A battery charger for lithium ion cells closely monitors cell voltage, and charge time, so as to avoid the over-application of charge to the cell. Charge pulses are followed by a first rest, a discharge and a second rest, period prior to re-initiating the charge pulse. If the battery voltage reaches a preselected maximum, in less than a pre-selected period of time, the charge pulse is reduced by a preselected minimum factor. Cycling of the cell is continued until the cells are fully charged.

5481175

SYSTEM AND METHOD FOR CHARGING AUXILIARY BATTERIES

Qualich John; Chmielewski Cary; Sievers Kirk Buffalo Grove, IL, UNITED STATES assigned to Motorola Inc

A system and method for charging an auxiliary battery that drives an auxiliary load includes a regulator coupled to an auxiliary battery. The regulator provides a charge current that is variable dependent on a parameter of a control signal. Preferably, the parameter is an amplitude. A switch provides a coupling and a decoupling between the auxiliary battery and the auxiliary load. A control device decouples the auxiliary battery from the auxiliary load via the switch, and then provides the control signal to the regulator. By effecting this action, the regulator provides the variable charge current to the auxiliary battery dependent on the amplitude of the control signal.

5481177

ELECTRONIC CHARGING SYSTEM

Hamley James P Mill Creek, WA, 98012, UNITED STATES

A charging system has an input terminal, coupled to a power source, and an output terminal coupled to the load or battery under charge. The charging system includes an adjustable regulator having an input coupled to the input terminal and an output coupled to the output terminal with its control terminal under control of controller circuitry. The controller circuitry senses the state of charge of the load and provides a controlled, tapered charge thereto until such time that the load is fully charged. At the fully charged state, the controller changes the voltage at the control terminal of the regulator to cease all charging. Charging does not continue until the sensed level of charge of the battery drops to a predetermined recharge state at which point charger activity continues. The disclosed charger can be housed in a small, light weight enclosure and mounted at a location close to the battery with permanent connections thereto. The power source may be provided as a wall mount transformer having an interconnection to the remotely located charger.

5481185

SOLENOID, TYPE VOLTAGE, POLARITY AND CONTINUITY TESTER

Lane Peter B; Hinz William Thiensville, WI, UNITED STATES assigned to GB Electrical Inc

A solenoid type voltage, polarity and continuity tester has a solenoid operated voltage indicator, and separate positive polarity, negative polarity and continuity indicators. In the circuit for the tester, the solenoid is arranged in series with the polarity and continuity indication circuits so that continuity of the solenoid can be verified when the continuity of a circuit being checked is positively determined. A polarity indication circuit is in parallel with a continuity indication circuit. The continuity circuit has a battery which is switched into a circuit having a high resistance when a voltage is applied to the tester to reduce battery drainage.

5481194

FAULT DETECTION CIRCUIT FOR SENSING LEAKAGE CURRENTS BETWEEN POWER SOURCE AND CHASSIS

Schantz David L; Munro James Ellicott City, MD, UNITED STATES assigned to Westinghouse Electric Corp

A fault detection circuit for detecting leakage currents between a DC power source and chassis of an automobile, includes a voltage sensor coupled to the

DC power source, the voltage sensor including an analog reference and a chassis ground. A differential amplifier is coupled to the voltage sensor and detects variations in the analog reference and the chassis ground. A voltage comparator unit determines whether the variations detected in the differential amplifier is above a predetermined threshold value. A built-in test circuit tests whether the fault detection circuit is operating correctly.

5482793

ASSEMBLY HAVING IMPROVED THERMAL SENSING CAPABILITY

Burns Arthur G;Fernandez Jose M; Kreisinger Robert D Plantation, FL, UNITED STATES assigned to Motorola Inc

A battery assembly includes first and second battery housings, a plurality of battery cells and a flexible circuit having a thermal sensing surface which is located in thermal proximity to battery cells. The thermal sensing surface is in thermal proximity to the plurality of battery cells providing for improved thermal sensing of battery assembly.

5482794

SINGLE POINT BATTERY WATERING SYSTEM WITH INLET MOUNTING BRACKET

Mead Dennis; Ackroyd Edward C; Gemmell Thomas J Keene, NH, 03431, UNITED STATES

A single point watering system for a battery having a plurality of cells is provided with a bracket secured to an end wall of a battery casing in overlying spaced relation to an upper surface of at least one cell of the battery. A clamp is provided for securing an inlet fitting on the filler tube of the single point watering system to the underside of the bracket for securely positioning the inlet fitting in a protected, readily accessible location for quick connection and disconnection with a water supply system.

5483068

USE OF IR (THERMAL) IMAGING FOR DETERMINING CELL DIAGNOSTICS

Moulton Russell D; Chaloner-Gill Benjami San Jose, CA, 95123, UNITED STATES

In a new method, a defective electrochemical cell is detected by non-invasive means before assembly into a battery comprising multiple cells. The method detects faulty cells by sensing and detecting variations in the intensity level of infrared radiation emitted from an exterior surface of the cell or battery. The scanning and detection, preferably, is conducted by sensing infrared energy in a range of about 2 to about 12μ (microns) emitted from the major surface of the cell or battery. The variations are recorded as a function of geometric variables indicative of the geographic position of the variations.

5483144

PASSIVE BATTERY CHARGING SYSTEM

Marek Albert Grand Prairie, TX, 75051, UNITED STATES

A battery charger for simultaneously slow charging and thereafter maintaining a charge in a plurality of plate-type batteries includes a first transformer connected through a circuit loop to a first battery wherein the circuit loop includes a rectifier, and a current limiter and visual indicator of the charge level of the battery. A second transformer is connected through another circuit loop to one battery and through a third circuit loop to a second battery. The circuit loop of the first transformer may be connected to a first battery with one of the circuit loops of the second transformer being connected to a second battery connected in series to the first battery thus allowing the two loops to remain isolated from each other and allow for charging of the series connected batteries without removal of the series connection. In a second embodiment of the invention, a switch is connected in the loop to bypass the current limiter to allow a fast charge condition. A small indicator light is connected to the switch to indicate a fast charge condition. Thus, the charger may be switched from a slow passive charge condition to a fast charge condition, and back to a slow charge condition.