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# United States Patent [19]

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Lee

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[54] MATERIAL AND METHOD FOR FAST GENERATION OF HYDROGEN GAS AND STEAM

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[\*] Notice: The portion of the term of this patent subsequent to Oct. 1, 2008 has been disclaimed.

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[51] Int. Cl.<sup>5</sup> ..... F24J 1/00

[52] U.S. Cl. .... 126/263; 126/269; 122/21

[58] Field of Search ..... 126/263, 206, 269, 271.3; 122/21

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[57] ABSTRACT

A high power pulse of electrical current causes a metal conductor to explode and initiate a reaction between an aluminum or aluminum alloy powder and water which generates hydrogen gas at a high temperature and pressure. The reaction mixture is released into a second larger chamber equipped with heat exchanger which extracts useful heat energy and cools down the reaction mixture. The hydrogen gas is then separated from the solid metal oxide byproducts in the cooled reaction mixture.

20 Claims, 2 Drawing Sheets

