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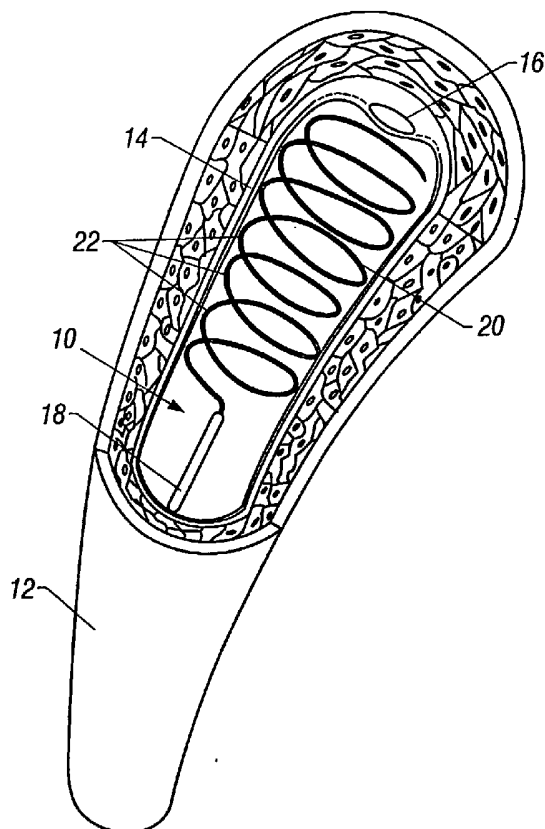
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(54) Title: METHODS AND APPARATUS FOR CRYO-THERAPY



(57) Abstract: Methods and apparatus for cryo-therapy are disclosed herein. This includes a hollow guidewire (20) disposed within a catheter (18) having helical loops (22) contacting tissue. A coolant delivery tube (40) disposed within can have a coolant delivered from a proximal end into the guidewire lumen. The coolant (52) flows back proximally through the guidewire while cooling the guidewire surface and cooling or cryogenically ablating the contacting tissue. To minimize guidewire exposure to surrounding fluids or tissue, insulative barriers (62) can be attached to the guidewire. A coolant delivery tube and return lumen can be integrated from a single extrusion in various configurations. Expandable balloons can also be used to expand the loops of the guidewire to contact the tissue. Also, helical loops with a coolant delivery tube or stem disposed longitudinally within the loops can be used and the loops can also have a variable collapsible cooling region.



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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : A61B 18/02

US CL : 604/113

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)

U.S. : 604/113

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)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5,078,713 A (VARNEY) 07 January 1992 (07.01.1992), see all figures.	15-18
X	US 6,161,543 A (COX et al) 19 December 2000 (10.12.2000), see all figures.	1-4, 7-10

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

☐ See patent family annex.

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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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