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(54) Title: IMPLANTABLE CARDIAC SENSORS

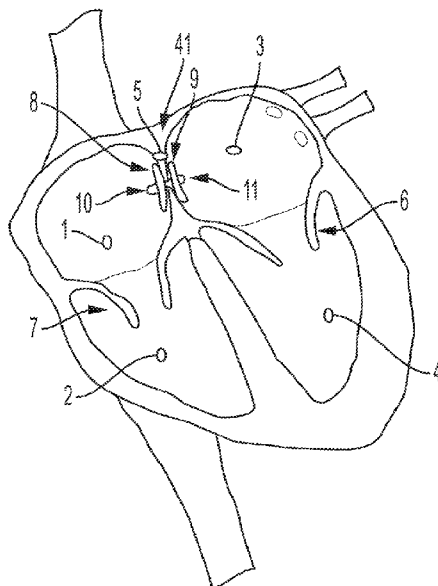


FIG. 2

(57) Abstract: An implantable measurement device is disclosed which includes a first anchoring component which engages a first inner wall defining a first chamber of a heart, a first sensing element which performs physiologic measurements in the first chamber, and a second sensing element which performs physiologic measurements in the second chamber.



Published:

- *with international search report (Art. 21(3))*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*

(88) Date of publication of the international search report:

30 July 2020 (30.07.2020)

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2019/068275

A. CLASSIFICATION OF SUBJECT MATTER
INV. A61B5/0215
ADD.

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

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 practicable, search terms used)
EPO-Internal, INSPEC, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2009/024042 A1 (NUNEZ ANTHONY I [US] ET AL) 22 January 2009 (2009-01-22) the whole document	1-50
X	US 2007/118039 A1 (BODECKER VOLKER [DE] ET AL) 24 May 2007 (2007-05-24) paragraph [0015] - paragraph [0037] paragraph [0148] figure 34	1,49
X	US 2018/098772 A1 (GOLDSHTEIN OREN [IL] ET AL) 12 April 2018 (2018-04-12) paragraph [0005] - paragraph [0075] paragraph [0097] - paragraph [0104] figures 1-3	1,49
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Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents :

<p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier application or patent but published on or after the international filing date</p> <p>"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)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p>	<p>"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</p> <p>"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</p> <p>"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</p> <p>"&" document member of the same patent family</p>
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Date of the actual completion of the international search 6 March 2020	Date of mailing of the international search report 25/06/2020
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Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer Abraham, Volkhard
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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2019/068275

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.: **51-61**
because they relate to subject matter not required to be searched by this Authority, namely:
see FURTHER INFORMATION sheet PCT/ISA/210

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.:
1-50

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/US2019/068275

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 2012/265296 A1 (MCNAMARA EDWARD [US] ET AL) 18 October 2012 (2012-10-18) paragraph [0299] - paragraph [0385] figure 66 -----	1-50

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2019/068275

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2009024042	A1	22-01-2009	US 2009024042 A1 WO 2009006610 A1

US 2007118039	A1	24-05-2007	AU 2006318295 A1 CA 2631057 A1 EP 1968433 A2 JP 2009517137 A US 2007118039 A1 US 2010174201 A1 US 2011201949 A1 US 2014081158 A1 WO 2007062299 A2

US 2018098772	A1	12-04-2018	AU 2016258317 A1 CN 107530088 A EP 3291723 A2 US 2018098772 A1 US 2018110468 A1 WO 2016178196 A2 WO 2016178197 A1

US 2012265296	A1	18-10-2012	NONE

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

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

1. claims: 1-50

An implantable measurement device comprising :a first anchoring component configured to engage a first inner wall defining a first chamber of a heart;a first sensing element coupled to the first anchoring element, the first sensing element configured to perform physiologic measurements in the first chamber; and a second sensing element configured to be arranged in a second chamber of the heart that is different than the first chamber and configured to perform physiologic measurements in the second chamber of the heart.

2. claims: 62-67

A cardiac measurement system comprising: an implantable measurement device comprising: a first sensing element implantable through a needle to engage a first inner location in an inner wall of a heart to perform physiologic measurements therein and a first tether coupled to the first sensing element; and a remote receiver configured to receive physiologic measurement data from at least one of the first and second sensing elements.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box II.1

Claims Nos.: 51-61

Claims 51-55: therapeutical method performed on the human or animal body
The method includes steps of instructing a medication and receiving data
in response to the administered medication. The therapeutical step is
thus implicit for the claimed method. Claims 56-61: surgical method The
method includes the surgical steps of accessing the cardiac wall of a
patient and anchoring the measurement device.