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**Tentative Interim Amendment
NFPA 58
Liquefied Petroleum Gas Code
2008 Edition**

Reference: 11.6.3

TIA 08-3

(SC 07-10-5/TIA Log #890)

Pursuant to Section 5 of the NFPA Regulations Governing Committee Projects, the National Fire Protection Association has issued the following Tentative Interim Amendment to NFPA 58, *Liquefied Petroleum Gas Code*, 2008 edition. The TIA was processed by the Technical Committee on Liquefied Petroleum Gases, and was issued by the Standards Council on October 4, 2007, with an effective date of October 24, 2007.

A Tentative Interim Amendment is tentative because it has not been processed through the entire standards-making procedures. It is interim because it is effective only between editions of the standard. A TIA automatically becomes a proposal of the proponent for the next edition of the standard; as such, it then is subject to all of the procedures of the standards-making process.

1. *Make the following changes to Section 11.6.3:*

~~11.6.3~~ Hose that is utilized at lower than container pressure shall be designed and marked for its maximum anticipated operating pressure.

11.6.3 Hose, Hose Connections, and Flexible Connectors.

11.6.3.1 Hose, hose connections, and flexible hose connectors (see 3.3.26) used for conveying LP-Gas liquid or vapor at pressures in excess of 5 psig (34.5 kPag) shall be fabricated of materials resistant to the action of LP-Gas both as liquid and vapor and the hose and flexible hose connector and shall be reinforced with stainless steel wire braid.

11.6.3.2 Hose that can be exposed to container pressure shall be designed for a pressure rating of 350 psig (2.4 MPa) with a safety factor of 5 to 1, and the reinforcement shall be of corrosion-resistant material.

11.6.3.3 Hose shall be continuously marked with LP-GAS, PROPANE, 350 PSI WORKING PRESSURE and the manufacturer's name or trademark. Each installed piece of hose shall contain at least one such marking.

11.6.3.4 After the application of couplings, hose assemblies shall be capable of withstanding a pressure of not less than 700 psig (4.8 MPa). If a pressure test is performed, such assemblies shall be pressure tested at 120 percent of the pressure rating [350 psig (2.4 MPa) minimum] of the hose.

11.6.3.5 Hose used for vapor service at 5 psig (34.5 kPag) or less shall be constructed of material resistant to the action of LP-Gas.

11.6.3.6 Hose in excess of 5 psig (34.5 kPag) service pressure and quick connectors shall be approved.

11.6.3.7 Hose that is utilized at lower than container pressure shall be designed and marked for its maximum anticipated operating pressure.

Issue Date: October 4, 2007

Effective Date: October 24, 2007



**Tentative Interim Amendment
NFPA 58
Liquefied Petroleum Gas Code
2008 Edition**

Reference: 5.2.1.5 (New)

TIA 08-2

(SC 07-10-4/TIA Log #884)

Pursuant to Section 5 of the NFPA Regulations Governing Committee Projects, the National Fire Protection Association has issued the following Tentative Interim Amendment to NFPA 58, *Liquefied Petroleum Gas Code*, 2008 edition. The TIA was processed by the Technical Committee on Liquefied Petroleum Gases, and was issued by the Standards Council on October 4, 2007, with an effective date of October 24, 2007.

A Tentative Interim Amendment is tentative because it has not been processed through the entire standards-making procedures. It is interim because it is effective only between editions of the standard. A TIA automatically becomes a proposal of the proponent for the next edition of the standard; as such, it then is subject to all of the procedures of the standards-making process.

1. Add the following text to NFPA 58:

5.2.1.5 Except for containers used in cargo tank vehicle service, ASME containers of 3,000 gallons water capacity or less used to store anhydrous ammonia shall not be converted to LP-gas fuel service.

2. Renumber current 5.2.1.5 through 5.2.1.9 as 5.2.1.6 through 5.2.1.10.

Issue Date: October 4, 2007

Effective Date: October 24, 2007

EXHIBIT 1010

IP87932



बौद्धिक संपदा

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संख्या/No. : IPO MUM/CERT.COPY/2025/ 921

दिनांक/Date: 25 /06/2025

सेवा में / To,

Gopinath Arenur Shankararaj
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विषय Sub: अभिप्रमाणित प्रतिलिपि / Certified Copy.

महोदय / महोदया,

Sir / Madam,

अभिप्रमाणित प्रतिलिपि के लिए दिनांक 10/06/2025 के सीबीआर संख्या 21332 द्वारा किए गए अनुरोध के अनुसार पेटेंट आवेदन संख्या 353/BOM/1999 से संबंधित (1 प्रति) एतद द्वारा संलग्न हैं।

As requested vide CBR No 21332 dated 10/06/2025 the certified copy (1 copy) related to Patent Application No 353/BOM/1999 are enclosed herewith.

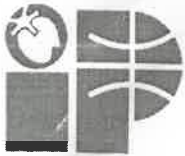
भवदीया / Yours Faithfully,

(सपना नरवरीया / Sapna Narvariya)

सहायक नियंत्रक, एकस्व एवं अभिकल्प / Assistant Controller of Patents & Designs
प्रभारी अधिकारी, आरएमआईडी / Officer In-Charge of RMID

संलग्न: यथोक्त (1 प्रति)

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जिस किसी से संबंधित हो

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- क) आवेदन संख्या / a) Application Number: 353/BOM/1999
ख) फाइल करने की तारीख / b) Date of Filing: 10/05/1999 post dated to 29/09/2003
ग) अनुरोधित दस्तावेज़(जों) का नाम / C) Name of the document(s) requested:

Granted Specification of Patent No. 207333

यह प्रमाणपत्र पेटेंट अधिनियम, 1970 की धारा 147(1) के अधीन मुझमें निहित शक्तियों के तहत जारी किया गया है।

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दिनांक / Dated this 25th day of JUNE 2025

(सपना नरवरिया / SAPNA NARVARIYA)

सहायक नियंत्रक पेटेंट व डिजाइन / Assistant Controller of Patents and Designs

(प्राधिकृत हस्ताक्षरी / Authorized Signatory)

FORM - 2

THE PATENTS ACT, 1970

COMPLETE
SPECIFICATION

SECTION 10

TITLE : LIQUEFIED PETROLEUM GAS (LPG) VAPOR FUEL METERING SYSTEM
FOR STATIONARY BI-FUEL ENGINES.

APPLICANT (S) : THE AUTOMOTIVE RESEARCH ASSOCIATION OF INDIA (A
RESEARCH ORGANISATION JOINTLY SET UP BY THE
AUTOMOTIVE INDUSTRY AND MINISTRY OF INDUSTRY,
GOVERNMENT OF INDIA) S.NO. 1C2, OFF PAUD ROAD, VETAL
HILL, PUNE 411 038, MAHARASHTRA, INDIA & SHRI SHAKTI
LPG LIMITED ADJACENT TO AIRPORT BEGUMPET,
HYDERABAD 500 016, INDIA.

GRANTED
29-3-2003

The following Specification particularly describes and ascertains the nature of this
invention and the manner in which it is to be performed:-

TITLE:

LIQUEFIED PETROLEUM GAS (LPG) VAPOR FUEL METERING SYSTEM
FOR STATIONARY BI-FUEL ENGINES.

TECHNICAL FIELD:

The present invention relates to the field of vaporized LPG fuel metering system for stationary engines. Particularly, the present invention relates to a system for supplying Liquefied Petroleum Gas (LPG) to bi-fuel stationary engines in response to the load and speed of the engine, such engines preferably being coupled to a portable generator.

BACKGROUND ART:

Stationary application engines are popularly known to be powered by fuels such as gasoline, kerosene, diesel etc. because of their cost- effectiveness.

Kerosene fired engines which are generally designed based on the physio-chemical characteristics of kerosene, normally possess restricted design such as low compression ratio which results in associated higher level of exhaust emissions.

In an attempt to reduce the exhaust emissions from the engine, use of Liquefied Petroleum Gas as an alternate fuel is one of the best options. Such engines which normally run on kerosene are fitted with 'Add-On' systems which supply Liquefied Petroleum Gas (LPG) as alternate source of fuel to the engine.

Such Add-On systems known in the art generally adopt liquid withdrawal system from the LPG source (tank) for supply of LPG to the engine. The inherent disadvantages of such liquid withdrawal system are as follows:

- i) a heating circuit is required to vaporize the liquid withdrawn, thereby requiring additional heating and associated components and hence cannot be used for air cooled engines;
- ii) Complexity of the system increases due to large number of fuel supply components.

Our inventors, by determined research and intuitive knowledge, have developed a system for supplying fuel to stationary engines which would overcome the drawbacks of the existing Add-On system and provide an improved LPG Fuel Supply System to the stationary engine by withdrawing LPG directly in vapor form from the LPG source (tank) for metered supply of LPG to the engine.

OBJECTS OF THE INVENTION :-

1. An object of the present invention is to provide an improved fuel supply system wherein efficient fuel supply is achieved with less number of components.
2. Another object of the present invention is to provide a fuel supply system wherein optimum quantity of LPG is supplied in response to load and speed of the engine.
3. An object of the present invention is to provide a fuel supply system wherein power loss at wide open throttle (WOT) is minimized
4. Yet another object of the present invention is to provide a fuel supply system wherein emissions such as carbon-monoxide and hydro-carbon gas from the engine are minimized.
5. A further object of the present invention is to provide a fuel supply system wherein the system is safe enough to use due to the provision of electrical

solenoids, vacuum switch, vacuum bypass switch, fuel selection switch, high pressure pipes and low pressure hoses.

A more detailed explanation of the invention is provided in the following description and appended claims taken in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF DRAWINGS:

To complement the description that is being given and in order to promote a better understanding of the characteristics of the invention in accordance with a practical embodiment of the same and as an integral part of the said description a set of drawings accompany it in which, in an illustrative and non-restrictive way, the following are represented :-

Fig.1: is schematic representation of the components of the fuel supply system according to the present invention.

Fig. 2A: shows the comparative graph of carbon monoxide emission against load of the engine for kerosene and LPG fuels.

Fig.2B: shows the comparative graph of hydro carbon emission against engine load for kerosene and LPG fuels.

DETAILED DESCRIPTION OF THE INVENTION:

A detailed description of the preferred embodiments and best mode for practicing the invention are described herein.

The present invention discloses a system for supplying Liquefied Petroleum Gas especially to a bi-fuel stationary 4 stroke spark ignition engine coupled to a portable generator. . The present invention is suitable especially for low power stationary internal combustion engines in which consumption rate of

LPG would match the natural vaporization rate of LPG under typical engine running conditions.

FIG1: In the embodiment shown, a fuel storage cylinder hereinafter referred to as an LPG cylinder (1) is connected to the inlet of a primary regulator (3) using a high pressure tube. (2) The high pressure tube (2) may be made up of an annealed copper/steel tube.

A needle valve is mounted on the LPG Cylinder (1) to draw LPG in vapour form, from the LPG cylinder (1) for supply to the primary regulator (3). The outlet of the primary regulator (3) is connected to the inlet of an LPG solenoid valve (4). The outlet of LPG solenoid valve (4) is connected to a mechanically operated second stage regulator (5) which is connected to the inlet of a power screw (6). The outlet of the power screw (6) is connected to the inlet of a gas-air mixer (8). The gas-air mixer (8) supplies air-fuel mixture through a carburetor (9) to an engine (12) coupled to a generator. The second stage regulator (5) meters exact quantity of gas as per engine load and speed.

The structure and functions of the second stage regulator (5) used in this invention is described in detail and claimed in applicant's co-pending patent application No.654/Mum/1998.

The power screw (6) enables fine tuning of engine rpm and load and thereby adjusts fuel supply to the engine (12) through the gas- air mixer (8).

An air cleaner (7) is connected at the inlet of the gas-air mixer (8). A fuel tank (17) storing either kerosene or gasoline is connected to the carburetor (9) through a fuel solenoid valve (13). The LPG solenoid valve (4) and the fuel solenoid valve (13) are controlled through vacuum switch (11) by a selector switch (14) which allows the user to select the fuel either LPG gas or

kerosene. The power supply to the selector switch (14) and the solenoid valves (13, 4) is provided by a chargeable battery (15). A battery charger (16) is provided to keep the battery optimally charged. Battery charger (16) is activated by means of output of generator (12).

The gas-air mixer (8) may be a conventional device capable of mixing air and fuel in desired proportion. During operation of the engine in bi-fuel mode, the gas-air mixer (8) is connected between the carburetor (9) and the air cleaner (7).

A vacuum switch (11) is provided to sense vacuum created in the running engine and to switch off the solenoid valve (4) ensuring stoppage of gas flow to engine in case there is absence of vacuum. A metallic insulator gasket (10) is provided between the mating faces of the engine (12) and the carburetor (9).

The pumping action of the running engine (12) causes vacuum pressure in the intake system of engine. Due to this pumping action, air starts flowing through the venturi of gas air mixer (8) resulting in a pressure drop across the venturi throat. In response to the pressure drop at the throat, the second stage regulator (5) meters required quantity of gas, for mixing with air at desired air-fuel ratio in the gas air mixer (8). This mixture of air & fuel enters engine for combustion to deliver the required power output.

The selector switch (14) switches ON one of the two solenoid valves (4,13) while the other remains OFF. This enables the user to select the desired fuel.

The electricity required for the system is provided by the battery (15) which is kept optimally charged by the battery charger (16). The vacuum switch (11) senses the vacuum in the engine and switches OFF the gas supply while

switching OFF the solenoid valve (4), if there is absence of vacuum thus ensuring safety.

Fig.2A and Fig.2B : When the generator is tested on both the fuels, viz the kerosene and LPG, using electric load bank, the power and fuel consumption was compared and the results are given in the following table 1.

Table 1
Comparison of Genset Performance
(Kerosene mode vs LPG mode)

Load	Kerosene Mode			LPG Mode		
(%)	Engine Speed (rpm)	Observed Power (W)	Fuel Con-Consumption (g/hr)	Engine Speed (rpm)	Observed Power (W)	Fuel Con-Consumption (g/hr)
100	3000	650	482	3000	650	391
75	3084	509	418	3120	513	357
50	3108	344	353	3162	365	340
25	3144	173	307	3180	183	330
0	3180	-	277	3180	-	313

Use of electric solenoids along with fuel selection switch ensures that only one fuel, either LPG or kerosene, will be metered to the engine. Also use of vacuum switch allows LPG to enter as a fuel only when the engine gets cranked and gets started. As soon as the engine stops, it does not allow LPG to enter into the engine, thus ensuring the safety.

Thus, while there have been shown and described and pointed out fundamental novel features of the present invention as applied to preferred embodiments thereof, it will be understood that various omissions and substitutions and changes in the form and details of the methods described

may be made by those skilled in the art without departing from the spirit of the present invention. For example, it is expressly intended that all combinations of those elements and/or method steps which perform substantially the same function in substantially the same way to achieve the same results are within the scope of the invention. Substitutions of elements from one described embodiment to another are also fully intended and contemplated. It is the intention, therefore, to be limited only as indicated by the scope of the claims appended hereto.

WE CLAIM :

1. A Liquefied Petroleum Gas (LPG) vapor fuel metering system for stationary bi-fuel engine, comprising :

- (i) a fuel cylinder for storing a predetermined quantity of Liquefied Petroleum Gas under pressure.
- (ii) said fuel cylinder connected to a first stage regulator;
- (iii) said first stage regulator connected to a second stage metering regulator through a solenoid valve;
- (iv) said second stage metering regulator connected to a gas-air mixing device through a power screw and
- (v) said gas-air mixing device connected to an engine through a carburetor wherein :

the fuel cylinder comprises a needle valve to draw out LPG in vapor form for supply to the first stage regulator.

2. The system as claimed in claim 1, wherein the first regulator is adapted for maintaining constant outlet pressure.

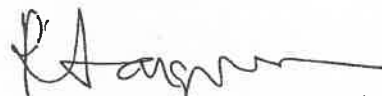
3. The system as claimed in claim 1 or 2 wherein the second stage metering regulator is a mechanically operated device for metering gas in response to the load and speed of the engine.

4. The system as claimed in claim 1,2 or 3 wherein the power screw is operated for fine tuning of engine rpm and load and thereby adjust fuel supply to the engine through the gas-air mixer.

Dated this 30th day of May, 1999.

FOR THE AUTOMOTIVE RESEARCH
ASSOCIATION OF INDIA and SHRI
SHAKTI LPG LIMITED

By their Agent



(R. LAKSHMINARAYANAN)
KRISHNA & SAURASTRI

Name : The Automotive Research Association of India and Shri Shakti LPG Ltd. Sheet No. : 1
 Total Sheets : 3
 Appl.No.: 353/BOM/1999

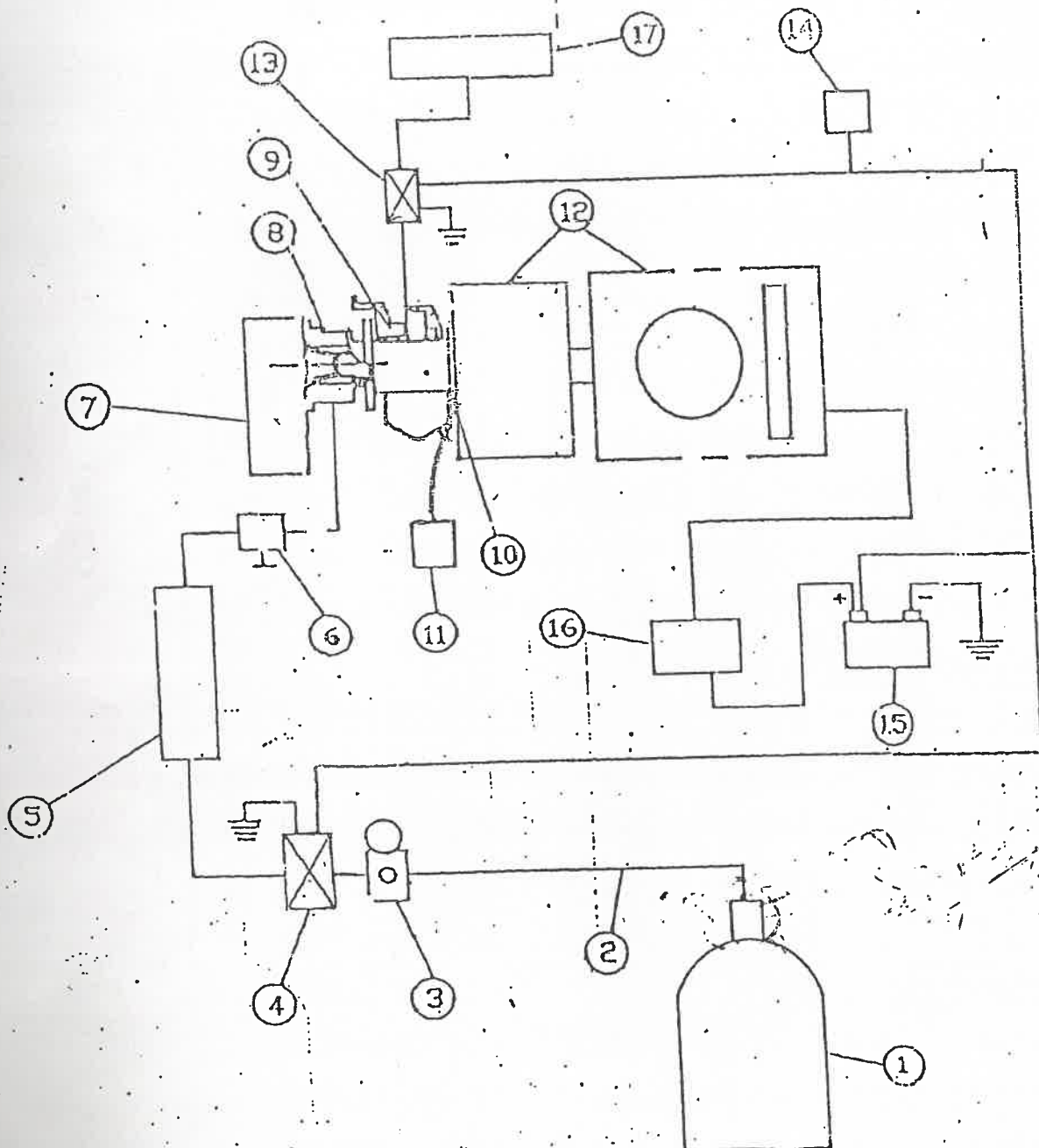


FIG. 1

R. Lakshmi Narayanan
 (R. LAKSHMI NARAYANAN)
 KRISHNA & SAURASTRI

Name : The Automotive Research Association Sheet No. : 2
Of India and Shri Shakti LPG Ltd.

Total Sheets : 3

Appl.No.: 353/BOM/1999

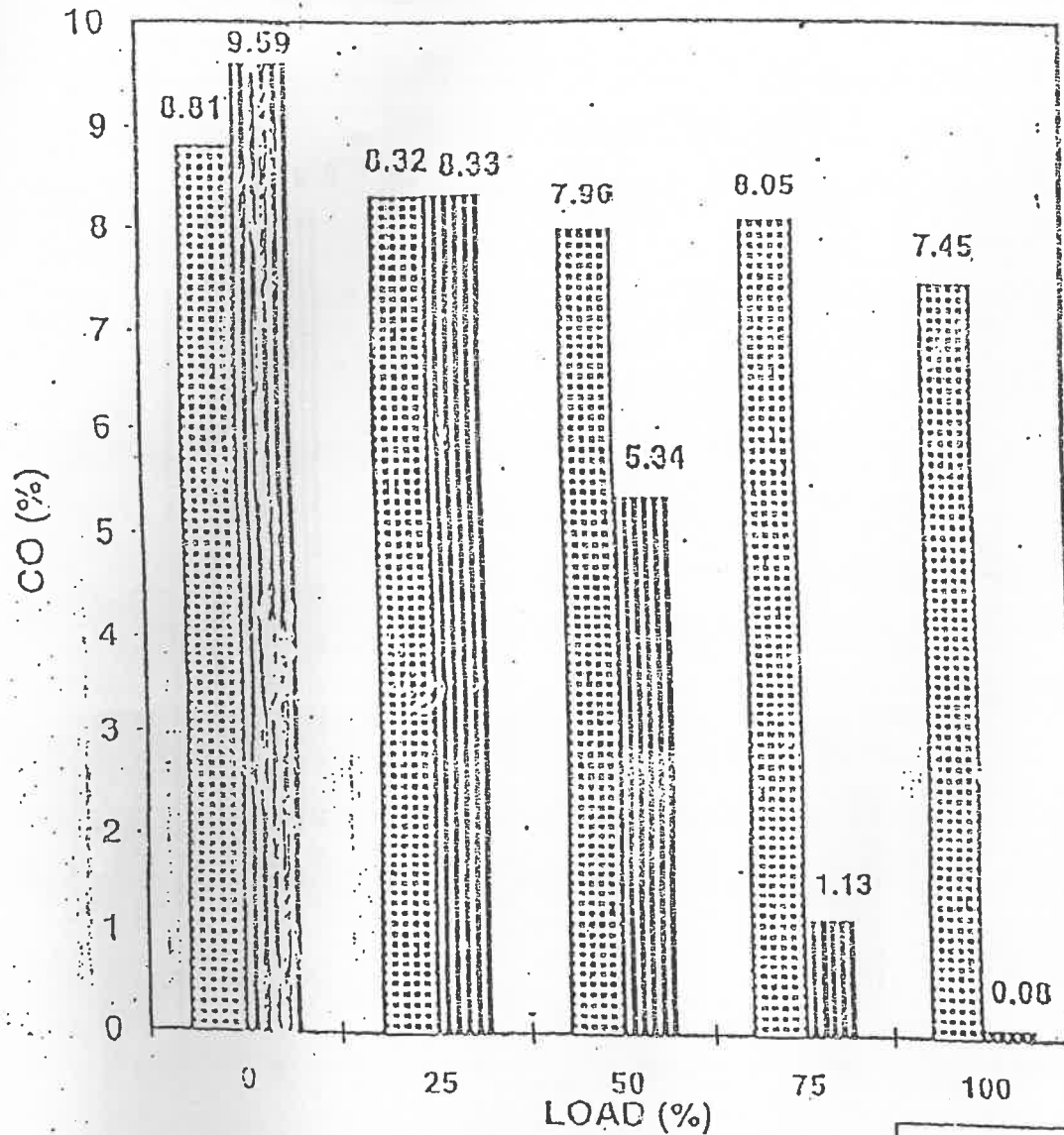


FIG. 2 A

■ KEROSENE

■ LPG

R. Lakshminarayanan
(R. LAKSHMINARAYANAN)
KRISHNA & SAURASTRI

Name : The Automotive Research Association
Of India and Shri Shakti LPG Ltd.

Sheet No. : 3

Appl.No. : 353/BQM/1999

Total Sheets : 3

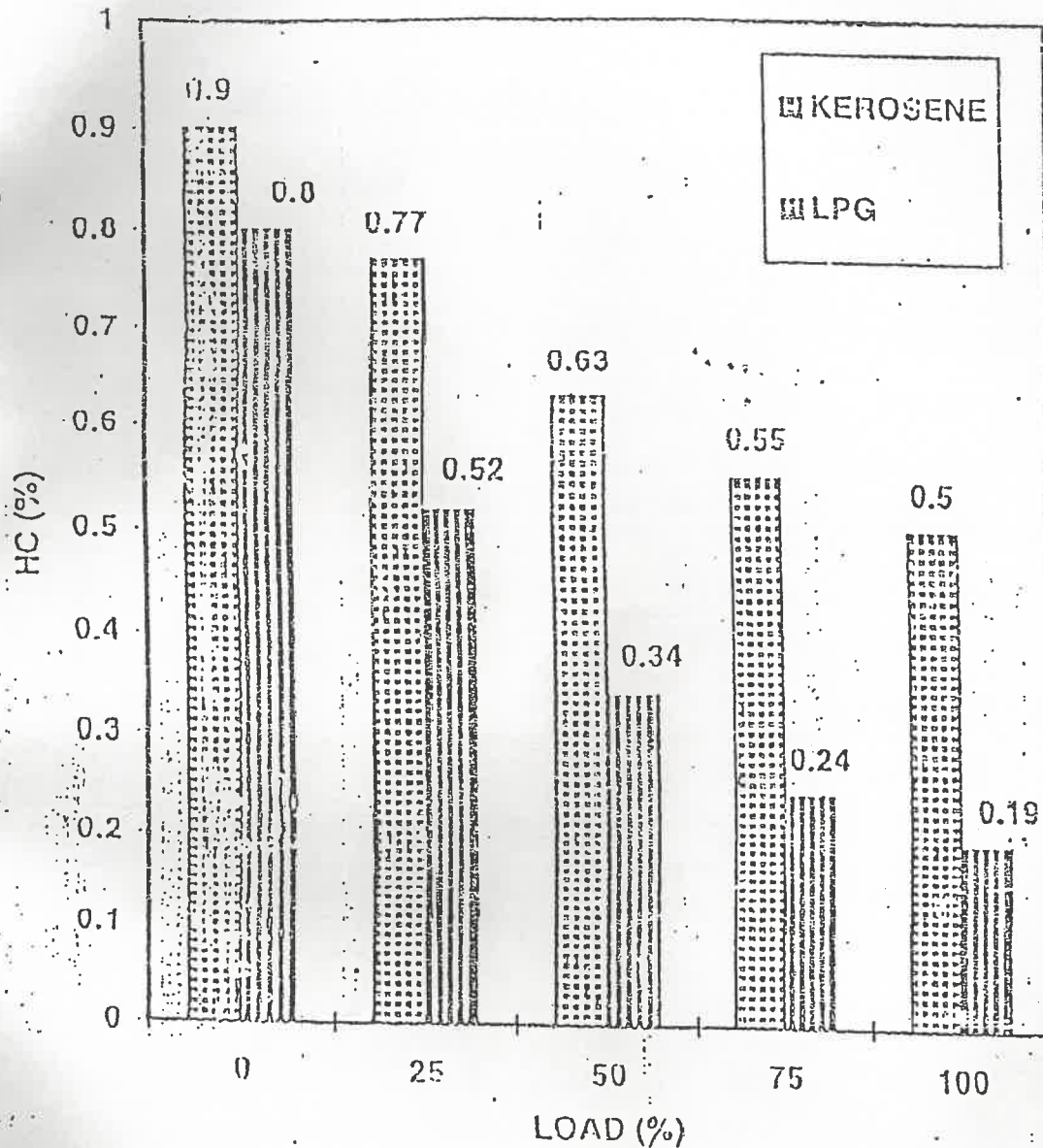


FIG. 2B

R. Lakshminarayanan
(R. LAKSHMINARAYANAN)
KRISHNA & SAURASTRI



EXHIBIT 1011



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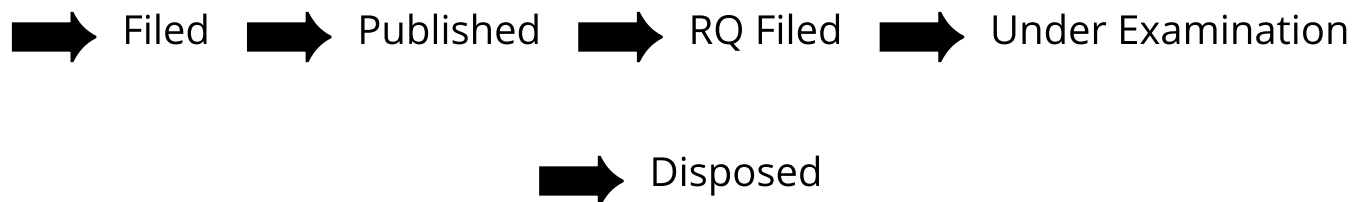
Application Details

APPLICATION NUMBER	353/BOM/1999
APPLICATION TYPE	ORDINARY APPLICATION
DATE OF FILING	29/09/1999
APPLICANT NAME	THE AUTOMOTIVE RESEARCH ASSOCIATION OF INDIA AND 2)SHRI SHAKTI LPG LIMITED
TITLE OF INVENTION	LIQUEFIED PETROLEUM GAS (LPG) VAPOR FUEL METERING SYSTEM FOR STATIONARY BI-FUEL ENGINES
FIELD OF INVENTION	MECHANICAL ENGINEERING
E-MAIL (As Per Record)	
ADDITIONAL-EMAIL (As Per Record)	
E-MAIL (UPDATED Online)	ip@legasis.in
PRIORITY DATE	
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Date Of Certificate Issue	13/07/2007
POST GRANT JOURNAL DATE	27/07/2007

Application Status

APPLICATION STATUS

**Granted Application, Patent Number
:207333**

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EXHIBIT 1012

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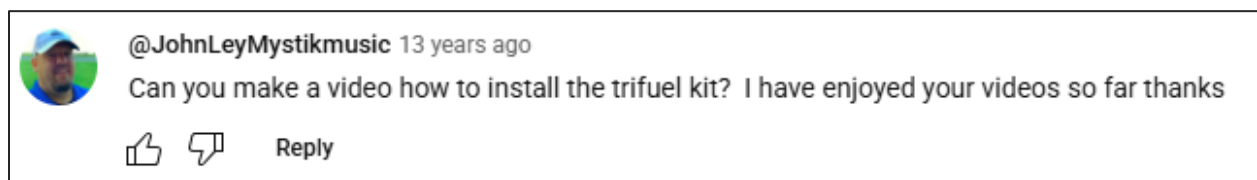
1. During the year 2012, I viewed a video on YouTube titled “Honda Generator Tri-Fuel, EU2000i Triple-Fuel,” shown at this link:

<https://www.youtube.com/watch?v=DpknaAPTQ9U&t>. The video taught how to modify portable generators that normally operate on gasoline so that the fuel can be switched from gasoline to LPG or natural gas to operate the generator. The modification taught by the video resulted in a generator that could be operated on any of these fuels, and switched between them.

2. The published date listed on the YouTube video is October 2, 2011:



3. I know I saw this same YouTube video in 2012 because I made a comment on the YouTube video 13 years ago, my comment shown in the screenshot below and attributed by my YouTube username “JohnLeyMysticmusic”:



4. The date is consistent with my recollection of making the comment and viewing the video.

5. I made this comment because in 2012 I also owned the same Honda Generator featured in the video, and at the time, I was considering making a similar conversion to my generator as that depicted in the video.

6. My comment is still publicly available on the YouTube video in the comments section.

7. The video that is available today on YouTube at the link cited above is the same video I viewed and commented on in 2012.

