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Chass

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(54) **HALL EFFECT, SHAFT ANGULAR POSITION SENSOR WITH ASYMMETRICAL ROTOR**

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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 0 days.

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(57) **ABSTRACT**

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A shaft angular position sensor having a DC output voltage has a magnetic housing into which are mounted a Hall effect device, a bobbin-winding assembly and a rotor. The bobbin-winding assembly is a hollow cylindrical coil form made of non-magnetic material about which are wound two excitation coils connected in series opposition. An elongated magnetic core is disposed for rotation within the hollow bobbin. The core is an axial section of a magnetic cylinder which serves to direct two opposing DC magnetic flux flows through the Hall effect device. The output voltage generated by the Hall effect device is indicative of the angular position of the magnetic core relative to the bobbin winding assembly when a DC voltage is applied to the coils.

(51) **Int. Cl.⁷** **G01B 7/30; G01R 33/07**

(52) **U.S. Cl.** **324/207.2; 324/207.25**

(58) **Field of Search** 324/173, 174, 324/207.15-207.22, 207.25, 232, 235, 240, 242, 251; 73/DIG. 3; 310/68 B, DIG. 3; 340/686.3, 870.32, 870.33, 870.35

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17 Claims, 11 Drawing Sheets

