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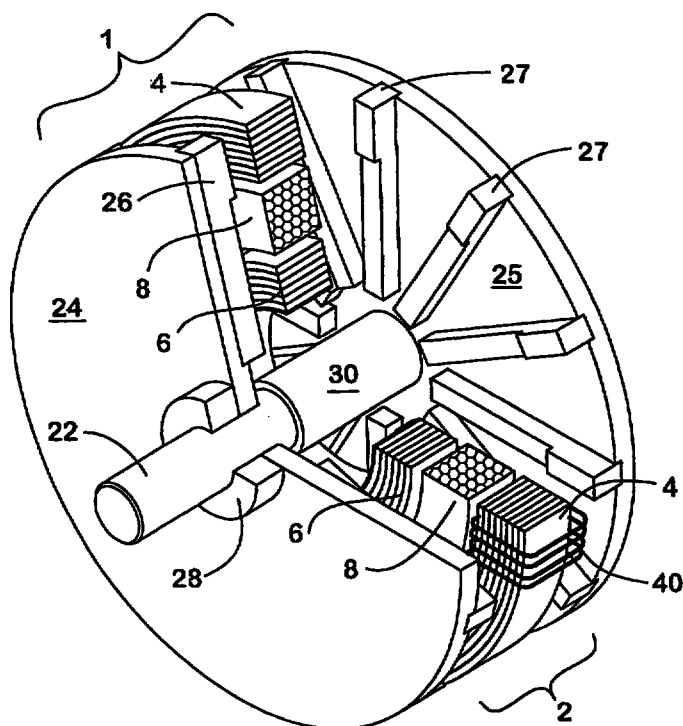
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(54) Title: LOW INDUCTANCE ELECTRICAL MACHINE



(57) Abstract: A low inductance electrical machine (1) that may be used as an alternator or motor with low armature inductance is disclosed. Arrangements of complementary armature windings (40A, 42A) are presented in which the fluxes induced by currents in the armature windings (40) effectively cancel leading to low magnetic energy storage within the machine (1). This leads to low net flux levels, low core losses, low inductance and reduced tendency toward magnetic saturation. The inclusion of additional gaps (54, 56) in the magnetic circuit allows for independent adjustment of air gap geometry and armature inductance. Separately excited field arrangements (8) are disclosed that allow rotor (22, 24, 25) motion to effect brush-less alternator or brush-less motor operation. An exemplary geometry includes a stator (2) including two annular rings (4, 6) and a concentric field coil (8) together with a rotor structure (22, 24, 25) separated from the stator (2) by four air gaps (50, 52, 54, 56).

WO 01/29955 A1