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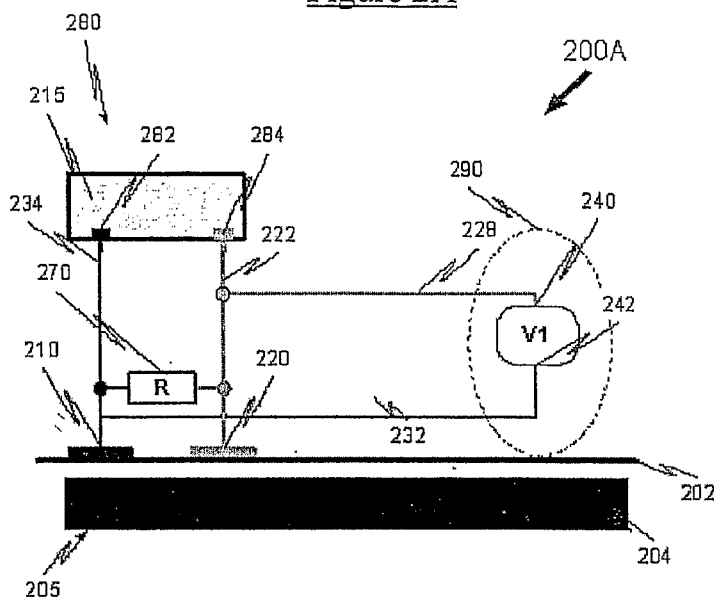
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(54) Title: APPARATUS AND METHOD FOR MEASURING PARAMETERS ASSOCIATED WITH ELECTROCHEMICAL PROCESSES

Figure 2A



(57) Abstract: This application is directed to devices, apparatus, systems and methods for non-invasive sensing of activities occurring within an entity such as an organism. The method comprises sensing at least one characteristic or a current source from under the surface of the entity over a period of time; conveying at least one electrical signal corresponding to the at least one characteristic to an electrolytic cell (102) so as to induce an electrolytic reaction over the period of time; and measuring at least one electrical output of the electrolytic reaction so as to sense at least one activity within the entity over the period of time.

# INTERNATIONAL SEARCH REPORT

International application No

PCT/IL2006/000284

## A. CLASSIFICATION OF SUBJECT MATTER

INV. A61B5/00 G01N27/26

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 G01N

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, WPI Data, BIOSIS, EMBASE, COMPENDEX, INSPEC

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 741 211 A (RENIRIE ALEXIS C M [NL] ET AL) 21 April 1998 (1998-04-21) cited in the application column 4, lines 25-40; figure 1 -----	1-53,65
A	US 2003/120138 A1 (KURNIK RONALD T [US] ET AL) 26 June 2003 (2003-06-26) abstract -----	1-53,65
A	EP 0 527 482 A1 (HITACHI LTD [JP]) 17 February 1993 (1993-02-17) abstract -----	1-53,65
E	WO 2006/025055 A2 (VOL ALEXANDER [IL]; GRIBOVA ORNA A [IL]) 9 March 2006 (2006-03-09) the whole document ----- -/-	1-53,65

☒ 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

20 March 2007

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28/03/2007

Name and mailing address of the ISA/

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# INTERNATIONAL SEARCH REPORT

International application No  
PCT/IL2006/000284

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 409 011 A1 (ALEXEEV VASSILI [US] ET AL) 25 April 1995 (1995-04-25) column 5, lines 22-30; figure 2 -----	54-57, 59-64
X	WO 03/079897 A (BRUN DEL RE RICCARDO [CA]; KOLPIN HANS [CA]; BATKIN IZMAIL [CA]) 2 October 2003 (2003-10-02) paragraphs [0014], [0043]; figure 1 -----	55-63
X	US 2 865 366 A1 (PARTRIDGE LESLIE W) 23 December 1958 (1958-12-23) column 6, last paragraph; figures 2,4,5 column 4, paragraph 3 -----	55-63
X	WO 02/065905 A (ADVANCED BIOELECTRIC CORP [CA]; BRUN DEL RE RICCARDO [CA]; BATKIN IZMA) 29 August 2002 (2002-08-29) figure 1A -----	55-63
X	US 3 029 808 A1 (SHOLLY KAGAN) 17 April 1962 (1962-04-17) column 5, paragraph 2; figure 1 -----	55-63

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/IL2006/000284

### 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.:

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: 1-53,65

electrolytic cell isolated from the surface of the entity, comprising: an electrolyte, two cell electrodes in the electrolyte in electrical communication with the two surface electrodes adapted to sense the at least one characteristic; wherein the electrolytic cell is adapted to be polarized responsive to the electrical signals so as to generate an electrolytic reaction, the reaction adapted to provide at least one electrical output corresponding to the electrical signals; and that the measuring unit is connected to the cell electrodes

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2. claim: 54

material of the first electrode being different from the material of the second electrode

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3. claims: 55-64

shunting unit adapted to provide a shunting resistance similar or equal to a resistance of the surface; wherein the shunting unit is connected to the two electrodes and is in parallel to the surface

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# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/IL2006/000284

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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