

hydrophobic polymer and a dispersion of particulate carbon, the loading of precious metal being 0.011-1.0 mg/cm² of geometric electrode area. Said electrode demonstrates high effective platinum surface area and power density output when fabricated into a membrane electrode assembly.

5506066

**ULTRA-PASSIVE VARIABLE PRESSURE
REGENERATIVE FUEL CELL SYSTEM**

Sprouse Kenneth Northridge, CA, UNITED STATES
assigned to Rockwell International Corporation

An ultra-passive, variable pressure, regenerative fuel cell system in accordance with the invention utilizes a single gaseous hydrogen storage tank that encloses a plurality of smaller gaseous oxygen storage tubes. This design effectively eliminates the need for active pumping elements to protect the fuel cell's anode surface. A single heating/cooling coil, inside the gaseous hydrogen storage tank, is used to prevent: (a) icing inside the storage tanks due to isentropic expansion during electrical power generation, or (b) overheating of gases due to isentropic compression during electrical recharging operations. Advantageously, the invention also reduces the overall weight and mechanical complexity of the fuel cell system, thereby improving system reliability.

5508127

SOLID OXIDE FUEL CELLS

Lewin Robert G; Wood Geoffrey A Bury, UNITED
KINGDOM assigned to British Nuclear Fuels plc

PCT No. PCT/GB93/01199 Sec. 371 Date Jun. 8, 1994
Sec. 102(e) Date Jun. 8, 1994 PCT Filed Jun. 7, 1993
PCT Pub. No. WO93/26055 PCT Pub. Date Dec. 23,
1993. A solid fuel cell for high temperature operation
including a refractory solid electrolyte, an anode and a
cathode both in intimate contact with the electrolyte
and an electronically conducting interconnect medium
having pores or channels therethrough permitting
oxidant and fuel to be delivered without mixing
respectively to the cathode and the anode, wherein the

anode, cathode and interconnect medium are provided
as zones within a common unitary material, the anode
and cathode being present as zones adjacent to different
surfaces of the material and the interconnect medium
being present as a zone intermediate to the cathode and
anode zones.

5508128

**FUEL CELL SYSTEM AND FUEL CELLS
THEREFOR**

Akagi Kosuk Osaka, JAPAN assigned to Osaka Gas
Co Ltd

A fuel cell includes an electrolyte layer in form of a
plate, an oxygen electrode formed on one surface of the
electrolyte layer, a fuel electrode formed on the other
surface of the electrolyte layer, and a conductive
separator opposed to the oxygen electrode or fuel
electrode for defining oxygen-containing gas passages
or fuel gas passages. The separator includes a plate-like
portion opposed to and spaced from the oxygen
electrode or fuel electrode, a pair of strip-shaped
projections extending along opposite ends of the
plate-like portion for contacting opposite edges of the
electrolyte layer, and a plurality of ridges for defining
gas passages in form of grooves between the pair of
strip-shaped projections. A fuel cell system includes a
plurality of such fuel cells stacked one over another in
a spaced relationship to define fuel gas passages or
oxygen-containing gas passages in between. A flexible
conductive element is disposed between an adjacent
pair of the fuel cells.

BATTERY MATERIALS

5498403

**METHOD FOR PREPARING HIGH DENSITY
NICKEL HYDROXIDE USED FOR ALKALI
RECHARGEABLE BATTERIES**

Shin Dong-Yup Kyunki, REPUBLIC OF KOREA
assigned to Hyundai Motor Company

A method for preparing nickel hydroxide is provided, in which a nickel sulfate solution and ammonium hydroxide are continuously mixed in a premixing vessel to form a nickel ammonium complex, and then the mixed solution and a sodium hydroxide solution are continuously supplied to a reactor. Included in the method of producing nickel hydroxide is the step of adding more than one element selected from the group consisting of Co, Zn and Cd to the nickel sulfate solution in a concentration range of 0.05-0.3 mol/L. The high density nickel hydroxide may be used for alkali rechargeable batteries.

5498491

**SOLID ELECTROLYTES DERIVED BY
POLYMERIZATION OF VINYL
SULFONATE DERIVATIVES**

Golovin Milton N San Jose, CA, UNITED STATES

PCT No. PCT/US93/06854 Sec. 371 Date Feb. 4, 1994
Sec. 102(e) Date Feb. 4, 1994 PCT Filed Jul. 22, 1993
PCT Pub. No. WO94/02454 PCT Pub. Date Feb. 3,
1994. This invention is directed to solid electrolytes
containing a solid polymeric matrix derived from vinyl
sulfonate polyalkylene oxides.

5498494

**PREPARATION OF SILVER VANADIUM
OXIDE CATHODES USING AG20 AND
V2O5 AS STARTING MATERIALS**

Takeuchi Esther; Thiebolt William C Williamsville,
NY, UNITED STATES assigned to Wilson Greatbatch
Ltd

A method for preparing a cathode having as active material silver vanadium oxide formed by chemical addition, reaction or otherwise intimate contact of a silver-containing component and a vanadium-containing compound to form a mixed metal oxide bronze that is thermally treated and rapidly

cooled to form an amorphous product. The method of the present invention provides an alternate preparation technique for improving chemical control in the formation of a cathode for incorporation into an electrochemical cell.

5499449

**METHOD OF MANUFACTURING
BATTERY TERMINALS**

Carter Warren; Carter Brad Murfreesboro, TN,
UNITED STATES assigned to Molded Metal Services
Inc

A method of forming a battery terminal of the type having an electrically conductive screw encased within a conductive material casting such as lead. The preferred method uses a pair of die halves axially aligned with one another. A casting of a battery terminal having upper and lower terminal portions is provided, along with an electrically conductive post or screw. The casting and screw are placed between the die halves. The die halves are compressively forced against one another. A forging cone causes the casting to be forced into the thread spaces of the screw or against the surface of the post and changes the exterior angle of the casting.

5500026

**METHOD OF ASSEMBLING
ELECTROCHEMICAL CELLS OF NOVEL
CONSTRUCTION**

Heller Bernard F; Schmidt Craig L; Nutzman Thomas;
Lessar Joseph F Fridley, MN, UNITED STATES

A lithium halide button cell formed of simplified sub-assemblies including one such subassembly in which molten cathode material is poured into a retaining ring and allowed to solidify therein before incorporation into the cell.