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**Ferran et al.**

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(54) **MULTI-AXIS TILT SENSOR FOR CORRECTING GRAVITATIONAL EFFECTS ON THE MEASUREMENT OF PRESSURE BY A CAPACITANCE DIAPHRAGM GAUGE**

(58) **Field of Classification Search**  
USPC ..... 702/98  
See application file for complete search history.

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(57) **ABSTRACT**

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A system and method compensate for effects of gravity on the diaphragm of a capacitance diaphragm gauge (CDG). The CDG generates a measured absolute pressure value in response to an applied absolute pressure on an input of the CDG. The CDG is subjected to a variable orientation of the CDG with respect to the earth's surface that can cause inaccurate pressure measurements. A pressure measuring circuit generates a measured value of an applied absolute pressure provided to an input of the CDG. A tilt sensor generates at least one tilt sensor output value that is responsive to an orientation of the CDG with respect to the earth's surface. A processing system adjusts the measured absolute pressure value by a calibration factor to generate a calibrated absolute pressure value representing the applied absolute pressure, wherein the calibration factor is selected in response to the at least one tilt sensor output value.

**Related U.S. Application Data**

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**G01L 27/00** (2006.01)  
**G01L 9/00** (2006.01)

(52) **U.S. Cl.**  
CPC ..... **G01L 27/002** (2013.01); **G01L 9/0072** (2013.01)  
USPC ..... **702/98**

**3 Claims, 6 Drawing Sheets**

