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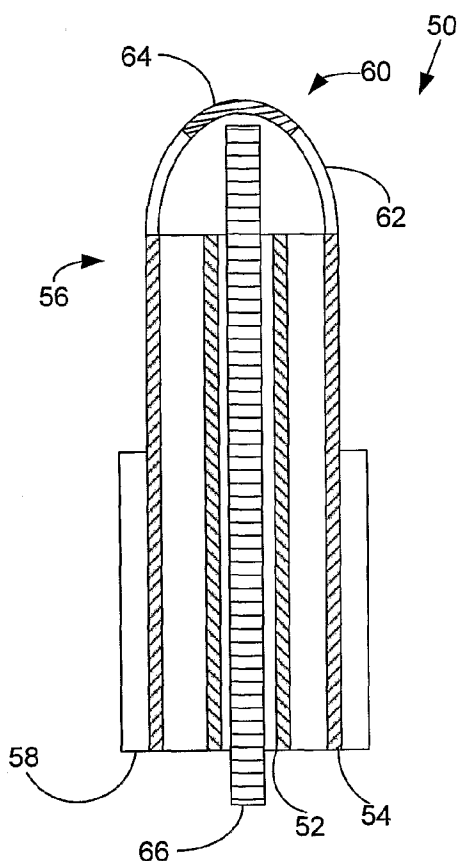
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[Continued on next page]

(54) Title: SYSTEM AND METHOD FOR THERMALLY TREATING TISSUES



(57) Abstract: A system and method are provided for thermally treating tissues in percutaneous surgery or endoluminal treatments. The system consists of at least one catheter for thermally treating a tissue, hydraulic unit for circulating fluids through the catheters and a control station by which an operator is displayed with, and inputs and/or modifies, working parameters of the system. The catheters have an operational face, which is optionally expandable and encloses a lumen through which the fluids are circulated. The method disclosed implements cooling of the targeted tissue prior to its heating. For heating and or cooling the tissues, the operational face of a catheter is pressed against a surface of the targeted tissue while heat emitted from or conducted to the tissue is respectively transferred into or from the circulated fluids.



European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,
FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT,
RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA,
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A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - A61B 18/04 (2008.04)

USPC - 606/24

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)

IPC(8) - A61B 18/04 (2008.04)

USPC - 606/24

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

IPC(8) - A61B 18/00, 18/02, 18/04 (2008.04)

USPC - 606/24, 27, 31, 20, 22, 25; 607/96, 104 (Text Search)

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

PubWEST (PGPB, USPT, USOC, EPAB, JPAB); DialogPRO (Engineering) and Google Scholar.

Search Terms: catheter, thermal, thermally, heat, heating, cool, cooling, freez\$, pump, valve, alternative, consecutive, alternativ\$, consecutiv\$, successiv\$, alternate, alternating, inlet, pressure, sensor, fluid, liquid, gas, compar\$

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|-----------|---|-----------------------|
| Y | US 2003/0004456 A1 (SAAB) 02 January 2003 (02.01.2003) claim 43, 64, 70; fig 1, 3; para [0017], [0026], [0027], [0031], [0043]-[0047], [0049], [0051], [0053]-[0056]. | 1-32 |
| Y | US 2004/0039431 A1 (MACHOLD et al.) 26 February 2004 (26.02.2004) para [0016], [0019], [0072]-[0074], [0080]-[0084], [0099], [0182], [0183]. | 1-11 and 24 |
| Y | US 2004/0260328 A1 (ZVULONI et al.) 23 December 2004 (23.12.2004) para [0026], [0027], [0079], [0081], [0082], [0127], [0135], [0138], [0167], [0195], [0196]. | 1-24 |
| Y | US 4,747,822 A (PEABODY) 31 May 1988 (31.05.1988) col 8, ln 2-23, 54-68; col 9, ln 1-8. | 5 and 20 |
| Y | US 2004/0158238 A1 (LALONDE et al.) 12 August 2004 (12.08.2004) abstract; para [0013], [0025], [0026], [0033]. | 23 |
| Y | US 2002/0151882 A1 (MARKO et al.) 17 October 2002 (17.10.2002) fig 1,3; para [0025], [0036], [0037], [0039]. | 25-32 |
| Y | US 2001/0021867 A1 (KORDIS et al.) 13 September 2001 (13.09.2001) para [0010], [0011], [0060], [0061]. | 26 |



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"A" document defining the general state of the art which is not considered to be of particular relevance

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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

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"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

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document member of the same patent family

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