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(54) Title: METHOD AND APPARATUS FOR WARMING OR COOLING A FLUID

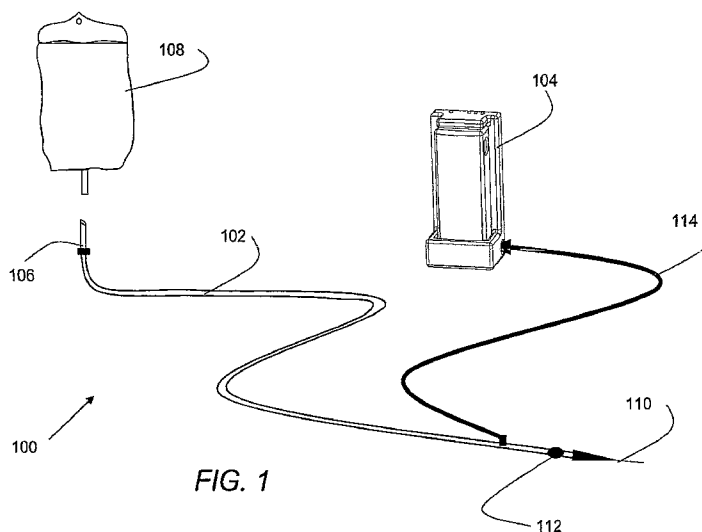


FIG. 1

(57) Abstract: A method and system for heating or cooling a fluid to be delivered into the body of a patient is provided and may include a controller and a fluid delivery line assembly. The fluid delivery line may include sterile fluid pathway and for communicating a fluid from a source to a destination, one or more terminating connectors, and an integral resistance element for producing heat in response to electrical current. The fluid delivery line may also include one or more thermal sensor positioned within the fluid pathway for detecting and reporting the temperature of the fluid being delivered. The controller may include an embedded control/feedback logic program with novel heat balance algorithm to precisely control the amount of heat applied to the fluid. The fluid delivery line assembly may be disposable with at least one of the thermal sensors being reusable while maintaining sterility within the fluid pathway.

WO 2008/091292 A3



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**A. CLASSIFICATION OF SUBJECT MATTER**  
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**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)  
 U.S. : 604/113, 114, 65-67, 246, 6.13, 533

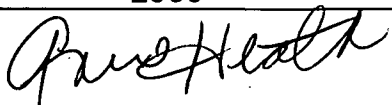

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

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

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
--- Y	US 6,746,439 B2 (Lenker) 8 June 2004 (08.06.2004, Figs 1-8, Summary and Brief Description.	----- 1-22
--- Y	US 6,175,688 B1 (Cassidy et al) 16 January 2001 (16.01.2001), Figures, Summary, Brief Description.	----- 1-22
--- Y	US 5,195,976 A (Swenson) 23 March 1993 (23.03.1993), Figs 1-2, Summary, Description.	----- 1-22

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

<p>* Special categories of cited documents:</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier application or patent published on or after the international filing date</p> <p>"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)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p>	<p>"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</p> <p>"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</p> <p>"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</p> <p>"&amp;" document member of the same patent family</p>
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Date of the actual completion of the international search 18 June 2008 (18.06.2008)	Date of mailing of the international search report <div style="text-align: center; font-size: 1.2em; font-weight: bold;">14 JUL 2008</div>
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (571) 273-3201	Authorized officer Andrew Gilbert  Telephone No. (571) 272-7216 

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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.
--- Y	US 7,090,658 B2 (Faries, Jr. et al) 15 August 2006 (15.08.2006), Fig 13, col 14-15.	----- 1-22