | | US 6458153 B1 | 01.10.2002 |
| | | US 6537310 B1 | 25.03.2003 |
| | | US 6652578 B2 | 25.11.2003 |
| | | US 6695865 B2 | 24.02.2004 |
| | | US 6733513 B2 | 11.05.2004 |
| | | US 6820676 B2 | 23.11.2004 |
| | | US 6849085 B2 | 01.02.2005 |
| | | US 6936066 B2 | 30.08.2005 |
| | | US 7018408 B2 | 28.03.2006 |
| | | US 7195641 B2 | 27.03.2007 |
| | | US 7235092 B2 | 26.06.2007 |
| | | US 7300457 B2 | 27.11.2007 |
| | | US 7335426 B2 | 26.02.2008 |
| | | US 7338520 B2 | 04.03.2008 |
| | | US 7491226 B2 | 17.02.2009 |
| | | US 7625594 B2 | 01.12.2009 |
| | | US 7641680 B2 | 05.01.2010 |
| | | US 7641682 B2 | 05.01.2010 |
| | | US 7670690 B2 | 02.03.2010 |
| | | US 7799069 B2 | 21.09.2010 |
| | | US 8083908 B2 | 27.12.2011 |
| | | WO 01-35865 A1 | 25.05.2001 |
| | | WO 01-49213 A2 | 12.07.2001 |
| | | WO 01-74274 A2 | 11.10.2001 |
| | | WO 01-87371 A2 | 22.11.2001 |
| | | WO 03-003943 A2 | 16.01.2003 |
| | | WO 03-011363 A2 | 13.02.2003 |
| | | WO 03-013337 A2 | 20.02.2003 |
| | | WO 03-015840 A2 | 27.02.2003 |
| | | WO 03-022177 A1 | 20.03.2003 |
| | | WO 2006-029375 A2 | 16.03.2006 |

**INTERNATIONAL SEARCH REPORT**

Information on patent family members

International application No.

**PCT/US2011/059586**

| Patent document cited in search report | Publication date | Patent family member(s) | Publication date |
|---|---|---|---|
| US 2002-0032481 A1 | 14.03.2002 | AU 2002-330274 A8 | 22.04.2003 |
| | | CA 2462834 A1 | 17.04.2003 |
| | | EP 1441671 A2 | 04.08.2004 |
| | | JP 2005-505343 A | 24.02.2005 |
| | | US 2003-0040792 A1 | 27.02.2003 |
| | | US 2003-0149477 A1 | 07.08.2003 |
| | | US 2006-0142848 A1 | 29.06.2006 |
| | | US 2008-0021552 A1 | 24.01.2008 |
| | | US 2009-0248149 A1 | 01.10.2009 |
| | | US 7025780 B2 | 11.04.2006 |
| | | US 7510572 B2 | 31.03.2009 |
| | | US 7803185 B2 | 28.09.2010 |
| | | WO 02-22054 A1 | 21.03.2002 |
| | | WO 03-030776 A2 | 17.04.2003 |
| | | WO 2007-097830 A2 | 30.08.2007 |
| US 2007-0043435 A1 | 22.02.2007 | AU 2001-17132 B2 | 20.11.2003 |
| | | AU 2002-212418 B2 | 30.03.2006 |
| | | AU 2006-250076 A1 | 30.11.2006 |
| | | CA 2389713 C | 02.09.2008 |
| | | CA 2425342 C | 07.12.2010 |
| | | CA 2614489 A1 | 30.11.2006 |
| | | EP 1233731 B1 | 29.12.2004 |
| | | EP 1330213 B1 | 04.03.2009 |
| | | EP 1906883 A1 | 09.04.2008 |
| | | JP 04130770 B2 | 06.08.2008 |
| | | JP 2003-513751 A | 15.04.2003 |
| | | JP 2004-516870 A | 10.06.2004 |
| | | JP 2008-541865 A | 27.11.2008 |
| | | US 2004-0093060 A1 | 13.05.2004 |
| | | US 2004-0210304 A1 | 21.10.2004 |
| | | US 2006-0129235 A1 | 15.06.2006 |
| | | US 2008-0133003 A1 | 05.06.2008 |
| | | US 2009-0164006 A1 | 25.06.2009 |
| | | US 2010-0004740 A1 | 07.01.2010 |
| | | US 2010-0152840 A1 | 17.06.2010 |
| | | US 2011-0125257 A1 | 26.05.2011 |
| | | US 2011-0213461 A1 | 01.09.2011 |
| | | US 6830584 B1 | 14.12.2004 |
| | | US 7018406 B2 | 28.03.2006 |
| | | US 7329278 B2 | 12.02.2008 |
| | | US 7892281 B2 | 22.02.2011 |
| | | US 8016877 B2 | 13.09.2011 |
| | | WO 01-35870 A1 | 25.05.2001 |
| | | WO 02-36048 A1 | 10.05.2002 |
| | | WO 2006-127765 A1 | 30.11.2006 |
| US 2008-0077234 A1 | 27.03.2008 | BR PI0515637A | 29.07.2008 |
| | | CN 100584293 C | 27.01.2010 |
| | | CN 101031258 A0 | 05.09.2007 |

**INTERNATIONAL SEARCH REPORT**

Information on patent family members

International application No.

**PCT/US2011/059586**

| Patent document cited in search report | Publication date | Patent family member(s) | Publication date |
|---|---|---|---|
| | | EP 1786368 A2 | 23.05.2007 |
| | | FR 2874813 B1 | 22.06.2007 |
| | | US 7648528 B2 | 19.01.2010 |
| | | WO 2006-027499 A2 | 16.03.2006 |
| US 2009-0005863 A1 | 01.01.2009 | EP 1991168 A2 | 19.11.2008 |
| | | US 2011-0040374 A1 | 17.02.2011 |
| | | US 7837727 B2 | 23.11.2010 |
| | | US 7947075 B2 | 24.05.2011 |
| | | WO 2008-029296 A2 | 13.03.2008 |
| US 2008-0221672 A1 | 11.09.2008 | AU 2008-218700 A1 | 28.08.2008 |
| | | AU 2008-218947 A1 | 28.08.2008 |
| | | AU 2008-218948 A1 | 28.08.2008 |
| | | CA 2678940 A1 | 28.08.2008 |
| | | CA 2678970 A1 | 28.08.2008 |
| | | CA 2678971 A1 | 28.08.2008 |
| | | EP 2114305 A2 | 11.11.2009 |
| | | EP 2114306 A2 | 11.11.2009 |
| | | EP 2124827 A2 | 02.12.2009 |
| | | IL 200475 D0 | 29.04.2010 |
| | | JP 2010-518947 A | 03.06.2010 |
| | | JP 2010-518976 A | 03.06.2010 |
| | | JP 2010-518977 A | 03.06.2010 |
| | | US 2008-0208332 A1 | 28.08.2008 |
| | | US 7753949 B2 | 13.07.2010 |
| | | US 8070802 B2 | 06.12.2011 |
| | | WO 2008-103497 A2 | 28.08.2008 |
| | | WO 2008-103498 A2 | 28.08.2008 |
| | | WO 2008-103722 A2 | 28.08.2008 |
| US 2010-0249923 A1 | 30.09.2010 | WO 2009-045334 A1 | 09.04.2009 |