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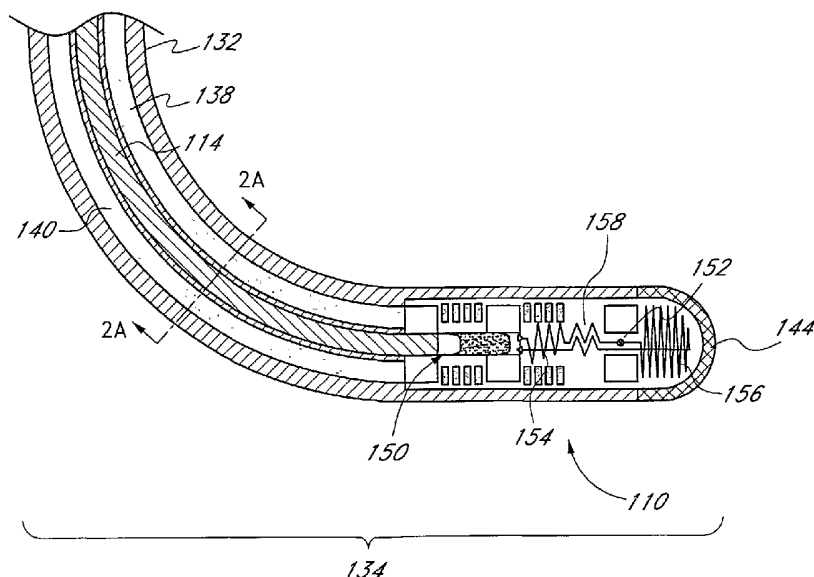
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(54) Title: MINIATURE REFRIGERATION SYSTEM FOR CRYOTHERMAL ABLATION CATHETER



(57) Abstract: A cryocatheter (104) for treating cardiac arrhythmias comprises a miniature refrigeration system (112) powered by electromagnetic radiation (102). The miniature refrigeration system is disposed at the tip of the catheter and electromagnetic radiation is delivered to the refrigeration system by a waveguide. The miniature refrigeration system includes an engine that converts the electromagnetic radiation into mechanical work. The engine compresses refrigerant for circulation through micro channels in the refrigeration system. Such compression is achieved by using the electromagnetic radiation to superheat a portion of a liquid mass. The superheating causes explosive boiling in the liquid to propel the mass and compress the refrigerant. While particularly advantageous in a miniature refrigeration system, the engine may also be applied to other types of devices.

WO 2003/053496 A3

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US02/41157

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : A 61 B 18/18

US CL : 606/021

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. : 606/021, 020, 022, 024

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.
A	US 5891188 A (Maytal) 06 April 1999	1-48

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

☐ See patent family annex.

* Special categories of cited documents:

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