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05027173.3 / 1 645 227
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(54) **Device and method for segmental bioimpedance measurements of a dialysis patient**

(57) The present invention includes a method of determining the dry body weight of a patient undergoing dialysis by means of segmental bioimpedance analysis. In preferred embodiments, dry body weight is determined

by comparison to the bioimpedance values of normal subjects or by monitoring changes in bioimpedance during dialysis. One embodiment of the present invention is a device for determining dry body weight during dialysis.

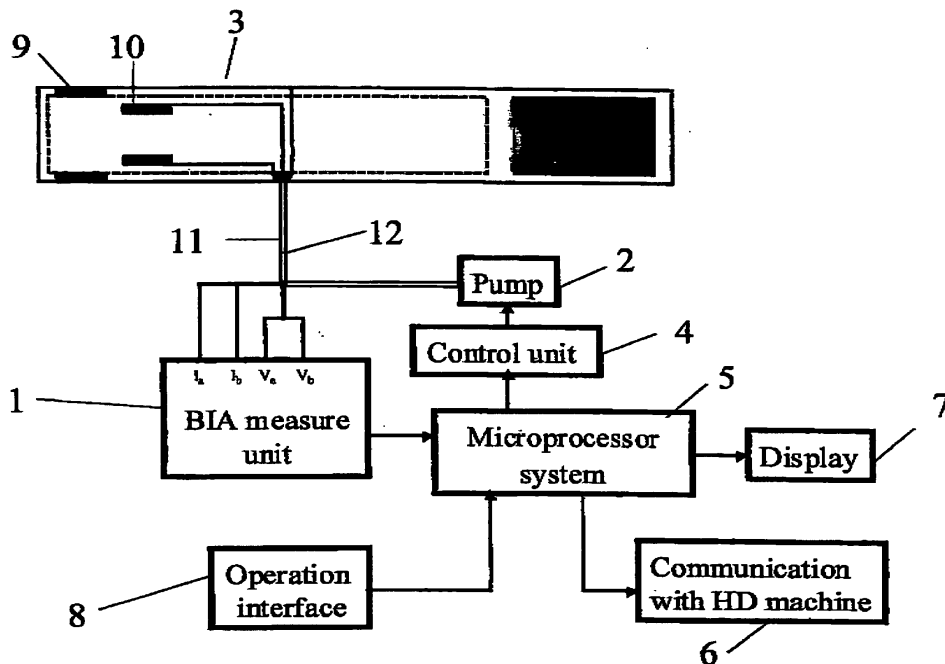


Fig.2



European Patent Office

PARTIAL EUROPEAN SEARCH REPORT

Application Number

which under Rule 63 of the European Patent Convention EP 07 02 4513 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 (IPC)
X	WO 98/51211 A (SILEM HEIKI [EE]; KOEOEBI TIIT [FI]; AHER ANTS [EE]; LAMP JUERGEN [EE]) 19 November 1998 (1998-11-19) * page 9 - page 19 *	15	INV. A61B5/05 A61M1/16 A61B5/053
A	-----	1-3,9	
A	KUBICEK W G ET AL: "DEVELOPMENT AND EVALUATION OF AN IMPEDANCE CARDIAC OUTPUT SYSTEM" AEROSPACE MEDICINE, AEROSPACE MEDICAL ASSOCIATION, WASHINGTON, DC, US, vol. 37, no. 12, December 1966 (1966-12), pages 1208-1212, XP009019391 ISSN: 0001-9402 * the whole document *	1-3,9,15	
A	US 5 735 284 A (TSOGLIN ET AL) 7 April 1998 (1998-04-07) * abstract * * column 5, lines 32-58 * * column 8, lines 10-24 * * column 10, line 10 - column 14, line 10 * * column 16, lines 44-53 * -----	1-3,9,15	
			TECHNICAL FIELDS SEARCHED (IPC)
			A61M A61B A61N
-/--			
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 :			
Claims searched incompletely :			
Claims not searched :			
Reason for the limitation of the search: see sheet C			
Place of search		Date of completion of the search	Examiner
Munich		2 May 2008	Rivera Pons, Carlos
CATEGORY OF CITED DOCUMENTS		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	
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			

8
EPO FORM 1503 03.82 (P04E07)



DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (IPC)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
A	US 4 016 868 A (ALLISON ET AL) 12 April 1977 (1977-04-12) * column 1, line 45 - column 3, line 42 * -----	1-3,9,15	
A	GB 2 069 706 A (ASULAB AG) 26 August 1981 (1981-08-26) * claim 1 * -----	3,10,15	
X	US 5 788 643 A (FELDMAN ET AL) 4 August 1998 (1998-08-04) * column 2, lines 14-24 * * column 2, lines 46-67 * * column 4, lines 10-37 * -----	4	
A	US 5 449 000 A (LIBKE ET AL) 12 September 1995 (1995-09-12) * abstract * * column 2, line 60 - column 6, line 55 * -----	4	TECHNICAL FIELDS SEARCHED (IPC)
X	US 4 370 983 A (LICHTENSTEIN ERIC S [US]) 1 February 1983 (1983-02-01) * column 5, line 53 - line 59 * * column 6, line 40 - line 56 * * column 16, line 40 - line 47 * * claims 13,16 * * column 20 - column 21 * -----	10	
X	FANSAN ZHU ET AL: "Estimation of volume of fluid in the peritoneal cavity by bioimpedance analysis" BMES/EMBS CONFERENCE, 1999. PROCEEDINGS OF THE FIRST JOINT ATLANTA, GA, USA 13-16 OCT. 1999, PISCATAWAY, NJ, USA, IEEE, US, vol. 2, 13 October 1999 (1999-10-13), page 798, XP010357829 ISBN: 0-7803-5674-8 * the whole document * ----- -/--	10	



DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (IPC)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
X	US 4 008 712 A (NYBOER ET AL) 22 February 1977 (1977-02-22) * the whole document *	10	
Y	-----	11-13	
Y	PATENT ABSTRACTS OF JAPAN vol. 1998, no. 08, 30 June 1998 (1998-06-30) & JP 10 071130 A (HITACHI LTD), 17 March 1998 (1998-03-17) * abstract * * paragraphs [0004] - [0012]; figures 1,2 *	11-13	
A	----- ZHU F ET AL: "VALIDATION OF CHANGES IN EXTRACELLULAR VOLUME MEASURED DURING HEMODIALYSIS USING A SEGMENTAL BIOIMPEDANCE TECHNIQUE" ASAIO JOURNAL, J.B.LIPPINCOTT CO., HAGERSTOWN, MD, US, vol. 44, no. 5, September 1998 (1998-09), pages M541-M545, XP000802374 ISSN: 1058-2916 * the whole document *	4,10-14	TECHNICAL FIELDS SEARCHED (IPC)
A	----- US 5 063 937 A (EZENWA ET AL) 12 November 1991 (1991-11-12) * column 1, lines 23-30 * * column 4, line 56 - column 5, line 10 * -----	10	



Claim(s) not searched:
5-7

Reason for the limitation of the search (non-patentable invention(s)):

Article 52 (4) EPC - Method for treatment of the human or animal body by therapy

The hemodialysis procedure on a patient is considered a therapeutical step and the method of performing dialysis on a patient as well as those performed in paralell to the dialysis procedure are considered methods of treatment of the human or animal body by therapy.

The method of claim 4 has not been considered therapeutical under the assumption that the resistivity measurements are not done during dialysis, but either before or after the dialysis procedure.

**CLAIMS INCURRING FEES**

The present European patent application comprised at the time of filing claims for which payment was due.

- Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due and for those claims for which claims fees have been paid, namely claim(s):
- No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

- All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.
- Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:
- None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:
1-3, 9, 15, 4, 10-14
- The present supplementary European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims (Rule 164 (1) EPC).



The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-3,9,15, 4, 10-14

Method and device for calculating cardiac output of a patient via impedance measurements. (claims 1-3, 9, 15)
Method for determining the hydration status of a patient (claim 4)
Device for controlling a hemodialysis machine (claims 10-14)

2. claim: 8

Method for monitoring the heart rate of a patient.

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

EP 07 02 4513

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
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

02-05-2008

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EPO FORM P0489

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

专利名称(译)	用于透析患者的节段生物阻抗测量的装置和方法		
公开(公告)号	EP1938748A3	公开(公告)日	2008-09-17
申请号	EP2007024513	申请日	2001-08-13
[标]申请(专利权)人(译)	肾RES INST		
申请(专利权)人(译)	肾脏研究院		
当前申请(专利权)人(译)	肾脏研究院		
[标]发明人	ZHU FANSAN LEVIN NATHAN		
发明人	ZHU, FANSAN LEVIN, NATHAN		
IPC分类号	A61B5/05 A61M1/16 A61B5/053 A61B5/00 A61B5/022 A61B5/0245 A61B5/026 A61M1/14		
CPC分类号	A61B5/022 A61B5/0535 A61B5/0537 A61B5/4869 A61M1/16 A61M2205/3393 A61M2205/50		
代理机构(译)	爆竹SCHMIDT, 学生和合作伙伴		
优先权	09/638657 2000-08-14 US		
其他公开文献	EP1938748B1 EP1938748A2		
外部链接	Espacenet		

摘要(译)

本发明包括通过节段生物阻抗分析确定进行透析的患者的干体重的方法。在优选的实施方案中，通过与正常受试者的生物阻抗值比较或通过监测透析期间生物阻抗的变化来确定干体重。本发明的一个实施方案是用于确定透析期间干体重的装置。

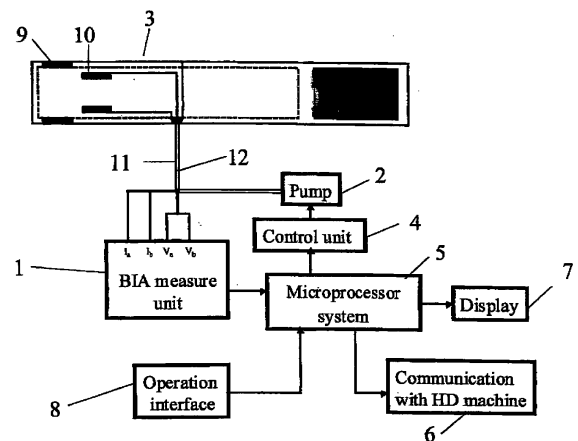


Fig.2