United States Patent [19]

Horvath

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[54] **FUEL SUPPLY APPARATUS FOR INTERNAL COMBUSTION ENGINES**

[75] Inventor: **Stephen Horvath,** St. Ives, Australia

[73] Assignee: **Beeston Company Limited,** Hong Kong, Hong Kong

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Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 485,498, July 3, 1974, abandoned.

[52] **U.S. Cl.** ..... **123/3;** 123/119 E; 123/DIG. 12; 204/129; 204/228

[51] **Int. Cl.**[2] **F02B 1/00;** F02B 67/00; C25B 1/04; F02M 7/00

[58] **Field of Search** ..... 204/129, 228; 123/119 E, DIG. 12, 3

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Primary Examiner—R. L. Andrews

Attorney, Agent, or Firm—Biebel, French & Nauman

[57] **ABSTRACT**

A fuel supply apparatus generates hydrogen and oxygen by electrolysis of water. There is provided an electrolytic cell which has a circular anode surrounded by a cathode with a porous membrane therebetween. The anode is fluted and the cathode is slotted to provide anode and cathode areas of substantially equal surface area. A pulsed electrical current is provided between the anode and cathode for efficient generation of hydrogen and oxygen. The electrolytic cell is equipped with a float, which detects the level of electrolyte within the cell, and water is added to the cell as needed to replace the water lost through the electrolysis process.

The hydrogen and oxygen are collected in chambers which are an integral part of the electrolytic cell, and these two gases are supplied to a mixing chamber where they are mixed in the ratio of two parts hydrogen to one part oxygen. This mixture of hydrogen and oxygen flows to another mixing chamber wherein it is mixed with air from the atmosphere. The system is disclosed as being installed in an automobile, and a dual control system, which is actuated by the automobile throttle, first meters the hydrogen and oxygen mixture into the chamber wherein it is combined with air and then meters the combined mixture into the automobile engine. The heat of combustion of a pure hydrogen and oxygen mixture is greater than that of a gasoline and air mixture of comparable volume, and air is therefore mixed with the hydrogen and oxygen to produce a composite mixture which has a heat of combustion approximating that of a normal gas-air mixture. This composite mixture of air, hydrogen and oxygen then can be supplied directly to a conventional internal combustion engine without overheating and without creation of a vacuum in the system.

18 Claims, 41 Drawing Figures