

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

MWE INVESTMENTS, LLC,
HARBOR FREIGHT TOOLS USA, INC., and
GENERAC POWER SYSTEMS, INC.,
Petitioners

v.

CHAMPION POWER EQUIPMENT, INC.,
Patent Owner.

U.S. Patent No. 11,905,895

Issued: February 20, 2024

Title: DUAL FUEL LOCKOUT SWITCH FOR GENERATOR ENGINE

Inter Partes Review No. IPR2025-01384

**PETITION FOR *INTER PARTES* REVIEW
OF U.S. PATENT NO. 11,905,895**

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LIST OF EXHIBITS

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Ex. 1001	U.S. Patent No. 11,905,895 (“the ’895 Patent”)
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Ex. 1003	Declaration of Mahdi Shahbakhti
Ex. 1004	U.S. Patent No 1,931,698 to Holzapfel (“Holzapfel”)
Ex. 1005	LP-Gas Code Handbook, Eighth Edition, Lemoff, Theodore C., (2008) (excerpted) (“LP-Gas Handbook”)
Ex. 1006	2-Stage Regulator Assembly (“2-Stage Assembly”) with WayBack Machine certification
Ex. 1007	American Heritage Dictionary
Ex. 1008	File History of U.S. Patent No. 10,221,780
Ex. 1009	Champion’s Claim Construction Brief CV-23-2371-PHX-DWL
Ex. 1010	DuroMax XP4400EH Operator’s Manual (“DuroMax”)
Ex. 1011	Declaration of David Raskin (dated May 7, 2025)
Ex. 1012	U.S. Patent No. 5,718,265 to Elsdon (“Elsdon”)
Ex. 1013	U.S. Patent Application No. 2011/0100335 A1 to Parlatore (“Parlatore”)
Ex. 1014	U.S. Patent No. 4,492,207 to Hallberg (“Hallberg”)
Ex. 1015	“Convert Blackmax 7000 Watt Generator to Propane and Natural Gas,” YouTube Video, posted October 11, 2013 (<i>available at</i> https://www.youtube.com/watch?v=Ip7ckWAZ3xQ)

CLAIM LIST

Claim Element	Claim Language
[1.0]	A mechanical fuel lockout switch for a dual fuel engine comprising:
[1.1]	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,
[1.2]	the mechanical fuel valve configured to: allow communication between the first fuel source and the dual fuel engine and prevent communication between the second fuel source and the dual fuel engine while in the first position, and prevent communication between the first fuel source and the dual fuel engine while in the second position
[1.3]	and a fuel lockout apparatus coupled to the mechanical fuel valve
[1.4]	and 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.
Claim 2	Claim Language
[2]	The mechanical fuel lockout switch of claim 1 wherein the fuel lockout apparatus prevents actuation of the mechanical fuel valve to the first position when the second fuel source is in communication with the dual fuel engine.
Claim 3	Claim Language
[3]	The mechanical fuel lockout switch of claim 1 wherein the fuel lockout apparatus comprises a flange rigidly coupled to the mechanical fuel valve and configured to: cover an inlet of the second fuel line while the mechanical fuel valve is in the first position, and uncover the inlet of the second fuel line while the mechanical fuel valve is in the second position.

Claim 4	Claim Language
[4]	The mechanical fuel lockout switch of claim 3 wherein the mechanical fuel valve is configured to rotate between the first position and the second position and the flange is configured to rotate transversely across the inlet of the second fuel line.
Claim 5	Claim Language
[5]	The mechanical fuel lockout switch of claim 3 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 configured to mate with the first end of the quick-disconnect hose coupling to couple the second fuel source to the second fuel line.
Claim 6	Claim Language
[6]	The mechanical fuel lockout switch 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.
Claim 7	Claim Language
[7]	The mechanical fuel lockout switch of claim 6 wherein the mechanical fuel valve is configured to: provide liquid fuel from a liquid fuel tank of the first fuel source to the dual fuel engine while in the first position, and provide gaseous fuel from a pressurized fuel container of the second fuel source to the dual fuel engine while in the second position.
Claim 8	Claim Language
[8.0]	A mechanical fuel lockout switch for a dual fuel engine comprising:
[8.1]	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,
[8.2]	the mechanical fuel valve configured to: allow

