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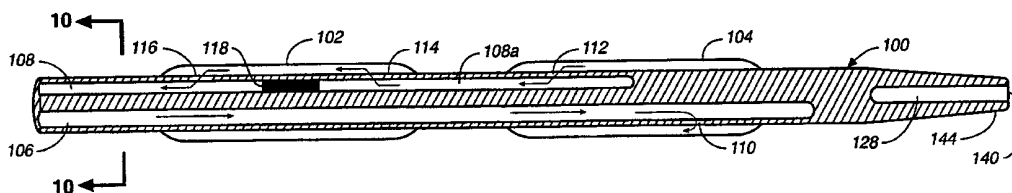
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(54) Title: DUAL BALLOON CENTRAL VENOUS LINE CATHETER TEMPERATURE CONTROL SYSTEM



(57) Abstract: A system for controlling a patient temperature uses a central venous line catheter (100) having axially spaced distal and proximal heat exchange balloons (102/104). The central venous line catheter (100) is provided with one or more lumens (128) for providing access to the central blood supply of the patient, and with additional lumens (106/108) for communicating heat exchange fluid to the balloons (102/104). Heat exchange fluid temperature is controlled through a feed back loop in which patient temperature is sensed and used to control a temperature control unit (50) comprising a heating device and/or a cooling device in heat exchange relationship with the heat exchange fluid. A tubing set (120/122) transports the heat exchange fluid between the central venous line (100) and the temperature control unit (50), with a pump serving to circulate the fluid in a closed fluid circuit in the system.

WO 01/30413 A3

INTERNATIONAL SEARCH REPORT

International application No.
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A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : A61M 29/00

US CL : 604/96.01

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. : 604/96.01, 97.01, 99.01, 99.02, 101.01, 101.03, 101.05, 113; 607/96, 104-106

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 5,599,307 A (BACHER et al) 4 February 1997, see figures 8 and 9.	6-7
X --- A	US Re. 35,352 A (PETERS) 15 October 1996, see figure 4, and col. 5, lines 58-60; col. 6, lines 1-5.	38, 40 ----- 39, 41-44
X	US 5,304,214 A (DeFORD et al) 19 April 1994, figures 30-40, col. 43, lines 19-26.	27-29
Y, P	US 5,976,103 A (MARTIN) 2 November 1999, see entire patent.	39, 41-44
A	US 5,423,744 A (GENCHEFF et al) 13 June 1995, see entire patent.	1-51
A	US 5,588,965 A (BURTON et al) 31 December 1996, see entire patent.	1-51

☒ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:	*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
A document defining the general state of the art which is not considered to be of particular relevance	*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
E earlier document published on or after the international filing date	*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
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)	*G* document member of the same patent family
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	

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INTERNATIONAL SEARCH REPORT

International application No.
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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 5,865,789 A (HATTLER) 2 February 1999, see entire patent.	1-51
A, P	US 6,126,684 A (GOBIN et al) 3 October 2000, see entire patent.	1-51