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- (71) **Applicant: REDEMPTIVE TECHNOLOGIES, LIMITED** [GB/GB]; Akara Building, 24 De Castro Street, Wickhams Cay I, Road Town, Tortola (VG).
- (72) **Inventor; and**
- (71) **Applicant: HOLCOMB, Robert Ray** [US/US]; c/o REDEMPTIVE TECHNOLOGIES, LIMITED, c/o, c/o, Akara

Building, 24 De Castro Street Wickhams Cay I, Road Town Tortola (VG).

- (74) **Agents: SCOTT, Robert et al.;** The Marbury Law Group, PLLC, 11800 Sunrise Valley Drive, 15th Floor, Reston, Virginia 20191 (US).

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[Continued on next page]

- (54) **Title:** HIGH EFFICIENCY AC DC ELECTRIC MOTOR, ELECTRIC POWER GENERATING SYSTEM WITH VARIABLE SPEED, VARIABLE POWER, GEOMETRIC ISOLATION AND HIGH EFFICIENCY CONDUCTING ELEMENTS

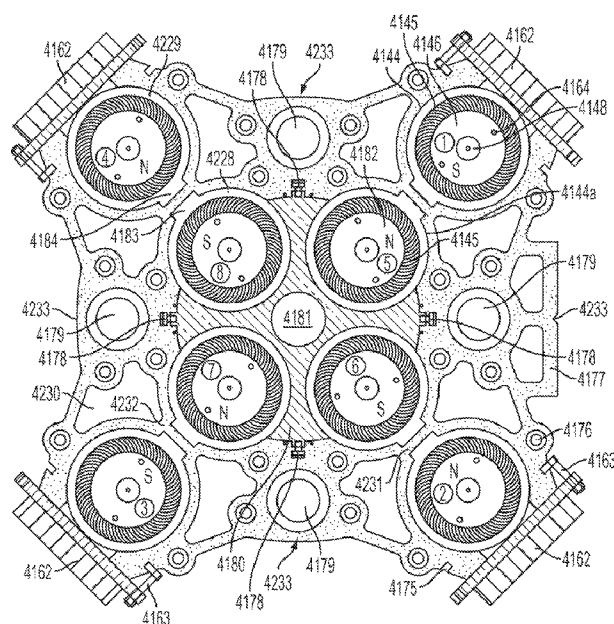


FIG. 25

- (57) **Abstract:** A method and apparatus for reducing electro-magnetic drag in an electric machine may include a laminated stator having wire slots disposed around the inner periphery spaced into sectors separated by a pole iron support structure. The slots contain induction windings. A series of wound lateral pole irons may be arranged around the inner periphery of the stator, the first ends of which extend into the slots in the sectors. A support structure supports the lateral pole irons by forming a circular opening concentric with the inner periphery of the stator. A rotor may be inserted into the circular opening of the lateral pole iron support structure and supported at the stator lateral pole iron ends by a support means. A plurality of rotor inserts may contain free-wheeling permanent magnet inserts spaced along an outer periphery of the rotor. The rotor may be inserted into the circular opening of the lateral pole iron support structure and the free-wheeling permanent magnet inserts may be inserted into cavities along the outer periphery of the rotor.



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