the group consisting of Co, Mn, Al, Fe, Cu, Mo, W, Cr, V, Ti, Zr, Sn, Th, Si, Zn, Li, Cd, Na, Pb, La, Mm,and Ca; b is greater than 0.5, preferably 2.5, atomic percent and less than 30 atomic percent; and a+b=100 atomic percent. Preferably, the at least one modifier is chosen from the group consisting of Co, Mn, Al, Fe,and Cu and the total mass of the at least one modifier element is less than 25 atomic percent of the final composition. Most preferably, the total mass of said at least one modifier element is less than 20 atomic percent of the final composition.

5506070

METAL HYDRIDE ELECTRODE, NICKEL ELECTRODE AND NICKEL-HYDROGEN BATTERY

Mori Hiroyuki; Hasegawa Keiichi; Watada Masaharu; Oshitani Masahiko Takatsuki, JAPAN assigned to Yuasa Corporation

A metal hydride electrode, in which a metallic cobalt powder is mixed, within a mixing range of 3 to 20 weight percents, with a hydrogen absorbing alloy powder formed by substituting a part of Ni of alloy expressed by a rational formula of MmNi5 with Al and at least one kind of Fe, Cu, Co, Mn, and the mixed powder is loaded in a porous alkaline-proof metal body. An nickel electrode, in which a cobalt monoxide powder is mixed with an active material powder within a mixing range of 5 to 15 weight percents, the active material powder comprising zinc existing within a range of 2 to 8 weight percents, under a solid solution state in a crystal of nickel hydroxide powder assuming a spherical shape including an inner pore volume of 0.14 ml/g or less, and the mixed powder is loaded in a porous alkaline-proof metal body. A nickel-hydrogen battery, in-which the foregoing metal hydride electrode and the foregoing nickel electrode are wound with a separator put between them, aqueous solution of potassium hydroxide is filled therein and sealed, and they are maintained under standing condition for 5 hours or more.

5506074

METAL HYDRIDE ELECTRODE AND NICKEL-HYDROGEN ALKALINE STORAGE CELL

Tadokoro Motoo; Mizutaki Fusago; Ishimaru Nobuyasu Tokushima, JAPAN assigned to Sanyo Electric Co Ltd

A metal hydride electrode is mainly composed of a hydrogen-absorbing alloy and provided with carbon powder which is selected from acetylene black, carbon black, ketjen black, and active carbon. The metal hydride electrode is further provided with an additive including an oxide and/or a hydroxide of a metal having oxidation-reduction potential nobler than an operational potential of the hydrogen-absorbing alloy. The metal hydride electrode has excellent oxygen gas absorption ability and easy detection of - DeltaV, thereby realizing to produce a nickel-hydrogen alkaline storage cell with excellent charge/discharge cycle life.

5508121

NICKEL HYDROXIDE ELECTRODE FOR USE IN AN ALKALINE SECONDARY BATTERY

Sawa Haruo Iwaki, JAPAN assigned to Furukawa Denchi Kabushiki Kaisha

A nickel hydroxide electrode useful in an alkaline secondary battery containing at least one of a copper-based additive or a manganese-based additive in either a nickel hydrogen active material as applied to a porous metal substrate, in a porous metal substrate itself, or both. The copper-based additive is at least member of the group consisting of copper, cuprous oxide and cupric oxide. The manganese-based additive is at least member of the group consisting of metal manganese, MnO, Mn2O3, Mn3O4, MnO2, MnO3, Mn2O7, Mn(OH)2, MnCO3, K2MnO2, and KMnO4. When the additive is used in a positive electrode for an alkaline secondary battery, the rate of absorption of

hydrogen gas generated in the battery is accelerated resulting in a reduction of the internal pressure of the battery. Further, the excess capacity of the negative electrode in relation to the capacity of the positive electrode can be reduced resulting in an increase in the battery capacity per unit volume.

COMPONENTS AND/OR CHARGERS

5498486

SECURITY BATTERIES FOR AUTOMOTIVE VEHICLES

Gatehouse Peter Lancashire, UNITED KINGDOM assigned to B I G Batteries Limited

PCT No. PCT/GB93/01345 Sec. 371 Date Feb. 1, 1995 Sec. 102(e) Date Feb. 1, 1995 PCT Filed Jun. 25, 1993 PCT Pub. No. WO94/01894 PCT Pub. Date Jan. 20, 1994. A battery has an exposed negative terminal, but the positive terminal is hidden within the casing of the battery and instead only a dummy terminal is visible. When the vehicle is parked, power is fed from the positive terminal through an isolator relay to an INHIBIT circuit. When power is made available through the ignition switch to a terminal, power is fed via a socket to a keypad. A predetermined code has to be set into the keypad in order to pass an operating signal to an electronic lock, which is effective to switch the relay to connect power to an ENABLE circuit and to disconnect the supply from the INHIBIT circuit. This causes a solenoid to operate for a time determined by a timer so that the positive terminal is connected to the dummy terminal through a plunger. When the ignition key is moved to the start position power is supplied through the starter lead connected from the terminal to a starter motor. Consequently, the motor cannot normally be started unless the ignition sequence includes the keying in of the code into the keypad. Any attempt to bypass the ignition system or bump-start the car will result in sensing devices opening switch contacts supplying power to the alternator via the terminal.

5498488

CONTAINER FOR RAPID CHARGE ACCUMULATOR HAVING CHANNELS MOLDED IN THE LID FOR DISTRIBUTING THE ELECTROLYTE

Stocchiero Olimpi Montorso Vicentino (VI), ITALY

PCT No. PCT/EP94/01823 Sec. 371 Date Jan. 25, 1995 Sec. 102(e) Date Jan. 25, 1995 PCT Filed Jun. 6, 1994 PCT Pub. No. WO94/29907 PCT Pub. Date Dec. 22, 1994. The invention discloses an accumulator container comprising a box presenting one or more element-containing cells,each of said cells presenting at least one tube for the inlet of the electrolyte. Said tube has one end connected with an opening made in the lid and its other end arranged near the bottom of the container. Said box presents a lid having at least one first inlet opening, connected through channels for the distribution of the electrolyte with electrolyte inletting tubes, found in the box and in the lid, and at least one second outlet opening connected with level tubes, each belonging to each cell.

5498490

EQUALIZING CHARGE RATES OF INDIVIDUAL BATTERY CELLS

Brodd Ralph J Morgan Hill, CA, UNITED STATES

Charge rates of individual battery cells are equalized and battery safety increased by limiting the amount of current that will flow through the battery in the event of a short circuit either external to or internal to the battery. A solid-polymer battery having a cathodic layer, an anodic layer, an ionically conductive polymeric electrolyte situated intermediate the cathodic layer and the anodic layer, a first electrode electrically connected to the cathodic layer, and a second electrode electrically connected to the anodic layer, has additionally an electronically conductive polymeric layer situated intermediate the first and second electrodes and having a resistivity within a range so as to limit current flow through the battery in case of the occurrence of a short circuit between the cathodic layer and the anodic layer, and to reduce a terminal voltage