	communication between the first fuel source and the dual fuel engine and prevent communication between the second fuel source and the dual fuel engine while the first position, and prevent communication between the first fuel source and the dual fuel engine while in the second position; and
[8.3]	a fuel lockout apparatus coupled to the mechanical fuel valve
[8.4]	and configured to prevent actuation of the mechanical fuel valve to the first position when the second fuel source is in communication with the dual fuel engine.
Claim 9	Claim Language
[9]	The mechanical fuel lockout switch of claim 8 wherein the fuel lockout apparatus comprises a flange rigidly coupled to the mechanical fuel valve and configured to: cover an inlet of the second fuel line while the mechanical fuel valve is in the first position, and uncover the inlet of the second fuel line while the mechanical fuel valve is in the second position.
Claim 10	Claim Language
[10]	The mechanical fuel lockout switch of claim 9 wherein the mechanical fuel valve is configured to rotate between the first position and the second position and the flange is configured to rotate transversely across the inlet of the second fuel line.
Claim 11	Claim Language
[11]	The mechanical fuel lockout switch of claim 9 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 configured to mate with the first end of the quick-disconnect hose coupling to couple the second fuel source to the second fuel line.
Claim 12	Claim Language
[12]	The mechanical fuel lockout switch of claim 8 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.
Claim 13	Claim Language
[13]	The mechanical fuel lockout switch of claim 12 wherein the mechanical fuel valve is configured to: provide liquid fuel from a liquid fuel tank of the first fuel source to the dual fuel engine while in the first position, and provide gaseous fuel from a pressurized fuel container of the second fuel source to the dual fuel engine while in the second position.
Claim 14	Claim Language
[14.0]	A dual fuel generator and fuel delivery system comprising:
[14.1]	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;
[14.2]	a fuel regulator system located off board the dual fuel generator, the fuel regulator system comprising:
[14.3]	a primary pressure regulator couplable to a service valve of the pressurized fuel source and configured to regulate the gaseous fuel supplied from the pressurized fuel source to a reduced pressure, and
[14.4]	a secondary pressure regulator couplable 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;
[14.5]	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, the mechanical fuel valve configured to open and close the liquid fuel line to selectively control fuel flow from the liquid fuel source to the dual fuel

	generator; and
[14.6]	a fuel lockout apparatus coupled to the mechanical fuel valve and configured to:
[14.7]	prevent the pressurized fuel source from coupling to the gaseous fuel line while the liquid fuel line is open, and
[14.8]	permit the pressurized fuel source to couple to the gaseous fuel line while the liquid fuel line is closed by the mechanical fuel valve.
Claim 15	Claim Language
[15]	The dual fuel generator and fuel delivery system of claim 14 wherein the fuel lockout apparatus is further configured to prevent the mechanical fuel valve from opening the liquid fuel line while the fuel regulator system is coupled to the gaseous fuel line.
Claim 16	Claim Language
[16]	The dual fuel generator and fuel delivery system of claim 14 wherein the fuel lockout apparatus comprises a fuel inlet cover that actuates with the mechanical fuel valve to cover an inlet of the gaseous fuel line while the liquid fuel line is open and to uncover the inlet of the gaseous fuel line when the liquid fuel line is closed.
Claim 17	Claim Language
[17]	The dual fuel generator and fuel delivery system of claim 14 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 and configured to mate with the first end of the quick-connect hose coupling to couple the secondary pressure regulator to the gaseous fuel line.
Claim 18	Claim Language
[18]	The dual fuel generator and fuel delivery system of claim 14 further comprising a regulator mounting device fixed to the pressurized fuel source; and at least the secondary pressure regulator is mounted on the regulator mounting

	device.
Claim 19	Claim Language
[19]	The dual fuel generator and fuel delivery system of claim 18 wherein the primary pressure regulator is mounted on the regulator mounting device.
Claim 20	Claim Language
[20]	The dual fuel generator and fuel delivery system of claim 19 wherein the regulator mounting device is configured to attach onto a collar of a pressurized fuel container of the pressurized fuel source so that the primary and secondary pressure regulators are positioned adjacent each other along an outer periphery of the collar.
Claim 21	Claim Language
[21]	The dual fuel generator and fuel delivery system of claim 14 wherein: the fuel regulator system comprises a dual stage pressure regulator; and the primary and secondary pressure regulators are integral components of the dual stage pressure regulator.

I. STANDING AND RELIEF REQUESTED

MWE Investments, LLC, Harbor Freight Tools USA, Inc., and Generac Power Systems, Inc. (“Petitioners”) request *Inter Partes Review* (“IPR”) under 35 U.S.C. §§311–319 and 37 C.F.R. §42 of Claims 1–21 of U.S. Patent No. 11,905,895 (“the ’895 Patent”) based on the following grounds set forth.

