

(12) **United States Patent**
Ferran et al.

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(54) **APPARATUS AND METHOD FOR
AUTOMATIC DETECTION OF DIAPHRAGM
COATING OR SURFACE CONTAMINATION
FOR CAPACITANCE DIAPHRAGM GAUGES**

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(57) **ABSTRACT**

A system and a method detect contamination of a diaphragm in a capacitance diaphragm gauge wherein a contaminated diaphragm deflects less in the presence of pressure than an uncontaminated diaphragm. The system and method measure a base pressure. A DC voltage is applied between the diaphragm and a fixed electrode to cause the diaphragm to deflect to simulate an effective pressure. The system and method measure a combined pressure caused by the base pressure and the effective pressure. The system and method subtract the base pressure to determine the effective pressure caused by the static diaphragm deflection. If the measured effective pressure is less than an acceptable effective pressure, the system and method determine that the diaphragm is contaminated.

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G01L 27/00 (2006.01)

(52) **U.S. Cl.**
CPC **G01L 27/007** (2013.01)

(58) **Field of Classification Search**
CPC G01L 27/007
USPC 73/1.58, 1.66
See application file for complete search history.

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3 Claims, 5 Drawing Sheets

