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61/500,005 22 June 2011 (22.06.2011) US
- (71) **Applicant (for all designated States except US):** **TWIN STAR MEDICAL, INC.** [US/US]; 700 Tenth Avenue South, Suite 120, Minneapolis, MN 55415 (US).
- (72) **Inventors; and**
- (75) **Inventors/Applicants (for US only):** **ODLAND, Rick, M.** [US/US]; 433 South Owasso Boulevard, Roseville, MN 55113 (US). **WILSON, Scott, R.** [US/US]; 8254 Xena Lane North, Maple Grove, MN 55311 (US). **STAEHLE, Bradford, G.** [US/US]; 17220 Creek Ridge Pass, Minnetonka, MN 55345 (US).
- (74) **Agents:** **GRAHAM, Matthew, J.s.** et al.; Fredrikson & Byron, P.a., 200 South Sixth Street, Suite 4000, Minneapolis, MN 55402-1425 (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.

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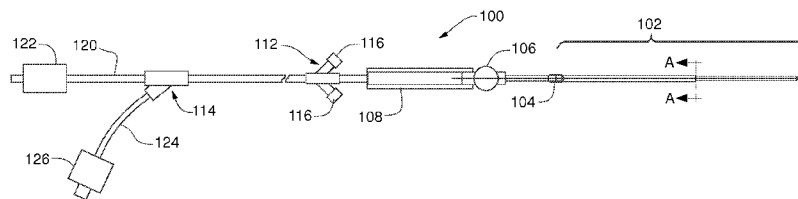
Published:

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- (88) **Date of publication of the international search report:**
21 March 2013

(54) **Title:** SYSTEM AND METHOD FOR TREATING COMPARTMENT SYNDROME

Fig. 1



(57) **Abstract:** A system for use in treating a tissue site, e.g., a site exhibiting or at risk for developing compartment syndrome, the system including a monitor for use in controlling the function and operation of one or more apparatuses providing insertable catheters. The system includes at least one apparatus having a catheter portion that includes both a suitably protected, functional device tip, adapted to be positioned and used within the tissue site, and one or more hollow fiber membranes, e.g., an array of such membranes, adapted to be positioned within the tissue site in order to simultaneously collect fluid therefrom. The catheter portion is adapted to be safely inserted and positioned within the tissue site, in a manner that permits it to function there while substantially minimizing direct impingement of the non-fluid tissue on the functional device tip surface.



INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 12/43353

<p>A. CLASSIFICATION OF SUBJECT MATTER IPC(8) - A61M 27/00 (2012.01) USPC - 604/541, 119 According to International Patent Classification (IPC) or to both national classification and IPC</p>																									
<p>B. FIELDS SEARCHED</p> <p>Minimum documentation searched (classification system followed by classification symbols) IPC(8) - A61M 27/00 (2012.01) USPC - 604/541, 119</p> <p>Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched IPC(8) - A61M 27/00 (2012.01) USPC - 540-544, 73, 93.01, 118-119</p> <p>Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) PubWEST (PGPB, USPT, EPAB, JPAB); Google (Patents, Scholar, Web) Search Terms: Catheter, tip, fluid, tissue, hollow, membrane, fiber, drain, collect, remove, swell, vacuum, pressure, low, recude, insert, minimize, reduce, inping, injure, harm, damage, safe, sense, detect, indicate, oxygen, monitor, display, control, cartridge, collection,</p>																									
<p>C. DOCUMENTS CONSIDERED TO BE RELEVANT</p> <table border="1"> <thead> <tr> <th>Category*</th> <th>Citation of document, with indication, where appropriate, of the relevant passages</th> <th>Relevant to claim No.</th> </tr> </thead> <tbody> <tr> <td>X</td> <td>US 2010/0100061 A1 (ODLAND) 22 April 2010 (22.04.2010) Fig. 1-3, 5-13; Para [0095]-[0099], [0101]-[0104], [0110]-[0111]</td> <td>1-2, 5/(1-2)</td> </tr> <tr> <td>X</td> <td>US 2010/0286586 A1 (ODLAND) 11 November 2010 (11.11.2010) Fig. 8, 35B, 36-40; Para [0095], [0109]-[0112], [0114], [0139]-[0140], [0170], [0187]-[0140]</td> <td>1-2, 9-10</td> </tr> <tr> <td>X =====</td> <td rowspan="2">US 2010/0106140 A1 (ODLAND et al.) 29 April 2010 (29.04.2010) Claim 1, 7, 13; Fig. 1, 3, 7-8; Para [0015], [0019]-[0020], [0022], [0032]-[0034], [0037], [0044], [0047], [0054]-[0055], [0070]</td> <td>1, 3-4, 5/(1, 3-4), 9, 12-13</td> </tr> <tr> <td>Y</td> <td>11</td> </tr> <tr> <td>Y</td> <td>US 2009/0326411 A1 (EIDE) 31 December 2009 (31.12.2009) Para [0013], [0042], [0075], [0092]</td> <td>11</td> </tr> <tr> <td>A</td> <td>US 6,929,626 B2 (DICARLO et al.) 16 August 2005 (16.08.2005) Entire document.</td> <td>1-5, 9-13</td> </tr> <tr> <td>A</td> <td>US 5,180,375 A (FEIBUS) 19 January 1993 (19.01.1993) Entire document.</td> <td>1-5, 9-13</td> </tr> </tbody> </table>			Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.	X	US 2010/0100061 A1 (ODLAND) 22 April 2010 (22.04.2010) Fig. 1-3, 5-13; Para [0095]-[0099], [0101]-[0104], [0110]-[0111]	1-2, 5/(1-2)	X	US 2010/0286586 A1 (ODLAND) 11 November 2010 (11.11.2010) Fig. 8, 35B, 36-40; Para [0095], [0109]-[0112], [0114], [0139]-[0140], [0170], [0187]-[0140]	1-2, 9-10	X =====	US 2010/0106140 A1 (ODLAND et al.) 29 April 2010 (29.04.2010) Claim 1, 7, 13; Fig. 1, 3, 7-8; Para [0015], [0019]-[0020], [0022], [0032]-[0034], [0037], [0044], [0047], [0054]-[0055], [0070]	1, 3-4, 5/(1, 3-4), 9, 12-13	Y	11	Y	US 2009/0326411 A1 (EIDE) 31 December 2009 (31.12.2009) Para [0013], [0042], [0075], [0092]	11	A	US 6,929,626 B2 (DICARLO et al.) 16 August 2005 (16.08.2005) Entire document.	1-5, 9-13	A	US 5,180,375 A (FEIBUS) 19 January 1993 (19.01.1993) Entire document.	1-5, 9-13
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<p><input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/></p>																									
<p>* Special categories of cited documents:</p> <table border="0"> <tr> <td>"A" document defining the general state of the art which is not considered to be of particular relevance</td> <td>"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</td> </tr> <tr> <td>"E" earlier application or patent but published on or after the international filing date</td> <td>"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</td> </tr> <tr> <td>"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)</td> <td>"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</td> </tr> <tr> <td>"O" document referring to an oral disclosure, use, exhibition or other means</td> <td>"&" document member of the same patent family</td> </tr> <tr> <td>"P" document published prior to the international filing date but later than the priority date claimed</td> <td></td> </tr> </table>			"A" document defining the general state of the art which is not considered to be of particular relevance	"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	"E" earlier application or patent but published on or after the international filing date	"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	"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)	"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	"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family	"P" document published prior to the international filing date but later than the priority date claimed														
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<p>Date of the actual completion of the international search 23 August 2012 (23.08.2012)</p>		<p>Date of mailing of the international search report 28 JAN 2013</p>																							
<p>Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201</p>		<p>Authorized officer: Lee W. Young PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774</p>																							

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 12/43353

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.: 6-8
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 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 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.