

5642028**COMBINED RECHARGABLE BATTERY
AND CHARGER ASSEMBLY**Tai Ming-Hwa; Wang Jung-Hung Taipei Hsien,
CHINA (TAIWAN)

A rechargeable battery assembly including a charging circuit and an electric plug assembly for connecting external power supply to the charging circuit, the charging circuit including an AC power input means to receive AC power supply, voltage dropping and power supply rectifying means connected to the AC power input means to drop AC power supply voltage and to change AC power supply into DC power supply, a battery, voltage detection and power supply control means, switch means connected between the voltage dropping and power supply rectifying means and controlled by the voltage detection and power supply control means to charge the battery.

5642029**CONSTANT CURRENT BATTERY
CHARGER WITH AUXILIARY OUTPUT
FOR PORTABLE APPARATUS**Seragnoli Giordan Agrate Brianza, ITALY assigned to
SGS-Thomson Microelectronics S r l

An auxiliary power supply line for powering the functional circuits of a portable apparatus during recharging of its internal battery by a constant current battery charger is derived from a node upstream of a sensing resistance of the current delivered to the battery under charge and is provided with isolation means.

5642030**CHARGE CONTROL CIRCUIT**Seelye David D Charlevoix, MI, UNITED STATES
assigned to Seelye Equipment Specialists

A control circuit including a relay switch having a fixed terminal adapted to be coupled to a terminal of the battery or the charging source, a normally-closed contact

terminal adapted to be coupled to a terminal of the other of one of the battery and the charging source, a normally-open contact terminal, and a relay coil. The control circuit further includes a comparator circuit for coupling to terminals of the battery to sense the voltage of the battery, and coupled to the relay coil to energize the relay coil causing a connection between the fixed terminal and the normally-open terminal of the relay switch when the voltage of the battery exceeds a first voltage threshold and to de-energize the relay coil causing a connection between the fixed terminal and the normally-closed contact terminal of the relay switch when the charging voltage of the battery falls below a second voltage threshold.

5642031**BATTERY RECHARGING SYSTEM WITH
STATE OF CHARGE DETECTION THAT
INITIALLY DETECTS WHETHER A
BATTERY TO BE CHARGED IS ALREADY
AT OR NEAR FULL CHARGE TO
PREVENT OVERCHARGING**Brotto Daniele C Baltimore, MD, UNITED STATES
assigned to Black & Decker Inc

A state of charge test is first performed on the battery by applying a current pulse and then observing the voltage decay characteristics which result. Batteries which are initially nearly fully charged exhibit a larger voltage decay than batteries which are not as fully charged. The result of this initial state of charge test is used to determine how to best terminate battery charging. In this way battery overcharging is prevented regardless of the initial state of charge of the battery.

5642100**METHOD AND APPARATUS FOR
CONTROLLING THERMAL RUNAWAY IN
A BATTERY BACKUP SYSTEM**

Farmer Walter E McDonough, GA, UNITED STATES

An energy management system comprising a method and an apparatus for controlling thermal runaway in a telecommunications switching station backup battery

recharging system receiving current from a power supply and delivering current through a rectifier to a battery and a load, the system having a low voltage disconnect switch capable of interrupting current to the battery. A current shunt is provided for generating a first signal having a first value representative of the current flowing through the rectifier. A current shunt is provided for generating a second signal having a second value representative of the current flowing through the load. A microprocessor is provided for calculating a third value, the third value being equal to the second value subtracted from the first value. A microprocessor is also provided for generating a third signal indicative of thermal runaway when the third value exceeds a predetermined value. A switch for interrupting current to the battery when the third signal exceeds the predetermined value may also be provided.

5642270

**BATTERY POWERED ELECTRIC
VEHICLE AND ELECTRICAL SUPPLY
SYSTEM**

Green Ross Marti; Kellaway Michael John Cambridge, UNITED KINGDOM assigned to Wavedriver Limited

PCT No. PCT/GB92/01435 Sec. 371 Date Jan. 28, 1994 Sec. 102(e) Date Jan. 28, 1994 PCT Filed Aug. 3, 1992 PCT Pub. No. WO93/02887 PCT Pub. Date Feb. 18, 1993. A charging system for a battery powered electric vehicle operates bidirectionally for charging the battery or for supplying power back to the utility grid at any selected power factor so that load leveling may be effected. A communications link between the utility and the charging system carries control signals and a control system associated with the charging system is responsive to the signals for controlling the charging rate and direction.

5645952

**METHOD AND APPARATUS FOR
CHARGING AND DISCHARGING
ELECTRIC ENERGY**

Lampinen Markku; Viitanen Minna; Lamminen Jaakko; Fomino Marina FIN Espoo, FINLAND assigned to Lampinen Markku

PCT No. PCT/FI93/00154 Sec. 371 Date Oct. 13, 1994 Sec. 102(e) Date Oct. 13, 1994 PCT Filed Apr. 13, 1993 PCT Pub. No. WO93/21664 PCT Pub. Date Oct. 28, 1993. A method and apparatus for storing and producing electrical energy in an electrochemical cell, where the cathode is a porous air electrode and the anode is a hydrogen-containing metal hydride. According to the invention, an overpressure is allowed to form inside the porous air electrode during charging, the said pressure preventing the formation of hydrogen bubbles on the metal hydride electrode. The overpressure remains at the desired level because the pores of the air electrode are made so small that the surface tension of the electrolytic solution penetrating into the pores seals the porous air electrode.

5646503

**METHOD FOR BALANCING POWER
SOURCES AND STRUCTURE THEREFOR**

Stockstad Troy L Phoenix, AZ, UNITED STATES assigned to Motorola Inc

A power source balancing circuit balances two power sources such as two battery cells. When the power source balancing circuit is enabled, it compares a current flowing through the first battery cell and a first resistor with a current flowing through the second battery cell and a second resistor. Because the resistance of the first resistor is equal to that of the second resistor, a difference between the two currents indicates a difference between the voltages of the two battery cells. If a current difference larger than a predetermined limit is detected, the battery cell with a higher voltage is discharged through a corresponding discharge resistor by switching on a corresponding switch. The corresponding switch is controlled by a corresponding flip-flop.

5646504

**MAGNETICALLY BALANCED
MULTI-OUTPUT BATTERY CHARGING
SYSTEM**

Feldstein Robert S Dobbs Ferry, NY, UNITED STATES