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(54) Title: METHOD AND APPARATUS FOR BLOOD PRESSURE WAVEFORM BASELINE ESTIMATION AND REMOVAL

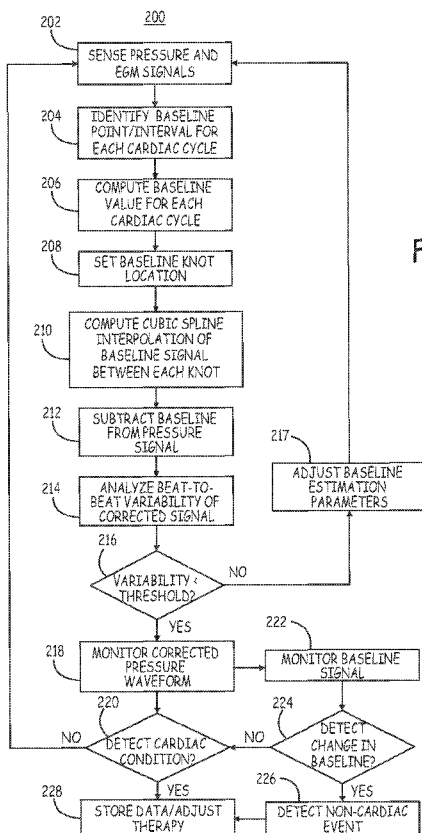


FIG. 3

(57) Abstract: An implantable medical device system including an implantable blood pressure sensor extracts a baseline signal from the sensed blood pressure signal and subtracts the extracted baseline signal from the sensed blood pressure signal to obtain a corrected pressure monitoring signal. The corrected pressure signal is monitored to detect a cardiac-related condition.

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER INV. A61B5/0215 A61N1/365 A61N1/36 ADD. A61M25/00 A61N1/362				
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) A61B A61N				
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 practical, search terms used) EPO-Internal				
C. DOCUMENTS CONSIDERED TO BE RELEVANT				
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.		
X	US 5 700 283 A (SALO RODNEY W [US]) 23 December 1997 (1997-12-23) column 2, lines 41-47; figure 2 column 3, line 20 - column 5, line 29 -----	1,2		
X	US 5 083 563 A (COLLINS KENNETH A [AU]) 28 January 1992 (1992-01-28) column 5, line 19 - column 7, line 65; figure 3 -----	1,2		
X	US 2008/243016 A1 (LIAO WANGCAI [US] ET AL) 2 October 2008 (2008-10-02) paragraphs [0038] - [0054]; figures 3,6 -----	1,2		
X	US 4 984 572 A (COHEN TODD J [US]) 15 January 1991 (1991-01-15) abstract -----	1,2		
----- -/--				
<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex.				
* Special categories of cited documents : <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none; vertical-align: top;"> "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document but published on or after the international filing date "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) "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 </td> <td style="width: 50%; border: none; vertical-align: top;"> "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 "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 "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. "&" document member of the same patent family </td> </tr> </table>			"A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document but published on or after the international filing date "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) "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	"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 "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 "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. "&" document member of the same patent family
"A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document but published on or after the international filing date "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) "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	"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 "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 "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. "&" document member of the same patent family			
Date of the actual completion of the international search	Date of mailing of the international search report			
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INTERNATIONAL SEARCH REPORT

International application No.
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Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1, 2

Remark on Protest

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2010/057785

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 2004/147969 A1 (MANN BRIAN [US] ET AL) 29 July 2004 (2004-07-29) the whole document -----	1,2

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2010/057785

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			US 2007232936 A1	04-10-2007
			WO 2005000206 A2	06-01-2005

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1, 2

Implantable medical device system comprising blood pressure sensor and processor, the processor configured to extract and subtract a baseline signal from sensed blood pressure signal to obtain a corrected blood pressure signal from which a cardiac-related condition is detected, with the baseline signal extraction being adjusted if the corrected blood pressure signal shows too much variability;

2. claims: 1, 3-5

Implantable medical device system comprising blood pressure sensor and processor, the processor configured to extract and subtract a baseline signal from sensed blood pressure signal from which a non-cardiac-related condition is detected, the system further comprising a therapy delivery module;

3. claims: 1, 6-8

Implantable medical device system comprising blood pressure sensor and processor, the processor configured to implement a method of extracting a baseline signal from a sensed blood pressure signal by identifying baseline points, computing baseline values, and interpolating the baseline signal;

4. claims: 1, 6, 9, 10

Implantable medical device system comprising blood pressure sensor and processor, the processor configured to implement a method of extracting a baseline signal from a blood pressure signal using timing information from a cardiac electrical signal.