8. I declare that all statements made herein of my own knowledge are true and that all statements made upon information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

9. I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

Executed on

4.25.25

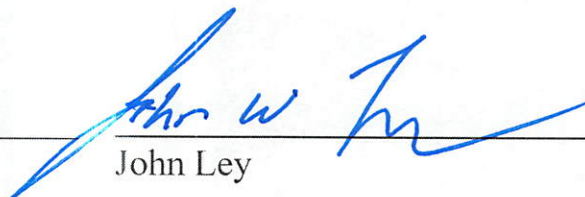

John Ley

EXHIBIT 1014

I, Jared Bennett, declare and state as follows:

1. During the year 2012, I viewed a video on YouTube titled “Honda Generator Tri-Fuel, EU2000i Triple-Fuel,” shown at this link:

<https://www.youtube.com/watch?v=DpknaAPTQ9U&t>. The video described how to modify generators to operate on both gasoline and LPS or natural gas. The modification shown by the video resulted in a generator that could be operated on any of these fuels and could switch between those fuels.

2. The published date listed on the YouTube video is October 2, 2011:

Honda Generator Tri-Fuel, EU2000i Triple-Fuel



Mark “Mark1Jordon1” Kash

2.92K subscribers



Subscribed ▼

19,178 views Oct 2, 2011

Honda generator EU2000i Triple fuel.

3. I know I saw this same YouTube video in 2012 because I made a comment on the YouTube video 13 years ago, my comment shown in the screenshot below and attributed by my YouTube username “jaredmbennett”:



@jaredmbennett 13 years ago

Please show step by step on how you drilled the carb. Nice and detailed for some of us less talented



2



Reply

4. The 2012 date is consistent with my recollection. I recall that around that time (2012) it would have been nice to have a generator that could operate on both propane and gasoline. I recall watching the YouTube video and considered the

modification taught in the video myself, but ultimately did not attempt it. Specifically, I recall wanting a more close up video specifically showing exactly where to drill. Because at the time I was trying to learn about conversion kits.

5. My comment is still publicly available on the YouTube video in the comments section.
6. The video that is available today on YouTube at the link cited above is the same video I viewed and commented on in 2012.
7. I declare that all statements made herein of my own knowledge are true and that all statements made upon information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.
8. I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

Executed on: 05/09/2025

/s/ Jared Bennett
Jared Bennett

EXHIBIT 1015

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	CET1090.019
		Application Number	
Title of Invention	DUAL FUEL LOCKOUT SWITCH FOR GENERATOR ENGINE		
The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76. This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.			

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☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Inventor Information:

Inventor 1					Remove
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Mark	J.	Sarder		
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service					
City	Waukesha	State/Province	WI	Country of Residence ⁱ	US
Mailing Address of Inventor:					
Address 1		W245 N5551 Corporate Circle			
Address 2					
City	Sussex	State/Province	WI		
Postal Code	53089	Country ⁱ	US		
Inventor 2					Remove
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Aleko	D.	Sotiriades		
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service					
City	Cedarburg	State/Province	WI	Country of Residence ⁱ	US
Mailing Address of Inventor:					
Address 1		W245 N5551 Corporate Circle			
Address 2					
City	Sussex	State/Province	WI		
Postal Code	53089	Country ⁱ	US		
Inventor 3					Remove
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	James	J.	Dehn		
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service					

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	CET1090.019
		Application Number	
Title of Invention	DUAL FUEL LOCKOUT SWITCH FOR GENERATOR ENGINE		

City	Brookfield	State/Province	WI	Country of Residence i	US
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Mailing Address of Inventor:

Address 1	W245 N5551 Corporate Circle				
Address 2					
City	Sussex	State/Province	WI		
Postal Code	53089	Country i	US		

Inventor 4

Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Leigh		Jenison	

Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service

City	Hartland	State/Province	WI	Country of Residence i	US
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Mailing Address of Inventor:

Address 1	W245 N5551 Corporate Circle				
Address 2					
City	Sussex	State/Province	WI		
Postal Code	53089	Country i	US		

All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the **Add** button.

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Correspondence Information:Enter either Customer Number or complete the Correspondence Information section below.
For further information see 37 CFR 1.33(a).☐ An Address is being provided for the correspondence information of this application.

Customer Number	26629		
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Title of the Invention	DUAL FUEL LOCKOUT SWITCH FOR GENERATOR ENGINE		
Attorney Docket Number	CET1090.019	Small Entity Status Claimed	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	CET1090.019
		Application Number	
Title of Invention	DUAL FUEL LOCKOUT SWITCH FOR GENERATOR ENGINE		

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For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)
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<table border="1"> <tr> <td>Please Select One:</td> <td>☒ Customer Number</td> <td>☐ US Patent Practitioner</td> <td>☐ Limited Recognition (37 CFR 11.9)</td> </tr> <tr> <td>Customer Number</td> <td colspan="3">26629</td> </tr> </table>				Please Select One:	☒ Customer Number	☐ US Patent Practitioner	☐ Limited Recognition (37 CFR 11.9)	Customer Number	26629		
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Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
Prior Application Status		Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	CET1090.019
		Application Number	
Title of Invention	DUAL FUEL LOCKOUT SWITCH FOR GENERATOR ENGINE		

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Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013. ☐ NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.
--

Authorization to Permit Access:

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	CET1090.019
		Application Number	
Title of Invention	DUAL FUEL LOCKOUT SWITCH FOR GENERATOR ENGINE		

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In accordance with 37 CFR 1.14(h)(3), access will be provided to a copy of the instant patent application with respect to: 1) the instant patent application-as-filed; 2) any foreign application to which the instant patent application claims priority under 35 U.S.C. 119(a)-(d) if a copy of the foreign application that satisfies the certified copy requirement of 37 CFR 1.55 has been filed in the instant patent application; and 3) any U.S. application-as-filed from which benefit is sought in the instant patent application.

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Applicant 1			Remove
If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.			
Clear			
☒ Assignee	☐ Legal Representative under 35 U.S.C. 117	☐ Joint Inventor	
☐ Person to whom the inventor is obligated to assign.		☐ Person who shows sufficient proprietary interest	
If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:			
Name of the Deceased or Legally Incapacitated Inventor :			
If the Applicant is an Organization check here. ☒			
Organization Name	Champion Engine Technology, LLC		
Mailing Address Information:			
Address 1	W245 N5551 Corporate Circle		
Address 2			
City	Sussex	State/Province	WI
Country	US	Postal Code	53089
Phone Number		Fax Number	

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	CET1090.019
		Application Number	
Title of Invention	DUAL FUEL LOCKOUT SWITCH FOR GENERATOR ENGINE		
Email Address			
Additional Applicant Data may be generated within this form by selecting the Add button.			Add

Assignee Information including Non-Applicant Assignee Information:

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Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.				
				Remove
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Mailing Address Information For Assignee including Non-Applicant Assignee:				
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Address 2				
City		State/Province		
Country i		Postal Code		
Phone Number		Fax Number		
Email Address				
Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button.				Add

Signature:

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications					
Signature	/Timothy J. Ziolkowski/			Date (YYYY-MM-DD)	2015-06-12
First Name	Timothy J.	Last Name	Ziolkowski	Registration Number	38368
Additional Signature may be generated within this form by selecting the Add button.					Add

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	CET1090.019
		Application Number	
Title of Invention	DUAL FUEL LOCKOUT SWITCH FOR GENERATOR ENGINE		

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

DUAL FUEL LOCKOUT SWITCH FOR GENERATOR ENGINE

BACKGROUND OF THE INVENTION

[0001] Embodiments of the invention relate generally to dual fuel generators, and more particularly, to an apparatus and method for delivering liquid fuel and gaseous fuel to a dual fuel generator.

[0002] Electric generators are frequently driven by internal combustion engines that use gasoline as a fuel source. Gasoline is a common fuel source for generators in a variety of applications. However, alternative fuel sources also provide a desirable fuel source. For instance, alternative fuels may provide a clean burning fuel that limits hazardous emissions. Alternative fuels may also be stored for long periods of time without degradation, whereas gasoline can degrade over a period of months leading to hard starting, rough running, and also lead to gum and varnish deposit left in the fuel system. In addition, generators that operate on alternative fuels may generate electricity when gasoline is not readily available. For instance, generators are frequently used when power outages in the utility grid result from severe weather. Unfortunately, gas stations may also be closed as a result of the power outage. Such a circumstance presents just one example where it would be advantageous to operate electrical generators on alternative fuels.

[0003] Certain generators are configured to operate as “dual fuel” generators, otherwise known as bi-fuel generators. These generators are driven by an internal combustion engine that is configured to operate on a liquid fuel for a period of operation and an alternative fuel for another period of operation. The alternative fuel source may exist in a gaseous state at normal temperature and pressure and can be any one of liquefied petroleum gas, compressed natural gas, hydrogen, or the like. Liquefied petroleum gas (LPG), often referred to as propane, exists in a gaseous state at normal temperature and pressure but can be conveniently stored under pressure in a liquid state. LPG may be a desirable fuel source for internal combustion engines because it can be stored for longer periods of time and contains fewer impurities than gasoline, resulting in smoother and cleaner operation, and often resulting in a longer lasting engine.

[0004] In order to provide the liquid and gaseous fuel to the engine, the dual fuel engine may have a first fuel line for liquid fuel and a second fuel line for gaseous fuel. A liquid fuel source and a gaseous fuel source may be coupled to the respective lines to provide fuel to the engine. However, a common problem with such configurations that couple two fuel sources to a single engine is the engine can experience overly rich air-fuel ratio when both fuels are simultaneously engaged during cross-over switching between the fuel sources. Further, such simultaneous delivery of fuel from the first fuel line and the second fuel line may make the engine hard to start or lead to unstable operating conditions.

[0005] Therefore, it would be desirable to design a dual fuel generator having a liquid fuel and gaseous fuel delivery system that overcomes the aforementioned detriments without substantially increasing the overall cost of the system.

BRIEF DESCRIPTION OF THE INVENTION

[0006] In accordance with one aspect of the invention, a mechanical fuel lockout switch for a dual fuel engine provides for the selection of a desired fuel to operate the engine. The mechanical fuel lockout switch includes a mechanical fuel valve and a fuel lockout apparatus. The mechanical fuel valve actuates between a first position and a second position to selectively control fuel flow to the dual fuel engine from a first fuel source through a first fuel line and a second fuel source through a second fuel line. The fuel lockout apparatus couples to the mechanical fuel valve ensuring individual communication of the fuel sources to the engine. The mechanical fuel lockout switch communicates the first fuel source to the dual fuel engine and prevents communication between the second fuel source and the dual fuel engine when the mechanical fuel valve is in the first position, and communicates the second fuel source to the dual fuel engine and interrupts the first fuel source communication with the dual fuel engine when in the second position.

[0007] In accordance with another aspect of the invention, a dual fuel generator and fuel delivery system includes a dual fuel generator configured to operate on a liquid fuel supplied from a liquid fuel source through a liquid fuel line and a gaseous fuel supplied from a pressurized fuel source through a gaseous fuel line. The dual fuel generator and fuel delivery system also includes a fuel regulator system located off board the dual fuel generator to control the pressure of fuel from the pressurized fuel source and deliver the fuel at a desired pressure for operation of the generator. The fuel regulator system includes a primary pressure regulator coupled to a service valve of the pressurized fuel source and configured to regulate the fuel supplied from the pressurized fuel source to a reduced pressure. The fuel regulator system also includes a secondary pressure regulator coupled to the primary pressure regulator and configured to regulate the gaseous fuel supplied from the primary pressure regulator to a desired pressure for delivery through the gaseous fuel line to operate the dual fuel generator. The dual fuel generator and fuel delivery system further includes a mechanical fuel valve actuateable between a first position and a second position to selectively control fuel flow to the dual

fuel generator from the liquid fuel source through the liquid fuel line and the pressurized fuel source through the gaseous fuel line.

[0008] In accordance with yet another aspect of the invention, a method of assembling a mechanical fuel lockout switch for an internal combustion engine includes providing an internal combustion engine configured to operate on a fuel from a first fuel source and a different fuel from a second fuel source. The method also includes coupling a mechanical fuel valve to the internal combustion engine actuatable between a first position and a second position to selectively control fuel flow to the internal combustion engine from the first fuel source through a first fuel line and the second fuel source through a second fuel line. The method further includes coupling a fuel lockout apparatus to the mechanical fuel valve. When the mechanical fuel valve is in the first position, the fuel lockout apparatus communicates the first fuel source to the internal combustion engine and prevents the second fuel source from coupling to the internal combustion engine, and actuation of the mechanical fuel valve to the second position causes the fuel lockout apparatus to permit the second fuel source to couple to the internal combustion engine, and interrupts the first fuel source communication with the internal combustion engine.

[0009] Various other features and advantages will be made apparent from the following detailed description and the drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] The drawings illustrate preferred embodiments presently contemplated for carrying out the invention.

[0011] In the drawings:

[0012] FIG. 1 is a perspective view of a dual fuel generator coupled to a fuel delivery system, according to an embodiment of the invention.

[0013] FIG. 2 is a detail view of a portion of the generator of FIG. 1 about a mechanical fuel lockout switch with the switch in a first position, according to an embodiment of the invention.

[0014] FIG. 3 is a detail view similar to FIG. 2 and showing the mechanical fuel lockout switch in a second position, with an LPG supply line connected thereto, according to an embodiment of the invention.

[0015] FIG. 4A is a schematic diagram of a fuel system for the dual fuel generator of FIG. 1 showing a liquid fuel source in communication with a carburetor of the generator consistent with the first position of the switch as shown in FIG. 2, according to an embodiment of the invention.

[0016] FIG. 4B is a schematic diagram of the fuel system of FIG. 4A showing a gaseous fuel source in communication with a carburetor of the generator of FIG. 1 consistent with the second position of the switch as shown in FIG. 3, according to an embodiment of the invention.

[0017] FIG. 5 is a perspective view of a fuel delivery system for the dual fuel generator of FIG. 1, according to an embodiment of the invention.

[0018] FIG. 6 is a side view of a fuel delivery system for the dual fuel generator of FIG. 1, according to an embodiment of the invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0019] The operating environment of the invention is described with respect to a dual fuel generator. However, it will be appreciated by those skilled in the art that the invention is equally applicable for use with any dual fuel internal combustion engine. Moreover, the invention will be described with respect to a dual fuel generator configured to operate on a liquid fuel and a gaseous fuel. However, one skilled in the art will further appreciate that the invention is equally applicable for use with other fuel combinations for dual fuel generators and internal combustion engines.

[0020] Referring to FIG. 1, a dual fuel generator 20 is coupled to a fuel delivery system 22, in accordance with an embodiment of the invention. Dual fuel generator 20 includes an internal combustion engine (not shown) within housing 21 at one end 24, operatively connected to an alternator also enclosed in housing 21 at another end 26, by conventional means. Dual fuel generator 20 is configured to operate on different fuels via either a first fuel source 28 or a second fuel source 30. In an exemplary embodiment of the invention, first fuel source 28 is a liquid fuel and second fuel source 30 is a gaseous fuel. The liquid fuel may be gasoline and the gaseous fuel may be liquid petroleum gas (LPG). Each can selectively operate the generator as desired and controlled by an operator. For instance, generator 20 may operate on gasoline for a first period of operation and then switch to LPG for a second period of operation. However, it is contemplated that dual fuel generator 20 is configured to operate on fuels other than gasoline and LPG (e.g., natural gas, biodiesel, etc.), and thus the scope of the invention is not meant to be limited strictly to a dual fuel arrangement where first fuel source 28 provides gasoline and second fuel source 30 provides LPG.

[0021] In one embodiment of the invention, dual fuel generator 20 includes a gasoline tank 32 or, generally, a liquid fuel tank, located inside cover 21 onboard generator 20 to provide gasoline to the engine as first fuel source 28. Gasoline tank 32 connects to a first fuel line to provide gasoline to the carburetor to run the engine, as will later be described with reference to FIG. 4A and 4B. Generator 20 is also coupled to a pressurized fuel container 34, or a pressurized fuel source, located off board

generator 20 to provide LPG to the engine as second fuel source 30. Pressurized fuel container 34 is coupled to generator 20 with an LPG supply hose 36. LPG supply hose 36 is coupled to a second fuel line within generator 20 to provide LPG to the carburetor to run the engine. Dual fuel generator 20 includes a mechanical fuel lockout switch 38 for selecting a desired fuel to be provided to the engine. The mechanical fuel lockout switch 38 is actuated to select first fuel source 28 when in a first position, as shown in FIG. 2, and alternately to select second fuel source 30 when in a second position, as shown in FIG. 3.

[0022] Referring back to FIG. 1, in an exemplary embodiment, fuel 30 from pressurized fuel container 34 is regulated using a fuel regulator system 39 for delivery to the engine. Fuel regulator system 39 includes one or more pressure regulators that reduce and control the pressure of the fuel from pressurized fuel container 34 and delivers fuel at a desired pressure for operation of the engine. Fuel regulator system 39 has an inlet 41 operatively coupled to a service valve 40 of pressurized fuel container 34 and an outlet 43 coupled to LPG supply hose 36. Fuel regulator system 39 includes a primary pressure regulator 42 coupled to pressurized fuel container 34 and a secondary pressure regulator 44. Primary pressure regulator 42 protects downstream components from high pressure of pressurized fuel container 34. Primary pressure regulator 42 receives LPG through service valve 40 of pressurized fuel container 34 and reduces the pressure of the LPG to a first stage. In one embodiment of the invention, the first stage may be delivered directly to generator 20 at a pressure required for operation of the engine.

[0023] In an exemplary embodiment of the invention, fuel regulator system 39 includes secondary pressure regulator 44 coupled to the outlet of primary pressure regulator 42 in order to use standard “off-the-shelf” components. Typically, the primary pressure regulator is mounted on the LPG tank, while the secondary pressure regulator is mounted on the component using the fuel, such as an engine or grill. Here, since generator 20 can be used as a gasoline only generator, secondary pressure regulator 44 is mounted off-board the generator to reduce size and cost of the generator. Secondary pressure regulator 44 receives LPG from primary pressure regulator 42 and further

reduces the pressure of LPG to a second stage to be delivered to generator 20. In a system with two regulators, primary pressure regulator 42 regulates fuel received from pressurized fuel container 34 and reduces the pressure of the fuel to a level required for operation of secondary pressure regulator 44. Secondary pressure regulator 44 regulates fuel received from primary pressure regulator 42 and further reduces the pressure of the fuel to a level required for operation of generator 20. In addition, primary pressure regulator 42 may compensate for varying tank pressure as fuel is depleted while secondary pressure regulator 44 may compensate for varying demand from generator 20.

[0024] In accordance with an exemplary embodiment of the invention, fuel regulator system 39 includes both the primary and secondary regulators, or a custom single regulator, but in any case is located remotely, or off-board, from dual fuel generator 20. Fuel regulator system 39 may be directly mounted to pressurized fuel container 34 using a regulator mounting bracket 46. Regulator mounting bracket 46 has mounting locations for primary pressure regulator 42 and secondary pressure regulator 44. Regulator mounting bracket 46 also has a securing mechanism 48 to secure regulator mounting bracket 46 to pressurized fuel container 34.

[0025] In another embodiment of the invention, primary pressure regulator 42 is mounted on regulator mounting bracket 46 while secondary pressure regulator 44 could be mounted on or near generator 20. In yet another embodiment of the invention, a dual stage regulator may regulate the fuel received from pressurized fuel container 34 and deliver fuel at a pressure required for operation of generator 20. Such a dual stage regulator may regulate the fuel to the second stage within a single structure. The dual stage regulator may be mounted directly on fuel container 34.

[0026] Referring to FIG. 2, a detail view of a portion of generator 20 of FIG. 1 depicts mechanical fuel lockout switch 38 in a first position 38(a), in accordance with an embodiment of the invention. In this position, mechanical fuel lockout switch 38 provides gasoline flow from gasoline tank 32 to the engine while preventing connection of an LPG supply line to fuel inlet 59 of the second fuel line, as will later be discussed

in detail with reference to FIGS. 4A and 4B. Still referring to FIG. 2, mechanical fuel lockout switch 38 provides a combination liquid fuel shutoff valve and a gaseous fuel supply lockout that prevents simultaneous delivery of fuel to the engine from gasoline tank 32 and pressurized fuel container 34, FIG. 1. As such, mechanical fuel lockout switch 38 provides a fuel selector to ensure only the selected fuel is provided to dual fuel generator 20.

[0027] Mechanical fuel lockout switch 38, FIG. 2, includes mechanical fuel valve 54 actuatable between first position 38(a) as shown in FIG. 2 and second position 38(b) as shown in FIG. 3 to selectively control fuel flow to the dual fuel engine from first fuel source 28 through a first fuel line and second fuel source 30 through a second fuel line 36. Mechanical fuel lockout switch 38 may also include fuel lockout apparatus 58 coupled to mechanical fuel valve 54 to communicate fuel sources individually to generator 20. In one embodiment of the invention, fuel lockout apparatus 58 communicates first fuel source 28 to the engine by actuating mechanical fuel valve 54 to first position 38(a) to open the first fuel line as shown in FIG. 2, and communicates second fuel source 30 to the engine by actuating mechanical fuel valve 54 to second position 38(b) to open communication of the second fuel source 30 to the engine as shown in FIG. 3. Referring back to FIG. 2, when mechanical fuel valve 54 is in first position 38(a), fuel lockout apparatus 58 communicates first fuel source 28 to the dual fuel engine and prevents communication between the second fuel source and the dual fuel engine.

[0028] In an exemplary embodiment of the invention, mechanical fuel valve 54 controls the flow of LPG to the engine by actuating fuel lockout apparatus 58 to block or unblock fuel inlet 59 for the second fuel source. Mechanical fuel valve 54 is coupled to the first fuel line, as shown in FIGS. 4A and 4B, and therefore can control the flow of gasoline to the engine by opening and closing the first fuel line. When the mechanical fuel valve 54, FIG. 2, is in the first position 38(a), gasoline flows from the gasoline tank to the engine and the fuel lockout apparatus 58 blocks the fuel inlet 59. Accordingly, fuel lockout apparatus 58 prevents LPG flow to generator 20 when the mechanical fuel valve 54 is in first position 38(a) wherein the engine is operated on gasoline.

[0029] Mechanical fuel valve 54 includes a fuel valve handle 56 to control the opening and closing of the valve. Fuel valve handle 56 is movable between first position 38(a) as shown in FIG. 2 and second position 38(b) as shown in FIG. 3. Mechanical fuel valve 54 opens the first fuel line (to enable liquid fuel flow to the engine) when fuel valve handle 56 is in the first position, and mechanical fuel valve 54 closes the first fuel line (to prevent liquid fuel flow to the engine) when fuel valve handle 56 is in the second position. Thus, when fuel valve handle 56 is in first position 38(a) as shown in FIG. 2, mechanical fuel valve 54 opens the first fuel line and allows gasoline from gasoline tank 32 to flow to the engine.

[0030] Fuel valve handle 56 is coupled to fuel lockout apparatus 58. Fuel valve handle 56 actuates with fuel lockout apparatus 58 to prevent LPG flow to generator 20 when gasoline flow to the generator is enabled. Fuel lockout apparatus 58 is controlled by fuel valve handle 56 so that moving fuel valve handle 56 to the first position causes fuel lockout apparatus 58 to block fuel inlet 59 for LPG, and moving fuel valve handle 56 to the second position causes fuel lockout apparatus 58 to unblock fuel inlet 59 for LPG.

[0031] In an exemplary embodiment of the invention, fuel valve handle 56 rotates between the first position and the second position and fuel lockout apparatus 58 is rigidly coupled to the rotating handle. Fuel lockout apparatus 58 may include a fuel inlet cover 61, which may be a flange, coupled to fuel valve handle 56 so that fuel inlet cover 61 rotates with the handle. Fuel inlet cover 61 extends radially outward from fuel valve handle 56 and sweeps over fuel inlet 59 for LPG as fuel valve handle 56 rotates. That is, fuel inlet cover 61 rotates transversely across fuel inlet 59 and blocks access thereto. Accordingly, fuel inlet cover 61 prevents LPG flow to generator 20 when fuel valve handle 56 is in first position 38(a) to allow gasoline to run the engine.

[0032] Referring to FIG. 3, a detail view of a portion of generator 20 of FIG. 1 depicts mechanical fuel lockout switch 38 in a second position 38(b), in accordance with an embodiment of the invention. In this position, the mechanical fuel lockout switch 38 provides a disconnect to stop gasoline flow from gasoline tank 32 to the

engine while allowing connection of LPG supply hose 36 to fuel inlet 59 of the second fuel line. FIG. 3 further shows LPG supply hose 36 coupling second fuel source 30 to generator 20 to deliver LPG to run the generator.

[0033] Mechanical fuel lockout switch 38 includes mechanical fuel valve 54 coupled to fuel lockout apparatus 58 to prevent gasoline flow to generator 20 when LPG from the LPG service hose 36 is supplied to the engine. In one embodiment of the invention, actuation of mechanical fuel valve 54 to second position 38(b) causes fuel lockout apparatus 58 to allow communication of second fuel source 30 to the dual fuel engine, and interrupts the first fuel source 28 communication with the dual fuel engine. The position of fuel lockout apparatus 58 prevents the fuel valve handle 56 from moving to first position 38(a) (FIG. 2) while LPG supply hose 36 is connected to generator 20.

[0034] A quick-disconnect hose coupling 50, also referred to as a quick-connect hose coupling, connects LPG supply hose 36 to generator 20 so that LPG supply hose 36 may be quickly attached and detached from generator 20. Hose coupling 50 has a first end 50a mounted on the external surface of generator 20 and coupled to supply the second fuel to the engine. Hose coupling 50 has a second end 50b coupled to the outlet of LPG supply hose 36. Hose coupling 50 has a valve that opens when the couplings are engaged and closes when the couplings are disengaged. As such, quick-disconnect hose coupling 50 automatically opens when connected to enable fuel flow from LPG supply hose 36 to the engine. Hose coupling 50 automatically disconnects fluid communication when disconnected. Accordingly, when the supply hose is detached from generator 20, the coupling 50 is automatically closed so that fuel does not escape and unwanted air does not enter the fuel system.

[0035] In one embodiment, fuel inlet cover 61 is coupled to fuel valve handle 56 so that it is spaced apart from the surface of generator 20 to provide clearance for first end 50a of the quick-disconnect hose coupling 50 that protrudes from the surface of generator 20. As shown in FIG. 2, fuel inlet cover 61 blocks off first end 50a of the quick-disconnect hose coupling when fuel valve handle 56 is rotated to first position 38(a) to enable gasoline flow so that fuel inlet cover 61 prevents connection of LPG

supply hose 36 (FIG. 3) to generator 20. As shown in FIG. 3, fuel inlet cover 61 uncovers first end 50a of the quick-disconnect hose coupling 50 when fuel valve handle 56 is rotated to second position 38(b) to disable gasoline flow so that fuel inlet cover 61 permits connection of LPG supply hose 36 to generator 20.

[0036] To operate generator 20 on LPG, fuel valve handle 56 is turned to second position 38(b) to disable the flow of gasoline to the engine and to expose first end 50a of hose coupling 50 on generator 20. LPG supply hose 36 is then connected to generator 20 via hose coupling 50 to enable the flow of LPG to the engine. To operate generator 20 on gasoline, LPG supply hose 36 is disconnected from generator 20 via hose coupling 50 to disable the flow of LPG to the engine and to unblock fuel valve handle 56 from rotating to the first position. As shown in FIG. 2, fuel valve handle 56 is then turned to first position 38(a) to enable the flow of gasoline to generator 20.

[0037] Referring to FIG. 4A, a schematic diagram of a fuel system for a dual fuel engine shows mechanical fuel lockout switch 38 in first position 38(a) to provide communication between the first fuel source 28 and dual fuel carburetor 62, according to an embodiment of the invention. Mechanical fuel lockout switch 38 prevents communication between second fuel source 30 and dual fuel carburetor 62 when the switch is in first position 38(a). In one embodiment of the invention, first fuel source 28 includes a gasoline tank 32 to provide gasoline to carburetor 62 through a first fuel line 66, and second fuel source 30 includes a propane or LPG tank 68 to provide propane or LPG to carburetor 62 through a second fuel line 70. Accordingly, first fuel line 66 may be a liquid fuel line and second fuel line 70 may be a gaseous fuel line.

[0038] Mechanical fuel lockout switch 38 includes a mechanical fuel valve 54 actuateable between first position 38(a) as shown in FIG. 4A and second position 38(b) as shown in FIG. 4B to selectively control fuel flow to the dual fuel engine from first fuel source 28 through first fuel line 66 and second fuel source 30 through second fuel line 70. Referring back to FIG. 4A, mechanical fuel valve 54 selectively controls fuel flow through first fuel line 66 by opening the line when the mechanical fuel lockout switch 38 actuates to first position 38(a). Mechanical fuel valve 54 may be coupled to

fuel lockout apparatus 58 that actuates with mechanical fuel valve 54 to block and unblock fuel inlet 59 of second fuel line 70. First end 50a of the quick-disconnect hose coupling is located at fuel inlet 59 and a mating end 50b of the quick-disconnect hose coupling is coupled to the propane or LPG tank 68. Actuation of mechanical fuel valve 54 to first position 38(a) causes fuel lockout apparatus 58 to block fuel inlet 59 to prevent coupling the first end 50a and second end 50b of the quick-disconnect hose coupling together, and actuation of mechanical fuel valve 54 to another position causes fuel lockout apparatus 58 to unblock fuel inlet 59 to permit attaching first end 50a and second end 50b together.

[0039] In one embodiment of the invention, a fuel cut solenoid 63 couples to carburetor 62 to regulate liquid fuel flow into a main nozzle within the carburetor. Fuel cut solenoid 63 is advantageous to control liquid fuel flow downstream of a float bowl in the carburetor and can stop fuel flow to the engine immediately after ignition shutdown. As such, fuel cut solenoid 63 prevents the engine from drawing in fuel from the float bowl while the engine shuts off. Fuel cut solenoid 63 also traps fuel in the float bowl to eliminate delay in filling the bowl when starting the engine on liquid fuel, and prevents liquid fuel flow from the float bowl to the engine when starting on gaseous fuel.

[0040] Fuel cut solenoid 63 may regulate fuel flow through multiple fuel lines in carburetor 62 that provide fuel from the float bowl to the engine. For instance, carburetor 62 may have a main fuel line and an idle fuel line that receive fuel from the float bowl. Fuel cut solenoid 63 may control fuel flow through all of the fuel lines that receive fuel from the float bowl or may regulate only some of the fuel lines. As such, fuel cut solenoid 63 may block fuel flow through the main fuel line while small amounts of fuel can flow through the idle fuel line.

[0041] Fuel cut solenoid 63 preferably operates as a normally closed valve that opens when powered by a 12 volt battery 65, although fuel cut solenoid 63 may also be operated as a normally open valve. The normally closed valve is opened for gasoline mode to allow gasoline flow to the engine and closed for LPG mode to prevent gasoline

flow to the engine. Fuel cut solenoid 63 is operated by an electrical switch 67 which may be mechanically actuated and controlled by mechanical fuel lockout switch 38. As such, actuation of mechanical fuel lockout switch 38 to first position 38(a) closes electrical switch 67 to power and open fuel cut solenoid 63 as represented in FIG. 4A, and actuation of mechanical fuel lockout switch 38 to second position 38(b) opens electrical switch 67 to interrupt power and close fuel cut solenoid 63 as represented in FIG. 4B.

[0042] Referring to FIG. 4B, a schematic diagram of a fuel system for a dual fuel engine shows mechanical fuel lockout switch 38 in second position 38(b) to provide communication between second fuel source 30 and dual fuel carburetor 62, according to an embodiment of the invention. Mechanical fuel lockout switch 38 prevents communication between first fuel source 28 and dual fuel carburetor 62 when the switch is in second position 38(b). The dual fuel engine has a first fuel line 66 to provide fuel from first fuel source 28 to carburetor 62 and a second fuel line 70 to provide fuel from second fuel source 30 to carburetor 62.

[0043] Mechanical fuel lockout switch 38 includes mechanical fuel valve 54 that selectively controls fuel flow through first fuel line 66 by closing the line when mechanical fuel lockout switch 38 actuates to second position 38(b). Mechanical fuel lockout switch 38 may also include a mechanical lockout apparatus 58 to block and unblock fuel inlet 59 of the second fuel line 70. Fuel inlet 59 may include first end 50a of the quick-connect hose coupling mounted on the generator and coupled to second fuel line 70. Second end 50b of the quick-connect hose coupling is coupled to the outlet of second fuel source 30, and the first end 50a mates with second end 50b to quickly attach propane or LPG tank 68 to second fuel line 70. Fuel lockout apparatus 58 may also hold mechanical fuel lockout switch 38 in second position 38(b) when the propane or LPG tank 68 is coupled to the engine via the ends 50a, 50b of the quick-connect hose coupling.

[0044] Fuel cut solenoid 63 couples to carburetor 62 to regulate liquid fuel flow through the carburetor as described with respect to FIG. 4A. FIG. 4B shows electrical

switch 67 opened to interrupt power and close fuel cut solenoid 63 for LPG mode when mechanical fuel lockout switch 38 is in second position 38(b).

