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(54) **Follow-up support system for implantable medical devices**

(57) An IMD follow-up support unit for supporting a follow-up session for an individual implantable medical device (IMD), said IMD follow-up support unit comprising: a data input for receiving IMD data, said IMD data including an IMD identification code identifying an individual IMD and an IMD type, and IMD irregularity messages including data identifying type and date of an irregularity, a database for storing IMD data received via said data input, a follow-up history dataset comprising at least a date of a latest follow-up session for an individual IMD, and a data processor.

The data processor is adapted to:
generate a list of irregularities which took place after a

previous follow-up session,
calculate an individual IMD irregularity index for each type of irregularity based on IMD irregularity messages associated to an individual IMD by way of said IMD identification code, calculate for each type of irregularity an average irregularity index over the same irregularity over all IMD irregularity messages associated to the same type of IMD,
compare said calculated individual IMD irregularity index with said calculated average irregularity index and generate an indication if said individual IMD irregularity index significantly differs from said average irregularity index.

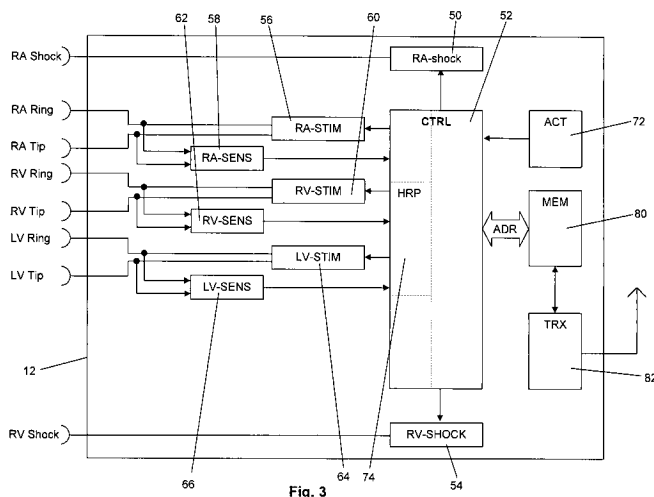


Fig. 3

**PARTIAL EUROPEAN SEARCH REPORT**

Application Number

which under Rule 63 of the European Patent Convention EP 08 07 5255 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	EP 1 057 448 A1 (BARDY GUST H [US] CARDIAC INTELLIGENCE CORP [US]) 6 December 2000 (2000-12-06) * abstract; figures 1-18 * * paragraphs [0012] - [0019] * * paragraphs [0021] - [0029] * * paragraphs [0033] - [0048] * * paragraphs [0057] - [0062] * -----	1-11	INV. A61N1/372 A61N1/37 A61B5/00 G05B19/042 G06F19/00
X	US 2004/122297 A1 (STAHMANN JEFFREY E [US] ET AL) 24 June 2004 (2004-06-24) * abstract; figures 1-28 * * paragraphs [0038] - [0180] * -----	1-11	
X,D	US 2003/028082 A1 (THOMPSON DAVID L [US]) 6 February 2003 (2003-02-06) * abstract; figures 1-8 * * paragraphs [0026] - [0033] * * paragraphs [0044] - [0076] * -----	1-11	
A	EP 0 791 373 A1 (ELA MEDICAL SA [FR]) 27 August 1997 (1997-08-27) * abstract * * paragraphs [0001] - [0035] * ----- -/--	1-11	
INCOMPLETE SEARCH			TECHNICAL FIELDS SEARCHED (IPC)
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			A61B A61N G05B G06F
Place of search		Date of completion of the search	Examiner
Munich		12 August 2009	Scheffler, Arnaud
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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EPO FORM 1503 03.82 (P04E07)

Application Number
EP 08 07 5255

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,P	EP 1 855 221 A2 (HOSPIRA INC [US]) 14 November 2007 (2007-11-14) * abstract; figures 1-30 * * paragraphs [0029] - [0123] * -----	1-11	
A	US 5 476 483 A (BORNZIN GENE A [US] ET AL) 19 December 1995 (1995-12-19) * abstract; figures 1-9 * * columns 1-20 * -----	1-11	
A	US 2006/010090 A1 (BROCKWAY MARINA [US] ET AL) 12 January 2006 (2006-01-12) * abstract; figures 1-5 * * paragraphs [0009] - [0095] * -----	1-11	TECHNICAL FIELDS SEARCHED (IPC)
A	US 2005/204134 A1 (VON ARX JEFFREY A [US] ET AL) 15 September 2005 (2005-09-15) * abstract; figures 1-11 * * paragraphs [0014] - [0098] * -----	1-11	



