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[Continued on next page]

(54) Title: SYSTEM AND METHOD FOR MONITORING FLUID FLOW THROUGH AN ELECTRICAL SUBMERSIBLE PUMP

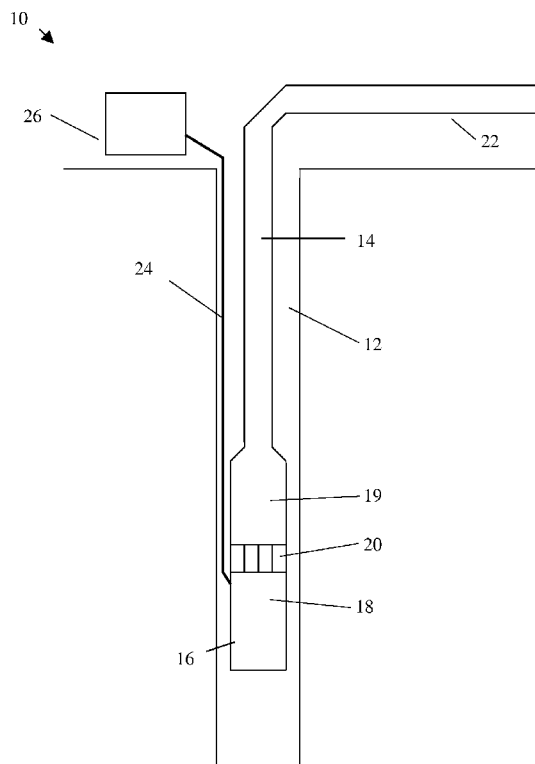


FIG. 1

(57) Abstract: A system for monitoring a condition of a downhole electrical submersible pump (ESP) assembly is disclosed. The system includes: a downhole assembly configured to be disposed in a wellbore in an earth formation; the ESP assembly connected to the downhole assembly and including a motor and a pump, the ESP assembly in electrical communication with a surface electrical source via a conductor; a power gauge unit configured to measure the electrical power supplied to the ESP assembly; and a processor configured to receive data from the power gauge unit and calculate a flowrate of the ESP assembly based on at least the electrical power supplied to the ESP assembly. Also disclosed is a method of monitoring a condition of a downhole ESP assembly



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**A. CLASSIFICATION OF SUBJECT MATTER*****E21B 43/12(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)

E21B 43/12; E21B 43/00; F04B 49/00; G01F 1/68; G08B 21/00

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) &amp; Keywords: power gauge unit, processor

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

| Category* | Citation of document, with indication, where appropriate, of the relevant passages                 | Relevant to claim No. |
|-----------|----------------------------------------------------------------------------------------------------|-----------------------|
| Y         | US 2007-0252717 A1 (LANCE I. FIELDER) 01 November 2007<br>See Abstract, Fig. 1, Paragraphs 25,26   | 1-20                  |
| Y         | US 5353646 A (KOLPAK; MIROSLAV M.) 11 October 1994<br>See Abstract, Fig. 1, Columns 1,2, Claim 1   | 1-20                  |
| A         | US 5318409 A (LONDON; ROBERT K. et al.) 07 June 1994<br>See Abstract, Fig. 2, Column 4, Claims 1,7 | 1-20                  |
| A         | US 2007-0272406 A1 (ROBERT MCCOY et al.) 29 November 2007<br>See Abstract, Fig. 1                  | 1-20                  |



Further documents are listed in the continuation of Box C.



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| Patent document<br>cited in search report | Publication<br>date | Patent family<br>member(s)                                               | Publication<br>date                                  |
|-------------------------------------------|---------------------|--------------------------------------------------------------------------|------------------------------------------------------|
| US 2007-0252717 A1                        | 01.11.2007          | AR 060083 A1<br>WO 2007-107815 A1                                        | 21.05.2008<br>27.09.2007                             |
| US 5353646 A                              | 11.10.1994          | None                                                                     |                                                      |
| US 5318409 A                              | 07.06.1994          | None                                                                     |                                                      |
| US 2007-0272406 A1                        | 29.11.2007          | CA 2652988-A1<br>US 7740064 B2<br>WO 2007-140134 A2<br>WO 2007-140134 A3 | 06.12.2007<br>22.06.2010<br>06.12.2007<br>04.12.2008 |