Ground	Basis	Challenged Claims	Reference(s)
1	§103	1–4, 6–10, and 12–13	DuroMax and Elsdon
2	§103	5, 11, and 14–21	DuroMax, Elsdon, and Parlature in View of LP-Gas Handbook
3A	§102	1, 6, and 7	Hallberg
3B	§103	2, 8, 12, and 13	Hallberg
4	§103	14, 15, and 17-21	Hallberg and Parlature in View of LP-Gas Handbook

Petitioners certify that the ’895 patent is available for IPR.

As explained herein, this Petition establishes a reasonable likelihood that Petitioners will prevail in showing that at least one of the challenged claims is unpatentable. Petitioners respectfully request that this IPR be instituted, and that Claims 1–21 be canceled as unpatentable.

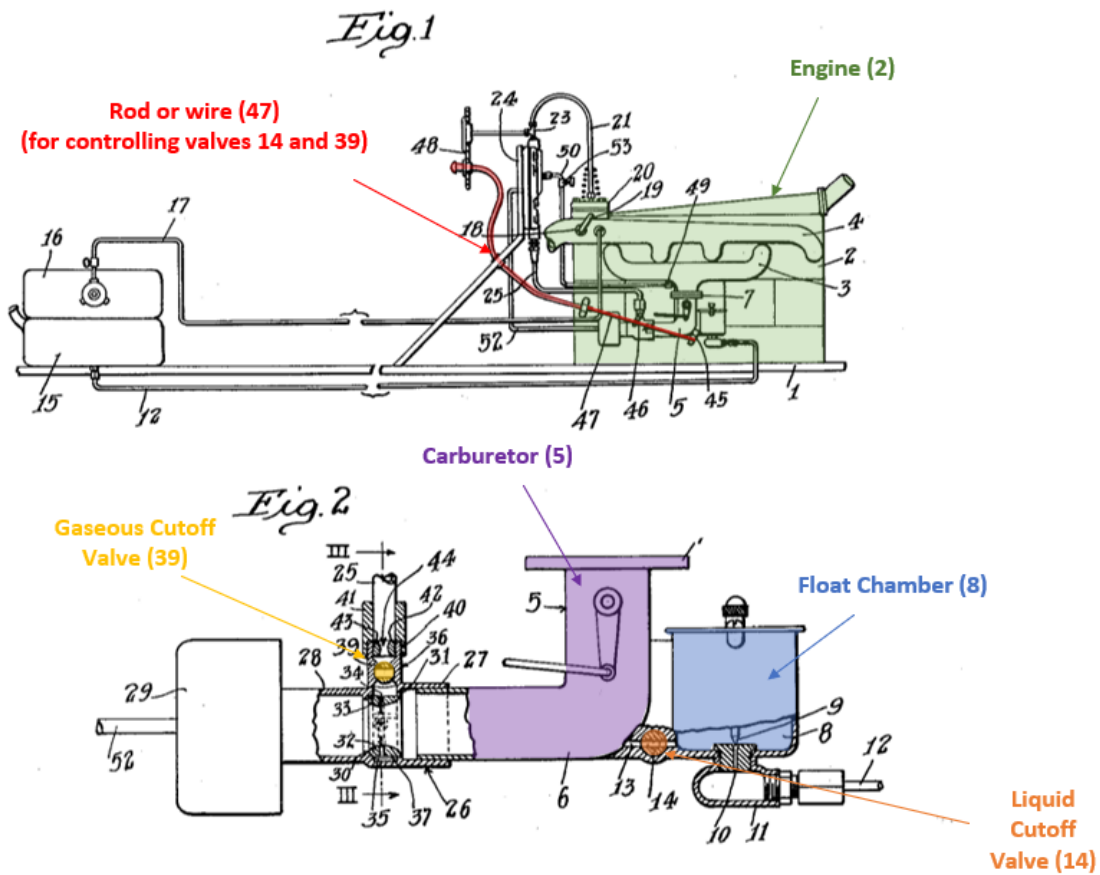
II. STATE OF THE ART

A. Dual-Fuel Combustion Engines

Dual-fuel engines that can alternate between running on liquid or gaseous fuel have been known in the art for nearly 100 years. For example, Holzapfel, U.S.

Patent No 1,931,698, was filed in 1931 and discloses “a fuel system embodying the supplying of liquid fuel and gaseous fuel to an engine in alternation at will.”