[0045] FIG. 4A and 4B depict an embodiment where mechanical fuel valve 54 operates along first fuel line 66 to provide a flow path for first fuel source 28 to carburetor 62 when the valve is in first position 38(a). That is, mechanical fuel valve 54 may control a single fuel line that runs through the valve while operating fuel lockout apparatus 58 to control fuel flow through second fuel line 70. Embodiments of the invention also contemplate mechanical fuel valve 54 configured to operate along second fuel line 70 to provide a flow path for second fuel source 30 to carburetor 62 when the valve is in second position 38(b). Mechanical fuel valve 54 may be configured to control multiple fuel lines that run through the valve according to embodiments of the invention.

[0046] Referring now to FIG. 5, a perspective view of fuel delivery system 22 for dual fuel generator 20 of FIG. 1 is shown, in accordance with an embodiment of the invention. Fuel delivery system 22 includes a mounting arrangement for fuel regulator system 39. The mounting arrangement includes regulator mounting bracket 46 for mounting fuel regulator system 39. Regulator mounting bracket 46 extends around the outer periphery of collar 136 on pressurized fuel container 34. Regulator mounting bracket 46 has securing mechanism 48 to secure to collar 136. In one embodiment, securing mechanism 48 is a rigid component that extends inward from regulator mounting bracket 46 with a slot for receiving collar 136 to hold regulator mounting bracket 46 to collar 136.

[0047] Regulator mounting bracket 46 provides mounting locations for pressure regulators. In one embodiment, regulator mounting bracket 46 is made of sheet metal bent in two locations to provide a central panel 138, a first outer panel 140, and a second outer panel 142 for mounting the regulators. The panels may be angled from each other such that regulator mounting bracket 46 fits around collar 136. Primary pressure regulator 42 mounts on first outer panel 140 and secondary pressure regulator 44 mounts on second outer panel 142. The panels are sized according to their respective

regulators. Accordingly, second outer panel 142 is larger than first outer panel 140 if secondary pressure regulator 44 is larger than primary pressure regulator 42. Panels 140, 142 have fasteners or openings to receive fasteners to couple respective regulators 42, 44 to the panels. Regulator mounting bracket 46 rests on top of pressurized fuel container 34 and engages the periphery of collar 136 to support fuel regulator system 39 on the container.

[0048] In one embodiment of the invention, primary pressure regulator 42 couples to two ninety degree elbows 144, 145 to reach around collar 136 in order to couple to service valve 40. The two elbows 144, 145 are joined by a hose or pipe 146 that leads from elbow 144 at service valve 40 to elbow 145 at the outer periphery of collar 136. The outlet of primary pressure regulator 42 couples to a hose 148 that extends to another ninety degree elbow 150 coupled to the inlet of secondary pressure regulator 44. Secondary pressure regulator 44 couples to LPG supply hose 36. Pressurized fuel container 34 may be strapped to a dolly 152.

[0049] Referring now to FIG. 6, a side view of another fuel delivery system 22 for dual fuel generator 20 of FIG. 1 is shown, in accordance with an embodiment of the invention. Fuel delivery system 22 includes a mounting arrangement for fuel regulator system 39. The mounting arrangement includes a regulator mounting structure 154 for mounting fuel regulator system 39 to pressurized fuel container 34. Regulator mounting structure 154 includes a cylinder 156 that surrounds the circumference of pressurized fuel container 34 to secure regulator mounting structure 154 radially along the circumference of pressurized fuel container 34. Cylinder 156 couples to a dome 158 to support cylinder 156 relative to the top of pressurized fuel container 34. Dome 158 has a central opening 160 through which collar 136 of pressurized fuel container 34 extends. Collar 136 of pressurized fuel container 34 extends through dome 158 so that service valve 40 is easily accessible from above regulator mounting structure 154 and so that dome 158 sits on pressurized fuel container 34 around collar 136.

[0050] Regulator mounting structure 154 supports pressure regulators around the outer circumference of cylinder 156. In some embodiments of the invention, a dual

stage pressure regulator 162 functions as both a primary pressure regulator and a secondary pressure regulator in a single integral component, and dual stage pressure regulator 162 may be mounted on regulator mounting structure 154. In other embodiments in of the invention, primary pressure regulator 42 (FIG. 5) is mounted to service valve 40 while secondary pressure regulator 44 (FIG. 5) is mounted on regulator mounting structure 154. Alternatively, both primary pressure regulator 42 (FIG. 5) and secondary pressure regulator 44 (FIG. 5) may be mounted on regulator mounting structure 154.

[0051] Fuel regulator system 39 may be coupled to service valve 40 by a flexible connector called a pigtail 164. Pigtail 164 absorbs shock in the system from pressure surges and from movement of downstream components. Pigtail 164 can be looped to conserve space and therefore pressurized fuel container 34 is referred to as an LPG pig. Accordingly, regulator mounting structure 154 is referred to as a pig hat because it fits on the LPG pig. Pressurized fuel container 34 may be secured to a platform or mobile cart 64 for stability or transportation. In another embodiment, a regulator mounting device, including regulator mounting structure 154 or regulator mounting bracket 46 (FIG. 5), is secured directly to a platform or a mobile cart.

[0052] Beneficially, embodiments of the invention provide for a mechanical fuel lockout switch to ensure that two fuels are not simultaneously delivered to a dual fuel internal combustion engine. Embodiments of the invention also provide for a dual fuel generator with a remotely mounted gaseous fuel regulator system.

[0053] Therefore, according to one embodiment of the invention, a mechanical fuel lockout switch for a dual fuel engine includes a mechanical fuel valve actuateable between a first position and a second position to selectively control fuel flow to the dual fuel engine from a first fuel source through a first fuel line and a second fuel source through a second fuel line. The mechanical fuel lockout switch also includes a fuel lockout apparatus coupled to the mechanical fuel valve. The mechanical fuel lockout switch communicates the first fuel source to the dual fuel engine and prevents communication between the second fuel source and the dual fuel engine when the

mechanical fuel valve is in the first position, and communicates the second fuel source to the dual fuel engine and interrupts the first fuel source communication with the dual fuel engine when in the second position.

[0054] According to another embodiment of the invention, a dual fuel generator and fuel delivery system includes a dual fuel generator configured to operate on a liquid fuel supplied from a liquid fuel source through a liquid fuel line and a gaseous fuel supplied from a pressurized fuel source through a gaseous fuel line. The dual fuel generator and fuel delivery system also includes a fuel regulator system located off board the dual fuel generator. The fuel regulator system includes a primary pressure regulator coupled to a service valve of the pressurized fuel source and configured to regulate the fuel supplied from the pressurized fuel source to a reduced pressure. The fuel regulator system also includes a secondary pressure regulator coupled to the primary pressure regulator and configured to regulate the gaseous fuel supplied from the primary pressure regulator to a desired pressure for delivery through the gaseous fuel line to operate the dual fuel generator. The dual fuel generator and fuel delivery system further includes a mechanical fuel valve actuatable between a first position and a second position to selectively control fuel flow to the dual fuel generator from the liquid fuel source through the liquid fuel line and the pressurized fuel source through the gaseous fuel line.

[0055] According to yet another embodiment of the invention, a method of assembling a mechanical fuel lockout switch for an internal combustion engine includes providing an internal combustion engine configured to operate on a fuel from a first fuel source and a different fuel from a second fuel source. The method also includes coupling a mechanical fuel valve to the internal combustion engine actuatable between a first position and a second position to selectively control fuel flow to the internal combustion engine from the first fuel source through a first fuel line and the second fuel source through a second fuel line. The method further includes coupling a fuel lockout apparatus to the mechanical fuel valve. When the mechanical fuel valve is in the first position, the fuel lockout apparatus communicates the first fuel source to the internal combustion engine and prevents the second fuel source from coupling to the internal combustion engine, and actuation of the mechanical fuel valve to the second position

causes the fuel lockout apparatus to permit the second fuel source to couple to the internal combustion engine, and interrupts the first fuel source communication with the internal combustion engine.

[0056] This written description uses examples to disclose the invention, including the best mode, and also to enable any person skilled in the art to practice the invention, including making and using any devices or systems and performing any incorporated methods. The patentable scope of the invention is defined by the claims, and may include other examples that occur to those skilled in the art. Such other examples are intended to be within the scope of the claims if they have structural elements that do not differ from the literal language of the claims, or if they include equivalent structural elements with insubstantial differences from the literal languages of the claims.

CLAIMS

What is claimed is:

1. A mechanical fuel lockout switch for a dual fuel engine comprising:
a mechanical fuel valve actuateable between a first position and a second position to selectively control fuel flow to the dual fuel engine from a first fuel source through a first fuel line and a second fuel source through a second fuel line; and
a fuel lockout apparatus coupled to the mechanical fuel valve;
wherein the mechanical fuel lockout switch:
communicates the first fuel source to the dual fuel engine and prevents communication between the second fuel source and the dual fuel engine when the mechanical fuel valve is in the first position, and
communicates the second fuel source to the dual fuel engine and interrupts the first fuel source communication with the dual fuel engine when in the second position.
2. The mechanical fuel lockout switch for a dual fuel engine of claim 1, wherein the fuel lockout apparatus prevents actuation of the mechanical fuel valve to the first position when the second fuel source communicates with the dual fuel engine.
3. The mechanical fuel lockout switch for a dual fuel engine of claim 1, wherein the fuel lockout apparatus is configured to:
prevent the second fuel source from coupling to the second fuel line while the mechanical fuel valve is in the first position; and
permit the second fuel source to couple to the second fuel line while the mechanical fuel valve is in the second position.
4. The mechanical fuel lockout switch for a dual fuel engine of claim 3, wherein the fuel lockout apparatus comprises a flange rigidly coupled to the mechanical fuel valve that covers an inlet of the second fuel line while the mechanical fuel valve is

in the first position and uncovers the inlet of the second fuel line while the mechanical fuel valve is in the second position.

5. The mechanical fuel lockout switch for a dual fuel engine of claim 4, wherein the mechanical fuel valve rotates between the first position and the second position and the flange rotates transversely across the inlet of the second fuel line.

6. The mechanical fuel lockout switch for a dual fuel engine of claim 4, further comprising;

a first end of a quick-disconnect hose coupling attached to the inlet of the second fuel line; and

a second end of the quick-disconnect hose coupling attached to the second fuel source to mate with the first end of the quick-disconnect hose coupling to couple the second fuel source to the second fuel line.

7. The mechanical fuel lockout switch for a dual fuel engine of claim 1, wherein the mechanical fuel valve and the fuel lockout apparatus operate together to ensure that fuel from the first fuel source and fuel from the second fuel source are not simultaneously delivered to the dual fuel engine.

8. The mechanical fuel lockout switch for a dual fuel engine of claim 7, wherein the first fuel source provides liquid fuel from a liquid fuel tank to the dual fuel engine and the second fuel source provides gaseous fuel from a pressurized fuel container to the dual fuel engine.

9. A dual fuel generator and fuel delivery system comprising:

a dual fuel generator configured to operate on a liquid fuel supplied from a liquid fuel source through a liquid fuel line and a gaseous fuel supplied from a pressurized fuel source through a gaseous fuel line;

a fuel regulator system located off board the dual fuel generator, the fuel regulator system comprising:

a primary pressure regulator coupled to a service valve of the pressurized fuel source and configured to regulate the fuel supplied from the pressurized fuel source to a reduced pressure; and

a secondary pressure regulator coupled to the primary pressure regulator and configured to regulate the gaseous fuel supplied from the primary pressure regulator to a desired pressure for delivery through the gaseous fuel line to operate the dual fuel generator; and

a mechanical fuel valve actuateable between a first position and a second position to selectively control fuel flow to the dual fuel generator from the liquid fuel source through the liquid fuel line and the pressurized fuel source through the gaseous fuel line.

10. The dual fuel generator and fuel delivery system of claim 9 further comprising a fuel lockout apparatus coupled to the mechanical fuel valve; and

wherein when the mechanical fuel valve is in the first position, the fuel lockout apparatus communicates the liquid fuel source to the dual fuel generator and prevents the pressurized fuel source from coupling to the dual fuel generator, and actuation of the mechanical fuel valve to the second position causes the fuel lockout apparatus to permit the pressurized fuel source to couple to the dual fuel generator, and interrupts the liquid fuel source communication with the dual fuel generator.

11. The dual fuel generator and fuel delivery system of claim 9, wherein mechanical fuel valve opens and closes the liquid fuel line to selectively control fuel flow from the liquid fuel source to the dual fuel generator; and further comprises:

a fuel lockout apparatus coupled to the mechanical fuel valve and configured to prevent the pressurize fuel source from coupling to the gaseous fuel line while the mechanical fuel valve opens the liquid fuel line, and permit the pressurized fuel source to couple to the gaseous fuel line while the mechanical fuel valve closes the liquid fuel line.

12. The dual fuel generator and fuel delivery system of claim 11, wherein the fuel lockout apparatus is further configured to prevent the mechanical fuel valve from opening the liquid fuel line while the dual fuel generator receives fuel from the pressurized fuel source.

13. The dual fuel generator and fuel delivery system of claim 11, wherein the fuel lockout apparatus further comprises a fuel inlet cover that actuates with the mechanical fuel valve to cover an inlet of the gaseous fuel line while the mechanical fuel valve opens the liquid fuel line and to uncover mechanical fuel lockout switch the inlet of the gaseous fuel line when the mechanical fuel valve closes the liquid fuel line.

14. The dual fuel generator and fuel delivery system of claim 9, further comprising:

a first end of a quick-connect hose coupling coupled to an outlet of the secondary pressure regulator; and

a second end of the quick-connect hose coupling coupled to an inlet of the gaseous fuel line to mate with the first end of the quick-connect hose coupling to couple the secondary pressure regulator to the gaseous fuel line.

15. The dual fuel generator and fuel delivery system of claim 9, further comprising a regulator mounting device secured to the pressurized fuel source with at least the secondary pressure regulator mounted on the regulator mounting device.

16. The dual fuel generator and fuel delivery system of claim 15, wherein the primary pressure regulator is mounted on the regulator mounting device.

17. The dual fuel generator and fuel delivery system of claim 16, wherein the pressurized fuel source comprises a pressurized fuel container having a collar; and

wherein the regulator mounting device secures to the collar so that the primary and secondary pressure regulators are positioned adjacent each other along an outer periphery of the collar.

18. The dual fuel generator and fuel delivery system of claim 9, wherein the primary and secondary pressure regulators are integral components of a dual stage pressure regulator.

19. A method of assembling a mechanical fuel lockout switch for an internal combustion engine comprising:

providing an internal combustion engine configured to operate on a fuel from a first fuel source and a different fuel from a second fuel source;

coupling a mechanical fuel valve to the internal combustion engine actuateable between a first position and a second position to selectively control fuel flow to the internal combustion engine from the first fuel source through a first fuel line and the second fuel source through a second fuel line; and

coupling a fuel lockout apparatus to the mechanical fuel valve;

wherein when the mechanical fuel valve is in the first position, the fuel lockout apparatus communicates the first fuel source to the internal combustion engine and prevents the second fuel source from coupling to the internal combustion engine, and actuation of the mechanical fuel valve to the second position causes the fuel lockout apparatus to permit the second fuel source to couple to the internal combustion engine, and interrupts the first fuel source communication with the internal combustion engine.

20. The method of claim 19, wherein the fuel lockout apparatus prevents actuation of the mechanical fuel valve to the first position when the second fuel source is coupled to the internal combustion engine.

21. The method of claim 20, wherein the fuel lockout apparatus is further configured to:

prevent coupling of the second fuel source to the second fuel line while the mechanical fuel valve is in the first position; and

permit coupling of the second fuel source to the second fuel line while the mechanical fuel valve is in the second position.

22. The method of claim 19, wherein the fuel lockout apparatus comprises a fuel inlet cover configured to actuate in unison with the mechanical fuel valve to cover a fuel inlet on the internal combustion engine for the second fuel source when the mechanical fuel valve is in the first position and uncover the fuel inlet when the mechanical fuel valve is in the second position.

23. The method of claim 19, further comprising coupling a fuel regulator system to the second fuel source to reduce fuel pressure therefrom and deliver fuel to the second fuel line at a pressure required for operation of the internal combustion engine.

24. The method of claim 23, further comprising mounting the fuel regulator system to the second fuel source located off-board the internal combustion engine.

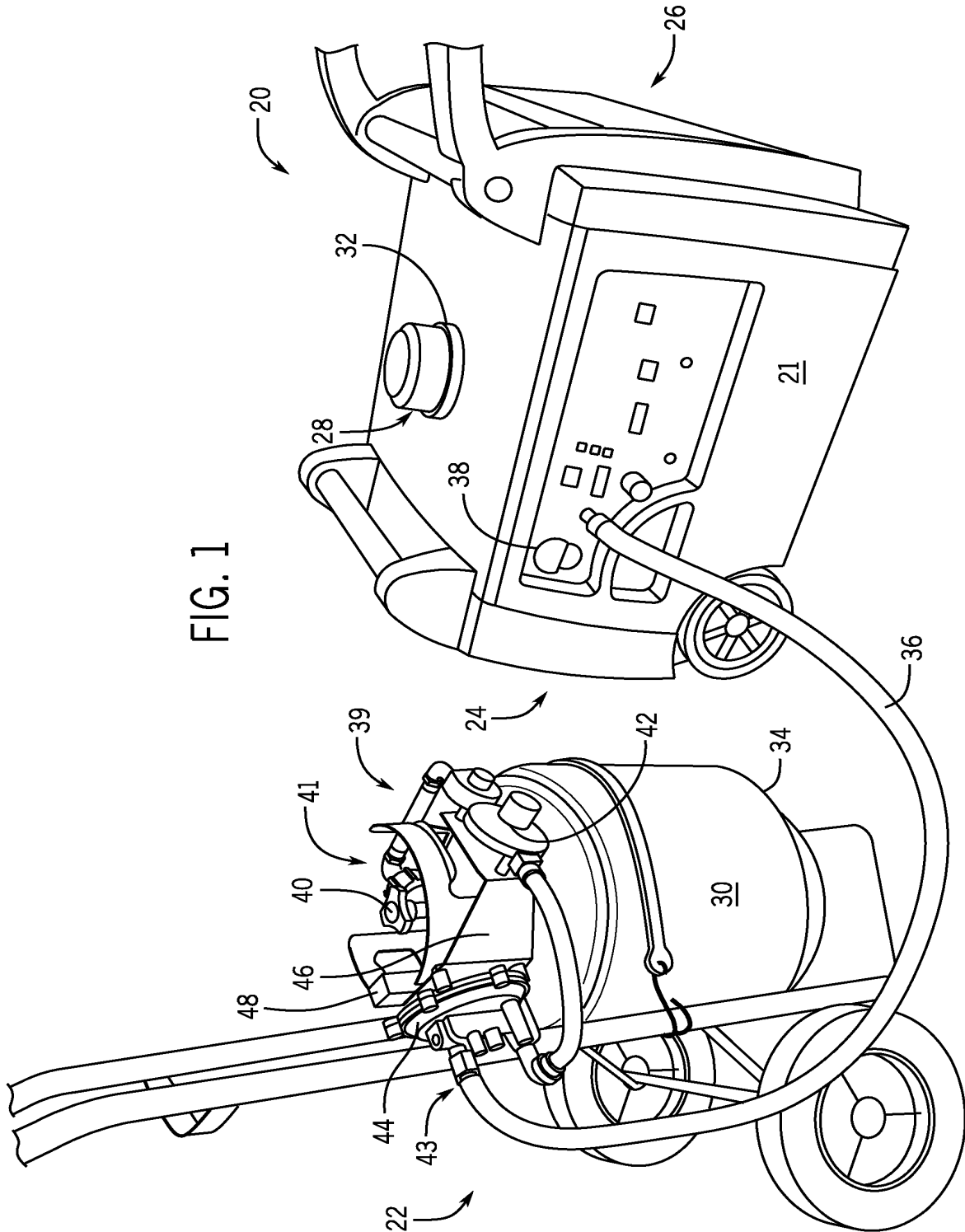
25. The method of claim 23, further comprising:
coupling one end of a quick-disconnect hose coupling to an inlet on the internal combustion engine for the second fuel source; and
coupling a mating end of the quick-disconnect hose coupling to an outlet of the fuel regulator system.

26. The method of claim 19, further comprising providing gasoline in a liquid fuel tank as the first fuel source and LPG in a pressurized fuel container as the second fuel source.

ABSTRACT

A mechanical fuel lockout switch for a dual fuel engine includes a mechanical fuel valve actuateable between a first position and a second position to selectively control fuel flow to the dual fuel engine from a first fuel source through a first fuel line and a second fuel source through a second fuel line. The mechanical fuel lockout switch also includes a fuel lockout apparatus coupled to the mechanical fuel valve. The mechanical fuel lockout switch communicates the first fuel source to the dual fuel engine and prevents communication between the second fuel source and the dual fuel engine when the mechanical fuel valve is in the first position, and communicates the second fuel source to the dual fuel engine and interrupts the first fuel source communication with the dual fuel engine when in the second position.

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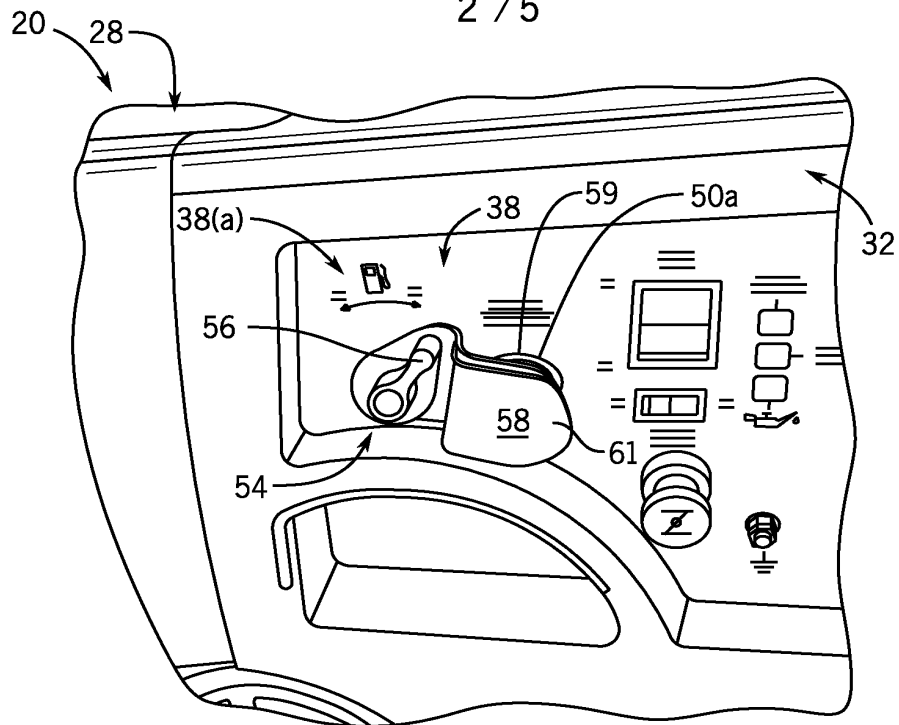


FIG. 2

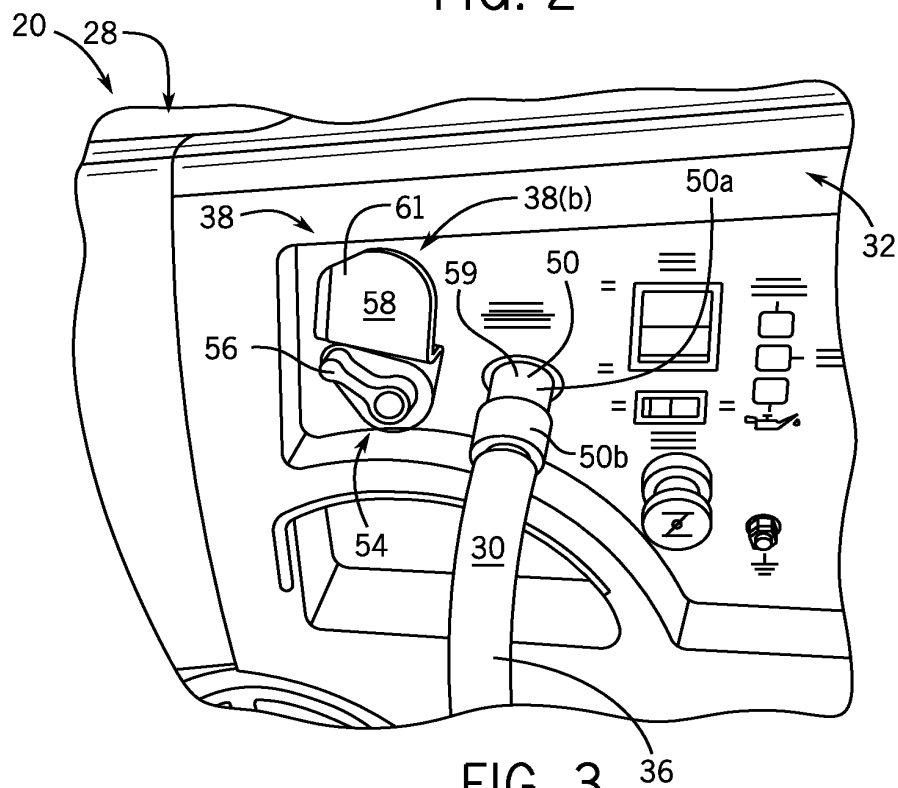


FIG. 3

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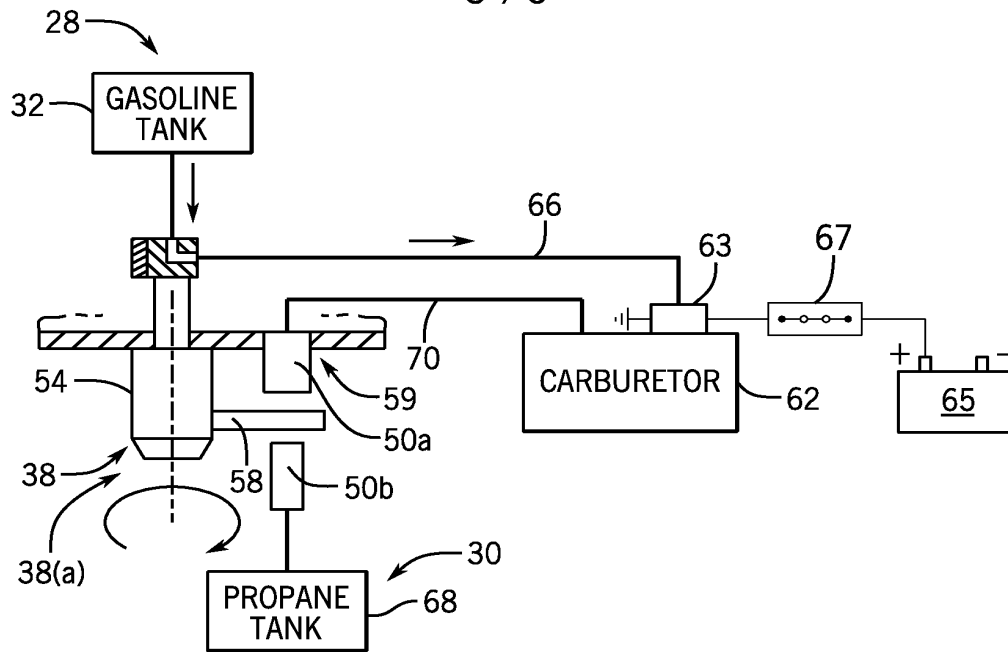


FIG. 4A

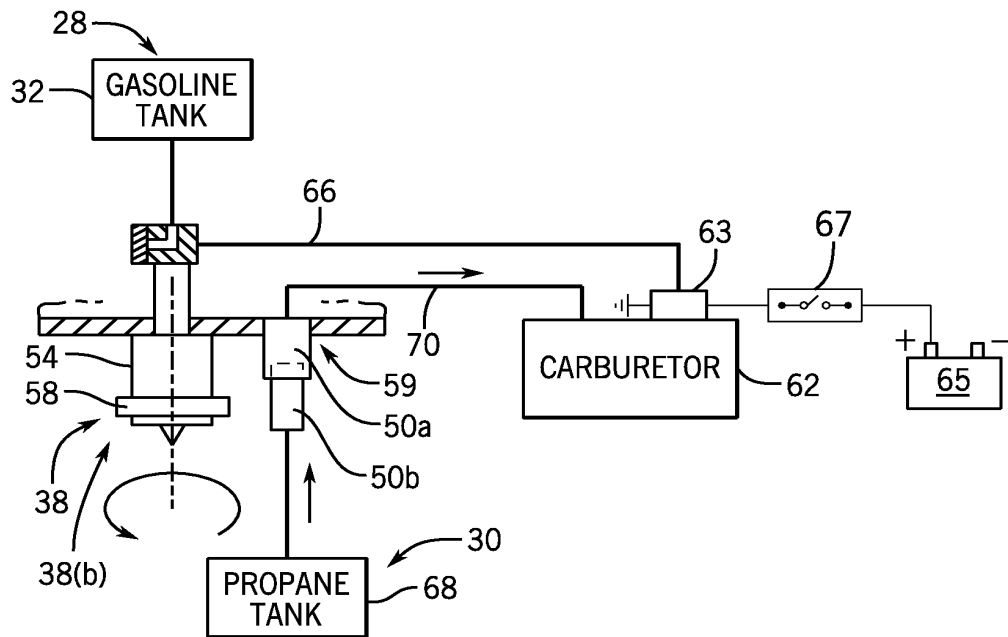


FIG. 4B

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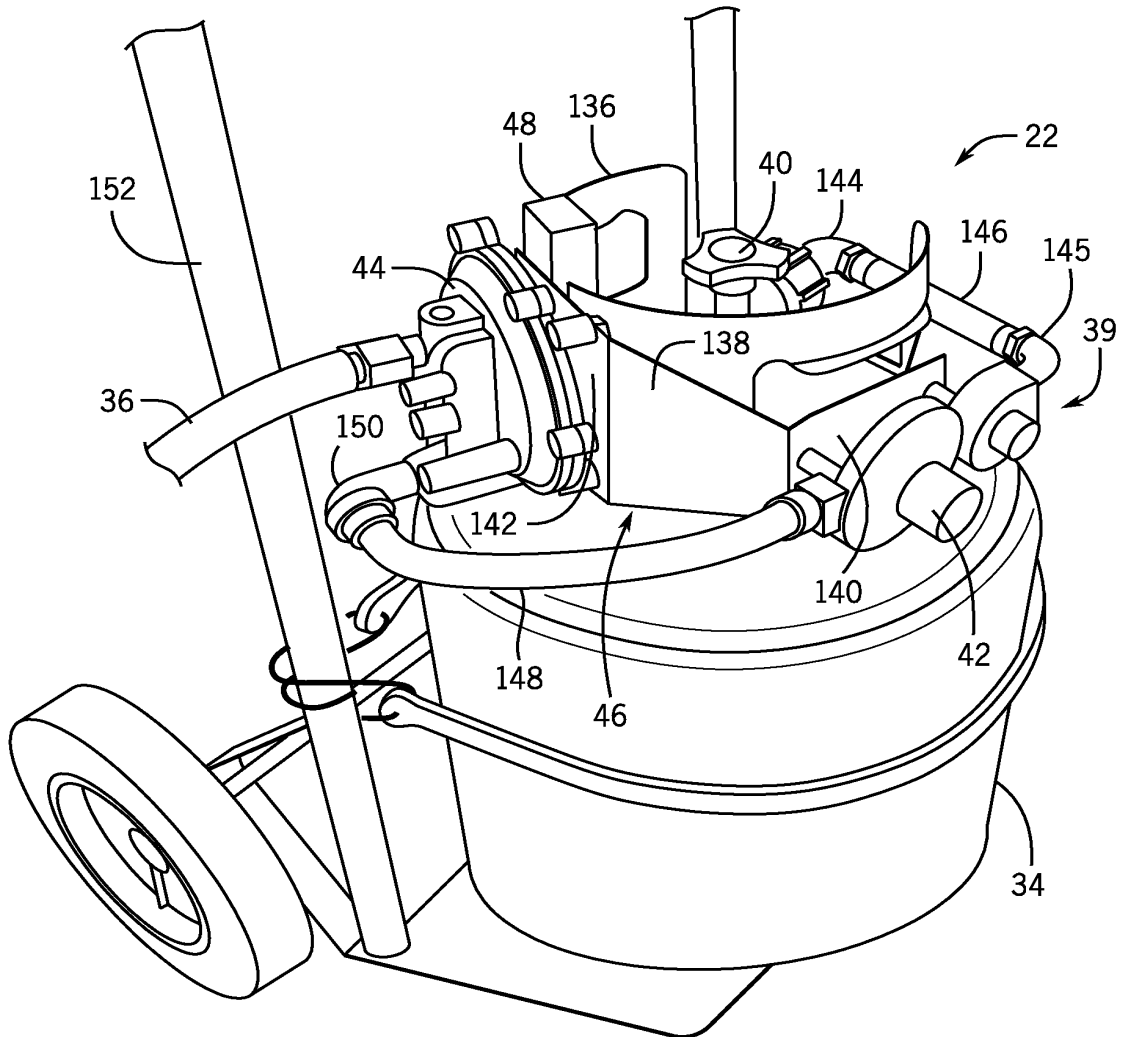


