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(54) **CONTACTLESS SWAPPABLE BATTERY SYSTEM**

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(57) **ABSTRACT**

A contactless battery system includes a sealable dustproof and waterproof case that houses a battery unit and at least one wireless power transmission coupler connected to the battery unit. The at least one wireless power transmission coupler is disposed with respect to at least one face of the sealable case to enable magnetic inductive signaling for charging, discharging, and communication with the battery. Without physical contacts, the battery is inherently safe since voltage and current are not available to the touch. The lack of physical contacts also means that contact wear is eliminated and the battery modules have the benefit of inherent galvanic isolation. Since the battery system is sealed, internal intrusion detection systems may be used to detect improper attempts at battery changes or attacks on the electronics containing the usage and charging records in an attempt to increase the battery unit's value on the secondary battery market.