



US 20230231430A1

(19) **United States**(12) **Patent Application Publication****Nategh et al.**(10) **Pub. No.: US 2023/0231430 A1**(43) **Pub. Date:****Jul. 20, 2023**(54) **ELECTRIC MOTOR COMPRISING A FLUX BARRIER**(52) **U.S. Cl.**CPC ..... **H02K 1/2766** (2013.01); **H02K 21/14** (2013.01); **H02K 2213/03** (2013.01); **B60K 1/00** (2013.01)(71) Applicant: **Volvo Car Corporation**, Göteborg (SE)(72) Inventors: **Shafigh Nategh**, Mölnlycke (SE);  
**Johan Cederlund**, Torslanda (SE)

(57)

**ABSTRACT**

An electric motor is provided including a rotor and an outer member that is coaxially placed around the inner member and having radially oriented teeth. The teeth have end parts with a width  $W_t$ , adjacent teeth being separated by a slot of slot width  $W_g$ . A number of barrier members are provided in the inner member near the inner perimeter, each barrier member having a width  $W_b$  that generally corresponds to the width  $W_t$  and having curved side sections at each end of the central section having a width that generally corresponds with the slot width  $W_g$ . The barrier members reduce electromagnetic NVH by preventing magnetic flux from passing from the slots on each side of the teeth, into the inner member.

(21) Appl. No.: **18/092,462**(22) Filed: **Jan. 3, 2023**(30) **Foreign Application Priority Data**

Jan. 18, 2022 (EP) ..... 22152086.9

**Publication Classification**(51) **Int. Cl.****H02K 1/276** (2006.01)**H02K 21/14** (2006.01)