FIG. 5

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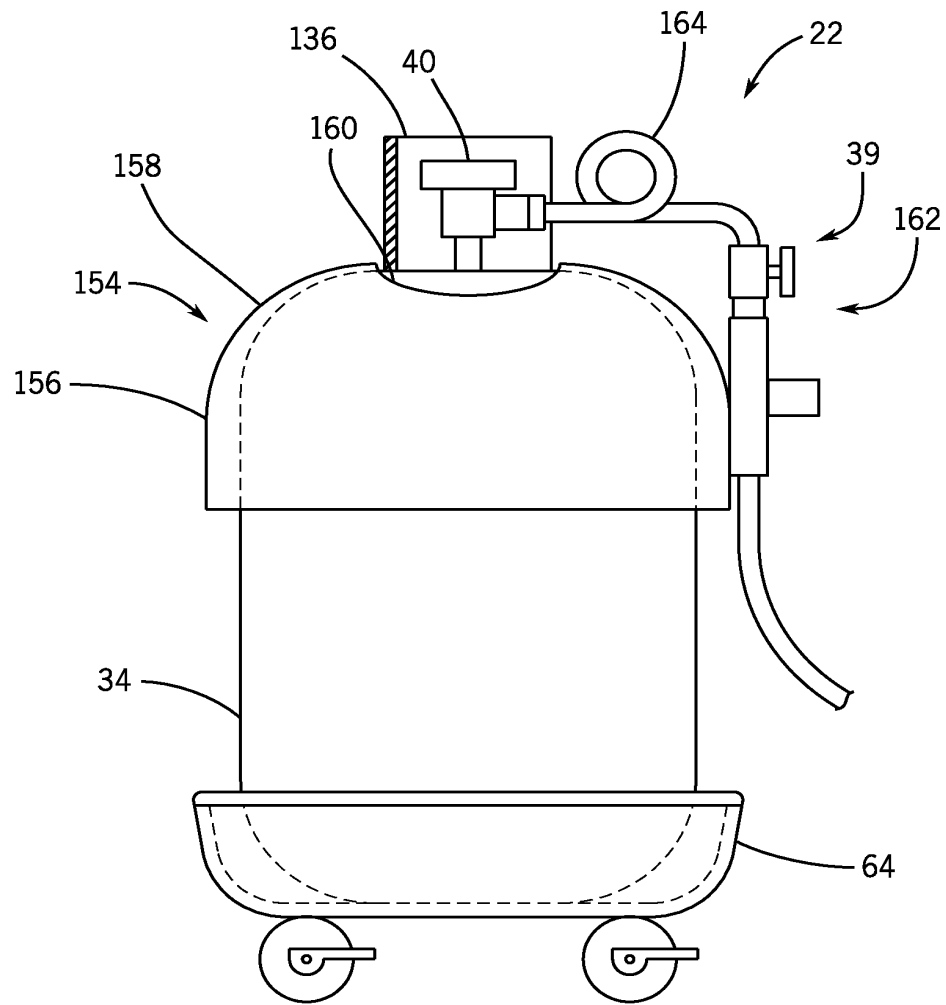


FIG. 6



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/738,060	06/12/2015	Mark J. Sarder	CET1090.019	9670

26629 7590 08/03/2017
ZIOLKOWSKI PATENT SOLUTIONS GROUP, SC (ZPS)
136 S WISCONSIN ST
PORT WASHINGTON, WI 53074

EXAMINER
LATHERS, KEVIN ANTHONY

ART UNIT	PAPER NUMBER
3747	

NOTIFICATION DATE	DELIVERY MODE
08/03/2017	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

info@zp spatents.com
sml@zp spatents.com

Office Action Summary	Application No. 14/738,060	Applicant(s) SARDER ET AL.	
	Examiner KEVIN A. LATHERS	Art Unit 3747	AIA (First Inventor to File) Status Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06/12/2015.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

- 5) ☒ Claim(s) 1-26 is/are pending in the application.
5a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 6) ☐ Claim(s) _____ is/are allowed.
- 7) ☒ Claim(s) 1-3, 7-10 and 14-26 is/are rejected.
- 8) ☒ Claim(s) 4-6 and 11-13 is/are objected to.
- 9) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☒ The drawing(s) filed on 06/12/2015 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

- a) ☐ All b) ☐ Some** c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) ☒ Notice of References Cited (PTO-892) | 3) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) ☒ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b)
Paper No(s)/Mail Date _____ | 4) ☒ Other: <u>NPL</u> . |

DETAILED ACTION

The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

Claim Rejections - 35 USC § 112

1. The following is a quotation of 35 U.S.C. 112(b):
(b) CONCLUSION.—The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or a joint inventor regards as the invention.

The following is a quotation of 35 U.S.C. 112 (pre-AIA), second paragraph:
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 19-26 are rejected under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor or a joint inventor, or for pre-AIA the applicant regards as the invention.
3. Claims 19-26 provides for the use of a mechanical fuel switch on an internal combustion engine, but, since the claim does not set forth any steps involved in the method/process of assembling the engine as is set forth as the claim objective, it is unclear what method/process applicant is intending to encompass. This makes t

Claim Rejections - 35 USC § 102

4. In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory basis for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

(a)(1) the claimed invention was patented, described in a printed publication, or in public use, on sale or otherwise available to the public before the effective filing date of the claimed invention.

5. **Claim(s) 1-3, 7-10, 14-20, and 22-26 is/are rejected under 35 U.S.C. 102(a)(1) as being clearly anticipated by Champion (Champion Power (2014, Dec. & Jan.). 100153 Manual. Retrieved from http://www.championpowerequipment.com/media/2400/100153_manual-english_12-4-14.pdf).**

6. **Regarding claims 1-3, 7-10, 14-20, and 22-26**, the manual of Champion clearly anticipates the entirety of the claim limitations. The manual discloses a dual fuel generator internal combustion engine (Title page) which makes use a fuel selector switch and valves (shown in picture on title page and elaborated upon through the text) to selectively allow gasoline or propane into the engine, the propane being using a hose couple and passing through two regulators, one on the line and one within as per part #102 and the "fuel metering system" regulator disclosed on the last page.

Double Patenting

7. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have

been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on nonstatutory double patenting provided the reference application or patent either is shown to be commonly owned with the examined application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement. See MPEP § 717.02 for applications subject to examination under the first inventor to file provisions of the AIA as explained in MPEP § 2159. See MPEP §§ 706.02(l)(1) - 706.02(l)(3) for applications not subject to examination under the first inventor to file provisions of the AIA. A terminal disclaimer must be signed in compliance with 37 CFR 1.321(b).

The USPTO Internet website contains terminal disclaimer forms which may be used. Please visit www.uspto.gov/patent/patents-forms. The filing date of the application in which the form is filed determines what form (e.g., PTO/SB/25, PTO/SB/26, PTO/AIA/25, or PTO/AIA/26) should be used. A web-based eTerminal Disclaimer may be filled out completely online using web-screens. An eTerminal Disclaimer that meets all requirements is auto-processed and approved immediately upon submission. For

more information about eTerminal Disclaimers, refer to
www.uspto.gov/patents/process/file/efs/guidance/eTD-info-I.jsp.

8. Claims 1-3, 7-10, and 14-18 rejected on the ground of nonstatutory double patenting as being unpatentable over claim 1 of U.S. Patent No. 9,435,273. Although the claims at issue are not identical, they are not patentably distinct from each other because the limitations of claims 1-3, 7-10, and 14-18 are disclosed by the limitations of claim 1 except a detachable hose and two regulators for the transfer of one fuel. However, examiner takes official notice that it would have been obvious to one of ordinary skill in the art before the filing date of the invention to modify a dual fuel generator to include a fuel hose that can couple to and from the engine and two regulators to regulate the incoming pressure to the engine as these parts are not only routinely used in such a case but also are known to improve the fueling characteristics of the engine.

Allowable Subject Matter

9. Claims 4-6 and 11-13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. The following is a statement of reasons for the indication of allowable subject matter: The closest prior art fails to disclose or make obvious the use of a dual fuel lockout switch on a dual fuel internal combustion engine wherein when the lockout switch is in one position it prevents the fuel source from coupling to the fuel system *lines* of the engine.

11. Champion discloses a dual fuel system as discussed above, but its lockout switch does not prevent the hose of the propane tank from even coupling to the engine fuel system lines.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Monros (US 2014/0202430) discloses an engine which makes use of a gasoline supply 16 and a propane supply 18 which uses a selector switch and valve 20 to allow one or the other of the fuels to the engine (Fig. 1, shown). Stoltman (US 4,463,735) discloses an engine which makes use of a two fuels, a liquid and gaseous, which are metered by a fuel selection valve according to the pressure of the system (Fig. 1, shown).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KEVIN A. LATHERS whose telephone number is (571)272-1050. The examiner can normally be reached on 10:00 am-7:00 pm EST, Monday to Thursday.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at <http://www.uspto.gov/interviewpractice>.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lindsay Low can be reached on 571-272-1196. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/KEVIN A LATHERS/
Examiner, Art Unit 3747

<i>Index of Claims</i> 	Application/Control No. 14738060	Applicant(s)/Patent Under Reexamination SARDER ET AL.
	Examiner KEVIN A LATHERS	Art Unit 3747

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☒ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47										
CLAIM		DATE								
Final	Original	07/28/2017								
	1	✓								
	2	✓								
	3	✓								
	4	O								
	5	O								
	6	O								
	7	✓								
	8	✓								
	9	✓								
	10	✓								
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	23	✓								
	24	✓								
	25	✓								
	26	✓								

Customer No. 26629
Confirmation No. 9670

Patent
Attorney Docket No. CET1090.019

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of : Sarder et al.
Serial No. : 14/738,060
Filed : June 12, 2015
For : DUAL FUEL LOCKOUT SWITCH FOR GENERATOR ENGINE
Group Art No. : 3747
Examiner : Kevin A. Lathers

CERTIFICATION UNDER 37 CFR 1.8(a) and 1.10

I hereby certify that, on the date shown below, this correspondence is being:

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37 CFR 1.8(a)

37 CFR 1.10

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Date: November 3, 2017

/Robyn L. Templin/
Signature

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

AMENDMENT/RESPONSE TO OFFICE ACTION
MAILED AUGUST 3, 2017

Dear Sir:

Responsive to the Office Action mailed August 3, 2017, please consider the following remarks:

In the Claims

1. (Original) A mechanical fuel lockout switch for a dual fuel engine comprising:
a mechanical fuel valve actuateable between a first position and a second position to selectively control fuel flow to the dual fuel engine from a first fuel source through a first fuel line and a second fuel source through a second fuel line; and
a fuel lockout apparatus coupled to the mechanical fuel valve;
wherein the mechanical fuel lockout switch:
communicates the first fuel source to the dual fuel engine and prevents communication between the second fuel source and the dual fuel engine when the mechanical fuel valve is in the first position, and
communicates the second fuel source to the dual fuel engine and interrupts the first fuel source communication with the dual fuel engine when in the second position.
2. (Original) The mechanical fuel lockout switch for a dual fuel engine of claim 1, wherein the fuel lockout apparatus prevents actuation of the mechanical fuel valve to the first position when the second fuel source communicates with the dual fuel engine.
3. (Original) The mechanical fuel lockout switch for a dual fuel engine of claim 1, wherein the fuel lockout apparatus is configured to:
prevent the second fuel source from coupling to the second fuel line while the mechanical fuel valve is in the first position; and
permit the second fuel source to couple to the second fuel line while the mechanical fuel valve is in the second position.
4. (Original) The mechanical fuel lockout switch for a dual fuel engine of claim 3, wherein the fuel lockout apparatus comprises a flange rigidly coupled to the mechanical fuel valve that covers an inlet of the second fuel line while the mechanical fuel valve is in the first position and uncovers the inlet of the second fuel line while the mechanical fuel valve is in the second position.

5. (Original) The mechanical fuel lockout switch for a dual fuel engine of claim 4, wherein the mechanical fuel valve rotates between the first position and the second position and the flange rotates transversely across the inlet of the second fuel line.

6. (Original) The mechanical fuel lockout switch for a dual fuel engine of claim 4, further comprising;

a first end of a quick-disconnect hose coupling attached to the inlet of the second fuel line; and

a second end of the quick-disconnect hose coupling attached to the second fuel source to mate with the first end of the quick-disconnect hose coupling to couple the second fuel source to the second fuel line.

7. (Original) The mechanical fuel lockout switch for a dual fuel engine of claim 1, wherein the mechanical fuel valve and the fuel lockout apparatus operate together to ensure that fuel from the first fuel source and fuel from the second fuel source are not simultaneously delivered to the dual fuel engine.

8. (Original) The mechanical fuel lockout switch for a dual fuel engine of claim 7, wherein the first fuel source provides liquid fuel from a liquid fuel tank to the dual fuel engine and the second fuel source provides gaseous fuel from a pressurized fuel container to the dual fuel engine.

9. (Original) A dual fuel generator and fuel delivery system comprising:

a dual fuel generator configured to operate on a liquid fuel supplied from a liquid fuel source through a liquid fuel line and a gaseous fuel supplied from a pressurized fuel source through a gaseous fuel line;

a fuel regulator system located off board the dual fuel generator, the fuel regulator system comprising:

a primary pressure regulator coupled to a service valve of the pressurized fuel source and configured to regulate the fuel supplied from the pressurized fuel source to a reduced pressure; and

a secondary pressure regulator coupled to the primary pressure regulator and configured to regulate the gaseous fuel supplied from the primary pressure regulator to a desired pressure for delivery through the gaseous fuel line to operate the dual fuel generator; and
a mechanical fuel valve actuatable between a first position and a second position to selectively control fuel flow to the dual fuel generator from the liquid fuel source through the liquid fuel line and the pressurized fuel source through the gaseous fuel line.

10. (Original) The dual fuel generator and fuel delivery system of claim 9 further comprising a fuel lockout apparatus coupled to the mechanical fuel valve; and

wherein when the mechanical fuel valve is in the first position, the fuel lockout apparatus communicates the liquid fuel source to the dual fuel generator and prevents the pressurized fuel source from coupling to the dual fuel generator, and actuation of the mechanical fuel valve to the second position causes the fuel lockout apparatus to permit the pressurized fuel source to couple to the dual fuel generator, and interrupts the liquid fuel source communication with the dual fuel generator.

11. (Original) The dual fuel generator and fuel delivery system of claim 9, wherein mechanical fuel valve opens and closes the liquid fuel line to selectively control fuel flow from the liquid fuel source to the dual fuel generator; and further comprises:

a fuel lockout apparatus coupled to the mechanical fuel valve and configured to prevent the pressurized fuel source from coupling to the gaseous fuel line while the mechanical fuel valve opens the liquid fuel line, and permit the pressurized fuel source to couple to the gaseous fuel line while the mechanical fuel valve closes the liquid fuel line.

12. (Original) The dual fuel generator and fuel delivery system of claim 11, wherein the fuel lockout apparatus is further configured to prevent the mechanical fuel valve from opening the liquid fuel line while the dual fuel generator receives fuel from the pressurized fuel source.

13. (Original) The dual fuel generator and fuel delivery system of claim 11, wherein the fuel lockout apparatus further comprises a fuel inlet cover that actuates with the mechanical fuel valve to cover an inlet of the gaseous fuel line while the mechanical fuel valve opens the liquid fuel line and to uncover mechanical fuel lockout switch the inlet of the gaseous fuel line when the mechanical fuel valve closes the liquid fuel line.

14. (Original) The dual fuel generator and fuel delivery system of claim 9, further comprising:

a first end of a quick-connect hose coupling coupled to an outlet of the secondary pressure regulator; and

a second end of the quick-connect hose coupling coupled to an inlet of the gaseous fuel line to mate with the first end of the quick-connect hose coupling to couple the secondary pressure regulator to the gaseous fuel line.

15. (Original) The dual fuel generator and fuel delivery system of claim 9, further comprising a regulator mounting device secured to the pressurized fuel source with at least the secondary pressure regulator mounted on the regulator mounting device.

16. (Original) The dual fuel generator and fuel delivery system of claim 15, wherein the primary pressure regulator is mounted on the regulator mounting device.

17. (Original) The dual fuel generator and fuel delivery system of claim 16, wherein the pressurized fuel source comprises a pressurized fuel container having a collar; and

wherein the regulator mounting device secures to the collar so that the primary and secondary pressure regulators are positioned adjacent each other along an outer periphery of the collar.

18. (Original) The dual fuel generator and fuel delivery system of claim 9, wherein the primary and secondary pressure regulators are integral components of a dual stage pressure regulator.

19. (Original) A method of assembling a mechanical fuel lockout switch for an internal combustion engine comprising:

providing an internal combustion engine configured to operate on a fuel from a first fuel source and a different fuel from a second fuel source;

coupling a mechanical fuel valve to the internal combustion engine actuatable between a first position and a second position to selectively control fuel flow to the internal

combustion engine from the first fuel source through a first fuel line and the second fuel source through a second fuel line; and

coupling a fuel lockout apparatus to the mechanical fuel valve;

wherein when the mechanical fuel valve is in the first position, the fuel lockout apparatus communicates the first fuel source to the internal combustion engine and prevents the second fuel source from coupling to the internal combustion engine, and actuation of the mechanical fuel valve to the second position causes the fuel lockout apparatus to permit the second fuel source to couple to the internal combustion engine, and interrupts the first fuel source communication with the internal combustion engine.

20. (Original) The method of claim 19, wherein the fuel lockout apparatus prevents actuation of the mechanical fuel valve to the first position when the second fuel source is coupled to the internal combustion engine.

21. (Original) The method of claim 20, wherein the fuel lockout apparatus is further configured to:

prevent coupling of the second fuel source to the second fuel line while the mechanical fuel valve is in the first position; and

permit coupling of the second fuel source to the second fuel line while the mechanical fuel valve is in the second position.

22. (Original) The method of claim 19, wherein the fuel lockout apparatus comprises a fuel inlet cover configured to actuate in unison with the mechanical fuel valve to cover a fuel inlet on the internal combustion engine for the second fuel source when the mechanical fuel valve is in the first position and uncover the fuel inlet when the mechanical fuel valve is in the second position.

23. (Original) The method of claim 19, further comprising coupling a fuel regulator system to the second fuel source to reduce fuel pressure therefrom and deliver fuel to the second fuel line at a pressure required for operation of the internal combustion engine.

24. (Original) The method of claim 23, further comprising mounting the fuel regulator system to the second fuel source located off-board the internal combustion engine.

25. (Original) The method of claim 23, further comprising:
coupling one end of a quick-disconnect hose coupling to an inlet on the internal combustion engine for the second fuel source; and
coupling a mating end of the quick-disconnect hose coupling to an outlet of the fuel regulator system.

26. (Original) The method of claim 19, further comprising providing gasoline in a liquid fuel tank as the first fuel source and LPG in a pressurized fuel container as the second fuel source.

REMARKS

Claims 1-26 are pending in the present application. In the Office Action mailed August 3, 2017, the Examiner rejected claims 19-26 under 35 U.S.C. §112(b) or 35 U.S.C. §112 (pre-AIA), second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor or a joint inventor, or for pre-AIA the applicant regards as the invention. The Examiner next rejected claims 1-3, 7-10, 14-20, and 22-26 under 35 U.S.C. §102(a)(1) as being anticipated by Champion (Champion Power (2014, Dec. & Jan.) 100153 Manual, retrieved from http://www.championpowerequipment.com/media/2400/100153_manual-english_12-4-14.pdf). Claims 1-3, 7-10, and 14-18 were rejected on the ground of nonstatutory double patenting as being unpatentable over claim 1 of U.S. Patent No. 9,435,273.

Claims 4-6 and 11-13 were indicated as containing allowable subject matter. Such indication is appreciated.

Rejection under 35 U.S.C. §112(b) or 35 U.S.C. §112 (pre-AIA), second paragraph

The Examiner rejected claims 19-26 under 35 U.S.C. §112(b) or 35 U.S.C. §112 (pre-AIA), second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor or a joint inventor, or for pre-AIA the applicant regards as the invention.

In setting forth the rejection, the Examiner asserted that “[c]laims 19-26 provides for the use of a mechanical fuel switch on an internal combustion engine, but, since the claim does not set forth any steps involved in the method process of assembling the engine as is set forth as the claim objective, it is unclear what method/process applicant is intending to encompass.” *Office Action*, August 3, 2017, p. 2. Applicant respectfully disagrees with the rejection.

According to MPEP §2173.02, “[i]n reviewing a claim for compliance with 35 U.S.C. 112, second paragraph, the examiner must consider the claim as a whole to determine whether the claim apprises one of ordinary skill in the art of its scope and, therefore, serves the notice function required by 35 U.S.C. 112, second paragraph.” *MPEP §2173.02*. That is, “[a] decision on whether a claim is indefinite under 35 U.S.C. 112(b) or pre-AIA 35 U.S.C. 112, second paragraph requires a determination of whether those skilled in the art would understand what is claimed when the claim is read in light of the specification.” *Id.* MPEP §2173.02 further states that the Examiner “should allow claims which define the patentable subject matter with a reasonable degree of particularity and distinctness,” and that “[s]ome latitude in the manner of expression and the aptness of terms should be permitted.” *Id.* The standard for compliance with

the definiteness requirement of 35 U.S.C. 112(b) “is whether the claim meets the threshold requirements of clarity and precision set forth in the statute, not whether more suitable language or modes of expression are available.” *Id.*

Claim 19 calls for “[a] method of assembling a mechanical fuel lockout switch for an internal combustion engine,” with the claim then setting forth steps for providing such an assembly of a mechanical fuel lockout switch. The claimed steps include “coupling a mechanical fuel valve to the internal combustion engine” and “coupling a fuel lockout apparatus to the mechanical fuel valve.” That claim 19 does not also set forth “any steps involved in the method/process of assembling the engine,” as asserted by the Examiner, is immaterial as to whether the claim is definite under 35 U.S.C. §112, second paragraph, as the claim makes clear that the claimed method is one of “assembling a mechanical fuel lockout switch for an internal combustion engine,” and not of assembling an internal combustion engine itself. As claim 19 calls for a step of “providing an internal combustion engine” and then calls for detailed steps of “coupling a mechanical fuel valve to the internal combustion engine” and “coupling a fuel lockout apparatus to the mechanical fuel valve,” Applicant believes that those skilled in the art would understand what is called for in claim 19 and that claim 19 meets the threshold requirements of clarity and precision, such that claim 19 is definite under 35 U.S.C. §112, second paragraph.

In light of at least the above, Applicant contends that claim 19 and all claims depending therefrom are definite, and therefore respectfully requests withdrawal of the rejection of claims 19-26 under 35 U.S.C. §112, second paragraph.

Rejection under 35 U.S.C. §102(a)(1) as being anticipated by Champion 100153 Manual

Claims 1, 9, and 19

The Examiner rejected claims 1-3, 7-10, 14-20, and 22-26 - including independent claims 1, 9, and 19 - under 35 U.S.C. §102(a)(1) as being anticipated by Champion (Champion Power (2014, Dec. & Jan.) 100153 Manual.

In setting forth a collective rejection of claims 1-3, 7-10, 14-20, and 22-26, the Examiner asserted that:

Regarding claims 1-3, 7-10, 14-20, and 22-26, the manual of Champion clearly anticipates the entirety of the claim limitations. The manual discloses a dual fuel generator internal combustion engine (Title page) which makes use [of] a fuel selector switch and valves (shown in picture on title page and elaborated upon through the text) to selectively allow gasoline or propane into the engine,

the propane being using a hose and passing through two regulators, one on the line and one within as per part #102 and the “fuel metering system” regulator disclosed on the last page.

Office Action, supra at 3. Applicant respectfully disagrees with the rejection and believes each of independent claims 1, 9, and 19 to be patentably distinct from that which is disclosed in Champion. That is, Champion does not anticipate that which is called for in independent claims 1, 9, and 19, as anticipation under pre-AIA 35 U.S.C. §102(a)(1) requires that “[t]he identical invention must be shown [in the reference] in as complete detail as is contained in the ... claim.” *MPEP §2131* (citing *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989)). As will be set forth in detail here below, Champion does not disclose each and every element of any of independent claims 1, 9, and 19 and thus does not anticipate the claims, as “[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *MPEP §2131* (citing *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631 (Fed. Cir. 1987)).

Initially, Applicant believes that the present rejection of independent claims 1, 9, and 19 (and more generally all of claims 1-3, 7-10, 14-20, and 22-26), on its face, is deficient. According to *MPEP § 706*, “[t]he goal of examination is to clearly articulate any rejection early in the prosecution process so that the Applicant has the opportunity to provide evidence of patentability and otherwise reply completely at the earliest opportunity.” *MPEP §706*. With respect to the rejection of the pending claims, the Examiner merely made blanket statements that Champion discloses the claimed elements, without giving any indication where the elements were allegedly taught in Champion. *See Office Action*, supra at 3. That is, the Examiner has not indicated “the relevant teachings of the prior art relied upon, preferably with reference to the relevant column or page number(s) and line number(s) where appropriate,” as required under *MPEP §706.02(j)*. Accordingly, the Examiner has not “clearly articulate[d]” the rejection of any of claims 1-3, 7-10, 14-20, and 22-26, and the rejection is therefore believed to be deficient.

Regardless of the above, Applicant believes the rejection of at least of independent claims 1, 9, and 19 to be unsustainable. Specifically, Applicant believes that Champion does not teach or disclose that which is called for in independent claims 1, 9, and 19.

Claim 1 calls for a mechanical fuel lockout switch for a dual fuel engine provides for the selection of a desired fuel to operate the engine. The mechanical fuel lockout switch includes a mechanical fuel valve and a fuel lockout apparatus. The mechanical fuel valve actuates between a first position and a second position to selectively control fuel flow to the dual fuel engine from a

first fuel source through a first fuel line and a second fuel source through a second fuel line. The fuel lockout apparatus couples to the mechanical fuel valve ensuring individual communication of the fuel sources to the engine. The mechanical fuel lockout switch communicates the first fuel source to the dual fuel engine and prevents communication between the second fuel source and the dual fuel engine when the mechanical fuel valve is in the first position, and communicates the second fuel source to the dual fuel engine and interrupts the first fuel source communication with the dual fuel engine when in the second position.

Claim 9 calls for a dual fuel generator and fuel delivery system includes a dual fuel generator configured to operate on a liquid fuel supplied from a liquid fuel source through a liquid fuel line and a gaseous fuel supplied from a pressurized fuel source through a gaseous fuel line. The dual fuel generator and fuel delivery system also includes a fuel regulator system located off board the dual fuel generator to control the pressure of fuel from the pressurized fuel source and deliver the fuel at a desired pressure for operation of the generator. The fuel regulator system includes a primary pressure regulator coupled to a service valve of the pressurized fuel source and configured to regulate the fuel supplied from the pressurized fuel source to a reduced pressure. The fuel regulator system also includes a secondary pressure regulator coupled to the primary pressure regulator and configured to regulate the gaseous fuel supplied from the primary pressure regulator to a desired pressure for delivery through the gaseous fuel line to operate the dual fuel generator. The dual fuel generator and fuel delivery system further includes a mechanical fuel valve actuateable between a first position and a second position to selectively control fuel flow to the dual fuel generator from the liquid fuel source through the liquid fuel line and the pressurized fuel source through the gaseous fuel line.

Claim 19 calls for a method of assembling a mechanical fuel lockout switch for an internal combustion engine includes providing an internal combustion engine configured to operate on a fuel from a first fuel source and a different fuel from a second fuel source. The method also includes coupling a mechanical fuel valve to the internal combustion engine actuateable between a first position and a second position to selectively control fuel flow to the internal combustion engine from the first fuel source through a first fuel line and the second fuel source through a second fuel line. The method further includes coupling a fuel lockout apparatus to the mechanical fuel valve. When the mechanical fuel valve is in the first position, the fuel lockout apparatus communicates the first fuel source to the internal combustion engine and prevents the second fuel source from coupling to the internal combustion engine, and actuation of the mechanical fuel valve to the second position causes the fuel lockout apparatus to permit the

second fuel source to couple to the internal combustion engine, and interrupts the first fuel source communication with the internal combustion engine.

Based on a reading of *Champion*, the reference discloses a dual fuel generator that “is a gasoline or LPG engine driven, alternating current (AC) generator. *See Champion*, Title page and p. 1. The generator includes a fuel selector switch, identified as component (10) on p. 6 of *Champion* and the drawing included thereon. *See Champion*, p. 6. The fuel selector switch is described as being “on the front panel of the generator... to choose between the fuel source desired, Gas or LPG,” and “[t]o select a fuel source simply slide the switch cover to either the right or left, and this will uncover the fuel valve of the fuel selected, [where] the LPG fuel valve (A) is to the left of the switch cover [and] the gas fuel valve (B) is to the right of the switch cover.” *Id.* at 14. “Once a fuel source has been selected, the user must turn the fuel valve to the vertical position to open the fuel valve (1)” and “[t]o turn a fuel valve to the off position the valve must be in the horizontal position (2).” *Id.* “The fuel selector switch cover is specifically designed not to slide to either side while a specific fuel has been selected and the valve is in the “ON” position [but] only when the fuel valves are in the “OFF” position can the cover slide side to side.” *Id.*

However, *Champion* does not disclose that which is specifically called for in each of claims 1, 9, and 19 and does not anticipate those claims, as *Champion* does not expressly or inherently describe each and every element set forth therein, as required for anticipation under 35 U.S.C. §102(a)(1).

Claim 1 is distinct over *Champion* at least for the reason(s) that *Champion* does not disclose a mechanical fuel lockout switch for a dual fuel engine that includes “a mechanical fuel valve [that] actuates between a first position and a second position to selectively control fuel flow to the dual fuel engine from a first fuel source through a first fuel line and a second fuel source through a second fuel line” and/or “a fuel lockout apparatus couple[d] to the mechanical fuel valve ensuring individual communication of the fuel sources to the engine.” First, *Champion* discloses separate valves for the separate fuel sources – LPG fuel valve (A) and gas fuel valve (B), *see Champion*, p. 14, but not a single mechanical fuel valve that actuates between a first position and a second position to selectively control fuel flow to the dual fuel engine from a first fuel source through a first fuel line and a second fuel source through a second fuel line, as called for in claim 1. Second, *Champion* only discloses that the selector switch cover slides horizontal back and forth to selectively cover one of the LPG fuel valve (A) and gas fuel valve (B), but not that the switch cover is coupled to either of the fuel valves, as called for in claim 1 “a fuel lockout

apparatus couple[d] to the mechanical fuel valve”). Accordingly, Champion does not anticipate claim 1 under 35 U.S.C. §102(a)(1).

Claim 9 is distinct over Champion at least for the reason(s) that Champion does not disclose a dual fuel generator and fuel delivery system that includes “a fuel regulator system located off board the dual fuel generator [and having]... a primary pressure regulator coupled to a service valve of the pressurized fuel source and a secondary pressure regulator coupled to the primary pressure regulator and configured to regulate the gaseous fuel supplied from the primary pressure regulator to a desired pressure for delivery through the gaseous fuel line to operate the dual fuel generator,” nor does Champion disclose “a mechanical fuel valve actuateable between a first position and a second position to selectively control fuel flow to the dual fuel generator from the liquid fuel source through the liquid fuel line and the pressurized fuel source through the gaseous fuel line.” First, Champion only discloses use of a “LPG Hose with Regulator,” *see Champion*, p. 8, but provides no teaching of a fuel regulator system located off board the dual fuel generator and having a primary pressure regulator and separate secondary pressure regulator, as called for in claim 9. Second, Champion discloses separate valves for the separate fuel sources – LPG fuel valve (A) and gas fuel valve (B), *see Champion*, p. 14, but not a mechanical fuel valve actuateable between a first position and a second position to selectively control fuel flow to the dual fuel generator from the liquid fuel source through the liquid fuel line and the pressurized fuel source through the gaseous fuel line, as called for in claim 9. Accordingly, Champion does not anticipate claim 9 under 35 U.S.C. §102(a)(1).

