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(54) Title: SYSTEMS, DEVICES, AND METHODS FOR CHARGING AND DISCHARGING MODULE-BASED CASCADED ENERGY SYSTEMS

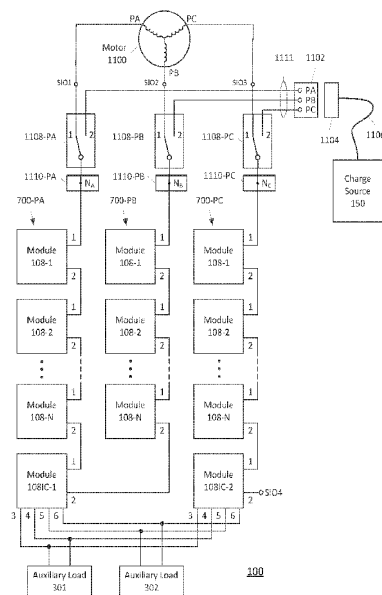


FIG. 11A

(57) Abstract: Example embodiments of systems, devices, and methods are provided for charging and discharging energy systems having multiple modules arranged in cascaded fashion for generating and storing power. Each module can include an energy source and switch circuitry that selectively couples the energy source to other modules in the system for generating power or for receiving and storing power from a charge source. The energy systems can be arranged in single phase or multiphase topologies with multiple serial or interconnected arrays. The embodiments are capable of being charged with multiphase AC charge signals, a single phase AC charge signal, and/or a DC charge signal. Embodiments implementing the modular energy system within a charge source for performing multiphase, single phase AC, or DC charging of electric vehicles are also disclosed. Also disclosed are multi-motor embodiments and embodiments with the capability to power active suspensions and active steering systems.

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