**INCOMPLETE SEARCH
SHEET C**

Application Number
EP 08 07 5255

Claim(s) completely searchable:
1-11

Claim(s) not searched:
12-14

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

Claims 12-14 relate to subject-matter considered by this Authority to be covered by the provisions of Article 53 (c) EPC. Consequently, no opinion will be formulated with respect to the industrial applicability of the subject-matter of these claims.

Claims 12-14 have not been searched, because they deal with methods of electromagnetic treatment (Article 53 (c) EPC Method for treatment of the human or animal body by therapy).

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

EP 08 07 5255

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.

12-08-2009

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 1057448	A1	06-12-2000	AT 367116 T	15-08-2007
			AU 747810 B2	23-05-2002
			AU 3638500 A	14-12-2000
			CA 2309409 A1	03-12-2000
			DE 60035546 T2	21-02-2008
			US 2001051764 A1	13-12-2001

US 2004122297	A1	24-06-2004	AU 2003300966 A1	22-07-2004
			EP 1581903 A2	05-10-2005
			JP 2006510451 T	30-03-2006
			WO 2004059551 A2	15-07-2004
			US 2009105554 A1	23-04-2009

US 2003028082	A1	06-02-2003	WO 03013076 A1	13-02-2003

EP 0791373	A1	27-08-1997	DE 69702273 D1	20-07-2000
			DE 69702273 T2	22-02-2001
			FR 2744817 A1	14-08-1997
			JP 4057670 B2	05-03-2008
			JP 10069388 A	10-03-1998
			US 5800473 A	01-09-1998

EP 1855221	A2	14-11-2007	NONE	

US 5476483	A	19-12-1995	NONE	

US 2006010090	A1	12-01-2006	US 2009036757 A1	05-02-2009

US 2005204134	A1	15-09-2005	EP 1725926 A2	29-11-2006
			JP 2007529274 T	25-10-2007
			WO 2005091205 A2	29-09-2005

专利名称(译)	用于植入式医疗设备的后续支持系统		
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申请号	EP2008075255	申请日	2008-03-31
[标]申请(专利权)人(译)	百多力CRM专利公司		
申请(专利权)人(译)	BIOTRONIK CRM专利AG		
当前申请(专利权)人(译)	BIOTRONIK CRM专利AG		
[标]发明人	KUKLA VOLKER REINKE JOACHIM		
发明人	KUKLA, VOLKER REINKE, JOACHIM		
IPC分类号	A61N1/372 A61N1/37 A61B5/00 G05B19/042 G06F19/00		
CPC分类号	A61B2560/0271 A61N1/3621 A61N1/37 A61N1/3702 A61N1/371 A61N1/37211 A61N1/37247 A61N1/37264 A61N1/3925 A61N1/39622 G16H40/40		
优先权	11/742349 2007-04-30 US		
其他公开文献	EP1987858B1 EP1987858A2		
外部链接	Espacenet		

摘要(译)

IMD后续支持单元，用于支持单个植入式医疗设备（IMD）的后续会话，IMD后续支持单元包括：用于接收IMD数据的数据输入，所述IMD数据包括IMD识别码识别个人IMD和IMD类型，以及包括识别不规则类型和日期的数据的IMD不规则消息，用于存储通过所述数据输入接收的IMD数据的数据库，至少包括最新跟随日期的后续历史数据集单个IMD的会话和数据处理单元。数据处理单元适于：生成在先前的后续会话之后发生的不规则列表，基于通过所述IMD识别与个体IMD相关联的IMD不规则消息计算每种类型的不规则的个体IMD不规则指数。代码，针对与相同类型的IMD相关联的所有IMD不规则消息，针对每种类型的不规则性计算相同不规则性的平均不规则指数，将所述计算的个体IMD不规则指数与所述计算的平均不规则指数进行比较，并生成所述个体IMD的指示不规则指数与所述平均不规则指数显著不同。