Claim 19 is distinct over Champion at least for the reason(s) that Champion does not disclose a method that includes “coupling a mechanical fuel valve to the internal combustion engine actuateable between a first position and a second position to selectively control fuel flow to the internal combustion engine from the first fuel source through a first fuel line and the second fuel source through a second fuel line” and “coupling a fuel lockout apparatus to the mechanical fuel valve.” First, Champion discloses separate valves for the separate fuel sources – LPG fuel valve (A) and gas fuel valve (B), *see Champion*, p. 14, but not a single mechanical fuel valve that is actuateable between a first position and a second position to selectively control fuel flow to the internal combustion engine from the first fuel source through a first fuel line and the second fuel source through a second fuel line, as called for in claim 19. Second, Champion only discloses that the selector switch cover slides horizontal back and forth to selectively cover one of the LPG fuel valve (A) and gas fuel valve (B), but not a step of coupling the switch cover to either of the LPG or gas fuel valve, as called for in claim 19, nor does Champion disclose that the selector

switch would communicate the first fuel source to the internal combustion engine and prevent the second fuel source from coupling to the internal combustion engine when in the first position and cause the fuel lockout apparatus to permit the second fuel source to couple to the internal combustion engine and interrupt the first fuel source communication with the internal combustion engine when in the second position, as further called for in claim 19.

For at least the reasons set forth above, Champion does not anticipate any of claims 1, 9, or 19 under 35 U.S.C. §102(a)(1) since, according to MPEP §2131, “to anticipate a claim, the reference must teach every element of the claim.” Appellant therefore respectfully requests withdrawal of the rejection of claims 1, 9, and 19, along with the rejection of all claims depending therefrom.

Double Patenting Rejection

The Examiner rejected claims 1-3, 7-10, and 14-18 on the ground of nonstatutory double patenting as being unpatentable over claim 1 of U.S. Patent No. 9,435,273 (hereinafter the “273 patent”), with the Examiner asserting that “the limitations of claims 1-3, 7-10, and 14-18 are disclosed by the limitations of claim 1 except a detachable hose and two regulators for the transfer of one fuel.” *Office Action*, supra at 5. The Examiner then further stated that “examiner takes official notice that it would have been obvious to one of ordinary skill in the art before the filing date of the invention to modify a dual fuel generator to include a fuel hose that can couple to and from the engine and two regulators to regulate the incoming pressure to the engine as these parts are not only routinely used in such a case but also are known to improve the fueling characteristics of the engine.” *Id.* Applicant respectfully disagrees with the rejection.

First, Applicant believes that Examiner’s application of Official Notice in rejecting claims 1-3, 7-10, and 14-18 is inappropriate under the Manual Patent Examining Procedure (MPEP). “The Examiner may take Official Notice of facts outside of the record which are capable of instant and unquestionable demonstration as being ‘well-known’ in the art.” *MPEP §2144.03*. However, MPEP §2144.03 is clear that “such rejections [relying on official notice] should be judiciously applied,” be “rare,” and be used “[i]n limited circumstances.” *Id.* Furthermore, “any facts so noticed should be of notorious character and serve only to ‘fill in the gaps’ in an insubstantial manner which might exist in the evidentiary showing made by the Examiner to support a particular ground for rejection.” *Id.* Applicant does not believe that the Examiner’s use of Official Notice is merely to “fill in the gaps.” That is, in as much as Applicant can gather from the limited statements/rationale set forth by the Examiner, it appears that the Examiner has taken

Official Notice of entire elements of the claims, thereby effectively attempting to teach substantial claim limitations, rather than simply “fill in the gaps.” Thus, the use of Official Notice is hereby traversed. The Examiner must “cite a reference in support of his or her position” should the Applicant traverse the assertion. *Id.*

Regardless of the above, Applicant believes that the double patenting rejection is improper. MPEP §804(II)(B)(1) states that any obviousness-type double patenting rejection should make clear:

(A) The differences between the inventions defined by the conflicting claims - a claim in the patent compared to a claim in the application; and

(B) The reasons why a person of ordinary skill in the art would conclude that the invention defined in the claim at issue would have been an obvious variation of the invention defined in a claim in the patent. *Id.* (emphasis added).

The Examiner’s double patenting rejection of claims 1-3, 7-10, and 14-18 does not satisfy either of the requirements set forth in section (A) or section (B) of MPEP §804(II)(B)(1). Referring first to section (A), MPEP §804 requires a double patenting rejection make clear a claim-to-claim comparison between the referenced patent and the rejected claims. The Examiner’s rejection does not include any claim-to-claim comparison between the present application and the ‘273 patent. Instead, the Examiner relies on a generalized statement that “the limitations of claims 1-3, 7-10, and 14-18 are disclosed by the limitations of claim 1 except a detachable hose and two regulators for the transfer of one fuel” and a general reference to “official notice.” Since the Examiner’s rejection relies on a comparison of a merely generalized referenced to the entirety of claims 1-3, 7-10, and 14-18 to claim 1 of the ‘273 patent , rather than a claim-to-claim comparison, the rejection does not meet the requirements of MPEP §804 on its face. In order to satisfy the claim-to-claim comparison required by MPEP §804, the Examiner must make clear the differences between each of the claims of the present application and claim 1 of the ‘273 patent. The Examiner has not provided any such analysis to date, and therefore has not properly established the grounds required in section (A) of MPEP §804 for an obviousness-type double patenting rejection.

The Examiner also has not satisfied the requirements set forth in section (B) of MPEP §804 for establishing an obviousness-type double patenting rejection. Namely, the Examiner has not provided any reasoning as to why a person of ordinary skill in the art would conclude that

the invention defined in any of claims 1-3, 7-10, and 14-18 is an obvious variant of the invention defined in claim 1 of the '273 Patent. Again, the Examiner's rejection focuses solely on a generalized description of the invention as a whole (i.e., the collection of claims 1-3, 7-10, and 14-18) and does not specifically reference any of the claims of the present application or any of the claim elements specifically called for in claim 1 of the '273 patent. As such, the rejection of claims 1-3, 7-10, and 14-18 does not establish a reasoned comparison tied to the actual claims of the present application and does not satisfy the requirements of section (B) of MPEP §804.

In summary, nowhere has the Examiner identified the reasons why any of claims 1-3, 7-10, and 14-18 of the present application are obvious variants of the invention called for in claim 1 of the '273 patent. As such, the Examiner has not provided basis for the assertion that claims 1-3, 7-10, and 14-18 are not patentably distinct from claim 1 of the '273 patent as required to support a non-statutory double patenting rejection under 35 U.S.C. §101.

Notwithstanding the deficiencies in the rejection, Applicant further submits that the nonstatutory obviousness-type double patenting rejections should be withdrawn because the claims of the present application are patentably distinct from claim 1 of the '273 Patent. According to MPEP §804, in situations where as here the application under examination is the later-filed application, a nonstatutory obviousness-type double patenting rejection is appropriate where "the invention claimed in the application would have been anticipated by, or an obvious variation of, the invention claimed in the patent." *MPEP* §804.

In light of at least the above, Applicant respectfully asserts that the inventions claimed in the present application are not anticipated by, or an obvious variation of, the invention of claim 1 of the '273 patent, when taken alone or in combination with official notice. Applicant therefore believes the double patenting rejection to be improper and respectfully requests the withdrawal of the rejection of claims 1-3, 7-10, and 14-18 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of the '273 patent.

Conclusion

Therefore, in light of at least the foregoing, Applicant respectfully believes that the present application is in condition for allowance. As a result, Applicant respectfully requests timely issuance of a Notice of Allowance for claims 1-26.

Sarder et al.

S/N: 14/738,060

Applicant appreciates the Examiner's consideration of these Remarks and cordially invites the Examiner to call the undersigned, should the Examiner consider any matters unresolved.

Respectfully submitted,

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Dated: November 3, 2017
Attorney Docket No.: CET1090.019

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General Authorization and Extension of Time

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 50-2623. Should no proper payment be enclosed herewith, as by credit card authorization being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 50-2623. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extensions under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 50-2623. Please consider this a general authorization to charge any fee that is due in this case, if not otherwise timely paid, to Deposit Account No. 50-2623.

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EXAMINER
LATHERS, KEVIN ANTHONY

ART UNIT	PAPER NUMBER
3747	

NOTIFICATION DATE	DELIVERY MODE
02/22/2018	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

info@zp spatents.com
sml@zp spatents.com

Office Action Summary	Application No. 14/738,060	Applicant(s) SARDER ET AL.	
	Examiner KEVIN A. LATHERS	Art Unit 3747	AIA (First Inventor to File) Status Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11/03/2017.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

- 5) ☒ Claim(s) 1-26 is/are pending in the application.
5a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 6) ☐ Claim(s) ____ is/are allowed.
- 7) ☒ Claim(s) 1,7-9,14-19 and 22-26 is/are rejected.
- 8) ☐ Claim(s) 2-6,10-13,20 and 21 is/are objected to.
- 9) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

- a) ☐ All b) ☐ Some** c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) ☒ Notice of References Cited (PTO-892) | 3) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b)
Paper No(s)/Mail Date ____. | 4) ☐ Other: ____. |

DETAILED ACTION

The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

Claim Interpretation

The following is a quotation of 35 U.S.C. 112(f):

(f) Element in Claim for a Combination. – An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

The following is a quotation of pre-AIA 35 U.S.C. 112, sixth paragraph:

An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

1. This application includes one or more claim limitations that do not use the word “means,” but are nonetheless being interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, because the claim limitation(s) uses a generic placeholder that is coupled with functional language without reciting sufficient structure to perform the recited function and the generic placeholder is not preceded by a structural modifier. Such claim limitation(s) is/are: “regulator mounting device” in claims 15-17. A “device” is a generic term for any structure, therefore this limitation amounts to “a means for mounting a regulator.”

Because this/these claim limitation(s) is/are being interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, it/they is/are being interpreted to

cover the corresponding structure described in the specification as performing the claimed function, and equivalents thereof.

If applicant does not intend to have this/these limitation(s) interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, applicant may: (1) amend the claim limitation(s) to avoid it/them being interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph (e.g., by reciting sufficient structure to perform the claimed function); or (2) present a sufficient showing that the claim limitation(s) recite(s) sufficient structure to perform the claimed function so as to avoid it/them being interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph.

Claim Rejections - 35 USC § 102

2. In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory basis for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

(a)(1) the claimed invention was patented, described in a printed publication, or in public use, on sale or otherwise available to the public before the effective filing date of the claimed invention.

3. **Claim(s) 1 and 7 is/are rejected under 35 U.S.C. 102(a)(1) as being clearly anticipated by Sugimoto (US 2007/0137591).**

4. **Regarding claim 1**, Champion discloses mechanical fuel lockout switch (Fig. 1, shown switch system) for a dual fuel engine (Fig. 1, shown engine 30) comprising:

a mechanical fuel valve 12 actuatable between a first position and a second position to selectively control fuel flow to the dual fuel engine from a first fuel source 61 through a first fuel line A1 and a second fuel source 71 through a second fuel line A5 (Fig. 1, shown lines and valve); and

a fuel lockout apparatus 63 (a fuel cutoff is coupled via the regulator 62 to the valve 12) coupled to the mechanical fuel valve;

wherein the mechanical fuel lockout switch:

communicates the first fuel source to the dual fuel engine and prevents communication between the second fuel source and the dual fuel engine when the mechanical fuel valve is in the first position, and communicates the second fuel source to the dual fuel engine and interrupts the first fuel source communication with the dual fuel engine when in the second position (Para. [0082], the switch has multiple positions which allow valve 12 connect either of the lines A1 or A4 to line A2 and also activate lockout apparatus 63).

5. **Regarding claim 7**, the mechanical fuel lockout switch for a dual fuel engine of claim 1, wherein the mechanical fuel valve and the fuel lockout apparatus operate together to ensure that fuel from the first fuel source and fuel from the second fuel source are not simultaneously delivered to the dual fuel engine (Para. [0082], the system does not allow two fuels to be delivered simultaneously).

6. **Claim(s) 1, 7, 8, 19, 22, and 26 is/are rejected under 35 U.S.C. 102(a)(1) as being clearly anticipated by Pursifull et al (US 2011/0168133)**

7. **Regarding claims 1 and 19**, Pursifull discloses a mechanical fuel lockout switch for a dual fuel engine (Fig. 3, shown dual fuel engine with lockout switch) and method of constructing it comprising: a mechanical fuel valve 120 actuateable between a first position and a second position to selectively control fuel flow to the dual fuel engine 102 from a first fuel source 112 through a first fuel line 119 and a second fuel source 134 through a second fuel line 140 (Para. [0025], the valve 120 is a three-way mechanical selection valve); and

8. a fuel lockout apparatus (Controller 128, pumps 136 114, and solenoid valves 118 126) coupled to the mechanical fuel valve (Fig. 1, the lockout apparatus is coupled to the valve 120 via controller 128 and fuel lines 119/140);

9. wherein the mechanical fuel lockout switch: communicates the first fuel source to the dual fuel engine and prevents communication between the second fuel source and the dual fuel engine when the mechanical fuel valve is in the first position, and communicates the second fuel source to the dual fuel engine and interrupts the first fuel source communication with the dual fuel engine when in the second position (Para. [0025], [0028], and [0066], the three-way valve and lockout apparatus determine connection of the first or second fuel to the dual fuel engine 102).

10. The apparatus above having all the parts coupled together and therefore being "coupled" and "provided" as per the method in claim 19.

11. **Regarding claim 7**, Pursifull discloses the mechanical fuel lockout switch for a dual fuel engine of claim 1, wherein the mechanical fuel valve and the fuel lockout apparatus operate together to ensure that fuel from the first fuel source and fuel from

the second fuel source are not simultaneously delivered to the dual fuel engine (Para. [0025], [0028], and [0066], the lockout apparatus cuts off the fuel supply between the lines).

12. **Regarding claims 8 and 26**, Pursifull discloses the mechanical fuel lockout switch for a dual fuel engine of claims 7 and 19, wherein the first fuel source provides gasoline as liquid fuel from a liquid fuel tank to the dual fuel engine and the second fuel source provides LPG fuel from a pressurized fuel container to the dual fuel engine (Para. [0040], the multi fuel system may be liquid propane (gaseous fuel) and gasoline (liquid fuel)).

13. **Regarding claim 22**, the modified Pursifull discloses the method of claim 19 as disclosed above, wherein the fuel lockout apparatus comprises a fuel inlet cover configured to actuate in unison with the mechanical fuel valve to cover a fuel inlet on the internal combustion engine for the second fuel source when the mechanical fuel valve is in the first position and uncover the fuel inlet when the mechanical fuel valve is in the second position (Para. [0025], [0028], and [0066], the lockout apparatus cuts off the fuel supply between the lines, by considering the line which connects to the lockout valve as a "fuel inlet" then the valve cutting off flow is then covering the inlet to disallow fuel flow).

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103 which forms the basis for all obviousness rejections set forth in this Office action:

A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102, if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have

been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. Patentability shall not be negated by the manner in which the invention was made.

15. Claims 9, 14-18, and 23-25 is/are rejected under 35 U.S.C. 103 as being unpatentable over Pursifull et al (US 2011/0168133) in view of Sugimoto et al (US 2007/0137591).

16. Regarding claim 9, Pursifull discloses a dual fuel engine and fuel delivery system comprising:

a dual fuel engine (Fig. 1, shown) configured to operate on a liquid fuel supplied from a liquid fuel source through a liquid fuel line and a gaseous fuel supplied from a pressurized fuel source through a gaseous fuel line (Para. [0040], the multi fuel system may be pressurized liquid propane (gaseous fuel) and gasoline (liquid fuel)); and a mechanical fuel valve actuatable between a first position and a second position to selectively control fuel flow to the dual fuel generator from the liquid fuel source through the liquid fuel line and the pressurized fuel source through the gaseous fuel line (Para. [0025], [0028], and [0066], the three-way valve and lockout apparatus determine connection of the first or second fuel to the dual fuel engine 102).

17. Pursifull fails to disclose a fuel regulator system located off board the dual fuel engine, the fuel regulator system comprising: a primary pressure regulator coupled to a service valve of the pressurized fuel source and configured to regulate the fuel supplied from the pressurized fuel source to a reduced pressure; and a secondary pressure regulator coupled to the primary pressure regulator and configured to regulate the gaseous fuel supplied from the primary pressure regulator to a desired pressure for delivery through the gaseous fuel line to operate the dual fuel generator.

18. Sugimoto discloses a dual fuel engine and delivery system (Fig. 1, as shown) wherein the system includes an off-board gaseous fuel system (Fb) which includes an off-board pressure regulator 72 which feeds fuel into an engine system 1 which includes another pressure regulator 62. The inclusion of pressure reduction devices for the gasification of liquid-held fuel allows for an effective cooling of the fuel system and systems (Para. [0010]) while allowing the dual fuel engine to be powered by an external fuel tank attached to it in an off board fashion such as in emergency situations (Para. [0002]).

19. Therefore, it would have been obvious to one of ordinary skill in the art before the filing date of the invention to modify the device of Pursifull with the pressure regulators and gaseous fuel system methods of Sugimoto in order to improve the cooling of the fuel system parts through pressure reduction as well as regulate the pressure from an external attached fuel tank which allows the dual fuel engine system to be used in varying situations such as emergency ones using an external fuel source.

20. **Regarding claim 14**, the modified Pursifull discloses the dual fuel generator and fuel delivery system of claim 9, further comprising: a first end of a quick-connect hose coupling coupled to an outlet of the secondary pressure regulator; and a second end of the quick-connect hose coupling coupled to an inlet of the gaseous fuel line to mate with the first end of the quick-connect hose coupling to couple the secondary pressure regulator to the gaseous fuel line (Fig. 1 of Sugimoto shows that the modification of Pursifull to include an external source of gaseous fuel and regulators makes use of a connection hose coupling 14).

21. **Regarding claims 15**, the modified Pursifull discloses the dual fuel generator and fuel delivery system of claim 9, further comprising a regulator mounting device (a bracket as per applicant's disclosure on in Para. [0024] of the disclosure) secured to the pressurized fuel source with at least the secondary pressure regulator mounted on the regulator mounting device (Fig. 1 of Sugimoto which discloses the regulator systems, the regulator 72 shown is attached to the fuel tank system 71).

22. The modified Pursifull fails to specifically note a bracket being used for the fixation of the regulator 72. However, it would have been obvious to one of ordinary skill in the art before the filing date of the invention to attach the regulator 72 using some device wherein a bracket is an extremely old and well-known fixation device and one of ordinary skill in the art would have known to apply a known device and technique of mounting a regulator on a fuel tank, such as a bracket, to yield the predictable results of fixing the regulator to its fuel system.

23. **Regarding claim 16**, the modified Pursifull discloses the dual fuel generator and fuel delivery system of claim 15, but fails to disclose wherein the primary pressure regulator is mounted on the regulator mounting device. The modified Pursifull fails to disclose the two regulators being located in positions where they would be mounted making use of the same mounting bracket.

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to mount both regulators in a similar location on the same bracket since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japikse*, 86 USPQ 70.

24. **Regarding claim 17**, the modified Pursifull discloses the dual fuel generator and fuel delivery system of claim 16, but fails to disclose wherein the pressurized fuel source comprises a pressurized fuel container having a collar; and wherein the regulator mounting device secures to the collar so that the primary and secondary pressure regulators are positioned adjacent each other along an outer periphery of the collar.

25. In this case the claim pertains to the routine and known art of using propane tanks as a fuel tank source as these devices are well-known in the art to have a “collar” piece which often has regulators attached to it. While the art of Pursifull and Sugimoto never make reference to this specific old and well-known device, they do make use of fuel tanks that could easily be substituted with them. Therefore, examiner makes official notice that it is old and well-known to make use of standard-in-the-art propane tanks with regulators attached to their collars as this would have allowed the modified Pursifull to make use of the common, cheap, and easy-to-use propane tanks for its regulation and propane tank systems. Some examples of such tanks can be seen at: RVDoctor (Oct. 2010, <http://www.rvdoctor.com/2012/10/disconcerting-propane-leaks-on-rv.html>) which shows two propane tanks with a regulator attached to their collar; and Nooutage.com (Aug. 27th, 2006, https://web.archive.org/web/20060928183104/http://www.nooutage.com:80/images/BS-7KW_Power_Now_tanks.jpg) which shows propane tanks with regulators attached to their collars.

26. **Regarding claim 18**, the modified Pursifull discloses the dual fuel generator and fuel delivery system of claim 9, but fails to disclose wherein the primary and secondary pressure regulators are integral components of a dual stage pressure regulator.

27. However, It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the regulators into a two-stage regulator, since it has been held that forming in one piece an article which has formerly been formed in two pieces and put together involves only routine skill in the art. *Howard v. Detroit Stove Works*, 150 U.S. 164 (1893).

28. Claims 23-25 are rejected using Pursifull as modified by Sugimoto in the same manner as applied to claim 9 and its dependent claims above.

29. **Regarding claim 23**, the modified Pursifull discloses the method of claim 19, further comprising coupling a fuel regulator system to the second fuel source to reduce fuel pressure therefrom and deliver fuel to the second fuel line at a pressure required for operation of the internal combustion engine (Fig. 1 of Sugimoto shows the regulators in series reducing pressure).

30. **Regarding claim 24**, the modified Pursifull discloses the method of claim 23, further comprising mounting the fuel regulator system to the second fuel source located off-board the internal combustion engine (Fig. 1 of Sugimoto as modified onto Pursifull and shown).

31. **Regarding claim 25**, the modified Pursifull discloses the method of claim 23, further comprising: coupling one end of a quick-disconnect hose coupling to an inlet on the internal combustion engine for the second fuel source; and coupling a mating end of

the quick-disconnect hose coupling to an outlet of the fuel regulator system (Fig. 1 of Sugimoto as modified onto Pursifull and shown).

Allowable Subject Matter

32. Claims 2-6, 10-13, 20, and 21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

33. The following is a statement of reasons for the indication of allowable subject matter: The closest prior art fails to disclose or make obvious the lockout apparatus prevents actuation of the mechanical fuel valve between its two positions and therefore prevents communication of the fuel source with their respective lines and the engine. Further, the closest prior art fails to disclose or make obvious the fuel lockout apparatus preventing the second fuel source from coupling to the second fuel line, wherein this means that not only are the two not in fluid communication but they are not physically connected in any manner.

34. Champion discloses a dual fuel system as discussed above, but its lockout switch does not prevent the hose of the propane tank from even coupling to the engine fuel system lines.

Response to Arguments

35. Applicant's arguments with respect to claims 1-26 have been considered but are moot because the arguments do not apply to any of the references being used in the current rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KEVIN A. LATHERS whose telephone number is (571)272-1050. The examiner can normally be reached on 10:00 am-7:00 pm EST, Monday to Thursday.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at <http://www.uspto.gov/interviewpractice>.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lindsay Low can be reached on 571-272-1196. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Application/Control Number: 14/738,060
Art Unit: 3747

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/KEVIN A LATHERS/
Primary Examiner, Art Unit 3747

<i>Index of Claims</i> 	Application/Control No. 14738060	Applicant(s)/Patent Under Reexamination SARDER ET AL.
	Examiner KEVIN A LATHERS	Art Unit 3747

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☒ Claims renumbered in the same order as presented by applicant				☐ CPA		☐ T.D.		☐ R.1.47	
CLAIM		DATE							
Final	Original	07/28/2017	02/15/2018						
	1	✓	✓						
	2	✓	○						
	3	✓	○						
	4	○	○						
	5	○	○						
	6	○	○						
	7	✓	✓						
	8	✓	✓						
	9	✓	✓						
	10	✓	○						
	11	○	○						
	12	○	○						
	13	○	○						
	14	✓	✓						
	15	✓	✓						
	16	✓	✓						
	17	✓	✓						
	18	✓	✓						
	19	✓	✓						
	20	✓	○						
	21	✓	○						
	22	✓	✓						
	23	✓	✓						
	24	✓	✓						
	25	✓	✓						
	26	✓	✓						

Customer No. 26629
Confirmation No. 9670

Patent
Attorney Docket No. CET1090.019

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of : Sarder et al.
Serial No. : 14/738,060
Filed : June 12, 2015
For : DUAL FUEL LOCKOUT SWITCH FOR GENERATOR ENGINE
Group Art No. : 3747
Examiner : Kevin A. Lathers

CERTIFICATION UNDER 37 CFR 1.8(a) and 1.10

I hereby certify that, on the date shown below, this correspondence is being:

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37 CFR 1.8(a)

37 CFR 1.10

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☐ transmitted by facsimile to Fax No.: 571-273-8300 addressed to Examiner Kevin A. Lathers at the Patent and Trademark Office.

☒ transmitted by EFS-WEB addressed to Examiner Kevin A. Lathers at the Patent and Trademark Office.

Date: May 15, 2018

/Robyn L. Templin/
Signature

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

RESPONSE TO OFFICE ACTION MAILED FEBRUARY 22, 2018

Dear Sir:

Responsive to the Office Action mailed February 22, 2018, please consider the following remarks:

In the Claims

1. (Original) A mechanical fuel lockout switch for a dual fuel engine comprising:
a mechanical fuel valve actuateable between a first position and a second position to selectively control fuel flow to the dual fuel engine from a first fuel source through a first fuel line and a second fuel source through a second fuel line; and
a fuel lockout apparatus coupled to the mechanical fuel valve;
wherein the mechanical fuel lockout switch:
communicates the first fuel source to the dual fuel engine and prevents communication between the second fuel source and the dual fuel engine when the mechanical fuel valve is in the first position, and
communicates the second fuel source to the dual fuel engine and interrupts the first fuel source communication with the dual fuel engine when in the second position.
2. (Original) The mechanical fuel lockout switch for a dual fuel engine of claim 1, wherein the fuel lockout apparatus prevents actuation of the mechanical fuel valve to the first position when the second fuel source communicates with the dual fuel engine.
3. (Original) The mechanical fuel lockout switch for a dual fuel engine of claim 1, wherein the fuel lockout apparatus is configured to:
prevent the second fuel source from coupling to the second fuel line while the mechanical fuel valve is in the first position; and
permit the second fuel source to couple to the second fuel line while the mechanical fuel valve is in the second position.
4. (Original) The mechanical fuel lockout switch for a dual fuel engine of claim 3, wherein the fuel lockout apparatus comprises a flange rigidly coupled to the mechanical fuel valve that covers an inlet of the second fuel line while the mechanical fuel valve is in the first position and uncovers the inlet of the second fuel line while the mechanical fuel valve is in the second position.

5. (Original) The mechanical fuel lockout switch for a dual fuel engine of claim 4, wherein the mechanical fuel valve rotates between the first position and the second position and the flange rotates transversely across the inlet of the second fuel line.

6. (Original) The mechanical fuel lockout switch for a dual fuel engine of claim 4, further comprising;

a first end of a quick-disconnect hose coupling attached to the inlet of the second fuel line; and

a second end of the quick-disconnect hose coupling attached to the second fuel source to mate with the first end of the quick-disconnect hose coupling to couple the second fuel source to the second fuel line.

7. (Original) The mechanical fuel lockout switch for a dual fuel engine of claim 1, wherein the mechanical fuel valve and the fuel lockout apparatus operate together to ensure that fuel from the first fuel source and fuel from the second fuel source are not simultaneously delivered to the dual fuel engine.

8. (Original) The mechanical fuel lockout switch for a dual fuel engine of claim 7, wherein the first fuel source provides liquid fuel from a liquid fuel tank to the dual fuel engine and the second fuel source provides gaseous fuel from a pressurized fuel container to the dual fuel engine.

9. (Original) A dual fuel generator and fuel delivery system comprising:

a dual fuel generator configured to operate on a liquid fuel supplied from a liquid fuel source through a liquid fuel line and a gaseous fuel supplied from a pressurized fuel source through a gaseous fuel line;

a fuel regulator system located off board the dual fuel generator, the fuel regulator system comprising:

a primary pressure regulator coupled to a service valve of the pressurized fuel source and configured to regulate the fuel supplied from the pressurized fuel source to a reduced pressure; and

a secondary pressure regulator coupled to the primary pressure regulator and configured to regulate the gaseous fuel supplied from the primary pressure regulator to a desired pressure for delivery through the gaseous fuel line to operate the dual fuel generator; and

a mechanical fuel valve actuatable between a first position and a second position to selectively control fuel flow to the dual fuel generator from the liquid fuel source through the liquid fuel line and the pressurized fuel source through the gaseous fuel line.

10. (Original) The dual fuel generator and fuel delivery system of claim 9 further comprising a fuel lockout apparatus coupled to the mechanical fuel valve; and

wherein when the mechanical fuel valve is in the first position, the fuel lockout apparatus communicates the liquid fuel source to the dual fuel generator and prevents the pressurized fuel source from coupling to the dual fuel generator, and actuation of the mechanical fuel valve to the second position causes the fuel lockout apparatus to permit the pressurized fuel source to couple to the dual fuel generator, and interrupts the liquid fuel source communication with the dual fuel generator.

11. (Original) The dual fuel generator and fuel delivery system of claim 9, wherein mechanical fuel valve opens and closes the liquid fuel line to selectively control fuel flow from the liquid fuel source to the dual fuel generator; and further comprises:

a fuel lockout apparatus coupled to the mechanical fuel valve and configured to prevent the pressurized fuel source from coupling to the gaseous fuel line while the mechanical fuel valve opens the liquid fuel line, and permit the pressurized fuel source to couple to the gaseous fuel line while the mechanical fuel valve closes the liquid fuel line.

12. (Original) The dual fuel generator and fuel delivery system of claim 11, wherein the fuel lockout apparatus is further configured to prevent the mechanical fuel valve from opening the liquid fuel line while the dual fuel generator receives fuel from the pressurized fuel source.

13. (Original) The dual fuel generator and fuel delivery system of claim 11, wherein the fuel lockout apparatus further comprises a fuel inlet cover that actuates with the mechanical fuel valve to cover an inlet of the gaseous fuel line while the mechanical fuel valve opens the liquid fuel line and to uncover mechanical fuel lockout switch the inlet of the gaseous fuel line when the mechanical fuel valve closes the liquid fuel line.

14. (Original) The dual fuel generator and fuel delivery system of claim 9, further comprising:

a first end of a quick-connect hose coupling coupled to an outlet of the secondary pressure regulator; and

a second end of the quick-connect hose coupling coupled to an inlet of the gaseous fuel line to mate with the first end of the quick-connect hose coupling to couple the secondary pressure regulator to the gaseous fuel line.

15. (Original) The dual fuel generator and fuel delivery system of claim 9, further comprising a regulator mounting device secured to the pressurized fuel source with at least the secondary pressure regulator mounted on the regulator mounting device.

16. (Original) The dual fuel generator and fuel delivery system of claim 15, wherein the primary pressure regulator is mounted on the regulator mounting device.

17. (Original) The dual fuel generator and fuel delivery system of claim 16, wherein the pressurized fuel source comprises a pressurized fuel container having a collar; and

wherein the regulator mounting device secures to the collar so that the primary and secondary pressure regulators are positioned adjacent each other along an outer periphery of the collar.

18. (Original) The dual fuel generator and fuel delivery system of claim 9, wherein the primary and secondary pressure regulators are integral components of a dual stage pressure regulator.

19. (Original) A method of assembling a mechanical fuel lockout switch for an internal combustion engine comprising:

providing an internal combustion engine configured to operate on a fuel from a first fuel source and a different fuel from a second fuel source;

coupling a mechanical fuel valve to the internal combustion engine actuatable between a first position and a second position to selectively control fuel flow to the internal

combustion engine from the first fuel source through a first fuel line and the second fuel source through a second fuel line; and

coupling a fuel lockout apparatus to the mechanical fuel valve;

wherein when the mechanical fuel valve is in the first position, the fuel lockout apparatus communicates the first fuel source to the internal combustion engine and prevents the second fuel source from coupling to the internal combustion engine, and actuation of the mechanical fuel valve to the second position causes the fuel lockout apparatus to permit the second fuel source to couple to the internal combustion engine, and interrupts the first fuel source communication with the internal combustion engine.

20. (Original) The method of claim 19, wherein the fuel lockout apparatus prevents actuation of the mechanical fuel valve to the first position when the second fuel source is coupled to the internal combustion engine.

21. (Original) The method of claim 20, wherein the fuel lockout apparatus is further configured to:

prevent coupling of the second fuel source to the second fuel line while the mechanical fuel valve is in the first position; and

permit coupling of the second fuel source to the second fuel line while the mechanical fuel valve is in the second position.

22. (Original) The method of claim 19, wherein the fuel lockout apparatus comprises a fuel inlet cover configured to actuate in unison with the mechanical fuel valve to cover a fuel inlet on the internal combustion engine for the second fuel source when the mechanical fuel valve is in the first position and uncover the fuel inlet when the mechanical fuel valve is in the second position.

23. (Original) The method of claim 19, further comprising coupling a fuel regulator system to the second fuel source to reduce fuel pressure therefrom and deliver fuel to the second fuel line at a pressure required for operation of the internal combustion engine.

24. (Original) The method of claim 23, further comprising mounting the fuel regulator system to the second fuel source located off-board the internal combustion engine.

25. (Original) The method of claim 23, further comprising:
coupling one end of a quick-disconnect hose coupling to an inlet on the internal combustion engine for the second fuel source; and
coupling a mating end of the quick-disconnect hose coupling to an outlet of the fuel regulator system.

