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Duva

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[54] FUEL OXIDIZER EMULSION INJECTION SYSTEM

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[58] Field of Search **123/1 A, 25 R, 123/25 E, 676, 672, 304**

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[57] ABSTRACT

A system for improving efficiency and reducing harmful emissions in an internal combustion engine and for allowing the engine to run in oxygen poor and oxygen depleted environments. An oxidant, such as hydrogen peroxide, is emulsified with engine fuel. The emulsion is injected into the combustion chamber of the engine. A controller senses the temperature and oxygen level in the exhaust stream of the engine as well as the oxygen level in the ambient fluid. The controller operates a valve to vary the amount of oxidant added to the fuel as well as controlling the amount of ambient air introduced into the chamber and the injection of the fuel oxidant emulsion into the chamber. The controller parameters are set to maintain maximum efficiency and minimum emissions. The oxidant in the emulsion provides for near stoichiometric combustion to reduce combustion products and reduce the engine's air requirements. The reduced air requirements allow for operation of the engine in oxygen poor environments and is oxygen depleted environments, such as operation at high altitudes or operation underwater. Water is added to the emulsion oxidant to cool the stoichiometric combustion temperature to prevent excessive engine wear and to further block the formation of oxides of nitrogen.

12 Claims, 2 Drawing Sheets

