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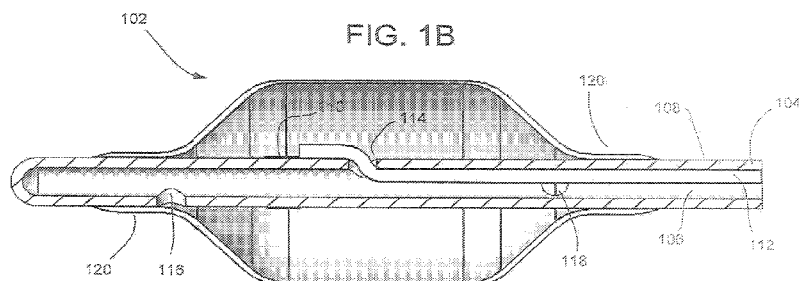
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(54) Title: METHODS AND APPARATUS FOR ELECTRICAL TREATMENT USING BALLOON AND ELECTRODE



(57) Abstract: The present invention provides systems, apparatus and methods for selectively applying electrical energy to body tissue. A device is provided having an enclosure within an outer wall formed from an electrically-permeable material. The device further includes an electrode positioned within the interior of the enclosure and a fluid passage coupled to the enclosure for delivery of an electrically conductive fluid into the interior so that the electrically conductive fluid couples the electrode with the electrically-permeable section of the outerwall. The conductive fluid allows for the passage of electrical energy from the electrode for treatment of tissue on or in a patient. In this manner, the electrode does not directly contact the tissue of the patient, which reduces the potential for collateral tissue damage or necrosis and/or excessive electric fields in the tissue.



## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 09/36259

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - A61B 18/00 (2009.01)

USPC - 606/41

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)

USPC: 606/41

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

USPC: 604/19, 20, 48, 508, 509, 96.01; 606/32, 41; 607/2, 3, 9, 46, 63, 115, 116 (text searched-see terms below)

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

PubWest (PGPB, USPT, USOC, EPAB, and JPAB); Google Scholar

Search Terms: electrode\$, electric\$, electromagnet\$, balloon, expand\$, inflat\$, deform\$, innervat\$, stimulat\$, modulat\$, inhibit\$, excit\$, nerve, vagal, and vagus

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category*       | Citation of document, with indication, where appropriate, of the relevant passages                                                                                                                                                                                                                                                           | Relevant to claim No.                                                                                |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| X<br>-----<br>Y | US 2005/0165388 A1 (BHOLA) 28 July 2005 (28.07.2005), entire document, more specifically, Fig 1A-3B, 4B, 5A, 6A-6C, 7B, 8A-8D, and 12-15A, para[0003], [0004], [0060]-[0063], [0065]-[0068], [0070], [0071], [0074]-[0078], [0086], [0088]-[0092], [0094], [0096], [0099], [0106], [0107], [0115], [0138], [0154], [0157], and [0171]-[0186] | 1-10, 13-15, 18, 20, 21, 23-29, 35-44, 51, and 56<br><br>11, 12, 16, 17, 19, 22, 30-34, 45-50, 52-55 |
| Y               | US 5,056,532 A (HULL et al.) 15 October 1991 (15.10.1991), entire document, more specifically, Fig 1, 2, and 5, col 1, ln 20 to col 3, ln 24                                                                                                                                                                                                 | 11, 12, 16, 17, 19, 22, 45-50, and 53-55                                                             |
| Y               | US 2007/0191902 A1 (ERRICO et al.) 16 August 2007 (16.08.2007), entire document, more specifically, abstract, para[0006], [0036], [0037], [0039], and [0049]-[0052]                                                                                                                                                                          | 30-34 and 52                                                                                         |

☐ Further documents are listed in the continuation of Box C.

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"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

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"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

"&amp;" document member of the same patent family

Date of the actual completion of the international search

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Date of mailing of the international search report

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