US 20220368196A1

(19) **United States**

(12) **Patent Application Publication**

(10) **Pub. No.: US 2022/0368196 A1**

(43) **Pub. Date: Nov. 17, 2022**

Eason et al.

(54) **MOTOR FAN AND GUARD FOR DIRECTING COOLANT AIR**

(71) Applicant: **Nidec Motor Corporation**, St. Louis, MO (US)

(72) Inventors: **Richard L. Eason**, Ballwin, MO (US); **Michael L. Largent**, O'Fallon, IL (US); **Steven R. Palmer**, Highland, IL (US); **Jeffrey Scott Sherman**, Creve Coeur, MO (US); **Richard A. Belley**, Hillsboro, MO (US)

(73) Assignee: **Nidec Motor Corporation**, St. Louis, MO (US)

(21) Appl. No.: **17/874,816**

(22) Filed: **Jul. 27, 2022**

Related U.S. Application Data

(63) Continuation of application No. 17/492,332, filed on Oct. 1, 2021, which is a continuation of application No. 16/459,265, filed on Jul. 1, 2019, now Pat. No. 11,146,144.

Publication Classification

(51) **Int. Cl.**

H02K 9/06	(2006.01)
F04D 29/70	(2006.01)
H02K 5/15	(2006.01)
H02K 7/08	(2006.01)
H02K 11/33	(2006.01)
H02P 23/26	(2006.01)
H02K 21/16	(2006.01)
H02K 9/22	(2006.01)

(52) **U.S. Cl.**

CPC ***H02K 9/06*** (2013.01); ***F04D 29/703*** (2013.01); ***H02K 5/15*** (2013.01); ***H02K 7/083*** (2013.01); ***H02K 11/33*** (2016.01); ***H02P 23/26*** (2016.02); ***H02K 21/16*** (2013.01); ***H02K 9/227*** (2021.01); *F04B 17/03* (2013.01)

(57) **ABSTRACT**

An electric motor assembly includes a stator, a rotor, a motor housing, a rotatable shaft, a radial fan, and an air scoop. The motor housing at least partly houses the stator and rotor and presents an exterior motor surface. The rotatable shaft is associated with the rotor for rotational movement therewith, with the rotatable shaft extending along a rotational axis. The radial fan is mounted on the rotatable shaft exteriorly of the motor housing and is rotatable with the shaft to direct airflow in a radially outward direction. The air scoop extends radially outwardly relative to the radial fan and axially to receive radial airflow from the radial fan and turn the airflow axially to flow along the exterior motor surface. The air scoop includes spaced apart axially extending airflow vanes to guide the airflow as the airflow is turned axially.