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(19) **United States**(12) **Patent Application Publication**
Kim(10) **Pub. No.: US 2022/0368148 A1**(43) **Pub. Date: Nov. 17, 2022**(54) **ERROR DETECTING METHOD OF
CHARGING SWITCH UNIT AND BATTERY
SYSTEM USING THE SAME**(52) **U.S. Cl.**CPC *H02J 7/00712* (2020.01); *G01R 19/16576*
(2013.01); *G01R 31/3835* (2019.01); *H02H*
7/222 (2013.01)(71) Applicant: **LG Energy Solution, Ltd.**, Seoul (KR)(72) Inventor: **Jisu Kim**, Daejeon (KR)(73) Assignee: **LG Energy Solution, Ltd.**, Seoul (KR)(21) Appl. No.: **17/623,321**(22) PCT Filed: **Aug. 12, 2020**(86) PCT No.: **PCT/KR2020/010642**

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An error detecting method of a charging switch unit including a first charging switch and a second charging switch connected to a charging line of a battery, including: first switching one of the first charging switch and the second charging switch according to a switch control command; determining whether voltages at opposite ends of the second charging switch are similar when the switch control command indicates open and the first charging switch is opened first; determining that the first charging switch is normal when the voltages at the opposite ends of the second charging switch are similar; determining whether the voltages at the opposite ends of the first charging switch are similar when the switch control command indicates closed and the first charging switch is closed first; and determining that the first charging switch is normal when the voltages at the opposite ends of the first charging switch are similar.

