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- (71) **Applicant:** COVIDIEN LP [US/US]; 15 Hampshire Street, Mansfield, MA 02048 (US).
- (72) **Inventors:** SALAHIEH, Amr; 18729 Metier Court, Saratoga, CA 95070 (US). LEPAK, Jonah; 18729 Metier Court, Saratoga, CA 95070 (US). LEUNG, Emma; 18729 Metier Court, Saratoga, CA 95070 (US). CLAUDE, John, P.; 18729 Metier Court, Saratoga, CA 95070 (US). SAUL, Tom; 18729 Metier Court, Saratoga, CA 95070 (US).
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- (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, PA, 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).

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- (88) **Date of publication of the international search report:**  
11 July 2013



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(54) **Title:** ENERGY DELIVERY DEVICE AND METHODS OF USE

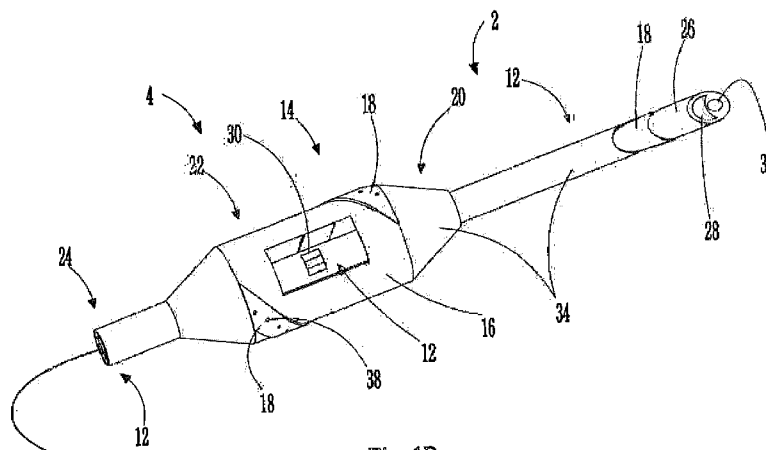


Fig. 1B

(57) **Abstract:** The present disclosure is directed to an expandable energy delivery assembly adapted to deliver electrical energy to tissue. The assembly includes an elongate device and an expandable portion. The expandable portion includes an inflatable element, a single helical electrode disposed on the inflatable element, and at least one irrigation aperture within the inflatable element. The inflatable element is secured to the elongate device and the single helical electrode makes between about .5 and about 1.5 revolutions around the inflatable element. The at least one irrigation aperture is adapted to allow fluid to flow from within the inflatable element to outside the inflatable element.

INTERNATIONAL SEARCH REPORT

International application No  
PCT/US2012/057967

A. CLASSIFICATION OF SUBJECT MATTER  
INV. A61N1/05 A61B18/12  
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)  
A61N 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 practicable, search terms used)  
EPO-Internal , WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2010/204560 AI (SALAH I EH AMR [US] ET AL) 12 August 2010 (2010-08-12)	23-27
Y	abstract; figures 1-12 ,22A-23G,37A-D paragraphs [0074] - [0140] , [0168] - [0172] , [0207] - [0209]	1-15 , 18, 28-35 , 39,71-73
Y	----- Wo 95/10319 AI (EP TECHNOLOGI ES [US] ) 20 April 1995 (1995-04-20)  abstract; figures 7-9 , 11 pages 34-42	1-15 , 18, 28-35 , 70-73
A	----- US 2005/288730 AI (DEEM MARK [US] ET AL) 29 December 2005 (2005-12-29) abstract; figures 4-8 paragraphs [0079] - [0101] ----- -/- .	1,28,71

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 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 <b>2 April 2013</b>	Date of mailing of the international search report <b>10/04/2013</b>
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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  <b>Li ns, Stephani e</b>
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## INTERNATIONAL SEARCH REPORT

International application No  
PCT/US2012/057967

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2005/171525 AI (RIOUX ROBERT J [US] ET AL RIOUX ROBERT F [US] ET AL) 4 August 2005 (2005-08-04) abstract; figures 4-10, 15 paragraphs [0023] - [0059] -----	1,28,71
A	US 2009/024195 AI (REZAI ALI R [US] ET AL) 22 January 2009 (2009-01-22) the whole document -----	1,28,71
X	Wo 2009/121017 AI (UNIV CALI FORNIA [US] ; ANGIODYNAMICS INC [US] ; RUBINSKY BORIS [IL] ; MAO) 1 October 2009 (2009-10-01) abstract; figures 1A, 10-14 paragraphs [0103] - [0127] -----	16-22 , 36-38, 40-43 6,7 ,39 1,28,71
Y	US 2003/050637 AI (MAGUIRE MARK A [US] ET AL) 13 March 2003 (2003-03-13) abstract; figures 11-13 paragraphs [0207] - [0237] -----	70 1,28,71
A	US 7 959 628 B2 (SCHAER ALAN K [US] ET AL) 14 June 2011 (2011-06-14) abstract; figures 1-3 ,5-10 column 11 - column 24 -----	16,36

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No PCT/US2012/057967
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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US2012/057967

## 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.: **44-69**  
because they relate to subject matter not required to be searched by this Authority, namely:  
**Rule 39.1(iv) PCT - Method for treatment of the human or animal body by surgery. Rule 39.1(iv) PCT - Method for treatment of the human or animal body by therapy.**
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.

**FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210**

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

1. claims: 1-5, 8-14, 18, 28-30, 33-35, 38-40, 71-73

Energy delivery assembly with helical electrode.

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2. claims: 6, 7, 16, 17, 19-22, 31, 32, 36, 37, 41-43, 70

Energy delivery assembly with unitary conductive material.

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3. claims: 15, 23-27

Energy delivery assembly with irrigation lumen and pressure control.

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