26. (Original) The method of claim 19, further comprising providing gasoline in a liquid fuel tank as the first fuel source and LPG in a pressurized fuel container as the second fuel source.

REMARKS

Claims 1-26 are pending in the present application. In the Office Action mailed February 22, 2018, the Examiner rejected claims 1 and 7 under 35 U.S.C. §102(a)(1) as being anticipated by Sugimoto et al. (US Pub. 2007/0137591). The Examiner next rejected claims 1, 7, 8, 19, 22, and 26 under 35 U.S.C. §102(a)(1) as being anticipated by Pursifull et al. (US Pub. 2011/0168133). Claims 9, 14-18, and 23-25 were rejected under 35 U.S.C. §103 as being unpatentable over Pursifull et al. in view of Sugimoto et al.

Claims 2-6, 10-13, 20, and 21 were indicated as containing allowable subject matter. Such indication is appreciated.

Rejection under 35 U.S.C. §102(a)(1) as being anticipated by Sugimoto et al.**Claim 1**

The Examiner rejected claim 1 under 35 U.S.C. §102(a)(1) as being anticipated by Sugimoto et al. (US Pub. 2007/0137591) – hereinafter “Sugimoto.”

Claim 1 calls for a mechanical fuel lockout switch for a dual fuel engine provides for the selection of a desired fuel to operate the engine. The mechanical fuel lockout switch includes a mechanical fuel valve and a fuel lockout apparatus. The mechanical fuel valve actuates between a first position and a second position to selectively control fuel flow to the dual fuel engine from a first fuel source through a first fuel line and a second fuel source through a second fuel line. The fuel lockout apparatus couples to the mechanical fuel valve ensuring individual communication of the fuel sources to the engine. The mechanical fuel lockout switch communicates the first fuel source to the dual fuel engine and prevents communication between the second fuel source and the dual fuel engine when the mechanical fuel valve is in the first position and communicates the second fuel source to the dual fuel engine and interrupts the first fuel source communication with the dual fuel engine when in the second position.

In rejecting claim 1, the Examiner asserted that Sugimoto discloses “a mechanical fuel valve 12 actuatable between a first position and a second position to selectively control fuel flow to the dual fuel engine from a first fuel source 61 through a first fuel line A1 and a second fuel source 71 through a second fuel line A5 (Fig. 1, shown lines and valve)” and “a fuel lockout apparatus 63 (a fuel cutoff is coupled via the regulator 62 to the valve 12) coupled to the mechanical fuel valve.” *Office Action*, February 22, 2018, p. 3-4. The Examiner further asserted that Sugimoto teaches that “mechanical fuel lockout switch: communicates the first fuel source to the dual fuel engine and prevents communication between the second fuel source and the dual

fuel engine when the mechanical fuel valve is in the first position, and communicates the second fuel source to the dual fuel engine and interrupts the first fuel source communication with the dual fuel engine when in the second position (Para. [0082], the switch has multiple positions which allow valve 12 connect either of the lines A1 or A4 to line A2 and also activate lockout apparatus 63).” *Id.* at 4.

Applicant respectfully disagrees with the rejection. Specifically, Sugimoto does not anticipate that which is called for in claim 1, as anticipation under pre-AIA 35 U.S.C. §102(a)(2) requires that “[t]he identical invention must be shown [in the reference] in as complete detail as is contained in the ... claim.” *MPEP §2131* (citing *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989)). As will be set forth in detail here below, Sugimoto does not disclose each and every element of claim 1 and thus does not anticipate the claim, as “[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *MPEP §2131* (citing *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631 (Fed. Cir. 1987)).

Sugimoto discloses an engine operated generator 1 that includes an engine 30 that powers an electric generator 40. *Sugimoto*, ¶[0041], [0042]. A fuel system F for supplying the fuel gas to the engine 30 has an internal fuel system Fa (fuel bottles 61) and an external fuel system Fb (external fuel bottle 71) disposed outside the case C of the generator. *Sugimoto*, ¶[0070]. The fuel supply system Fa includes a fuel pressure regulator 62, a fuel system selector valve 12, a connector 14, and a fuel cutoff valve 63. *Sugimoto*, ¶[0071]. The fuel pressure regulator 62 reduces the pressure of the fuel gas supplied from fuel bottles 61 and the external fuel bottle 71 and regulates the pressure of the fuel gas so that the fuel gas may be supplied to a carburetor 18b at fuel supply rate varying in proportion to load on the engine 30. *Sugimoto*, ¶[0071]. The fuel system selector valve 12 is placed on the operating panel 5e and is operated to select a fuel supply line. *Sugimoto*, ¶[0071]. The fuel pipes interconnect the fuel bottles 61, the fuel pressure regulator 62 and the carburetor 18b. The fuel cutoff valve 63 stops the flow of the fuel gas from the fuel system F to the engine 30. *Sugimoto*, ¶[0071].

In the fuel supply system Fa, a first fuel system for supplying the first fuel gas from the fuel bottles 61 to the engine 30 is constituted by the fuel bottles 61, a pipe A1 connecting the fuel bottles 61 to the fuel system selector valve 12, a pipe A2 connecting the fuel system selector valve 12 to the fuel pressure regulator 62, the fuel pressure regulator 62, a pipe connecting the fuel pressure regulator 62 to the carburetor 18b, and the fuel cut-off valve 63 placed in the pipe A3. *Sugimoto*, ¶[0079]. A second fuel system for supplying the second fuel gas from the

external fuel bottle 71 to the engine 30 is constituted by a pipe A4 connecting the connector 14 to the fuel cutoff valve 12, the pipe A2 connecting the fuel system selector valve 12 to the fuel pressure regulator 62, the fuel pressure regulator, the pipe A3 connecting the fuel pressure regulator 62 to the carburetor 18b, and the fuel cutoff valve 63. *Sugimoto*, ¶[0079].

The fuel cutoff valve 63, namely, a fuel cutoff means, is, for example, a normally-open solenoid valve which closes when energized. *Sugimoto*, ¶[0081]. The ECU 89 controls the fuel cutoff valve 63 on the basis of the pressure of the first fuel gas. *Sugimoto*, ¶[0081]. More specifically, the fuel pressure regulator 62 is provided with a pressure sensor 73 for measuring the pressure of the first fuel gas flowing from the fuel bottle 61 to the fuel pressure regulator 62. *Sugimoto*, ¶[0081]. When the pressure of the first fuel gas measured by the pressure sensor 73 is higher than an upper limit pressure P1, the ECU 89 closes the fuel cutoff valve 63 to disconnect the common fuel system from the fuel bottle 61. *Sugimoto*, ¶[0081]. The fuel system selector valve 12 connects either the first fuel system that supplies the first fuel gas to the engine 30 or the second fuel system that supplies the second gas to the engine 30 selectively to the fuel pressure regulator 62. *Sugimoto*, ¶[0082]. The fuel system selector valve 12 can be set in a first position, where the knob of the fuel system selector valve 12 is at a first position marked with "Internal fuel" to connect the first fuel system to the engine 30 to supply the first fuel gas to the engine 30, and in a second position, where the knob of the fuel system selector valve 12 is at a second position marked with "External fuel" to connect the second fuel system to the engine 30 to supply the second fuel gas to the engine 30. *Sugimoto*, ¶[0082].

However, there is no disclosure provided in *Sugimoto* of a fuel lockout apparatus coupled to the mechanical fuel valve, as called for in claim 1. That is, while the Examiner has asserted that *Sugimoto* discloses "a fuel lockout apparatus 63 (a fuel cutoff is coupled via the regulator 62 to the valve 12) coupled to the mechanical fuel valve," *Office Action*, supra at 4, such an assertion distorts what is disclosed in *Sugimoto*. Instead, *Sugimoto* only discloses fuel system selector valve 12 positioned at a junction of pipes A1 and A4 and fuel cut-off valve 63 placed in the pipe A3, *Sugimoto*, ¶[0079], and that fuel cutoff valve 63 is a normally-open solenoid valve that is controlled by ECU 89 on the basis of the pressure of the first fuel gas. *Sugimoto*, ¶[0081]. This positioning of fuel cut-off valve 63 and fuel system selector valve 12 at separate locations along/on pipes A1, A2, A3, A4 can be clearly seen in FIG. 1 of *Sugimoto*, as fuel cut-off valve 63 is shown therein as being separated from fuel system selector valve 12. Additionally, the control/operation of the fuel cut-off valve 63 and fuel system selector valve 12 are separate from one another, as fuel cutoff valve 63 is opened/closed by ECU 89 based solely on the basis of the

pressure of the first fuel gas – without any regard to the position of fuel system selector valve 12. *Sugimoto*, ¶[0081]. Accordingly, fuel cut-off valve 63 and fuel system selector valve 12 are neither mechanically coupled or operationally coupled, such that there is simply no disclosure in *Sugimoto* that fuel cut-off valve 63 is coupled to fuel system selector valve 12 as called for in claim 1.

As *Sugimoto* fails to disclose a fuel lockout apparatus coupled to the mechanical fuel valve, *Sugimoto* cannot be said to anticipate that which is called for in claim 1, as anticipation under pre-AIA 35 U.S.C. §102(a)(2) requires that “[t]he identical invention must be shown [in the reference] in as complete detail as is contained in the ... claim.” *MPEP* §2131 (citing *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989)). Applicant therefore respectfully requests withdrawal of the rejection of claim 1 and the claims dependent therefrom.

Rejection under 35 U.S.C. §102(a)(1) as being anticipated by Pursifull et al.

Claims 1 and 19

The Examiner rejected claims 1 and 19 under 35 U.S.C. §102(a)(1) as being anticipated by Pursifull et al. (US Pub. 2011/0168133) – hereinafter “Pursifull.”

In rejecting claims 1 and 19, the Examiner asserted that Pursifull discloses “a mechanical fuel valve 120 actuatable between a first position and a second position to selectively control fuel flow to the dual fuel engine 102 from a first fuel source 112 through a first fuel line 119 and a second fuel source 134 through a second fuel line 140 (Para. [0025], the valve 120 is a three-way mechanical selection valve)” and “a fuel lockout apparatus (Controller 128, pumps 136 114, and solenoid valves 118 126) coupled to the mechanical fuel valve (Fig. 1, the lockout apparatus is coupled to the valve 120 via controller 128 and fuel lines 119/140).” *Office Action*, supra at 5. The Examiner further asserted that Pursifull teaches that “mechanical fuel lockout switch: communicates the first fuel source to the dual fuel engine and prevents communication between the second fuel source and the dual fuel engine when the mechanical fuel valve is in the first position, and communicates the second fuel source to the dual fuel engine and interrupts the first fuel source communication with the dual fuel engine when in the second position (Para. [0025], [0028], and [0066], the three-way valve and lockout apparatus determine connection of the first or second fuel to the dual fuel engine 102).” *Id.*

Applicant respectfully disagrees with the rejection. Specifically, Pursifull does not anticipate that which is called for in claims 1 and 19, as anticipation under pre-AIA 35 U.S.C.

§102(a)(2) requires that “[t]he identical invention must be shown [in the reference] in as complete detail as is contained in the ... claim.” *MPEP* §2131 (citing *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989)). As will be set forth in detail here below, Pursifull does not disclose each and every element of claims 1 and 19 and thus does not anticipate the claims, as “[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *MPEP* §2131 (citing *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631 (Fed. Cir. 1987)).

Pursifull discloses an engine system 100 that includes an internal combustion engine 102 having one or more cylinders 104 that may receive fuel from one or more fuel injectors 106 that inject fuel in proportion to a pulse width of a signal received from a controller 128. *Pursifull*, ¶[0021]. Fuel may be delivered to the fuel injector 106 from a fuel rail 108 by a fuel system 110. *Pursifull*, ¶[0021]. The fuel system 110 may include a fuel tank 112 and a fuel pump 114 operable by controller 128 to pump fuel from the fuel tank 112 to the fuel rail 108. *Pursifull*, ¶[0022]. A delivery check valve 116 may be positioned downstream of the fuel pump 114 to force fuel pumped from the fuel pump at a predetermined pressure to the fuel rail 108 so that fuel does not return along the same path to the fuel pump. *Pursifull*, ¶[0023]. A first solenoid valve 118 may be positioned downstream of delivery check valve 116 to control the flow of fuel to fuel rail 108 or from the fuel rail to a return line 119. *Pursifull*, ¶[0023]. In some embodiments, fuel system 110 may be what is known as a multi-fuel system that selectively provides a plurality of different types of fuel to the fuel rail 108 based on the mode of operation, such as gasoline and/or liquid propane. *Pursifull*, ¶[0024]. A three-way valve 120 may be positioned upstream of the fuel rail 108 and downstream of the first solenoid valve 118 and the return line 119 to selectively control the flow of a desired type of fuel to the fuel rail 108. *Pursifull*, ¶[0025]. The state of the three-way valve 120 may be controlled by controller 128 to vary which type of fuel is delivered to the fuel rail 108. *Pursifull*, ¶[0025]. Fuel in the fuel rail 108 may be returned to the fuel tank 112 via the return line 119, with an ejector 124 positioned in the return line 119 to provide a single fuel rail evacuation stage. *Pursifull*, ¶[0026]. A return check valve 122 is positioned in the return line 119 downstream of the ejector 124 to force fuel returning from the fuel rail 108 at a predetermined pressure to ejector 124 so that fuel is evacuated from the fuel rail 108. *Pursifull*, ¶[0027]. A second solenoid valve 126 is positioned upstream of the outlet of the ejector 124 and downstream of the fuel tank 112 that may be controlled by controller 128 evacuate the fuel rail 108. *Pursifull*, ¶[0028].

In a method for controlling for controlling a multi-fuel system as described in Pursifull, the method may include operating in the fuel rail pressurization mode where a determination is made if a first fuel from a first fuel stage or a second fuel from a second fuel is selected for delivery to the fuel rail 108. Pursifull, ¶[0066]. If the first fuel is selected, operating in the fuel rail pressurization mode may include, switching the three-way valve 120 to the first fuel stage, opening the solenoid valve 118 positioned downstream of the fuel pump 114 and upstream of the fuel rail 108, closing the solenoid valve 126 positioned upstream of the ejector 124 and downstream of the fuel tank 112, and operating the fuel pump 114 to deliver the first fuel from the fuel tank to the fuel rail. Pursifull, ¶[0066]. If the second fuel is selected, operating in the fuel rail pressurization mode may include switching the three-way valve 120 to the second fuel stage, and, operating the fuel pump 136 to deliver the second fuel from the fuel tank 134 to the fuel rail 108. Pursifull, ¶[0066].

However, there is no disclosure provided in Pursifull of a fuel lockout apparatus coupled to the mechanical fuel valve, as called for in claims 1 and 19. That is, while the Examiner has asserted that Pursifull discloses “a fuel lockout apparatus (Controller 128, pumps 136 114, and solenoid valves 118 126) coupled to the mechanical fuel valve (Fig. 1, the lockout apparatus is coupled to the valve 120 via controller 128 and fuel lines 119/140),” *Office Action*, supra at 5, such an assertion distorts what is disclosed in Pursifull. Instead, Pursifull only discloses that controller 128 functions to control pumps 136, 114, solenoid valves 118, 126, and three-way valve 120 based on whether a first or second fuel is selected for use by the engine. *See Pursifull*, ¶[0066]. This controlling of various valves/pumps by controller 128 does **not** teach a coupling of a fuel lockout apparatus and mechanical fuel valve, as called for in claims 1 and 19 – as a control/operation of these components by a common controller is not a “coupling” as would be understood by one skilled in the art. Accordingly, there is simply no disclosure in Pursifull that three-way valve 120 is coupled to any fuel lockout apparatus – however defined by the Examiner – as called for in claims 1 and 19.

As Pursifull fails to disclose a fuel lockout apparatus coupled to the mechanical fuel valve, Pursifull cannot be said to anticipate that which is called for in claims 1 and 19, as anticipation under pre-AIA 35 U.S.C. §102(a)(2) requires that “[t]he identical invention must be shown [in the reference] in as complete detail as is contained in the ... claim.” *MPEP* §2131 (citing *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989)). Applicant therefore respectfully requests withdrawal of the rejection of claims 1 and 19 and the claims dependent therefrom.

Rejection under 35 U.S.C. §103 over Pursifull et al. in view of Sugimoto et al.**Claim 9**

The Examiner rejected claim 9 under 35 U.S.C. §103 as being unpatentable over Pursifull in view of Sugimoto. In rejecting claim 9, the Examiner relied on Pursifull as disclosing the claimed “dual fuel generator configured to operate on a liquid fuel supplied from a liquid fuel source through a liquid fuel line and a gaseous fuel supplied from a pressurized fuel source through a gaseous fuel line” and “mechanical fuel valve actuatable between a first position and a second position to selectively control fuel flow to the dual fuel generator from the liquid fuel source through the liquid fuel line and the pressurized fuel source through the gaseous fuel line.” *Office Action*, supra at 7. The Examiner admitted that Pursifull does not disclose the claimed fuel regulator system located off board the dual fuel generator, and thus relied on Sugimoto as disclosing a fuel regulator system including “a primary pressure regulator coupled to a service valve of the pressurized fuel source and configured to regulate the fuel supplied from the pressurized fuel source to a reduced pressure” and “a secondary pressure regulator coupled to the primary pressure regulator and configured to regulate the gaseous fuel supplied from the primary pressure regulator to a desired pressure for delivery through the gaseous fuel line to operate the dual fuel generator.” *Id.* at 7.-8. Applicant respectfully disagrees with the rejection.

Claim 9 specifically calls for a fuel regulator system located off board the dual fuel generator, with the fuel regulator system including a primary pressure regulator coupled to a service valve of the pressurized fuel source and a secondary pressure regulator coupled to the primary pressure regulator. Thus, according to claim 9, each of the primary pressure regulator and the secondary pressure regulator is located off board the dual fuel generator. Sugimoto – alone or in combination with Pursifull – fails to teach a fuel regulator system where both a primary pressure regulator and secondary pressure regulator are located off board the dual fuel generator. That is, while pressure reducing device 72 is included as part of external fuel system Fb that is off-board generator 1, *Sugimoto*, ¶[0073], the fuel pressure regulator 62 referenced by the Examiner is on-board generator 1 - as the fuel pressure regulator 62 is located between pipe A2 and pipe A3 on generator 1.

In light of the above, Sugimoto – alone or in combination with Pursifull – fails to teach or suggest a fuel regulator system located off board the dual fuel generator, with the fuel regulator system including a primary pressure regulator coupled to a service valve of the pressurized fuel source and a secondary pressure regulator coupled to the primary pressure regulator, i.e., each of the primary pressure regulator and the secondary pressure regulator is located off board the dual

fuel generator, as called for in claim 9. Claim 9 is therefore patentably distinct from that which is disclosed in Sugimoto and Pursifull and Applicant respectfully requests withdrawal of the rejection of claim 9 and the claims dependent therefrom.

Conclusion

Therefore, in light of at least the foregoing, Applicant respectfully believes that the present application is in condition for allowance. As a result, Applicant respectfully requests timely issuance of a Notice of Allowance for claims 1-26.

Applicant appreciates the Examiner's consideration of these Amendments and Remarks and cordially invites the Examiner to call the undersigned, should the Examiner consider any matters unresolved.

Respectfully submitted,

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Dated: May 15, 2018
Attorney Docket No.: CET1090.019

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General Authorization and Extension of Time

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 50-2623. Should no proper payment be enclosed herewith, as by credit card authorization being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 50-2623. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extensions under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 50-2623. Please consider this a general authorization to charge any fee that is due in this case, if not otherwise timely paid, to Deposit Account No. 50-2623.

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EXAMINER

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ELECTRONIC

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DETAILED ACTION

The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

Claim Rejections - 35 USC § 102

1. In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory basis for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

(a)(1) the claimed invention was patented, described in a printed publication, or in public use, on sale or otherwise available to the public before the effective filing date of the claimed invention.

2. **Claim(s) 1 and 7 is/are rejected under 35 U.S.C. 102(a)(1) as being clearly anticipated by Sugimoto (US 2007/0137591).**

3. **Regarding claim 1,** Champion discloses mechanical fuel lockout switch (Fig. 1, shown switch system) for a dual fuel engine (Fig. 1, shown engine 30) comprising:

a mechanical fuel valve 12 actuateable between a first position and a second position to selectively control fuel flow to the dual fuel engine from a first fuel source 61 through a first fuel line A1 and a second fuel source 71 through a second fuel line A5 (Fig. 1, shown lines and valve); and

a fuel lockout apparatus 63 (a fuel cutoff is coupled via the regulator 62 to the valve 12) coupled to the mechanical fuel valve;

wherein the mechanical fuel lockout switch:

communicates the first fuel source to the dual fuel engine and prevents communication between the second fuel source and the dual fuel engine when the mechanical fuel valve is in the first position, and communicates the second fuel source to the dual fuel engine and interrupts the first fuel source communication with the dual fuel engine when in the second position (Para. [0082], the switch

has multiple positions which allow valve 12 connect either of the lines A1 or A4 to line A2 and also activate lockout apparatus 63).

4. **Regarding claim 7**, the mechanical fuel lockout switch for a dual fuel engine of claim 1, wherein the mechanical fuel valve and the fuel lockout apparatus operate together to ensure that fuel from the first fuel source and fuel from the second fuel source are not simultaneously delivered to the dual fuel engine (Para. [0082], the system does not allow two fuels to be delivered simultaneously).

5. **Claim(s) 1, 7, 8, 19, 22, and 26 is/are rejected under 35 U.S.C. 102(a)(1) as being clearly anticipated by Pursifull et al (US 2011/0168133)**

6. **Regarding claims 1 and 19**, Pursifull discloses a mechanical fuel lockout switch for a dual fuel engine (Fig. 3, shown dual fuel engine with lockout switch) and method of constructing it comprising: a mechanical fuel valve 120 actuateable between a first position and a second position to selectively control fuel flow to the dual fuel engine 102 from a first fuel source 112 through a first fuel line 119 and a second fuel source 134 through a second fuel line 140 (Para. [0025], the valve 120 is a three-way mechanical selection valve); and

7. a fuel lockout apparatus (Controller 128, pumps 136 114, and solenoid valves 118 126) coupled to the mechanical fuel valve (Fig. 1, the lockout apparatus is coupled to the valve 120 via controller 128 and fuel lines 119/140);

8. wherein the mechanical fuel lockout switch: communicates the first fuel source to the dual fuel engine and prevents communication between the second fuel source and the dual fuel engine when the mechanical fuel valve is in the first position, and communicates the second fuel source to the dual fuel engine and interrupts the first fuel source communication with the dual fuel engine when in the second position (Para. [0025], [0028], and [0066], the three-way valve and lockout apparatus determine connection of the first or second fuel to the dual fuel engine 102).

9. The apparatus above having all the parts coupled together and therefore being "coupled" and "provided" as per the method in claim 19.

10. **Regarding claim 7**, Pursifull discloses the mechanical fuel lockout switch for a dual fuel engine of claim 1, wherein the mechanical fuel valve and the fuel lockout apparatus operate together to ensure that fuel from the first fuel source and fuel from the second fuel source are not simultaneously delivered to the dual fuel engine (Para. [0025], [0028], and [0066], the lockout apparatus cuts off the fuel supply between the lines).

11. **Regarding claims 8 and 26**, Pursifull discloses the mechanical fuel lockout switch for a dual fuel engine of claims 7 and 19, wherein the first fuel source provides gasoline as liquid fuel from a liquid fuel tank to the dual fuel engine and the second fuel source provides LPG fuel from a pressurized fuel container to the dual fuel engine (Para. [0040], the multi fuel system may be liquid propane (gaseous fuel) and gasoline (liquid fuel)).

12. **Regarding claim 22**, the modified Pursifull discloses the method of claim 19 as disclosed above, wherein the fuel lockout apparatus comprises a fuel inlet cover configured to actuate in unison with the mechanical fuel valve to cover a fuel inlet on the internal combustion engine for the second fuel source when the mechanical fuel valve is in the first position and uncover the fuel inlet when the mechanical fuel valve is in the second position (Para. [0025], [0028], and [0066], the lockout apparatus cuts off the fuel supply between the lines, by considering the line which connects to the lockout valve as a "fuel inlet" then the valve cutting off flow is then covering the inlet to disallow fuel flow).

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103 which forms the basis for all obviousness rejections set forth in this Office action:

A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102, if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the

claimed invention pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claims 9, 14-18, and 23-25 is/are rejected under 35 U.S.C. 103 as being unpatentable over Pursifull et al (US 2011/0168133) in view of Sugimoto et al (US 2007/0137591).

15. Regarding claim 9, Pursifull discloses a dual fuel engine and fuel delivery system comprising:

a dual fuel engine (Fig. 1, shown) configured to operate on a liquid fuel supplied from a liquid fuel source through a liquid fuel line and a gaseous fuel supplied from a pressurized fuel source through a gaseous fuel line (Para. [0040], the multi fuel system may be pressurized liquid propane (gaseous fuel) and gasoline (liquid fuel)); and a mechanical fuel valve actuateable between a first position and a second position to selectively control fuel flow to the dual fuel generator from the liquid fuel source through the liquid fuel line and the pressurized fuel source through the gaseous fuel line (Para. [0025], [0028], and [0066], the three-way valve and lockout apparatus determine connection of the first or second fuel to the dual fuel engine 102).

16. Pursifull fails to disclose a fuel regulator system located off board the dual fuel engine, the fuel regulator system comprising: a primary pressure regulator coupled to a service valve of the pressurized fuel source and configured to regulate the fuel supplied from the pressurized fuel source to a reduced pressure; and a secondary pressure regulator coupled to the primary pressure regulator and configured to regulate the gaseous fuel supplied from the primary pressure regulator to a desired pressure for delivery through the gaseous fuel line to operate the dual fuel generator.

17. Sugimoto discloses a dual fuel engine and delivery system (Fig. 1, as shown) wherein the system includes an off-board gaseous fuel system (Fb) which includes an off-board pressure regulator 72 which feeds fuel into an engine system 1 which includes another pressure regulator 62. The inclusion of pressure reduction devices for the gasification of liquid-held fuel allows for an effective cooling of the fuel system and systems (Para. [0010]) while allowing the dual fuel engine to be powered by an external fuel tank attached to it in an off board fashion such as in emergency situations (Para. [0002]).

18. Therefore, it would have been obvious to one of ordinary skill in the art before the filing date of the invention to modify the device of Pursifull with the pressure regulators and gaseous fuel system methods of Sugimoto in order to improve the cooling of the fuel system parts through pressure reduction as well as regulate the pressure from an external attached fuel tank which allows the dual fuel engine system to be used in varying situations such as emergency ones using an external fuel source.

19. Further, the inclusion of multiple pressure regulators in the off-board fuel system, while not disclosed in Pursifull as modified by Sugimoto, would have been an obvious modification of the system of Sugimoto which includes an off-board fuel regulation system including a single regulator 72. It would have been obvious to one having ordinary skill in the art at the time the invention was made to duplicate the regulation system to have a dual-regulator off-board system since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8. Further, dual tank regulators are extremely old and well-known in the art to provide on off-board fuel tanks, particularly gaseous ones such as propane/natural gas tanks, as they are more efficient, durable, and effective in their regulation. These types of regulators are often called “dual-stage” or “double-stage” regulators.

20. **Regarding claim 14**, the modified Pursifull discloses the dual fuel generator and fuel delivery system of claim 9, further comprising: a first end of a quick-connect hose coupling coupled to an outlet of the secondary pressure regulator; and a second end of the quick-connect hose coupling coupled to an inlet of the gaseous fuel line to mate with the first end of the quick-connect hose coupling to couple the secondary pressure regulator to the gaseous fuel line (Fig. 1 of Sugimoto shows that the modification of Pursifull to include an external source of gaseous fuel and regulators makes use of a connection hose coupling 14).

21. **Regarding claims 15**, the modified Pursifull discloses the dual fuel generator and fuel delivery system of claim 9, further comprising a regulator mounting device (a bracket as per applicant's

disclosure on in Para. [0024] of the disclosure) secured to the pressurized fuel source with at least the secondary pressure regulator mounted on the regulator mounting device (Fig. 1 of Sugimoto which discloses the regulator systems, the regulator 72 shown is attached to the fuel tank system 71).

22. The modified Pursifull fails to specifically note a bracket being used for the fixation of the regulator 72. However, it would have been obvious to one of ordinary skill in the art before the filing date of the invention to attach the regulator 72 using some device wherein a bracket is an extremely old and well-known fixation device and one of ordinary skill in the art would have known to apply a known device and technique of mounting a regulator on a fuel tank, such as a bracket, to yield the predictable results of fixing the regulator to its fuel system.

23. **Regarding claim 16**, the modified Pursifull discloses the dual fuel generator and fuel delivery system of claim 15, but fails to disclose wherein the primary pressure regulator is mounted on the regulator mounting device. The modified Pursifull fails to disclose the two regulators being located in positions where they would be mounted making use of the same mounting bracket. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to mount both regulators in a similar location on the same bracket since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japikse*, 86 USPQ 70.

24. **Regarding claim 17**, the modified Pursifull discloses the dual fuel generator and fuel delivery system of claim 16, but fails to disclose wherein the pressurized fuel source comprises a pressurized fuel container having a collar; and wherein the regulator mounting device secures to the collar so that the primary and secondary pressure regulators are positioned adjacent each other along an outer periphery of the collar.

25. In this case the claim pertains to the routine and known art of using propane tanks as a fuel tank source as these devices are well-known in the art to have a “collar” piece which often has regulators attached to it. While the art of Pursifull and Sugimoto never make reference to this specific old and well-

known device, they do make use of fuel tanks that could easily be substituted with them. Therefore, examiner makes official notice that it is old and well-known to make use of standard-in-the-art propane tanks with regulators attached to their collars as this would have allowed the modified Pursifull to make use of the common, cheap, and easy-to-use propane tanks for its regulation and propane tank systems. Some examples of such tanks can be seen at: RVDoctor (Oct. 2010, <http://www.rvdoctor.com/2012/10/disconcerting-propane-leaks-on-rv.html>) which shows two propane tanks with a regulator attached to their collar; and Nooutage.com (Aug. 27th, 2006, https://web.archive.org/web/20060928183104/http://www.nooutage.com:80/images/BS-7KW_Power_Now_tanks.jpg) which shows propane tanks with regulators attached to their collars.

26. **Regarding claim 18**, the modified Pursifull discloses the dual fuel generator and fuel delivery system of claim 9, but fails to disclose wherein the primary and secondary pressure regulators are integral components of a dual stage pressure regulator.

27. However, It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the regulators into a two-stage regulator, since it has been held that forming in one piece an article which has formerly been formed in two pieces and put together involves only routine skill in the art. Howard v. Detroit Stove Works, 150 U.S. 164 (1893).

28. **Claims 23-25 are rejected using Pursifull as modified by Sugimoto in the same manner as applied to claim 9 and its dependent claims above.**

29. **Regarding claim 23**, the modified Pursifull discloses the method of claim 19, further comprising coupling a fuel regulator system to the second fuel source to reduce fuel pressure therefrom and deliver fuel to the second fuel line at a pressure required for operation of the internal combustion engine (Fig. 1 of Sugimoto shows the regulators in series reducing pressure).

30. **Regarding claim 24**, the modified Pursifull discloses the method of claim 23, further comprising mounting the fuel regulator system to the second fuel source located off-board the internal combustion engine (Fig. 1 of Sugimoto as modified onto Pursifull and shown).

31. **Regarding claim 25**, the modified Pursifull discloses the method of claim 23, further comprising: coupling one end of a quick-disconnect hose coupling to an inlet on the internal combustion engine for the second fuel source; and coupling a mating end of the quick-disconnect hose coupling to an outlet of the fuel regulator system (Fig. 1 of Sugimoto as modified onto Pursifull and shown).

Allowable Subject Matter

32. Claims 2-6, 10-13, 20, and 21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

33. Applicant's arguments filed 05/15/2018 have been fully considered but they are not persuasive.

34. Applicant argues in the remarks filed 05/15/2018 that the prior art of Sugimoto et al fails to disclose the limitations of claim 1. The argument is based on the construction of the fuel lockout apparatus and argues that Sugimoto fails to disclose a fuel lockout apparatus coupled to a mechanical fuel valve as they appear to be in separate locations. This argument is also presented as a reason why Pursifull et al fails to disclose the limitations of claims 1 and 19: it lacks a coupling between a fuel lockout apparatus and a mechanical fuel valve.