Ex.1004, 1:1–5. Holzapfel further teaches that the disclosed engine “provide[s] a fuel system...in which the liquid fuel supply may be cut off and the gaseous fuel supply turned on, or vice versa so that when the liquid fuel is employed the gaseous fuel is disconnected and while the gaseous fuel is employed the liquid fuel is disconnected.” *Id.*, 1:35–42. Holzapfel further teaches that a “rod or wire 47” is connected to gaseous and liquid cutoff valves to control both valves, as seen in Holzapfel’s Figures 1 and 2 below:



Ex.1004, FIGS. 1–2 (Annotated).

B. Dual-Stage Regulators

A pressure regulator is designed to control vapor pressure. **Ex.1005**, 118–119 (§5.8.1: “Propane appliances in buildings typically operate at 11 in. w.c. (2.7 kPa) (about 1/2 psi), so the vapor pressure of the propane in the container must be reduced to a much lower pressure for the appliance to operate safely.”). The same is true for outdoor appliances, such as portable generators and BBQ grills. These appliances rely on a propane tank for fuel where propane is stored as a liquid under a pressure of approximately 100 psi that must be reduced to a much lower pressure to operate properly. **Ex.1003**, [0055].

As noted in LP-Gas Handbook, the LP-Gas Code has definitions for the various types of regulators, including the first-stage regulators, second-stage regulators, and integral two-stage regulators referenced in the '895 Patent:

3.3.64.2 First-Stage Regulator. A pressure regulator for LP-Gas vapor service designed to reduce pressure from the container to 10.0 psig (69 kPag) or less.

3.3.64.3 High-Pressure Regulator. A pressure regulator for LP-Gas liquid or vapor service designed to reduce pressure from the container to a lower pressure in excess of 1.0 psig (6.9 kPag).

3.3.64.4 Integral 2 psi Service Regulator. A pressure regulator for LP-Gas vapor service that combines a high-pressure regulator and a 2 psi service regulator into a single unit.

3.3.64.5 Integral Two-Stage Regulator. A pressure regulator for LP-Gas vapor service that combines a high-pressure regulator and a second-stage regulator into a single unit.

3.3.64.6 Line Pressure Regulator. A pressure regulator in accordance with the *Standard for Line Pressure Regulators*, ANSI Z-21.80/CSA 6.22, with no integral overpressure protection device for LP-Gas vapor service designed for installation inside a building to reduce a nominal 2 psig inlet pressure to 14 in. w.c. (4.0 kPa) or less.

3.3.64.7 Second-Stage Regulator. A pressure regulator for LP-Gas vapor service designed to reduce first-stage regulator outlet pressure to 14 in. w.c. (4.0 kPag) or less.

3.3.64.8 Single-Stage Regulator. A pressure regulator for LP-Gas vapor service designed to reduce pressure from the container to 1.0 psig (6.9 kPag) or less.

3.3.64.9 2 psi Regulator System. An LP-Gas vapor delivery system that combines a first-stage regulator, a 2 psi (14 kPag) service regulator, and a line pressure regulator(s).

3.3.64.10 2 psi Service Regulator. A pressure regulator for LP-Gas vapor service designed to reduce first-stage regulator outlet pressure to a nominal 2 psig (14 kPag).

3.3.64.11 Two-Stage Regulator System. An LP-Gas vapor delivery system that combines a first-stage regulator and a second-stage regulator(s), or utilizes a separate integral two-stage regulator.

Ex.1005, 40–41 (§3.3.64) (annotated).

As described in LP-Gas Handbook, since 1995,

two-stage pressure regulation systems have been required for most fixed propane installations in buildings. The regulators used in two-stage regulator systems are designed to reduce propane container pressure to an intermediate pressure of 10 psig (69 kPag), and then further reduce pressure to 11 in. w.c. (2.7 kPag). This is accomplished with the use of two separate regulators (first- and second-stage), or with one single unit, an integral two-stage regulator.

Ex.1005, 118–119 (commentary regarding §5.8.1).

Although not strictly required for use outdoors, such as with generators and outdoor BBQ grills, using a two-stage pressure regulation system is advantageous because of its ability to maintain a constant outlet pressure, particularly as the inlet fuel pressure varies. **Ex.1003**, [0058].

