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- (71) Applicant (for all designated States except US): FUEL TECHNOLOGIES PLUS, INC. [US/US]; 3199-D Airport Loop Drive, Costa Mesa, CA 92626 (US).
- (72) Inventor; and  
(71) Applicant : SMEDLEY, Stuart, I. [US/US]; 2157 Anda Lucia Way, Oceanside, CA 92056 (US).
- (74) Agent: BURDICK, Sean; 21372 Avenida Manantial, Lake Forest, CA 29630 (US).
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[Continued on next page]

(54) Title: INTRINSICALLY SAFE ELECTROLYSIS SYSTEM

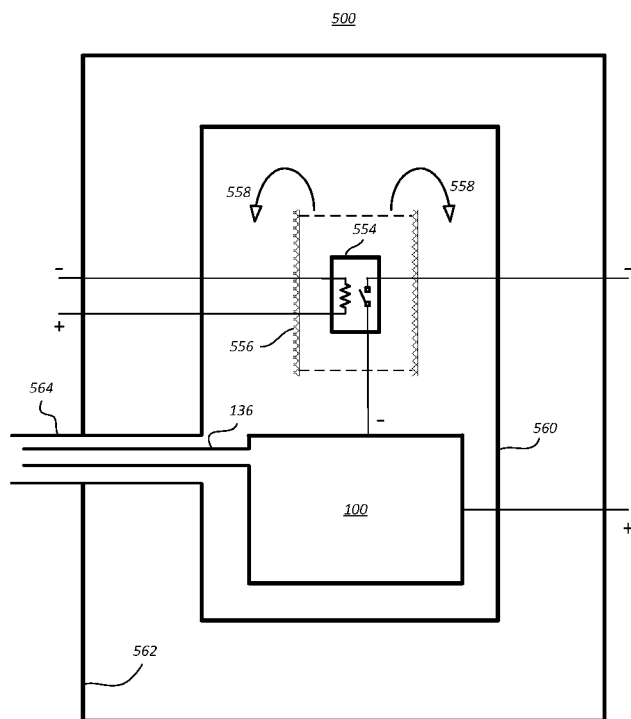


FIG. 5

(57) Abstract: An intrinsically safe electrolysis system for generating hydrogen gas includes an electrolyzer containing an electrolyte and providing an outlet for generated gasses. An enclosure encloses the electrolyzer and a portion of the gas outlet. A safety interlock mounted within the enclosure and outside the electrolyzer includes a radiative element and a thermal switch, the thermal switch connected in series with a power supply for the electrolyzer and mounted in a proximity to the radiative element so that when a rated current is applied to the radiative element, the thermal switch in response to receiving heat from the radiative element changes state to provide power to the electrolyzer. The electrolyzer may generate hydrogen or oxygen gas as a fuel supplement deliverable to an internal combustion engine via the gas outlet. The electrolyzer may be mounted within a vehicle compartment that may serve as the enclosure.



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**A. CLASSIFICATION OF SUBJECT MATTER***C25B 1/04(2006.01)i, C25B 9/00(2006.01)i*

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

C25B 1/04; C25B 9/00; F02B 43/08; C25B 15/08; B01J 7/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) &amp; Keywords: electrolysis, electrolyzer, gas outlet, enclosure, radiative, heating

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 05690797A A (HARADA; HIROYUKI et al.) 25 November 1997 See the abstract, fig. 1, claim 1,2	1-20
A	US 6209493 B1 (ROSS; BILL) 03 April 2001 See the abstract, fig. 1, claim 1	1-20
A	US 05382271A A (NG; MOSES L. et al.) 17 January 1995 See the abstract, fig. 1, claim 1	1-20

 Further documents are listed in the continuation of Box C. See patent family annex.

\* Special categories of cited documents:

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Authorized officer

Park Sang Ho

Telephone No. 82-42-481-8709



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Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 05690797A A	25.11.1997	JP 03-220607 B2 JP 08-193287 A JP 3220607 B2	10.08.2001 30.07.1996 22.10.2001
US 6209493 B1	03.04.2001	AU 5022199 A WO 00-06875A1	21.02.2000 10.02.2000
US 05382271A A	17.01.1995	None	