US 20240237170A1

(19) **United States**

(12) **Patent Application Publication** (10) **Pub. No.: US 2024/0237170 A1**

Bostick (43) **Pub. Date: Jul. 11, 2024**

(54) **AERIAL VEHICLE ELECTRICAL POWER SYSTEM AND METHODS OF SUPPLYING REGULATED VOLTAGE AND REGULATING POWER VARIANCES IN A TETHERED AERIAL VEHICLE**

(71) Applicant: **PEGAPOD LLC**, Chantilly, VA (US)

(72) Inventor: **Randall Bostick**, Aldie, VA (US)

(21) Appl. No.: **18/405,931**

(22) Filed: **Jan. 5, 2024**

Related U.S. Application Data

(60) Provisional application No. 63/437,694, filed on Jan. 7, 2023, provisional application No. 63/439,845, filed on Jan. 18, 2023, provisional application No. 63/445,001, filed on Feb. 13, 2023, provisional application No. 63/450,000, filed on Mar. 4, 2023.

Publication Classification

(51) **Int. Cl.**

H05B 45/38	(2020.01)
B64U 10/13	(2023.01)
B64U 20/80	(2023.01)
H05B 45/48	(2020.01)

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

CPC ***H05B 45/38*** (2020.01); ***B64U 10/13*** (2023.01); ***B64U 20/80*** (2023.01); ***H05B 45/48*** (2020.01); *B64U 2201/202* (2023.01)

(57) **ABSTRACT**

An aerial vehicle electrical power system for providing regulated voltage and regulating power variances in a tethered aerial vehicle includes a plurality of light-emitting diodes (LEDs) carried by the aerial vehicle having at least one propulsion device. At least one electrical circuit is carried by the aerial vehicle. The at least one electrical circuit has an amperage boost regulator in parallel with a speed controller of the at least one propulsion device, wherein the amperage boost regulator in parallel with the speed controller delivers regulated voltage to the speed controller. A tether is connected between the aerial vehicle and a power source positioned remote from the aerial vehicle. Electrical power is transmitted to the aerial vehicle and at least a portion of the plurality of LEDs through the tether.