- a. While it is true that the fuel lockout apparatus 63 is not *directly attached* to the selector valve 12, the fuel lockout apparatus 63 is clearly coupled to the valve 12 by way of other pieces. Applicant never specifies the term "couple" to take the meaning of "operationally coupled" or "directly mechanically coupled" and indeed the word "couple" simply means "something that joins or links two things together" (<https://www.merriam-webster.com/dictionary/couple>). In

this case the two parts are linked together via other parts of the construction, parts A2, A3, and 62 (Fig. 1, shown). A good example of this phrase's use would be a cylinder head *coupled to* a cylinder block even if there was a gasket between them; the two parts don't touch and instead are attached via a gasket/seal. Another example would be a "shaft coupling" which is a common term in the art that involves two shafts which never touch but are "coupled." In this way, two fuel system parts connected to one another via lines or other structures are coupled together.

b. With regards to Pursifull, in a manner similar to Sugimoto, a fuel lockout apparatus embodied in controller 128, pumps 136 114, and solenoids valves 118 126 is *coupled to* a mechanical fuel valve 120. The coupling takes place via the intervening parts of a fuel lines 119/140 as the term "couple" is never given a more specific meaning in the disclosure so a broadest reasonable definition (as quoted above) must be used. Therefore, while it's true the two structures are not in direct contact, they are *coupled*.

c. *Examiner notes that the claims can be amended to claim "directly coupled" or "operationally coupled" in order to fulfill the desired claim breadth as per the arguments.*

35. With regards to claim 9, applicant argues that the fuel regulator system is claimed to be located "off-board" and that the prior art of Purifull and Sugimoto fail to disclose the fuel regulator system being off board.

d. It is noted that the prior art of Sugimoto is used to remedy this deficiency in the prior art of Pursifull and will be relied upon for teaching of these claim limitations. The claim itself claims "a fuel regulator system located off board the dual fuel generator... comprising." Further, as applicant notes, Sugimoto only discloses a single off-board regulator in its system. However, the addition of another regulator or replacement with a dual-stage (two regulators in one housing) would have been exceedingly obvious and well-known to one of ordinary skill in the art. Therefore the claim remains rejected under Purisfull in view of Sugimoto.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KEVIN A LATHERS whose telephone number is (571)272-1050. The examiner can normally be reached on M-F 10a-6p.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at <http://www.uspto.gov/interviewpractice>.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lindsay Low can be reached on 5712721196. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/KEVINA LATHERS/
Primary Examiner, Art Unit 3747

Customer No. 26629
Confirmation No. 9670

Patent
Attorney Docket No. CET1090.019

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of : Sarder et al.
Serial No. : 14/738,060
Filed : June 12, 2015
For : DUAL FUEL LOCKOUT SWITCH FOR GENERATOR ENGINE
Group Art No. : 3747
Examiner : Kevin A. Lathers

CERTIFICATION UNDER 37 CFR 1.8(a) and 1.10

I hereby certify that, on the date shown below, this correspondence is being:

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☐ deposited with the US Postal Service in an envelope addressed to Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450

37 CFR 1.8(a)

37 CFR 1.10

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☐ transmitted by facsimile to Fax No.: 571-273-8300 addressed to Examiner Kevin A. Lathers at the Patent and Trademark Office.

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Date: November 5, 2018

/Robyn L. Templin/
Signature

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

AFTER-FINAL
AMENDMENT/RESPONSE TO FINAL OFFICE ACTION
MAILED FEBRUARY 22, 2018

Dear Sir:

Responsive to the Final Office Action mailed September 5, 2018, please amend the Application as follows:

In the Claims

1. (Currently Amended) A mechanical fuel lockout switch for a dual fuel engine comprising:

a mechanical fuel valve actuateable between a first position and a second position to selectively control fuel flow to the dual fuel engine from a first fuel source through a first fuel line and a second fuel source through a second fuel line; and

a fuel lockout apparatus coupled to the mechanical fuel valve;

wherein the mechanical fuel lockout switch:

communicates the first fuel source to the dual fuel engine and prevents communication between the second fuel source and the dual fuel engine when the mechanical fuel valve is in the first position, and

communicates the second fuel source to the dual fuel engine and interrupts the first fuel source communication with the dual fuel engine when in the second position; and

wherein the fuel lockout apparatus is configured to:

prevent the second fuel source from coupling to the second fuel line while the mechanical fuel valve is in the first position; and

permit the second fuel source to couple to the second fuel line while the mechanical fuel valve is in the second position.

2. (Original) The mechanical fuel lockout switch for a dual fuel engine of claim 1, wherein the fuel lockout apparatus prevents actuation of the mechanical fuel valve to the first position when the second fuel source communicates with the dual fuel engine

3. (Canceled)

4. (Currently Amended) The mechanical fuel lockout switch for a dual fuel engine of claim—3_1, wherein the fuel lockout apparatus comprises a flange rigidly coupled to the mechanical fuel valve that covers an inlet of the second fuel line while the mechanical fuel valve is in the first position and uncovers the inlet of the second fuel line while the mechanical fuel valve is in the second position.

5. (Original) The mechanical fuel lockout switch for a dual fuel engine of claim 4, wherein the mechanical fuel valve rotates between the first position and the second position and the flange rotates transversely across the inlet of the second fuel line.

6. (Original) The mechanical fuel lockout switch for a dual fuel engine of claim 4, further comprising;

a first end of a quick-disconnect hose coupling attached to the inlet of the second fuel line; and

a second end of the quick-disconnect hose coupling attached to the second fuel source to mate with the first end of the quick-disconnect hose coupling to couple the second fuel source to the second fuel line.

7. (Original) The mechanical fuel lockout switch for a dual fuel engine of claim 1, wherein the mechanical fuel valve and the fuel lockout apparatus operate together to ensure that fuel from the first fuel source and fuel from the second fuel source are not simultaneously delivered to the dual fuel engine.

8. (Original) The mechanical fuel lockout switch for a dual fuel engine of claim 7, wherein the first fuel source provides liquid fuel from a liquid fuel tank to the dual fuel engine and the second fuel source provides gaseous fuel from a pressurized fuel container to the dual fuel engine.

9-18. (Canceled)

19. (Currently Amended) A method of assembling a mechanical fuel lockout switch for an internal combustion engine comprising:

providing an internal combustion engine configured to operate on a fuel from a first fuel source and a different fuel from a second fuel source;

coupling a mechanical fuel valve to the internal combustion engine actuateable between a first position and a second position to selectively control fuel flow to the internal combustion engine from the first fuel source through a first fuel line and the second fuel source through a second fuel line; and

coupling a fuel lockout apparatus to the mechanical fuel valve;

wherein when the mechanical fuel valve is in the first position, the fuel lockout apparatus communicates the first fuel source to the internal combustion engine and prevents the second fuel source from coupling to the internal combustion engine, and actuation of the mechanical fuel valve to the second position causes the fuel lockout apparatus to permit the second fuel source to couple to the internal combustion engine, and interrupts the first fuel source communication with the internal combustion engine; and

wherein the fuel lockout apparatus prevents actuation of the mechanical fuel valve to the first position when the second fuel source is coupled to the internal combustion engine.

20. (Canceled)

21. (Currently Amended) The method of claim ~~20~~19, wherein the fuel lockout apparatus is further configured to:

prevent coupling of the second fuel source to the second fuel line while the mechanical fuel valve is in the first position; and

permit coupling of the second fuel source to the second fuel line while the mechanical fuel valve is in the second position.

22. (Original) The method of claim 19, wherein the fuel lockout apparatus comprises a fuel inlet cover configured to actuate in unison with the mechanical fuel valve to cover a fuel inlet on the internal combustion engine for the second fuel source when the mechanical fuel valve is in the first position and uncover the fuel inlet when the mechanical fuel valve is in the second position.

23. (Original) The method of claim 19, further comprising coupling a fuel regulator system to the second fuel source to reduce fuel pressure therefrom and deliver fuel to the second fuel line at a pressure required for operation of the internal combustion engine.

24. (Original) The method of claim 23, further comprising mounting the fuel regulator system to the second fuel source located off-board the internal combustion engine.

25. (Original) The method of claim 23, further comprising:

coupling one end of a quick-disconnect hose coupling to an inlet on the internal combustion engine for the second fuel source; and

coupling a mating end of the quick-disconnect hose coupling to an outlet of the fuel regulator system.

26. (Original) The method of claim 19, further comprising providing gasoline in a liquid fuel tank as the first fuel source and LPG in a pressurized fuel container as the second fuel source.

27. (New) A mechanical fuel lockout switch for a dual fuel engine comprising:

a mechanical fuel valve actuateable between a first position and a second position to selectively control fuel flow to the dual fuel engine from a first fuel source through a first fuel line and a second fuel source through a second fuel line; and

a fuel lockout apparatus coupled to the mechanical fuel valve;

wherein the mechanical fuel lockout switch:

communicates the first fuel source to the dual fuel engine and prevents communication between the second fuel source and the dual fuel engine when the mechanical fuel valve is in the first position, and

communicates the second fuel source to the dual fuel engine and interrupts the first fuel source communication with the dual fuel engine when in the second position; and

wherein the fuel lockout apparatus prevents actuation of the mechanical fuel valve to the first position when the second fuel source communicates with the dual fuel engine.

REMARKS

Claims 1-26 are pending in the present application. In the Final Office Action mailed September 5, 2018, the Examiner rejected claims 1 and 7 under 35 U.S.C. §102(a)(1) as being anticipated by Sugimoto et al. (US Pub. 2007/0137591). The Examiner next rejected claims 1, 7, 8, 19, 22, and 26 under 35 U.S.C. §102(a)(1) as being anticipated by Pursifull et al. (US Pub. 2011/0168133). Claims 9, 14-18, and 23-25 were rejected under 35 U.S.C. §103 as being unpatentable over Pursifull et al. in view of Sugimoto et al.

Claims 2-6, 10-13, 20, and 21 were indicated as containing allowable subject matter. Such indication is appreciated.

Rejection under 35 U.S.C. §102(a)(1) as being anticipated by Sugimoto et al.**Claim 1**

The Examiner rejected claim 1 under 35 U.S.C. §102(a)(1) as being anticipated by Sugimoto et al. (US Pub. 2007/0137591). Without acquiescing to the rejection, Applicant has amended claim 1 in the present response in order to incorporate the allowable subject matter of claim 3.

As amended, claim 1 calls for a mechanical fuel lockout switch for a dual fuel engine comprising: a mechanical fuel valve actuatable between a first position and a second position to selectively control fuel flow to the dual fuel engine from a first fuel source through a first fuel line and a second fuel source through a second fuel line; and a fuel lockout apparatus coupled to the mechanical fuel valve; wherein the mechanical fuel lockout switch: communicates the first fuel source to the dual fuel engine and prevents communication between the second fuel source and the dual fuel engine when the mechanical fuel valve is in the first position, and communicates the second fuel source to the dual fuel engine and interrupts the first fuel source communication with the dual fuel engine when in the second position; and wherein the fuel lockout apparatus is configured to: prevent the second fuel source from coupling to the second fuel line while the mechanical fuel valve is in the first position; and permit the second fuel source to couple to the second fuel line while the mechanical fuel valve is in the second position.

In light of the incorporation of the allowable subject matter of claim 3 into claim 1, Applicant believes claim 1 to be in condition for allowance. Applicant therefore respectfully requests withdrawal of the rejection of claim 1 under 35 U.S.C. §102(a)(1) as being anticipated by Sugimoto et al., along with the rejection of all claims dependent therefrom.

Rejection under 35 U.S.C. §102(a)(1) as being anticipated by Pursifull et al.**Claims 1 and 19**

The Examiner next rejected claims 1 and 19 under 35 U.S.C. §102(a)(1) as being anticipated by Pursifull et al. (US Pub. 2011/0168133).

Regarding claim 1, as set forth above, Applicant has amended claim 1 to incorporate the allowable subject matter of claim 3. Thus, claim 1 is believed to be in condition for allowance.

Regarding claim 19, without acquiescing to the rejection, Applicant has amended claim 19 in the present response in order to incorporate the allowable subject matter of claim 20.

As amended, claim 19 calls for a method of assembling a mechanical fuel lockout switch for an internal combustion engine comprising: providing an internal combustion engine configured to operate on a fuel from a first fuel source and a different fuel from a second fuel source; coupling a mechanical fuel valve to the internal combustion engine actuatable between a first position and a second position to selectively control fuel flow to the internal combustion engine from the first fuel source through a first fuel line and the second fuel source through a second fuel line; and coupling a fuel lockout apparatus to the mechanical fuel valve; wherein when the mechanical fuel valve is in the first position, the fuel lockout apparatus communicates the first fuel source to the internal combustion engine and prevents the second fuel source from coupling to the internal combustion engine, and actuation of the mechanical fuel valve to the second position causes the fuel lockout apparatus to permit the second fuel source to couple to the internal combustion engine, and interrupts the first fuel source communication with the internal combustion engine; and wherein the fuel lockout apparatus prevents actuation of the mechanical fuel valve to the first position when the second fuel source is coupled to the internal combustion engine.

In light of the incorporation of the allowable subject matter of claim 3 into claim 1 and the incorporation of the allowable subject matter of claim 20 into claim 19, Applicant believes claims 1 and 19 to be in condition for allowance. Applicant therefore respectfully requests withdrawal of the rejection of claims 1 and 19 under 35 U.S.C. §102(a)(1) as being anticipated by Pursifull et al., along with the rejection of all claims dependent therefrom.

Rejection under 35 U.S.C. §103 over Pursifull et al. in view of Sugimoto et al.**Claim 9**

The Examiner rejected claim 9 under 35 U.S.C. §103 as being unpatentable over Pursifull et al. in view of Sugimoto et al.

Without acquiescing to the rejection, Applicant has elected to cancel claims 9-18 in the present response. Applicant therefore believes the rejection to be moot.

Canceled & Newly Presented Claims

In the present Response, claims 3, 9-18, and 20 have been canceled and claim 27 has been newly added. New claim 27 combines the allowable subject matter of claim 2 with original claim 1. Accordingly, Applicant believes new claim 27 to be in condition for allowance.

Conclusion

Therefore, in light of at least the foregoing, Applicant respectfully believes that the present application is in condition for allowance. As a result, Applicant respectfully requests timely issuance of a Notice of Allowance for claims 1, 2, 4-8, 19, and 21-27.

No fees are deemed due for entering the claim newly presented herein, as a greater number of claims have been canceled and the total number of independent claims is still three.

Applicant appreciates the Examiner's consideration of these Amendments and Remarks and cordially invites the Examiner to call the undersigned, should the Examiner consider any matters unresolved.

Respectfully submitted,

/Kevin R. Rosin/

Kevin R. Rosin
Registration No. 55,584
Phone 262-268-8100 ext. 16
krr@zpspatents.com

Dated: November 5, 2018
Attorney Docket No.: CET1090.019

P.O. ADDRESS:
Ziolkowski Patent Solutions Group, SC
136 South Wisconsin Street
Port Washington, WI 53074
262-268-8100

General Authorization and Extension of Time

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 50-2623. Should no proper payment be enclosed herewith, as by credit card authorization being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 50-2623. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extensions under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 50-2623. Please consider this a general authorization to charge any fee that is due in this case, if not otherwise timely paid, to Deposit Account No. 50-2623.

/Kevin R. Rosin/

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Dated: November 5, 2018
Attorney Docket No.: CET1090.019

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26629 7590 12/11/2018
ZIOLKOWSKI PATENT SOLUTIONS GROUP, SC (ZPS)
136 S WISCONSIN ST
PORT WASHINGTON, WI 53074

EXAMINER

LATHERS, KEVIN ANTHONY

ART UNIT

PAPER NUMBER

3747

DATE MAILED: 12/11/2018

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/738,060	06/12/2015	Mark J. Sarder	CET1090.019	9670

TITLE OF INVENTION: DUAL FUEL LOCKOUT SWITCH FOR GENERATOR ENGINE

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$500	\$0.00	\$0.00	\$500	03/11/2019

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

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Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

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By fax, send to: (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

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26629 7590 12/11/2018
ZIOLKOWSKI PATENT SOLUTIONS GROUP, SC (ZPS)
136 S WISCONSIN ST
PORT WASHINGTON, WI 53074

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I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

_____ (Typed or printed name)
_____ (Signature)
_____ (Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/738,060	06/12/2015	Mark J. Sarder	CET1090.019	9670

TITLE OF INVENTION: DUAL FUEL LOCKOUT SWITCH FOR GENERATOR ENGINE

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$500	\$0.00	\$0.00	\$500	03/11/2019

EXAMINER	ART UNIT	CLASS-SUBCLASS
LATHERS, KEVIN ANTHONY	3747	123-575000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-09 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

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1 _____

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PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☐ Corporation or other private group entity ☐ Government

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5. **Change in Entity Status** (from status indicated above)

☐ Applicant certifying micro entity status. See 37 CFR 1.29

☐ Applicant asserting small entity status. See 37 CFR 1.27

☐ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/738,060	06/12/2015	Mark J. Sarder	CET1090.019	9670
26629	7590	12/11/2018	EXAMINER	
ZIOLKOWSKI PATENT SOLUTIONS GROUP, SC (ZPS)			LATHERS, KEVIN ANTHONY	
136 S WISCONSIN ST			ART UNIT	
PORT WASHINGTON, WI 53074			PAPER NUMBER	

3747
DATE MAILED: 12/11/2018

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b) (2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of the Patent Laws, Regulations, or Rules.

Notice of Allowability	Application No. 14/738,060	Applicant(s) Sarder et al.	
	Examiner KEVIN A LATHERS	Art Unit 3747	AIA Status Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendments filed 11/05/2018.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on ____.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.

3. ☒ The allowed claim(s) is/are 1-2,4-8,19 and 21-27. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a) ☐ All b) ☐ Some *c) ☐ None of the:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. ____.

3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: ____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date ____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892) 2. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date ____. 3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material ____. 4. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____.	5. ☐ Examiner's Amendment/Comment 6. ☒ Examiner's Statement of Reasons for Allowance 7. ☐ Other _____.
---	--

/KEVIN A LATHERS/ Primary Examiner, Art Unit 3747	
--	--

DETAILED ACTION

Notice of Pre-AIA or AIA Status

1. The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

Allowable Subject Matter

2. Claims 1, 2, 4-8, 19, and 21-27 are allowed.
3. The following is an examiner's statement of reasons for allowance: The closest prior art fails to disclose or make obvious the use of a dual fuel lockout switch on a dual fuel internal combustion engine wherein when the lockout switch is in one position it prevents the fuel source from coupling to the fuel system lines of the engine.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to KEVIN A LATHERS whose telephone number is (571)272-1050. The examiner can normally be reached on M-F 10a-6p.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at <http://www.uspto.gov/interviewpractice>.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lindsay Low can be reached on 5712721196. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/KEVIN A LATHERS/
Primary Examiner, Art Unit 3747

<i>Index of Claims</i> 	Application/Control No. 14/738,060	Applicant(s)/Patent Under Reexamination Sarder et al.
	Examiner KEVIN A LATHERS	Art Unit 3747

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

CLAIMS										
☐ Claims renumbered in the same order as presented by applicant						☐ CPA		☐ T.D.		☐ R.1.47
CLAIM		DATE								
Final	Original	07/28/2017	02/15/2018	08/29/2018	11/20/2018					
1	1	✓	✓	✓	=					
2	2	✓	○	○	=					
	3	✓	○	○	-					
3	4	○	○	○	=					
4	5	○	○	○	=					
5	6	○	○	○	=					
6	7	✓	✓	✓	=					
7	8	✓	✓	✓	=					
	9	✓	✓	✓	-					
	10	✓	○	○	-					
	11	○	○	○	-					
	12	○	○	○	-					
	13	○	○	○	-					
	14	✓	✓	✓	-					
	15	✓	✓	✓	-					
	16	✓	✓	✓	-					
	17	✓	✓	✓	-					
	18	✓	✓	✓	-					
8	19	✓	✓	✓	=					
	20	✓	○	○	-					
9	21	✓	○	○	=					
10	22	✓	✓	✓	=					
11	23	✓	✓	✓	=					
12	24	✓	✓	✓	=					
13	25	✓	✓	✓	=					
14	26	✓	✓	✓	=					
15	27				=					

Issue Classification 	Application/Control No. 14/738,060	Applicant(s)/Patent Under Reexamination Sarder et al.
	Examiner KEVIN A LATHERS	Art Unit 3747

CPC						
Symbol					Type	Version
F02D	/	19	/	0613	F	2013-01-01
F02D	/	19	/	0605	I	2013-01-01
F02D	/	19	/	0647	I	2013-01-01
F02D	/	19	/	0673	I	2013-01-01
Y02T	/	10	/	36	A	2013-01-01

CPC Combination Sets							
Symbol				Type	Set	Ranking	Version
	/		/				

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	15	
/KEVIN A LATHERS/ Primary Examiner, Art Unit 3747	20 November 2018	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	4B

<i>Issue Classification</i> 	Application/Control No. 14/738,060	Applicant(s)/Patent Under Reexamination Sarder et al.
	Examiner KEVIN A LATHERS	Art Unit 3747

INTERNATIONAL CLASSIFICATION			
CLAIMED			
F02D		19	06
NON-CLAIMED			

US ORIGINAL CLASSIFICATION	
CLASS	SUBCLASS

CROSS REFERENCES(S)						
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)					

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	15	
/KEVIN A LATHERS/ Primary Examiner, Art Unit 3747	20 November 2018	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	4B

<i>Issue Classification</i> 	Application/Control No. 14/738,060	Applicant(s)/Patent Under Reexamination Sarder et al.
	Examiner KEVIN A LATHERS	Art Unit 3747

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47															
CLAIMS															
Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1		10	8	19										
2	2		11		20										
	3		12	9	21										
3	4		13	10	22										
4	5		14	11	23										
5	6		15	12	24										
6	7		16	13	25										
7	8		17	14	26										
	9		18	15	27										

NONE (Assistant Examiner) _____ (Date) _____		Total Claims Allowed: 15	
/KEVIN A LATHERS/ Primary Examiner, Art Unit 3747 (Primary Examiner) _____ (Date) _____		20 November 2018 (Date)	O.G. Print Claim(s) 1
			O.G. Print Figure 4B

Bibliographic Data

Application No: 14/738,060

Foreign Priority claimed: ☐ Yes ☒ No

35 USC 119 (a-d) conditions met: ☐ Yes ☐ No ☐ Met After Allowance

Verified and Acknowledged:

/Kevin Lathers/

Examiner's Signature

Initials

Title:

DUAL FUEL LOCKOUT SWITCH FOR GENERATOR ENGINE

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
06/12/2015	123	3747	CET1090.019
RULE			

APPLICANTS

Champion Engine Technology, LLC, Sussex, WI, UNITED STATES

INVENTORS

Mark J. Sarder Waukesha, WI, UNITED STATES

Aleko D. Sotiriades Cedarburg, WI, UNITED STATES

James J. Dehn Brookfield, WI, UNITED STATES

Leigh Jenison Hartland, WI, UNITED STATES

CONTINUING DATA

FOREIGN APPLICATIONS

IF REQUIRED, FOREIGN LICENSE GRANTED**

06/22/2015

**** SMALL ENTITY ****

STATE OR COUNTRY

UNITED STATES

ADDRESS

ZIOLKOWSKI PATENT SOLUTIONS GROUP, SC (ZPS)

136 S WISCONSIN ST

PORT WASHINGTON, WI 53074

UNITED STATES

FILING FEE RECEIVED

\$970

Customer No. 26629
Confirmation No. 9670

Patent
Attorney Docket No. CET1090.019

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of : Sarder et al.
Serial No. : 14/738,060
Filed : June 12, 2015
For : DUAL FUEL LOCKOUT SWITCH FOR GENERATOR ENGINE
Group Art No. : 3747
Examiner : Kevin A. Lathers

CERTIFICATION UNDER 37 CFR 1.8(a) and 1.10

I hereby certify that, on the date shown below, this correspondence is being:

Mailing

☐ deposited with the US Postal Service in an envelope addressed to Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450

37 CFR 1.8(a)

37 CFR 1.10

☐ with sufficient postage as first class mail ☐ As "Express Mail Post Office to Addressee" Mailing Label No.

Transmission

☐ transmitted by facsimile to Fax No.: 571-273-8300 addressed to Examiner Kevin A. Lathers at the Patent and Trademark Office.

☒ transmitted by EFS-WEB addressed to Examiner Kevin A. Lathers at the Patent and Trademark Office.

Date: November 5, 2018

/Robyn L. Templin/
Signature

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

AFTER-FINAL
AMENDMENT/RESPONSE TO FINAL OFFICE ACTION
MAILED FEBRUARY 22, 2018

Dear Sir:

Responsive to the Final Office Action mailed September 5, 2018, please amend the Application as follows:

OK TO ENTER: /K.A.L./

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (571)-273-2885

JAN 11 2019

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of grace fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

26629 7590 12/11/2018
ZIOLKOWSKI PATENT SOLUTIONS GROUP, SC (ZPS)
136 S WISCONSIN ST
PORT WASHINGTON, WI 53074

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

Robyn L. Templin (Typed or printed name)
Robyn L. Templin (Signature)
1/11/19 (Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/738,060	06/12/2015	Mark J. Sarder	CET1090.019	9670

TITLE OF INVENTION: DUAL FUEL LOCKOUT SWITCH FOR GENERATOR ENGINE

APP. N. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$500	\$0.00	\$0.00	\$500	03/11/2019

EXAMINER	ART UNIT	CLASS-SUBCLASS
LATHERS, KEVIN ANTHONY	3747	123-575000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-09 or more recent) attached. Use of a Customer Number is required.

2. For printing on the patent front page, list

(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,

(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1. Ziolkowski Patent Solutions Group, SC
2. _____
3. _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

Champion Power Equipment, Inc.

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Santa Fe Springs, CA

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☒ Corporation or other private group entity ☐ Government4a. Fees submitted: ☒ Issue Fee ☐ Publication Fee (if required) ☐ Advance Order - # of Copies _____

4b. Method of Payment: (Please first reapply any previously paid fee shown above)

☐ Electronic Payment via EFS-Web ☐ Enclosed check ☒ Non-electronic payment by credit card (Attach form PTO-2038)

☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. _____

5. Change in Entity Status (from status indicated above)

☐ Applicant certifying micro entity status. See 37 CFR 1.29

☐ Applicant asserting small entity status. See 37 CFR 1.27

☐ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature

Date

Typed or printed name

Timothy J. Ziolkowski

Registration No.

38,368

United States Patent and Trademark Office

- Sales Receipt -

01/15/2019 SSANDAR1 00000017 14738060

01 FC:2501

500.00 OP



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/738,060	03/05/2019	10221780	CET1090.019	9670

26629 7590 02/13/2019
ZIOLKOWSKI PATENT SOLUTIONS GROUP, SC (ZPS)
136 S WISCONSIN ST
PORT WASHINGTON, WI 53074

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment is 605 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site <http://pair.uspto.gov> for additional applicants):

Mark J. Sarder, Waukesha, WI;
Champion Engine Technology, LLC, Sussex, WI;
Aleko D. Sotiriades, Cedarburg, WI;
James J. Dehn, Brookfield, WI;
Leigh Jenison, Hartland, WI;

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The USA offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to encourage and facilitate business investment. To learn more about why the USA is the best country in the world to develop technology, manufacture products, and grow your business, visit SelectUSA.gov.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent Number : 10,221,780 B2
Issued : March 5, 2019
Name of Patentee : Sarder et al.
Title of Invention : DUAL FUEL LOCKOUT SWITCH FOR GENERATOR
ENGINE

**REQUEST FOR CERTIFICATE OF CORRECTION OF PATENT FOR
OFFICE'S MISTAKE (37 CFR 1.322)**

1. It is noted that errors appear in this patent of a clerical nature or characterized as more fully described below and would not constitute new matter or would not require re-examination. A Certificate of Correction is requested.

2. Attached hereto is Form PTO-1050 which should be suitable for printing.

3. The errors to be corrected are as follows:

On the Title Page

Item (71) Applicant: delete "Chmapion" and substitute therefore -- Champion --.

4. Please send the Certificate to:

Timothy J. Ziolkowski
Ziolkowski Patent Solutions Group, SC
136 South Wisconsin Street
Port Washington, WI 53074

Date: May 15, 2024

/Timothy J. Ziolkowski/
Timothy J. Ziolkowski
Registration No. 38,368
Telephone: (262) 268-8100

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CERTIFICATE OF CORRECTIONPage 1 of 1

PATENT NO. : 10,221,780 B2
APPLICATION NO. : 14/738,060
ISSUE DATE : March 5, 2019
INVENTOR(S) : Sarder et al.

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

On the Title Page

Item (71) Applicant: delete "Chmapion" and substitute therefore -- Champion --.

(Also Form PTO-1050)

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PATENT NO: 10,221,780 B2

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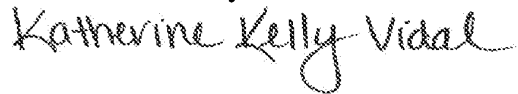
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Page 1 of 1

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Signed and Sealed this
Eleventh Day of June, 2024

Katherine Kelly Vidal
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IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF ARIZONA

Champion Power Equipment, Inc.,
Plaintiff/Counterdefendant,
v.
Firman Power Equipment Inc.,
Defendant/Counterplaintiff.

No. CV-23-2371-PHX-DWL

**CHAMPION POWER EQUIPMENT,
INC.'S OPENING CLAIM
CONSTRUCTION BRIEF**

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I. INTRODUCTION

The Court should adopt Plaintiff Champion Power Equipment, Inc.’s (“Champion”) proposed claim constructions for the disputed claim terms of the patents-in-suit¹ (the “Asserted Patents”) and reject those proposed by Defendant Firman Power Equipment, Inc. (“Firman”). Champion’s proposed constructions are the plain and ordinary meaning of the disputed terms in view of the intrinsic record, and are further bolstered by extrinsic evidence, including Champion’s expert testimony. “If a claim term has plain and ordinary meaning, [the Court’s] inquiry ends.” *Power Integrations, Inc. v. Fairchild Semiconductor Int’l, Inc.*, 711 F.3d 1348, 1361 (Fed. Cir. 2013).

Firman’s proposed constructions, on the other hand, violate some of the most basic tenets of claim construction, including the rule against importing limitations from a preferred embodiment into the claims and the doctrine of claim differentiation (including both the presumption that different claim terms have different meanings, and that different claims have different scope). Firman’s proposed constructions, divorced from well-established patent law, are unsupported by intrinsic or extrinsic evidence (including expert testimony) and appear to be a litigation tactic to attempt to avoid a finding that Firman has willfully infringed the Asserted Patents.

II. PRINCIPLES OF CLAIM CONSTRUCTION

Courts construe the scope of patent claims as a matter of law. *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 391 (1996). Claim constructions form the basis for jury instructions to be used as jurors consider patent infringement. Because the starting point is that all the patent claims are presumed valid and that the claim language has its plain and ordinary meaning, not every term needs to be construed by the Court; only “fundamental disputes” about claim scope must be resolved, and only to the limited extent necessary:

¹ U.S. Patent No. 10,221,780 (the “780 Patent”), No. 10,393,034 (the “034 Patent”), No. 10,598,101 (the “101 Patent”), No. 10,697,398 (the “398 Patent”), No. 11,143,120 (the “120 Patent”), No. 11,143,145 (the “145 Patent”), No. 11,306,667 (the “667 Patent”), No. 11,492,985 (the “985 Patent”), No. 11,530,654 (the “654 Patent”), No. 11,761,390 (the “390 Patent”), No. 11,840,970 (the “970 Patent”), No. 11,905,895 (the “895 Patent”), and No. 11,905,896 (the “896 Patent”). These are attached as Exhibits 1A through 1M.

Although when the parties present a fundamental dispute regarding the scope of a claim term, it is the court's duty to resolve it, courts are not (and should not be) required to construe *every* limitation present in a patent's asserted claims. The purpose of claim construction is to resolve disputed meanings and technical scope, to clarify and when necessary to explain what the patentee covered by the claims, for use in the determination of infringement or invalidity. Accordingly, only those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy.

Promptu Sys. Corp. v. Comcast Corp., 92 F.4th 1372, 1380 (Fed. Cir. 2024) (cleaned up) (citing *O2 Micro Int'l Ltd. v. Beyond Inovvn. Tech. Co.*, 521 F.3d 1351, 1362 (Fed. Cir. 2008); *U.S. Surgical Corp. v. Ethicon, Inc.*, 103 F.3d 1554, 1568 (Fed. Cir. 1997); *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)). In some cases, once appropriate claim construction principles are followed, the court determines that there is no true controversy about the meaning, and then no construction is required. *See, e.g., Summit 6, LLC v. Samsung Elecs. Co.*, 802 F.3d 1283, 1291 (Fed. Cir. 2015) (The district court did not err in declining to construe the disputed term, which was itself "comprised of commonly used terms; each is used in common parlance and has no special meaning in the art. Because the plain and ordinary meaning of the disputed claim language is clear, the district court did not err by declining to construe the term."); *ActiveVideo Networks, Inc. v. Verizon Commc'ns, Inc.*, 694 F.3d 1312, 1326 (Fed. Cir. 2012) (finding that the district court did not err under *O2 Micro* in concluding that "superimposing" claim terms "have plain meanings that do not require additional construction"); *but see O2 Micro Int'l*, 521 F.3d at 1361 ("A determination that a claim term 'needs no construction' or has the 'plain and ordinary meaning' may be inadequate when a term has more than one 'ordinary' meaning or when reliance on a term's 'ordinary' meaning does not resolve the parties' dispute.")

