5525055

APPARATUS FOR PRESETTING FUEL CELL WICK

Menter J Alan; Zimmerman Robert C Manlius, NY, UNITED STATES assigned to Hollowick Inc

A cap for closing the burner of a liquid fuel cell and protecting the burner wick. The burner wick has upraised adjustable tabs that can be separated to control the heat output of the cell. The cap contains a die member that is arranged to move between the tabs when the cap is closed over the burner to position the tabs at a desired standard heat setting that is best suited for a majority of fuel cell applications.

5527631

HYDROCARBON REFORMING CATALYST MATERIAL AND CONFIGURATION OF THE SAME

Singh Prabhakar; Shockling Larry A; George Raymond A; Basel Richard A Export, PA, UNITED STATES assigned to Westinghouse Electric Corporation

A hydrocarbon reforming catalyst material comprising a catalyst support impregnated with catalyst is provided for reforming hydrocarbon fuel gases in an electrochemical generator. Elongated electrochemical cells convert the fuel to electrical power in the presence of an oxidant, after which the spent fuel is recirculated and combined with a fresh hydrocarbon feed fuel forming the reformable gas mixture which is fed to a reforming chamber containing a reforming catalyst material, where the reforming catalyst material includes discrete passageways integrally formed along the length of the catalyst support in the direction of reformable gas flow. The spent fuel and/or combusted exhaust gases discharged from the generator chamber transfer heat to the catalyst support, which in turn transfers heat to the reformable gas and to the catalyst, preferably via a number of discrete passageways disposed adjacent one another in the reforming catalyst support. The passageways can be slots extending inwardly from an outer surface of the support body, which slots are partly defined by an exterior confining wall. According to a preferred embodiment, the catalyst support is non-rigid, porous, fibrous alumina, wherein the fibers are substantially unsintered and compressible, and the reforming catalyst support is impregnated, at least in the discrete passageways with Ni and MgO, and has a number of internal slot passageways for reformable gas, the slot passageways being partly closed by a containing outer wall.

5527632

HYDROCARBON FUELLED FUEL CELL POWER SYSTEM

Gardner Frederick J Derby, UNITED KINGDOM assigned to Rolls-Royce and Associates Limited

A hydrocarbon fuelled fuel cell power system comprises a fuel cell stack,a reformer and a hydrogen store. The reformer is arranged periodically to supply reformate, which contains hydrogen, to the fuel cell stack and to the hydrogen store. The hydrogen store is arranged to store the hydrogen from the reformate during the periods that the reformer operates. The hydrogen store is arranged to supply hydrogen to the fuel cell stack during periods of low load demands on the fuel cell stack and is capable of supplying hydrogen rapidly to the fuel cell stack for high load demands on the fuel cell stack. The hydrogen store also supplies hydrogen to the reformer to light up the reformer. The hydrogen store buffers the fast response of the fuel cell stack and the relatively slower response of the reformer during relatively large rapid demands on the fuel cell stack and enables the reformer to be operated in an on/off mode.

5527633

SOLID OXIDE FUEL CELLS, A PROCESS FOR PRODUCING SOLID ELECTROLYTE FILMS AND A PROCESS FOR PRODUCING SOLID OXIDE FUEL CELLS

Kawasaki Shinji;Ito Shigenori; Yoshioka Katsuk Nagoya, JAPAN assigned to NGK Insulators Ltd

A solid oxide fuel cell having an ion conductive solid electrolyte layer formed by a spraying method, wherein a thickness of the solid electrolyte layer is not less then 40 mum and not more than 100 mum, and a leakage

amount of N2 gas of the solid electrolyte layer at room temperature is not more than 10-5 cc/g.second. A permeation coefficient of the solid electrolyte layer is preferably not more than 10-7 cm4/g.second at room temperature. The solid electrolyte layer includes at least one metal element selected from manganese, iron, cobalt, nickel,copper and zinc, in an average amount of not less than 1 atom % and not more than 15 atom % based on a sum of amounts of all metal elements contained in the solid electrolyte layer.

5527634

MULTIPLE MANIFOLD FUEL CELL

Meacham G B Kirby Shaker Heights, OH, UNITED STATES assigned to Electric Power Research Institute Inc

PCT No. PCT/US93/01409 Sec. 371 Date Oct. 12, 1994 Sec. 102(e) Date Oct. 12, 1994 PCT Filed Feb. 17, 1993 PCT Pub. No. WO93/17465 PCT Pub. Date Sep. 2, 1993. The invention provides fuel cells and fuel cell stacks having a plurality of manifolds for providing reactive gases to cell layers. The manifolds are distributed across the planar area of the cells whereby the flow path lengths are reduced to the point that current collectors are not required. Substantial stack volume, cost and contact resistance reductions are also realized.

5527635

SOLID-ELECTROLYTE FUEL CELL ELECTRODE MATERIAL AND ELECTRODE USING SAME

Tsukamoto Koichi; Uchiyama Futoshi; Yanagisawa Takeshi; Okuo Takayasu; Kaga Yasuo Tokyo, JAPAN assigned to Agency of Industrial Science & Technology Ministry of International Trade & Industry

Solid-electrolyte fuel cell electrode material in the form of a membrane formed on a solid electrolyte surface from a powder obtained by pulverizing a sintered body obtained by sintering a mixture of lanthanum-based electrode material and 5 to 50 mol % platinum.

529855

STRUCTURE FOR WETTING DIAPHRAGM OF SOLID POLYMER ELECTOLYTE ELECTROCHEMICAL CELL AND PROCESS OF PREPARING SAME

Watanabe Masahiro Wadamachi, Kofu shi, Yamanashi, JAPAN assigned to Tanaka Kikinzoku Kogyo K K; Watanabe Masahiro

Disclosed is a structure for wetting a diaphragm of a solid polymer electrolyte fuel cell in which one or more hollow paths are provided in or on the diaphragm for supplying water to the solid polymer electrolyte. According to the structure of this invention, the elevation of performances of the above cell is achieved by wetting the diaphragm at a desired level. Since the water can be supplied through the hollow paths with substantially no resistance, the amount to be supplied can be freely controlled.

5529856

FUEL CELL HAVING SOLIDIFIED PLASMA COMPONENTS

Petri Randy J; Ong Estela T Crete, IL, UNITED STATES assigned to Electric Power Research Institute

Fuel cells, fuel cell components, and other electrochemical devices and components fabricated by plasma spraying. Devices such as fuel cells may be made by plasma spraying and then assembling individual components or by plasma spraying components on other components to form a laminate.

5531019

SOLID OXIDE FUEL CELL AND MANUFACTURING METHOD THEREOF

Taira Hiroak; Iha Michiaki; Takagi Hiroshi Nagaokakyo, JAPAN assigned to Murata Manufacturing Co Ltd