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(54) **ROTOR FOR AN ELECTRIC MACHINE**

(71) Applicant: **GM GLOBAL TECHNOLOGY OPERATIONS LLC**, Detroit, MI (US)

(72) Inventor: **Cheng Gong**, Troy, MI (US)

(73) Assignee: **GM GLOBAL TECHNOLOGY OPERATIONS LLC**, Detroit, MI (US)

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(57) **ABSTRACT**

An interior permanent magnet (IPM) electric machine has an improved rotor configuration to manage mechanical stresses induced by electro-magnetic force acting upon permanent magnets housed therein. This includes providing magnet cavities in the rotor with sufficient clearances in the corners wherein a portion of a slot corner is formed with certain curvature shapes using a novel geometry. By doing this, more surface area is obtained to evenly distribute stress that is induced by centrifugal force acting upon the rotor during rotation, thus reducing the stress concentration. Furthermore, an expanded space is achieved between the magnet corner and the rotor lamination, thus providing robust packaging and dynamic support of the permanent magnets in the magnet cavities. Furthermore, the expanded space provides improved clearance for ease of manufacturing and assembly.