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(54) Title: ISO 1940 G2.5 GRADE BALANCING FOR ELECTRIC VEHICLE MOTOR

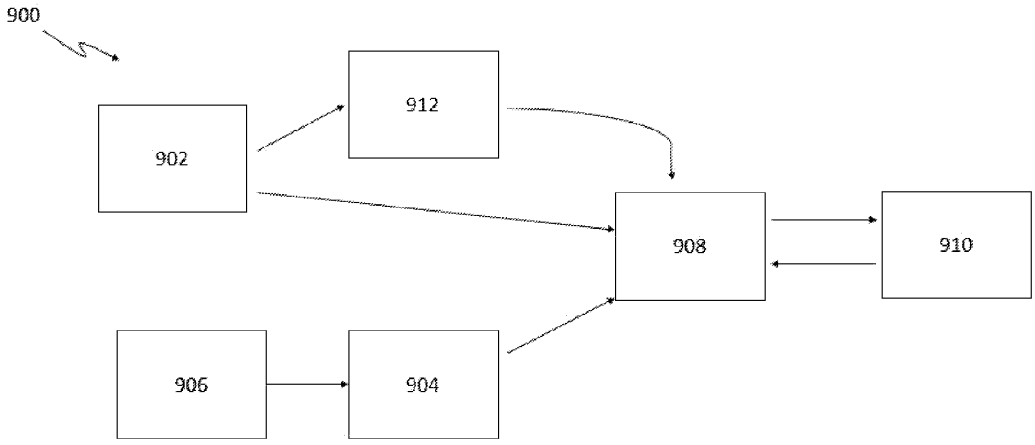

Fig 9

(57) Abstract: The present invention relates to a rotor balancing system (900) for electric vehicle motors, aimed at enhancing operational efficiency and reducing noise, vibration, and harshness (NVH) characteristics. This system (900) utilizes a two-plane balancing technique in accordance with ISO 1940 G2.5 standards to dynamically adjust rotor balance. It comprises a rotor (102, 202, 302, 902) configured for material removal from end plates to correct imbalances, a calculation unit for determining permissible unbalance based on service speed (110), and a balancing unit directed by this calculation. Additionally, a simulation module (910) assesses the impact of unbalance on rotor dynamics, while an analysis module (912) monitors critical speeds and unbalance responses to maintain optimal operation. The system (900) further includes an interface (906) that displays balance status and allows for real-time adjustments, ensuring that the rotor maintains an optimal balance under varying conditions, thereby improving the longevity and performance of electric vehicle motors.

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