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(54) **Warming methods and apparatus**

(57) Apparatus and method for raising or maintaining the core temperature of a mammal during surgery is disclosed. The apparatus comprises a infrared radiant element (300) with a double reflector (310, 312) design to provide a very narrow beam of radiation. In this fashion the apparatus is able to direct radiant energy at the

mammal's skin in regions with a high concentration of Arteriovenous Anastomoses. The apparatus also includes a skin temperature sensor (114) to allow closed loop control of the heat energy supplied to the mammal. The complete apparatus (100) can be located in an unobtrusive position such that it does not interfere with the surgical team.

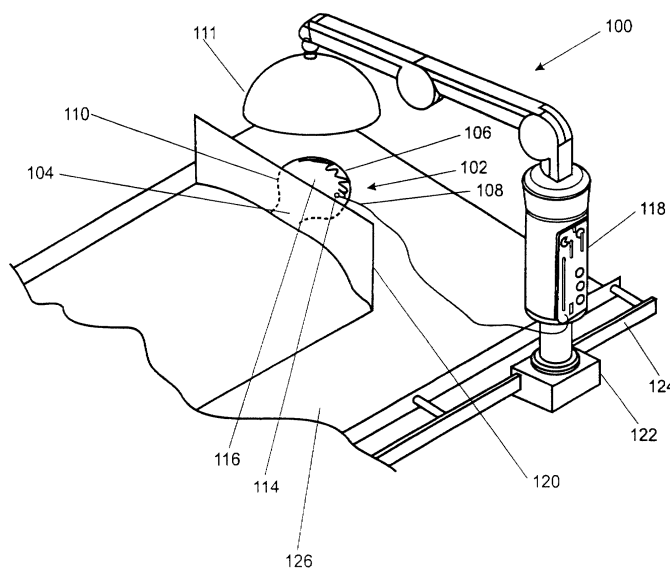


FIGURE 1



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PARTIAL EUROPEAN SEARCH REPORT

Application Number

which under Rule 45 of the European Patent Convention shall be considered, for the purposes of subsequent proceedings, as the European search report

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	US 5 683 438 A (GRAHN DENNIS A) 4 November 1997 (1997-11-04) * column 5, line 40 - line 59; figure 2 * ---	13,28	A61F7/00
X	US 5 817 003 A (MOLL ROBERT G ET AL) 6 October 1998 (1998-10-06) * column 3, line 57 - line 65; figure 1 * ---	13-15, 23-28	
Y		16-20	
Y	US 5 649 972 A (HOCHSTEIN PETER A) 22 July 1997 (1997-07-22) * column 7, line 24 - line 30; figures 1,5 *	16-20	
A	FR 2 231 281 A (SIEMENS AG) 20 December 1974 (1974-12-20) * column 1, line 18 - line 27; claim 1; figure 1 * ---	21,22	
A	EP 0 619 995 A (MEDIPREMA) 19 October 1994 (1994-10-19) * abstract; figure 1 * ---	13	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			A61F A61N A61G H05B
INCOMPLETE SEARCH			
The Search Division considers that the present application, or one or more of its claims, does/do not comply with the EPC to such an extent that a meaningful search into the state of the art cannot be carried out, or can only be carried out partially, for these claims. Claims searched completely : 13-28 Claims searched incompletely : Claims not searched : 1-12 Reason for the limitation of the search: Article 52 (4) EPC - Method for treatment of the human or animal body by surgery			
Place of search THE HAGUE		Date of completion of the search 9 May 2001	Examiner Mayer, E
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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Application Number
EP 00 12 0423

DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
A	US 4 002 175 A (BRAINARD DAVID M ET AL) 11 January 1977 (1977-01-11) * abstract * -----	18	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 00 12 0423

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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09-05-2001

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5683438 A	04-11-1997	EP 0767640 A WO 9628120 A	16-04-1997 19-09-1996
US 5817003 A	06-10-1998	US 5453077 A CA 2232939 A EP 0852485 A JP 2000513598 T WO 9711663 A US 5971913 A US 5971914 A US 6036634 A US 5817002 A US 5759149 A	26-09-1995 03-04-1997 15-07-1998 17-10-2000 03-04-1997 26-10-1999 26-10-1999 14-03-2000 06-10-1998 02-06-1998
US 5649972 A	22-07-1997	US 5413587 A WO 9514506 A	09-05-1995 01-06-1995
FR 2231281 A	20-12-1974	DE 7319059 U	06-09-1973
EP 0619995 A	19-10-1994	FR 2703905 A DE 69417460 D DE 69417460 T DE 619995 T ES 2132353 T	21-10-1994 06-05-1999 07-10-1999 30-04-1998 16-08-1999
US 4002175 A	11-01-1977	NONE	

专利名称(译)	加温方法和设备		
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其他公开文献	EP1086673A2 EP1086673B1		
外部链接	Espacenet		

摘要(译)

公开了用于在手术期间提高或维持哺乳动物的核心温度的装置和方法。该装置包括红外辐射元件 (300) , 其具有双反射器 (310,312) , 设计成提供非常窄的辐射束。以这种方式, 该装置能够在具有高浓度动静脉吻合的区域中引导哺乳动物皮肤的辐射能量。该装置还包括皮肤温度传感器 (114) , 以允许闭环控制提供给哺乳动物的热能。整个装置 (100) 可以位于不显眼的位置, 使得它不会干扰手术团队。

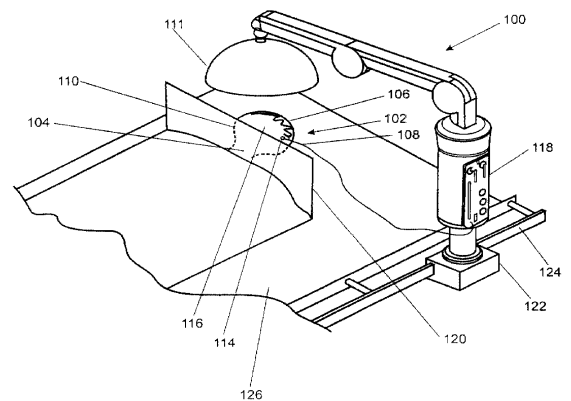


FIGURE 1