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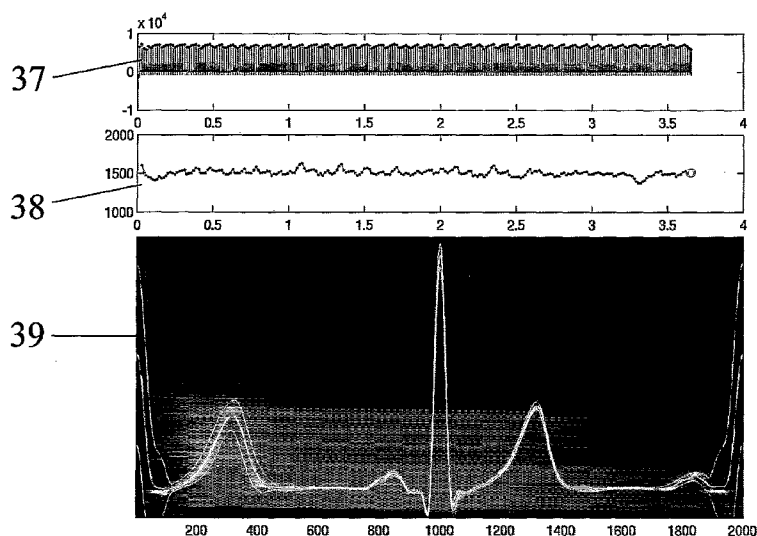
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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: ANALYSIS OF ELECTROCARDIOGRAM SIGNALS



(57) Abstract: Apparatus for graphical representation of a train of ECG complexes, said ECG complexes comprising an R wave and a T-P interval and having variable isoelectric levels, the apparatus comprising: an isoelectric alignment unit for aligning the complexes in terms of isoelectric level by aligning respective T-P intervals, thereby to provide a graphical representation of said train of ECG complexes; and a temporal alignment unit for aligning said complexes temporally using a predetermined point of respective R waves. The aligned units are superimposed to provide a distribution of a normalized ECG signal over a series of pulses or heartbeats.

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INTERNATIONAL SEARCH REPORT

International application No  
PCT/IL2006/000576

A. CLASSIFICATION OF SUBJECT MATTER

INV. A61B5/044 A61B5/04 A61B5/0452 G06K9/00

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 G06K

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	EP 1 050 271 A (BETH ISRAEL DEACONESS MEDICAL CENTER, INC) 8 November 2000 (2000-11-08)	1-4, 29-31, 38,39
Y	figures 1,2,6,11a-11b paragraphs [0018], [0021] - [0027], [0031] - [0033], [0056], [0057], [0061] - [0064]	5-11
Y	----- US 6 778 852 B2 (GALEN PETER M ET AL) 17 August 2004 (2004-08-17) figures 1-4,15,16 column 1, lines 12-55 column 2, lines 43-65 column 4, line 61 - column 5, line 14 column 6, lines 15-63 column 7, line 9 - column 8, line 42 ----- -/--	5-11

Further documents are listed in the continuation of Box C.

See patent family annex.

\* Special categories of cited documents :

- "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

8 September 2006

Date of mailing of the international search report

17. 01. 2007

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INTERNATIONAL SEARCH REPORT

International application No  
PCT/IL2006/000576

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>US 2003/069512 A1 (KAISER WILLI ET AL) 10 April 2003 (2003-04-10)</p> <p>figures 5,6 paragraphs [0023] - [0025], [0034], [0039], [0044] - [0050]</p> <p>-----</p>	<p>1-4, 29-31, 38, 39</p>
A	<p>WO 2005/008418 A (C.R. BARD, INC; MACADAM, DAVID, P) 27 January 2005 (2005-01-27) page 18, line 21 - page 24, line 6; figures 12,13</p> <p>-----</p>	<p>5-9</p>

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/IL2006/000576

## Box 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 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 fee, this Authority did not invite payment of any additional fee.
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.:

see annex

### Remark on Protest

- The additional search fees were accompanied by the applicant's protest.
- No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

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

1. claims: 1-11, 29-31, 38-39

Apparatus and method for graphical representation and alignment of ECG complexes based on irregular sampling of a baseline with superimposing, colorcoding and assigning visual indicators to ECG complexes.

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2. claims: 12-16

Asymmetric bandpass and lowpass filtering units for isoelectric alignments.

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3. claims: 17-19,32-33

Obtaining trains of ECG complexes from a plurality of leads.

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4. claims: 20-21,34-35

Use of specific sampling rates and signal codings.

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5. claims: 22-26,36-37

Smooth interpolator for isoelectric alignment and method of knot points generation for the smooth interpolator.

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6. claims: 27-28

Communication link for ECG representation remote from the subject.

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## INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/IL2006/000576

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
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			US	6169919 B1	02-01-2001
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