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Steinberger et al.(10) **Pub. No.: US 2022/0352841 A1**(43) **Pub. Date: Nov. 3, 2022**(54) **AN APPARATUS FOR SWITCHING AND PROTECTION OF A LOAD***H02H 3/093* (2006.01)*H02H 7/08* (2006.01)*H02H 7/122* (2006.01)*H02H 7/22* (2006.01)(71) Applicant: **Future Systems Besitz GmbH**,
Rödental (DE)(52) **U.S. Cl.**CPC *H02P 29/027* (2013.01); *H02H 1/0007*(2013.01); *H02H 3/093* (2013.01); *H02H 7/08*(2013.01); *H02H 7/1227* (2013.01); *H02H**7/222* (2013.01)(72) Inventors: **Philipp Steinberger**, Coburg (DE);
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An apparatus for switching and/or protection of a load connected to said apparatus, said apparatus (1) comprising: a power switch (5) through which the connected load receives an electrical current; a sensor component (4) connected in series with said power switch (5) and adapted to generate directly an electrical voltage drop corresponding to a current rise speed of the electrical current flowing via the sensor component (4) and via the power switch (5) to said load; and a driver circuit (6) adapted to detect an occurring overcurrent depending on a voltage drop generated by said sensor component (4) with or without a voltage drop along the power switch (5) and to switch off said power switch (5) upon detection of an overcurrent within a switch-off period to protect said power switch (5) and said load.