Claim construction is a question of law for the Court. *Markman*, 517 U.S. at 391. Claim terms are given their plain and ordinary meaning as understood by a person having ordinary skill in the art (herein "POSITA"²) at the time of the invention. *Phillips v. AWH*

² Some courts call this a POSA or a PHOSITA. They are the same. "[T]he POS[IT]A is patent law's hypothetical, legal construct 'akin to the 'reasonable person'" used as a reference in negligence determinations." *McCoy v. Heal Sys., LLC*, 850 F. App'x 785, 787–88 (Fed. Cir. 2021) (quoting *In re Rouffet*, 149 F.3d 1350, 1357 (Fed. Cir. 1998)). A POSITA is *not* the same as an expert, who often has more skill or knowledge than a

1 *Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc). The courts “presume that the terms
 2 in the claim mean what they say.” *Power Integrations*, 711 F.3d at 1360 (Fed. Cir. 2013).
 3 “In some cases, the ordinary meaning of claim language as understood by a person of skill
 4 in the art may be readily apparent even to lay judges, and claim construction in such cases
 5 involves little more than the application of the widely accepted meaning of commonly
 6 understood words.” *Phillips*, 415 F.3d at 1314; *Medicis Pharm. Corp. v. Acella Pharm. Inc.*,
 7 CV 10-1780-PHX-JAT, 2011 WL 810044 (D. Ariz. Mar. 2, 2011). “If the claim term has a
 8 plain and ordinary meaning, our inquiry ends.” *Power Integrations, Inc.*, 711 F.3d at 1361.

9 Claim construction begins by examining the claim language itself because the
 10 claims define the invention. *Phillips*, 415 F.3d at 1312. This bears repeating: “It is the
 11 claims, not the preferred embodiments, that define the metes and bounds of the patentee’s
 12 invention.” *IQRIS Techs. LLC v. Point Blank Enters, Inc.*, 130 F.4th 998, 1004 (Fed. Cir.
 13 2025) (citing *Phillips*, 415 F.3d at 1312, 1323). While the claims are read in view of the
 14 specification, importing a limitation from the specification into the claims has been deemed
 15 one of the “cardinal sins of patent law.” *SciMed Life Sys., Inc. v. Advanced Cardiovascular*
 16 *Sys., Inc.*, 242 F.3d 1337, 1340 (Fed. Cir. 2001); *Hill-Rom Servs., Inc. v. Stryker Corp.*,
 17 755 F.3d 1367, 1371 (Fed. Cir. 2014) (“[W]e do not read limitations from the embodiments
 18 in the specification into the claims.”).

19 One common doctrine that helps resolve disputes about claim scope is called claim
 20 differentiation, which generally means that different words/phrases presumably mean
 21 different things, and a narrower limitation in a dependent claim shows that such limitation
 22 is *not* part of the independent claim from which it depends. “Under the doctrine of claim
 23 differentiation, it is presumed that different words used in different claims result in a
 24 difference in meaning and scope for each of the claims.” *Clearstream Wastewater Sys.,*
 25 *Inc. v. Hydro-Action, Inc.*, 206 F.3d 1440, 1446 (Fed. Cir. 2000). This presumption is at its

26 _____
 27 POSITA. Indeed, “[t]he legal definition of ‘ordinary’ skill for a POS[IT]A can be
 28 contrasted with one of ‘expert’ skill.” *Id.* at 788 (citing *Env’t. Designs, Ltd. v. Union Oil*
Co., 713 F.2d 693, 697 (Fed. Cir. 1983) (noting that a “person of ‘ordinary skill in the art’”
 is not “the judge, . . . layman, or . . . those skilled in remote arts, or . . . geniuses in the art”).

strongest “where the limitation sought to be ‘read into’ an independent claim already appears in a dependent claim.”³ *InterDigital Comm., LLC v. ITC*, 690 F.3d 1318, 1324 (Fed. Cir. 2012) (quoting *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 910 (Fed.Cir.2004)). Without the rule against importing a limitation from one claim into another, “the entire statutory and regulatory structure governing the drafting, submission, examination, allowance, and enforceability of claims would crumble.” *D.M.I., Inc. v. Deere & Co.*, 755 F.2d 1570, 1574 (Fed. Cir. 1985). There is also “a presumption that two independent claims have different scope when different words or phrases are used in those claims.” *Seachange Intern., Inc. v. C-COR, Inc.*, 413 F.3d 1361, 1368-69 (Fed. Cir. 2005).

“There are only two exceptions” to the general rule that claims are given their plain and ordinary meaning: “1) when a patentee sets out a definition and acts as his own lexicographer, or 2) when the patentee disavows the full scope of a claim term either in the specification or during prosecution.” *Thorner v. Sony Comput. Entm’t Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012) (emphasis added). “The standards for finding lexicography and disavowal are exacting.” *Hill-Rom*, 755 F.3d at 1371. Regarding the first exception, “[t]o act as its own lexicographer, a patentee must *clearly* set forth a definition of the disputed claim term other than its plain and ordinary meaning” and must “*clearly* express an intent to *redefine* the term.” *Thorner*, 669 F.3d at 1365 (quoting *Helmsderfer v. Bobrick Washroom Equip., Inc.*, 527 F.3d 1379, 1381 (Fed. Cir. 2008)) (emphasis added). As to the second exception, “[t]o disavow claim scope, the specification must contain

³ An “independent” claim does not refer to any other claim number, and thus stands alone, while a “dependent” claim “depends” on an earlier claim(s) within the same patent, incorporating all the depended-upon limitations and adding other limitations. A hypothetical example could look like this:

Claim 1: A system comprising [structure A, structure B, and structure C].

Claim 2: The system of Claim 1, further comprising [structure D].

Claim 3: The system of Claim 2, wherein [structure D] is made of metal.

Here, Claim 1 is independent, and Claims 2 and 3 are dependent. In this example, under the doctrine of claim differentiation, because Claim 3 depends on Claim 2, the “made of metal” limitation that first occurs in Claim 3 means that “structure D” of Claim 2 need not be *necessarily* made of metal, and because “structure D” is not in Claim 1 at all, it would be improper to read in “structure D” as a limitation of Claim 1.

1 ‘expressions of manifest exclusion or restriction, representing a clear disavowal of claim
 2 scope.’” *Retractable Techs., Inc. v. Becton, Dickinson & Co.*, 653 F.3d 1296, 1306 (Fed.
 3 Cir. 2011) (quoting *Epistar Corp. v. Int’l Trade Comm’n*, 556 F.3d 1321, 1335 (Fed. Cir.
 4 2009)). The narrow limits of these two (and only) exceptions were recently emphasized
 5 by the Federal Circuit in *IQRIS*:

6 [T]he patentee is free to choose a term and expect to obtain the
 7 full scope of its plain and ordinary meaning *unless* the patentee
explicitly redefines the term or disavows its full scope.

8 130 F.4th at 1004 (emphasis added) (reversing the district court’s interpretation that a “pull
 9 cord” must be directly pulled by a user—the action of “pulling” was improperly imported
 10 from the specification—because in the absence of inventor lexicography or express
 11 disavowal of claim scope, that limitation cannot be read into the claim). “The standard for
 12 disavowal is exacting, requiring clear and unequivocal evidence that the claimed invention
 13 includes or does not include a particular feature.” *Id.*, 130 F.4th at 1005 (quoting *Poly-Am.,*
 14 *L.P. v. API Indus., Inc.*, 839 F.3d 1131, 1136 (Fed. Cir. 2016)).

15 The patent’s prosecution history may also be relevant to claim construction;
 16 however, claim amendments and statements by the patentee during prosecution do not limit
 17 the claims unless they reflect a “clear and unmistakable disclaimer” of claim scope. *Omega*
 18 *Eng’g v. Raytek*, 334 F.3d 1314, 1323 (Fed. Cir. 2003). Prosecution disclaimer does not
 19 attach “[w]hen the alleged disclaimer is ambiguous or amenable to multiple reasonable
 20 interpretations.” *Core Wireless Licensing S.A.R.L. v. LG Elecs., Inc.*, 880 F.3d 1356, 1367
 21 (Fed. Cir. 2018); *see also Maquet Cardio. LLC v. Abiomed Inc.*, --- F.4th ---, No. 2023-
 22 2045, 2025 WL 876718, at *10 (Fed. Cir. Mar. 21, 2025) (same).

23 Courts may consider extrinsic evidence such as expert testimony and dictionaries.
 24 *Phillips*, 415 F.3d at 1317. For instance, expert testimony can be used “to ensure that the
 25 court’s understanding of the technical aspects of the patent is consistent with that of a
 26 [POSITA].” *Id.* at 1318. However, extrinsic evidence cannot be used to override the plain
 27 and unambiguous interpretation offered by the claim language and specification. *See*
 28 *Profectus Tech. LLC v. Huawei Techs. Co.*, 823 F.3d 1375, 1380 (Fed. Cir. 2016)

1 (“Extrinsic evidence may not be used to contradict claim meaning that is unambiguous in
 2 light of the intrinsic evidence.”) (citations omitted); *Seabed Geosolutions (US) Inc. v.*
 3 *Magseis FF LLC*, 8 F.4th 1285, 1287 (Fed. Cir. 2021) (“If the meaning of a claim term is
 4 clear from the intrinsic evidence, there is no reason to resort to extrinsic evidence.”).

5 These basic tenets of patent claim construction show that all of the disputed terms
 6 should be accorded their plain and ordinary meaning. The patentee has neither acted as its
 7 own lexicographer nor expressly disavowed any claim scope, and Champion’s expert
 8 testimony on plain and ordinary meaning is unrebutted for all but four of the disputed terms.
 9 Rather than present legitimate disputes of the plain and ordinary meaning of the disputed
 10 claim terms, Firman repeatedly commits the cardinal sin of importing limitations from the
 11 specification into the claims and ignores the doctrine of claim differentiation. Applying
 12 these principles, the Court should reject Firman’s approach to the disputed claim terms and
 13 confirm that the terms should be viewed with their plain and ordinary meaning or the
 14 alternative proposed constructions suggested by Champion below.

15 **III. OBJECTION TO FIRMAN’S LATE CONSTRUCTIONS**

16 Proposed claim construction exchanges were due on January 17, 2025, which was
 17 designed to give adequate time for the parties and their experts to consider the other parties’
 18 positions and prepare appropriately. [See ECF 105.] As of March 4, 2025, Firman’s
 19 construction of “selector switch” was “a component whose positioning enables a subsequent
 20 user selection”; “fuel lockout apparatus” was “an apparatus whose positioning prohibits a
 21 subsequent user action necessary to enable a different fuel source”; and “electro-mechanical
 22 valve system” was “a system of one or more electrically controlled solenoid valves.” [Ex.
 23 2, Firman’s March 5, 2025 redline showing changes from its previous proposal, at 1,
 24 20–21, and 28.] Champion prepared accordingly. However, on March 5, 2025 (two days
 25 before expert reports and the joint claim construction statement were due), Firman changed
 26 its positions on these three terms (as reflected below) and then objected to Champion
 27 supplementing its expert report in response. This eleventh-hour change was prejudicial to
 28 Champion because it did not provide an adequate opportunity to address Firman’s new

positions (and Champion was forced to waste time and money addressing positions that Firman now desires to abandon). Champion served a supplemental expert report on March 14, 2025, to address Firman's late-disclosed positions. Based on Firman's late disclosure and the prejudice caused to Champion, Champion requests that Firman's late-disclosed constructions be stricken.⁴

IV. OVERVIEW OF THE ASSERTED PATENTS

The Asserted Patents relate generally to multi-fuel portable generators, and the switching of fuels. Multi-fuel portable generators can run on more than one fuel source to create electricity. Typically, they can run on liquid fuel such as gasoline or gaseous fuels such as propane or natural gas. The ability to switch between different fuel types provides consumers with the option to use fuels that may be more convenient or produce a higher power output (e.g., gasoline) or fuels that are cleaner (e.g., propane and natural gas).

Examples include: a multi-fuel generator that can have a fuel selector that switches between two fuels. The fuel selector interacts with components such as switches, solenoids, and valves to control which of the different fuels flow to an engine of the multi-fuel generator. Different types of valves in the multi-fuel generator can be mechanical valves or electro-mechanical valves, for example. In one example, a multi-fuel generator can have a mechanical fuel lockout switch that is used to selectively control which fuel flows to the engine from one of the fuel sources. Other components of the multi-fuel generator may include, for example, an engine, a pressure regulator, and an alternator. The components are coupled in a manner that facilitates the desired functionality of the multi-fuel generator.

V. POSITA DEFINITION

Champion's expert witness, William Singhose, Ph.D., has offered an opinion on the skill level for a POSITA that the Court should adopt. [First Supplemental Expert Report of William Singhose, March 14, 2025, attached hereto as Exhibit 3 (the "Singhose Report") at

⁴ If they are not stricken, basic fairness should—at a minimum—compel the Court to overrule Firman's objections to Champion's March 14, 2025 supplemental expert report that was necessitated by Firman's untimely disclosed constructions. Regardless, Champion's March 7 report is sufficient for the Court to find plain meaning for all terms.

¶¶ 28–35.]⁵ In summary, Dr. Singhose opines that the claimed subject matter in the Asserted Patents can be compared to subject matter typically taught in the relevant curricula for mechanical engineering or a closely related field. [*Id.* ¶ 29.] Thus, a POSITA would have a four-year degree in mechanical engineering or a closely related field and at least one year of experience designing, developing, servicing, or operating fuel-powered machinery. [*Id.* ¶ 29.] Additional education could substitute for professional experience and significant work experience—such as working with, servicing, or operating such machinery in the field—could substitute for formal education. [*Id.* ¶ 30.] Dr. Singhose’s senior year mechanical engineering students complete a capstone design project wherein they usually design, construct, and demonstrate a prototype product, and such prototypes often utilize switches, valves, and various mechanical assemblies comparable to the subject matter of the Asserted Patents. [*Id.* ¶ 33.] Therefore, mechanical engineering students would be able to understand and practice most of the claimed features, as well as how those features would be combined and operate. [*Id.*] An additional year⁶ of experience addresses components of such systems, like carburetors with float bowls, not usually taught at the undergraduate level. [*Id.* ¶ 34.] This POSITA definition applies to all the Asserted Patents. [*Id.* ¶ 28.]

VI. DISPUTED TERMS AND PROPOSED CONSTRUCTIONS — TERMS FOR WHICH FIRMAN HAS NO EXPERT TESTIMONY

A. “valve assembly”

⁵ Dr. Singhose disclosed this supplement on March 14, 2025 to address Firman’s untimely disclosed claim constructions (*see* Section III, above). Paragraphs 1–141 of the Singhose Report are identical to the paragraphs of his original report served March 7, 2025, attached as Exhibit 4. For simplicity, Champion will cite only to Exhibit 3. Dr. Singhose is expected to testify at the Claim Construction Hearing consistent with his expert reports (Exhibits 3 and 4) including that those exhibits are true and correct copies of his expert reports. His qualifications are laid out in Paragraphs 3–15 of his report (and his CV attached thereto).

⁶ Firman’s expert, Dr. Jacobs, proposes a POSITA requiring *eight years* of experience *plus* an undergraduate degree. But he only worked on one dual-fuel engine (although he does not remember what it was), does not personally have eight years’ experience working on dual-fuel engines, and never worked in industry after starting formal education. [Jacobs Deposition, Exhibit 5, at 43:7–12, 44:17–25, 46:17–21.] Dr. Singhose, on the other hand, graduated from MIT and has worked in industry. [Ex. 3 at Ex. A, pages 2–4.] There is no support for Firman’s POSITA definition.

'101 Patent Claims 17 and 18; '667 Patent Claims 1–3, 10, and 12–15; '390 Patent Claims 3–7; and '896 Patent Claims 21, 25–28, 30–32	
Champion's Proposed Construction	Firman's Proposed Construction
Plain and ordinary meaning	an assembly including a fuel valve and handle that are separate and distinct from the selector switch

First, Firman proposes *adding* a limitation of a “handle” into the construction of a “valve assembly” when “handle” does not appear in the claims. Second, these claims do not state components are “separate and distinct from the selector switch.” The claims speak for themselves and show that Firman’s construction is untenable under the law.

For example, Claim 17 of the '101 Patent claims, *inter alia*, a “valve assembly positioned on or adjacent the selector switch,”⁷ which inherently contradicts Firman’s proposal that they be “separate and distinct.” Indeed, the “valve assembly” is said to be “on . . . the selector switch,” so they are not necessarily “separate” nor “distinct.” Firman is clearly attempting to force the claims to be read *only* on a preferred embodiment. As another example, Claim 1 of the '667 Patent claims “a selector switch positioned on the valve assembly . . .,” again cutting against Firman’s argument about being “separate” and “distinct.” A rabbit may have ears that are said to be “on” the rabbit or “on” its head, but to say that the ears are “separate” and “distinct” from the rabbit or its head is illogical and not the ordinary meaning. Claim 10 of the '667 Patent is yet another example where the “valve assembly” and the “selector switch” are not called out by the patentee to have any such “separate and distinct” relationship. And Claim 14 of the '667 Patent demonstrates a case where the “valve assembly” and “selector switch” can be related by a “corresponding operation,” but certainly does not require them to be “separate and distinct.”⁸

Also, demonstrating Firman’s attempt to read preferred embodiments into the claims is Firman’s desire to require a “handle” in the “valve assembly” where the patentee clearly did not require it. Claim 10 of the '101 Patent separately refers to “a valve assembly” and

⁷ Similar “on or adjacent” phrasing occurs in the '390 Patent, Claim 4.

⁸ Similar “corresponding operation” phrasing occurs in the '390 Patent, Claim 6.

“at least one valve handle positioned on and operably connected to the valve assembly” Therefore, the “valve assembly” itself cannot be defined to have a handle because the patentee used separate language to call out when a handle is required. As another example, Claim 29 of the ’896 Patent further limits dependent Claim 28 (depending from independent Claim 21 through dependent Claim 26), which has a “valve assembly,” by further claiming “a first valve handle” and “a second valve handle.” The fact that dependent Claim 29 specifically adds “handle[s]” means the claims from which it depends are not required to have handles. Otherwise, Claim 29 would be meaningless. For at least these reasons, under the doctrine of claim differentiation, “valve assembly” cannot be construed as *necessarily* “including a . . . handle.” A “valve assembly” may include a handle, but it is not required.

Firman’s faulty construction invites this Court to make the same error that caused the Federal Circuit to reverse the district court’s claim construction in *IQRIS Techs. LLC*, 130 F.4th at 1004. There, the district court improperly interpreted “pull cord” as needing to be “directly pulled” by the user (improperly reading preferred embodiments into the claims) and that “pull cord” excludes cords with handles. *Id.* at 1003. Referring to plain and ordinary meaning, and absence of lexicography or disavowal of claim scope, the patentee argued that (1) the claims do not specify (and thus are not limited to) pulling directly or indirectly, and (2) the claims were silent about whether the pull cord could have a handle or not. *Id.* at 1003–04. Applying the correct law, the Federal Circuit agreed with the patentee that the claim *did not require* a handle (nor the absence of a handle) and *was not limited to* “direct” pulling, “[e]ven when all embodiments in the written description depict a pull cord that is directly pulled.” *Id.*

Similarly here, the Court should not commit the same error by requiring that the valve assembly have a handle in any claim that does not expressly require “a handle,” or that the “valve assembly” be “separate and distinct” from a selector switch. The Court should adopt the plain and ordinary meaning of “valve assembly.”

Finally, and while extrinsic evidence is certainly not necessary for this term (and Firman has not explained why any extrinsic evidence would be relevant here), Firman’s

own expert could not even testify as to what a “valve” is, let alone what one “requires”. [Ex. 5, at 20:11–21; *cf.* Ex. 3 ¶¶ 137–38.] Unable to describe a “valve”, Firman’s “expert” is not qualified to provide credible testimony in this field. *See also, e.g., Iris Connex, LLC v. Dell, Inc.*, 235 F. Supp. 3d 826, 848 (E.D. Tex. 2017) (issuing sanctions against party that “advanced a claim construction divorced from the specification and claim language, ignored the file history, contravened Federal Circuit law, relied heavily on extrinsic evidence to the exclusion of the intrinsic evidence, and asked the Court to adopt a construction that simply did not make any sense.”)

For the foregoing reasons, the Court should adopt plain and ordinary meaning and reject Firman’s tortured construction that violates claim construction principles.

B. “fuel valve”

’101 Patent Claim 18; ’667 Patent Claims 3 and 15; ’390 Patent Claim 7; ’896 Patent Claims 28 and 32	
Champion’s Proposal	Firman’s Proposal
Plain and ordinary meaning	a mechanical fuel valve

Firman commits the cardinal sin by importing a limitation (“mechanical”) from the specification into claims where it does not exist. Worse, Firman’s construction also violates the doctrine of claim differentiation. “Under the doctrine of claim differentiation, it is presumed that different words used in different claims result in a difference in meaning and scope for each of the claims.” *Clearstream Wastewater Sys., Inc.*, 206 F.3d at 1446. There is also “a presumption that two independent claims have different scope when different words or phrases are used in those claims.” *Seachange Intern., Inc.*, 413 F.3d at 1368–69.

Referring to Claim 18 of the ’101 Patent, the word “mechanical” is wholly absent. However, because dependent Claim 19 adds the “mechanical” limitation to the valves of Claim 18, it necessarily means that Claims 18’s valves need not be mechanical.

As to Claim 3 of the ’667 Patent, since Claim 4 further limits valves of Claim 3 to “non-solenoid, mechanical valves,” Claim 3 cannot be read to have that limitation. As to Claim 7 of the ’390 Patent, Claim 14 is similarly structured, and since Claim 15 further defines the valves as mechanical, then neither Claim 14 nor 7 can be so limited. Similarly,

1 in the '896 Patent, Claim 34 further defines the valves as being mechanical, so to argue that
2 any other claim requires valves to be mechanical would render Claim 34 superfluous.

3 Thus, in the absence of express claim language that a claimed fuel valve is
4 mechanical, a fuel valve may or may not be mechanical. *See IQRIS*, 130 F.4th at 1003–04.
5 [See also Ex. 3 ¶¶ 71–73 (fuel valve may or may not be mechanical).] Accordingly, the
6 Court should adopt plain and ordinary meaning and reject Firman’s invitation to add the
7 word “mechanical” to every occurrence of “fuel valve.”

8 **C. (1) “[a] switch to change operation of the engine between gaseous fuel**
9 **and liquid fuel” and (2) “[a] switch ... to change operation of the engine**
10 **between gaseous fuel and liquid fuel”**

'398 Patent Claims 1 and 57; '145 Patent Claim 1	
Champion’s Proposal	Firman’s Proposal
Plain and ordinary meaning	non-limiting intended use

12 Firman’s “non-limiting intended use” position is frivolous because this doctrine is
13 applied only (if at all) to claim preamble language; the at-issue language is not in the claims’
14 preambles. *See Acceleration Bay, LLC v. Activision Blizzard Inc.*, 908 F.3d 765, 770 (Fed.
15 Cir. 2018) (“Because the terms at issue appear in preambles, we must determine whether
16 the terms are limitations.”) (emphasis added); *see also In re Fought*, 941 F.3d 1175, 1179
17 (Fed. Cir. 2019) (rejecting argument that “travel trailer” in the preamble of a claim was a
18 “non-limiting intended use,” holding it was as a “structural limitation of the claim”). If it is
19 not in a preamble, there is no valid argument that the claimed structure would be
20 “non-limiting”; there is no legal support for Firman’s position, and the inquiry can stop
21 here.

22 Stated differently, Firman asks the Court to excise this element from the claims,
23 which is improper. *See Pause Tech., LLC v. TiVo, Inc.*, 419 F.3d 1326, 1334 (Fed. Cir.
24 2005) (“In construing claims, however, we must give each claim term the respect that it is
25 due.”); *Strattec Sec. Corp. v. Gen. Auto. Specialty Co.*, 126 F.3d 1411, 1417 (Fed. Cir. 1997)
26 (holding that it was legal error for the district court to instruct the jury that the claim term
27 “sheet” was not properly considered part of the claim); *Exxon Chem. Patents, Inc. v.*
28 *Lubrizol Corp.*, 64 F.3d 1553, 1557 (Fed. Cir. 1995) (“We must give meaning to all the

words in Exxon’s claims.”). Among other flaws in this approach, Firman wrongly reads “switch” as a verb (an action) as opposed to a noun (a thing). Since the claim calls for “a” switch, it is clearly a “thing”—a noun—and therefore is a structural limitation to the claim. A cursory review of ’398 Patent Claim 1 shows a list of each physical object as a separate paragraph – an engine, a switch, a carburetor... etc. And, in the final clause, the claim refers to “actuation of the switch.” Clearly, switch is used here as a noun, a thing, subject to “actuation”; it is not an imaginary “non-limiting use.” Example embodiments even contain a reference numeral, switch 38, which is referenced more than 30 times throughout the specifications of the ’398 and ’145 Patents and has two figures dedicated to its placement according to certain embodiments – FIG. 2 and FIG. 3.

Dr. Singhose opines that a POSITA would accord these terms their plain and ordinary meaning consistent with and understood in light of the specification and claim language, which includes a physical structure arranged to allow a fuel selection. [Ex. 3 ¶ 111.] Switches that change the operating mode of machines are common, and a POSITA would be aware of several such switches that would be appropriate for the claimed technology, such as dial switches used by many cars to change the operation of the car from parked, to reverse, to forward travel. [*Id.* ¶ 112.] The Court should reject Firman’s contention that this is a “non-limiting intended use,” and adopt plain and ordinary meaning.

D. “prevent[s] actuation of the mechanical fuel valve”

’780 Patent Claims 2, 8, and 15; ’895 Patent Claims 2 and 8	
Champion’s Proposal	Firman’s Proposal
Plain and ordinary meaning	prevent[s] the mechanical fuel valve from moving

“prevent the mechanical fuel valve from opening the liquid fuel line”

’654 Patent Claim 7; ’970 Patent Claims 5, 27, and 51; ’895 Patent Claim 15	
Champion’s Proposal	Firman’s Proposal
Plain and ordinary meaning	prevent[s] the mechanical fuel valve from moving

The main flaw in Firman’s position for these two separate claim terms is that these are two clearly different phrases and Firman wants them to have an identical meaning. “Under the doctrine of claim differentiation, it is presumed that different words used in

different claims result in a difference in meaning and scope for each of the claims.” *Clearstream Wastewater Sys., Inc.*, 206 F.3d at 1446. There is also “a presumption that two independent claims have different scope when different words or phrases are used in those claims.” *Seachange Intern., Inc.*, 413 F.3d at 1368–69.

Also implicit in Firman’s position is that “actuat[ing]” and “opening” are both identical to the word “moving.” But that is facially false, and Firman gives no support for this construction. Moreover, “moving” presents even more confusion, not less. These are portable generators with tires and wheels—designed to “move” from place to place. If the generator were on a “moving” truck, is the valve “moving”? Firman’s construction creates more questions than answers. Meanwhile, it seems clear that a valve could hypothetically “move” at some level without “opening the liquid fuel line” (as in one of the phrases) or “actuation” as in the other phrase (e.g., the valve could vibrate during the generator’s operation without “opening the liquid fuel line” or “actuating”). A valve could also be “moving” to a closed position, which is not equal to “opening” the fuel line. While maybe “moving” could have an understandable meaning in some hypothetical scenario, it is not the term the patentee chose to use here; if the patentee meant to say it wanted to prevent something from “moving,” it could easily have used that word. [See Ex. 3 ¶ 79.]

For the foregoing reasons, the Court should adopt plain and ordinary meaning and reject Firman’s tortured construction that violates claim construction principles.

E. “simultaneously”

’780 Patent Claim 6; ’895 Patent Claims 6 and 12; ’034 Patent Claim 6	
Champion’s Proposal	Firman’s Proposal
Plain and ordinary meaning, which includes two or more acts occurring over an overlapping time period; alternatively, two or more acts occurring over an overlapping time period.	concurrently

Firman’s proposal to redefine “simultaneously” to “concurrently” only creates more confusion and yet another term to define (*i.e.*, what does “concurrently” mean?). Firman’s proposal adds no clarity whatsoever.

In the first three of the four cited instances of the term, the patentee used the term

1 in the negative—that is, to “prevent simultaneous” fuel delivery or to “not simultaneously”
2 deliver fuel. In the last, Claim 6 of the ’034 Patent, it is used to call for the timing of the
3 liquid cutoff solenoid—“wherein activating the gaseous cutoff simultaneously activates
4 the liquid cutoff solenoid.”

5 A POSITA knows that mechanical components such as valves cannot be instantly
6 moved at an exact instant in time. [Ex. 3 at ¶¶ 105–06.] Newton’s laws of motion dictate
7 that such motions require some time. The patentee recognized that when it stated: “to
8 prevent, or substantially prevent, simultaneous fuel delivery of the liquid fuel and the
9 gaseous fuel to the engine.” [’034, Col. 9, lns. 6–10.] As such, a POSITA knows that the
10 motions of all matter are subject to “time constant” limitations. [Ex. 3 at ¶¶ 105–06.] Each
11 component, and the systems that they form when combined together, require certain time
12 periods to transition from one state to another. [*Id.*] Given this knowledge, a POSITA
13 would view the use of “simultaneously” as indicating that two or more acts are occurring
14 over or during an overlapping time period, but not at any exact moment in time. [*Id.*]

15 Firman’s proposal, “concurrently,” is a term that does not appear anywhere in the
16 specifications for the claims at issue. Moreover, Firman’s proposal violates the laws of
17 physics in requiring two events to occur “concurrently”—over any exact moment in time.
18 [*Id.* ¶ 106.] Thus a POSITA would not understand the term to have this meaning.

19 **F. (1) “selectively control fuel flow to the dual fuel engine from a first fuel**
20 **source through a first fuel line and a second fuel source through a second fuel**
21 **line” and (2) “selectively control fuel flow to the ... [generator / engine] from**
the liquid fuel source through the liquid fuel line and the pressurized fuel
source through the gaseous fuel line”

22 **’780 Patent Claims 1 and 15⁹; ’985 Patent Claims 5 and 15; ’654 Patent Claims 1**
23 **and 6; ’970 Patent Claims 1, 12, 20, and 44; and ’895 Patent Claims 1, 8 and 14**

Champion’s Proposal	Firman’s Proposal
Plain and ordinary meaning	a portion of the mechanical fuel valve mechanically blocks fuel flow from one fuel source while unblocking fuel flow from a second fuel source

24 While the patentee describes in detail how certain valves work in the Detailed
25
26

27 ⁹ Firman asserts that the ’780 Patent Claim 8 includes a variation of these terms, and
28 Champion disputes that assertion.

Description of the Preferred Embodiment section of the specifications of its patents, consistent with its duty to teach how to practice the inventions, including describing blocking and unblocking functions, the patentee *never* used either “block” or “unblock” in any of the claims. To read such limitations into the claims for these simple phrases that contain no complex words violates the well-settled rule that “while the claims are read in view of the specification, importing a limitation from the specification into the claims has been deemed one of the ‘cardinal sins of patent law.’” *SciMed Life Sys.*, 242 F.3d at 1340.

Further, Dr. Singhose opines that a POSITA would not understand these terms in the way Firman proposes, because Firman’s proposed construction adds extraneous limitations that are not supported by the Asserted Patents, the Asserted Claims, or the prosecution history. [Ex. 3 ¶ 99.] Specifically, Firman’s proposed construction converts a requirement of “selectively control” to a meaning indicating “blocking and unblocking.” “Blocking” is not equivalent to “selectively controlling” because the term “blocking” can mean completely stopping. [*Id.*] On the other hand, “controlling” can certainly include blocking, but also includes increasing and decreasing by various desired amounts. [*Id.*] By importing words like “mechanical” and “unblocking” into the claims without any support, Firman violates basic claim construction principles. *See, e.g., SciMed Life Sys.*, 242 F.3d at 1340; *Hill-Rom*, 755 F.3d at 1371.

G. “desired pressure”

’985 Patent Claim 1; ’654 Patent Claims 1, 6, and 10; ’970 Patent Claims 1, 12, 14, and 20; ’895 Patent Claim 14; ’034 Patent Claims 11 and 24; ’120 Patent Claim 12

Champion’s Proposal	Firman’s Proposal
Plain and ordinary meaning, including any pressure enabling engine operation; alternatively, any pressure enabling engine operation	pressure at which the engine operates

A POSITA reading this claim term in light of the relevant specifications would understand that operating an engine (or generator) is a desirable outcome of the claimed inventions; the claims themselves state as much. [Ex. 3 ¶¶ 62–65.] Therefore, the plain and ordinary meaning of “desired pressure” would contemplate a pressure for the fuel that,