

## (19) United States

# (12) Patent Application Publication (10) Pub. No.: US 2024/0222979 A1

Jul. 4, 2024 (43) **Pub. Date:** 

### (54) SENSORLESS CURRENT SHARING FOR **POWER CONVERTERS**

(71) Applicant: Rivian IP Holdings, LLC, Plymouth,

MI (US)

(72) Inventors: Yanjun Shi, Torrance, CA (US); Zahra

Mohajerani, Los Angeles, CA (US); Mohammad Nanda Rahmana Marwali, Irvine, CA (US)

(21) Appl. No.: 18/090,855

(22) Filed: Dec. 29, 2022

#### **Publication Classification**

(51) **Int. Cl.** H02J 3/46 (2006.01)B60L 53/22 (2006.01) H02J 7/02 (2006.01)H02M 1/00

(2006.01)

U.S. Cl.

CPC ...... H02J 3/46 (2013.01); B60L 53/22 (2019.02); H02J 7/02 (2013.01); H02M

1/0009 (2021.05); H02M 1/0025 (2021.05); B60L 2210/10 (2013.01); B60L 2210/30 (2013.01); H02J 2207/20 (2020.01)

#### (57)ABSTRACT

Disclosed are embodiments for sensorless multi-stage power converters. The multi-stage power converters include a first stage that regulates a current of an input to the first stage and a second stage that regulates a voltage obtained from the first stage.

