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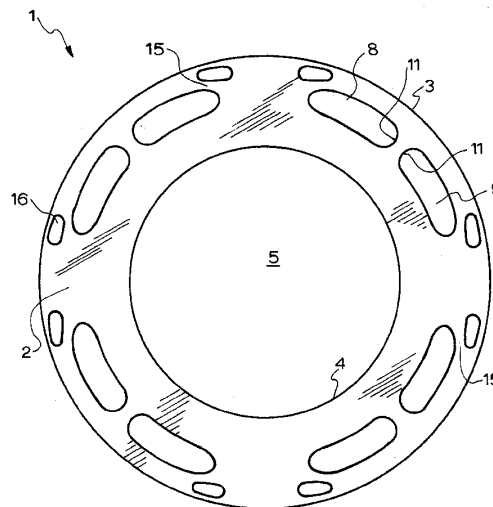


FIG.1

(57) Abstract: A multi-pole interior permanent magnet motor rotor (1) has an annulus (2) with an outer radius (3) and an inner radius (4) that form aperture (5) configured to receive a motor shaft (6) therethrough. The rotor has four quadrants (7) where each includes a pair of permanent magnet apertures (8,9) symmetrically disposed about a quadrant centreline (10) that extends radially from the centre of the annulus (2) to the outer radius (3) equally dividing each quadrant (7). Each permanent magnet aperture (8,9) is disposed each side of the centreline (10) and each aperture 8,9 has a proximal end 11 adjacent the centreline (10) and an opposing distal end (12). A flux barrier aperture (13) is associated with each permanent magnet aperture (8,9) wherein each flux barrier aperture (13) is disposed intermediate a permanent magnet aperture (8,9) and the rotor outer radius (3) adjacent to the distal end (12) of the associated permanent magnet aperture (8,9). The rotor includes a primary bridge (15) disposed intermediate the permanent magnet aperture (8,9) and the flux

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barrier aperture (13) whereby the primary bridge (15) has a predetermined thickness and a secondary bridge (16) disposed intermediate the flux barrier aperture (13) and the rotor outer radius (3) wherein the secondary bridge 16 has a predetermined thickness that is less than the primary bridge (15) thickness.