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DIRECTOR OF THE UNITED STATES PATENT AND TRADEMARK OFFICE

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(12) United States Patent

Dolgov et al.

(54) IN-WHEEL MOTOR FOR A VEHICLE AND A VEHICLE COMPRISING THE MOTOR

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

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See application file for complete search history.

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(56) References Cited

U.S. PATENT DOCUMENTS

5,150,763 A *	9/1992	Yamashita B60K 7/0007
7 287 611 B2 *	10/2007	Nagaya B60G 3/01
		180/65.51
7,306,065 B2 *	12/2007	Nagaya B60G 3/20 180/65.51
7,423,393 B2 *	9/2008	Wakao B60L 3/102 318/371
7,537,071 B2*	5/2009	Kamiya B60G 3/20
		180/298

(Continued)

FOREIGN PATENT DOCUMENTS

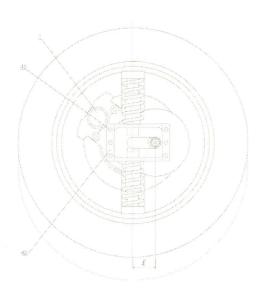
EP 1977924 A1 10/2008 RU 2334626 C2 9/2008 (Continued)

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(57) ABSTRACT

The present invention relates to a motor wheel for a vehicle and a vehicle comprising the motor wheel. The motor wheel comprises a wheel, an electric motor, a reduction gear transmitting rotation from the electric motor to the wheel, and a dampening structure connecting the wheel to a vehicle bearing member. The electric motor comprises an electric motor case. The reduction gear comprises a reduction gear case coupled to the electric motor case and rotatably mounted within the wheel hub. The electric motor case is connected to the bearing member of the vehicle and is displaceable relative to the bearing member. The invention improves dynamic properties to the vehicle, reduces vibrations transmitted to the vehicle body, and provides a more comfortable drive.

15 Claims, 7 Drawing Sheets



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