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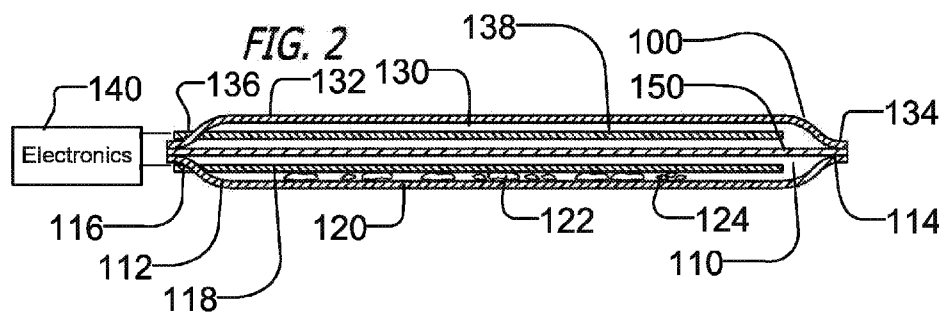
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(54) Title: SENSOR FOR DETECTING MICROORGANISMS AND CORRESPONDING PROCESS



(57) Abstract: Microbial fuel cells generate an electrical signal when microbes enter the cells through a semipermeable membrane. The single chamber microbial fuel cell comprises an anode adapted to be positioned near a potentially contaminated source to receive microbes on the source, a cathode spaced from the anode and carbohydrate positioned between the anode and cathode. The anode is flexible to adapt to a source that might have microbes. When microbes enter the fuel cell and reach the anode, the fuel cell generates an electrical signal. By reading and analyzing the signal from one or more of the fuel cell biosensors can indicate infection in people or animals, indicate pathogens growing in food or show mold growth. Insofar as different microbes have specific metabolisms, the signal may be used to determine which microbe is present.



INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2020/015478**A. CLASSIFICATION OF SUBJECT MATTER****H01M 8/16(2006.01)i, C12Q 1/04(2006.01)i, A61B 5/1486(2006.01)i, G01N 27/327(2006.01)i, G01N 33/543(2006.01)i**

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)

H01M 8/16; A61B 5/145; G01N 27/00; G01N 27/327; H01M 8/02; C12Q 1/04; A61B 5/1486; G01N 33/543

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) & Keywords: microbial fuel cell, anode, cathode, flexible, contaminated source, microbe, semipermeable, carbohydrate, signal processor

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2012-0231492 A1 (BITTERLY, STEVE et al.) 13 September 2012 See abstract; paragraphs [0057], [0059], [0080], [0084], [0087], [0105], [0110]; claims 3, 10, 17; and figure 8.	1-15
A	US 2008-0261083 A1 (RINZLER, ANDREW G. et al.) 23 October 2008 See the whole document.	1-15
A	US 2007-0259216 A1 (LOGAN, BRUCE) 08 November 2007 See the whole document.	1-15
A	US 2010-0203359 A1 (BOROLE, ABHIJEET P.) 12 August 2010 See the whole document.	1-15
PX	US 2019-0154621 A1 (INNOVATIVE SCIENCES, INC.) 23 May 2019 See the whole document.	1-15



Further documents are listed in the continuation of Box C.



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* Special categories of cited documents:

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"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

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"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

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"&" document member of the same patent family

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INTERNATIONAL SEARCH REPORT

Information on patent family members

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