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The Director

of the United States Patent and Trademark Office has received an application for a patent for a new and useful invention. The title and description of the invention are enclosed. The requirements of law have been complied with, and it has been determined that a patent on the invention shall be granted under the law.

Therefore, this United States

Patent

grants to the person(s) having title to this patent the right to exclude others from making, using, offering for sale, or selling the invention throughout the United States of America or importing the invention into the United States of America, and if the invention is a process, of the right to exclude others from using, offering for sale or selling throughout the United States of America, products made by that process, for the term set forth in 35 U.S.C. 154(a)(2) or (c)(1), subject to the payment of maintenance fees as provided by 35 U.S.C. 41(b). See the Maintenance Fee Notice on the inside of the cover.

Katherine Kelly Vidal

DIRECTOR OF THE UNITED STATES PATENT AND TRADEMARK OFFICE



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Sengul et al.

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(54) **POLISHED ROD LOAD CELL**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 135 days.

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CPC **E21B 47/009** (2020.05); **G01L 1/22** (2013.01); **E21B 43/127** (2013.01)

(58) **Field of Classification Search**
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See application file for complete search history.

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(57) **ABSTRACT**

An apparatus for measuring strain in a polished rod of a beam pump unit includes a body having an upper wide section, a lower wide section, and a narrow section having a reduced width in comparison to each of the upper and lower wide sections. A bore is formed in the narrow section. The apparatus also includes at least two connectors configured to connect the body to the rod. The bore is positioned between the two connectors in a direction that is parallel to an axis of the rod. The apparatus further includes a strain gauge positioned in the bore, so as to measure strain in the rod between the two points of connection.

25 Claims, 6 Drawing Sheets

