

Klein Martin Brookfield, CT, UNITED STATES
assigned to Electro Energy Inc

The subject invention relates to electrode structures that are adaptable for primary and electrically rechargeable electrochemical wafer cells. A flat wafer cell is disclosed that includes conductive, carbon-filled polymeric outer layers that serve as electrode contacts and as a means of containment of the cell. Multi-cell, higher voltage batteries may be constructed by stacking individual cells. Specially formulated electrodes and processing techniques that are compatible with the wafer cell construction are disclosed for a nickel-metal hydride battery system. The cell design and electrode formulations provide for individual operation of a vented or low pressure sealed cell and/or for operation of these cells in a stacked array in an outer battery housing.

5478665

BATTERY WITH STRENGTH INDICATOR

Burroughs James; O'Kain Alan N Encino, CA,
UNITED STATES assigned to Strategic Electronics

A battery strength tester used on a battery which has indicating means to indicate the strength of the battery and switching means which can easily be employed to complete a circuit so as to place the indicator means across the terminals of the battery and display the charge of the battery and wherein said switch, after a predetermined interval or temperature is reached, automatically opens to break the electrical contact across the battery terminals. A light emitting material employed as the indicator material is another special feature of the battery strength tester.

5478667

HEAT DISSIPATING CURRENT COLLECTOR FOR A BATTERY

Shackle Dale R; Morris Jerry L; McAleavey Michael E
Morgan Hill, CA, 95037, UNITED STATES

A current collector in electrical contact with an anode of a battery is extended beyond the anode to serve as a heat sink and presents a substantial surface area through

which heat is dissipated from inside the battery to the atmosphere. When multiple battery cells are stacked, the current collectors extend to form fins across which air flows to efficiently dissipate heat.

5478676

CURRENT COLLECTOR HAVING A CONDUCTIVE PRIMER LAYER

Turi Eran; Ray Marie B Springfield, MA, UNITED STATES assigned to Rexam Graphics

A current collector which uses a conductive primer layer under an electrode layer to improve the contact and adhesion of the electrode layer to a supporting member, wherein the conductive primer layer is composed of a polymeric material having pendant carboxylic acid groups crosslinked with a multifunctional crosslinking agent, and a conductive filler. The current collector may be used inter alia for making batteries.

5478677

COMPOSITE GAUNTLET/SEPARATOR

Choi Wai M; Schmidt Ingo W Newton, MA, UNITED STATES assigned to Daramic Inc

A battery separator for tubular positive electrodes composed of a microporous, composite sheet product having first and second major surface, formed from a uniform mixture of a polymer, a filler, a processing aid a porous form stable layer at least partially embedded in either the first or second major surface and having a series of vertical tubes arranged across its surface. The tubular sleeve/separator can be formed of individual tubes, flat sheets formed into a series of tubes or sheets containing half tubes and which are aligned and bonded together to form the series of tubes.

5478981

RESISTIVE ELECTRODE

Farmer John; Rotenberger Carl St Petersburg, FL,
UNITED STATES assigned to Farmer Mold &
Machine Works Inc

An improved resistive electrode is disclosed for a welding apparatus for welding a battery terminal post to a battery bushing. The battery terminal post is electrically connected to a battery plate disposed within a battery case and the battery bushing is secured to a battery case cover with the bushing having a central bushing aperture for receiving the battery terminal post therein when the battery case cover is located on the battery case. The resistive electrode comprising a resistive electrode extending between a base end and a tip end with the base end being secured to a power source. A conductive member engages the resistive electrode for facilitating the flow of electric power from the base end to the tip end for concentrating the resistive heat proximate to the tip end of the resistive electrode.

5479083

NON-DISSIPATIVE BATTERY CHARGER EQUALIZER

Brainard Gerald L. San Jose, CA, UNITED STATES
assigned to AST Research Inc

A battery charger is disclosed for recharging reusable batteries in a manner that prevents overcharging of the same. The charger includes a voltage source and non-dissipative shunt arrangement that can be customized to charge any number of batteries. The charger may be a current limiting power supply that is controlled by the voltage or charge state of the batteries being recharged. The non-dissipative shunt includes a pair of transistors for each pair of batteries and an inductor placed one end between the battery pair and another end between the transistor pair. An oscillator, having two phases of equal, but opposite phase, is used to control each transistor to apply charge to a given battery during one phase and then to allow the charge to equalize between the battery pair during the second phase. The equalization is continued until both batteries reach a full charge without overcharging any one battery.

5479084

BATTERY DISCHARGING APPARATUS

Satsuma Eiji; Okada Tetsuya; Yamashita Takahiro
Sumoto, JAPAN assigned to Sanyo Electric Co Ltd

A battery discharging apparatus is provided with a battery discharger and a controller. The controller is connected to a battery voltage sensor and a timer, a current sensor and a discharge switch, or a current sensor and a battery power capacity sensor. The controller directs the discharger to recover battery capacity lost due to the memory effect using a deep memory effect eliminating discharge.

5479085

METHOD AND APPARATUS FOR MEASURING RESIDUAL CAPACITY OF AN ELECTRIC-VEHICLE BATTERY

Honda Satoshi; Nazazawa Yoshihiro Saitama, JAPAN
assigned to Honda Giken Kogyo Kabushiki Kaisha

A method and an apparatus are provided for detecting a current residual capacity of a battery employed in an electric vehicle, such as an electric car. During a charging process, a value of the charge current of the battery is measured and an estimated discharge voltage corresponding to a current battery accumulated power is determined. A power of the battery as a product of the value of the charge current of the battery and the estimated discharge voltage is thereafter computed and the computed power is added to the current battery accumulated power to provide a new current battery accumulated power for display. During a discharging process, values of the discharge voltage and the discharge current are measured. The amount of consumed power is thereafter computed as a product of the values of the discharge voltage and the discharge current. The computed amount of consumed power is subtracted from a current battery residual capacity to produce a new current battery residual capacity for display. The above estimated discharge voltage is found from data obtained from test-working experiments or a process of learning the running states of an actual electric vehicle.

5481174

METHOD OF RAPIDLY CHARGING A LITHIUM ION CELL

Martin Lara J; Garrett Scott M Newport News, VA,
UNITED STATES assigned to Motorola Inc