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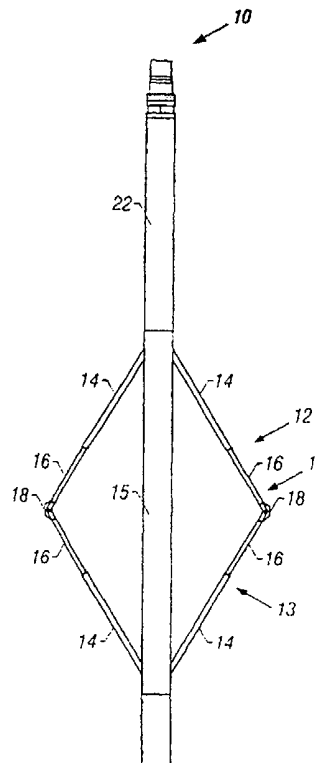
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(54) Abstract Title  
**Use of magneto-resistive sensors for borehole logging**

(57) A downhole caliper instrument (10) utilizing a linear or arcuate magneto-resistive sensor (24) to determine the position of one or more caliper arms (11 or 111) which extend from a carrier tool (22) to touch the surface of a borehole wall (20). A processor and firmware are included to calculate and plot the borehole radius. A plurality of magneto-resistive sensors (24, 102) are provided to calculate the sine, cosine and tangent for accurate motion of each independent arm (11,111). The magneto-resistive sensors (24, 102) sense the position of a precise magnetic ruler (94) linked to the caliper arm (11, 111). The position of the caliper arm (11, 111) determines the radius of the borehole. Calculation of Radius/Diameter is preferably performed in the computer on the surface. The downhole controller's firmware controls the multiplexer switching, A/D conversion and other functions.



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