



US 20240178671A1

(19) **United States**

(12) **Patent Application Publication**
Irish et al.

(10) **Pub. No.: US 2024/0178671 A1**

(43) **Pub. Date: May 30, 2024**

(54) **SYSTEM FOR BALANCING AND CONVERTING VOLTAGE OUTPUT FOR PHOTOVOLTAIC MODULES**

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(21) Appl. No.: **18/541,636**

(22) Filed: **Dec. 15, 2023**

Related U.S. Application Data

(63) Continuation-in-part of application No. 18/211,974, filed on Jun. 20, 2023, which is a continuation of application No. 17/484,615, filed on Sep. 24, 2021, now Pat. No. 11,728,656.

(60) Provisional application No. 63/434,426, filed on Dec. 21, 2022, provisional application No. 63/465,706, filed on May 11, 2023, provisional application No. 63/083,817, filed on Sep. 25, 2020.

Publication Classification

(51) **Int. Cl.**
H02J 3/38 (2006.01)
G01R 19/165 (2006.01)

G05F 1/67 (2006.01)

H02J 3/26 (2006.01)

H02J 7/00 (2006.01)

H02S 40/34 (2014.01)

H02S 40/36 (2014.01)

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

CPC **H02J 3/381** (2013.01); **G01R 19/16538**

(2013.01); **G05F 1/67** (2013.01); **H02J 3/26**

(2013.01); **H02J 7/0016** (2013.01); **H02S**

40/34 (2014.12); **H02S 40/36** (2014.12); **H02J**

2300/26 (2020.01)

(57)

ABSTRACT

A system for balancing and converting voltage output from photovoltaic modules includes a set of solar substrings and a power conversion circuit. The power conversion circuit includes a balancing section configured to balance voltage output from the set of solar substrings. The power conversion circuit also includes a voltage control section including: a first transformer coupled to the set of solar substrings and configured to step-up voltage from the set of solar substrings; a second transformer arranged in series to the first transformer; and an output capacitor coupled to the second transformer. The system further includes a controller configured to: drive a set of modulation signals to the balancing section and the voltage control section; alternate voltage polarities across the first transformer and the second transformer; and modify output voltage of the power conversion circuit to a target output voltage.