As LP-Gas Handbook indicates, dual-stage regulators were well-known at the time of the invention. *Id.*, [0059]. For example, off-the-shelf dual-stage regulators were generally available at least by 2008, as shown below:



EXHIBIT 3.12 *Integral Two-Stage Regulator. (Courtesy of Engineered Controls International, Inc.)*

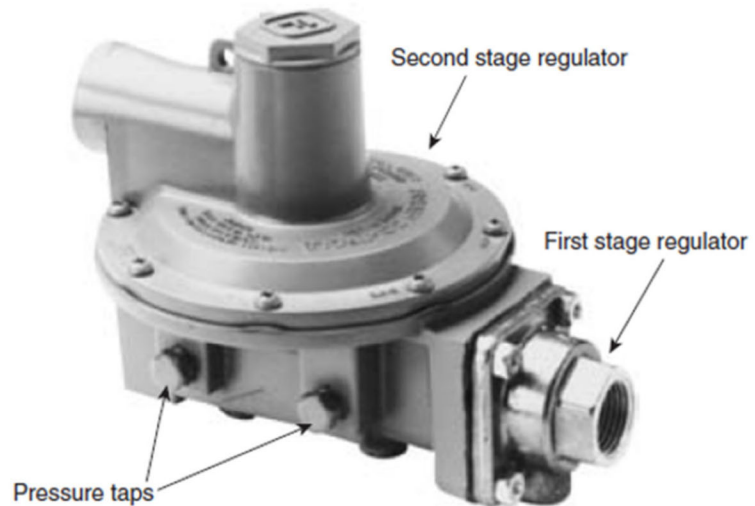


EXHIBIT 5.47 *Integral Two-Stage Regulator. (Courtesy of Fisher Controls Intl, LLC)*

Ex.1005, 41, 120 (published in 2008).



2-Stage Low Pressure Regulator Assembly

\$70.00 SKU: 106238

Add to Cart

Used for connecting commercial grade BBQ & Catering Grills requiring gas input in excess of 100,000 BTU's per hour to a propane tank via high volume green Type 1 tank connection. The green Type 1 allows a higher volume of gas to pass through the tank connection before going into bypass mode. *Standard Hose Length is 18" OAL [Learn More](#)

[Add to Wishlist](#) | [Add to Compare](#)



2-Stage Low Pressure Regulator Assembly with Stainless Steel Overbraid

\$90.00 SKU: 106221

Add to Cart

Stainless Steel Overbraided Two-Stage Regulator Assembly used for connecting commercial grade BBQ & Catering Grills requiring gas input in excess of 100,000 BTU's per hour to a propane tank via high volume green Type 1 tank connection. The green Type 1 allows a higher volume of gas to pass through the tank connection before going into bypass mode. The overbraid keeps small animals from damaging the hose. *Standard Hose Length is 18" OAL [Learn More](#)

[Add to Wishlist](#) | [Add to Compare](#)

Ex.1006 (webpage from 2013).

III. SUMMARY OF THE '895 PATENT

The '895 patent generally relates to “a mechanical fuel lockout switch for a dual fuel engine.” **Ex.1001**, Abstract. The mechanical fuel lockout switch 38, includes a mechanical fuel valve 54 actuatable between first position 38(a) and second position 38(b) to selectively control fuel flow to the dual fuel engine from a first fuel source 28 through a first fuel line and second fuel source 30 through a second fuel line 36. *Id.*, 5:50–55.

The 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...closes the first fuel line (to prevent liquid fuel flow to the engine) when fuel valve handle 56 is in the second position. *Id.*, 6:21–25.

Fuel lockout apparatus 58 is controlled by fuel valve handle 56. *Id.*, 6:10-11. Moving fuel valve handle 56 to the first position (FIGS. 2 and 4A, below) moves fuel lockout apparatus 58 to block fuel inlet 59 for LPG. *Id.*, 6:32–37.

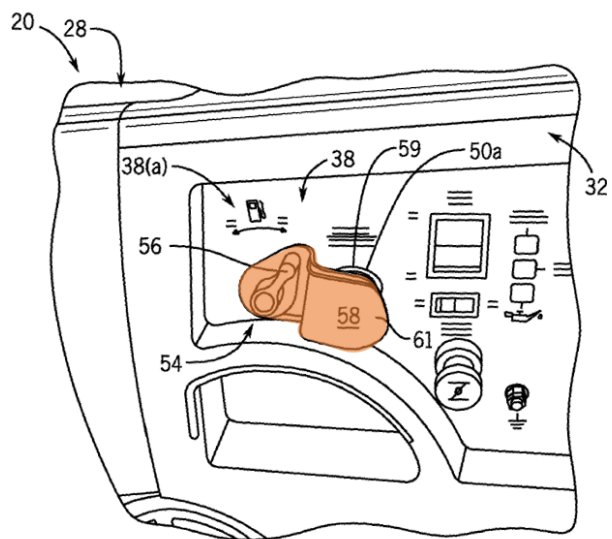


FIG. 2

Ex.1001, FIG. 2 (Annotated).

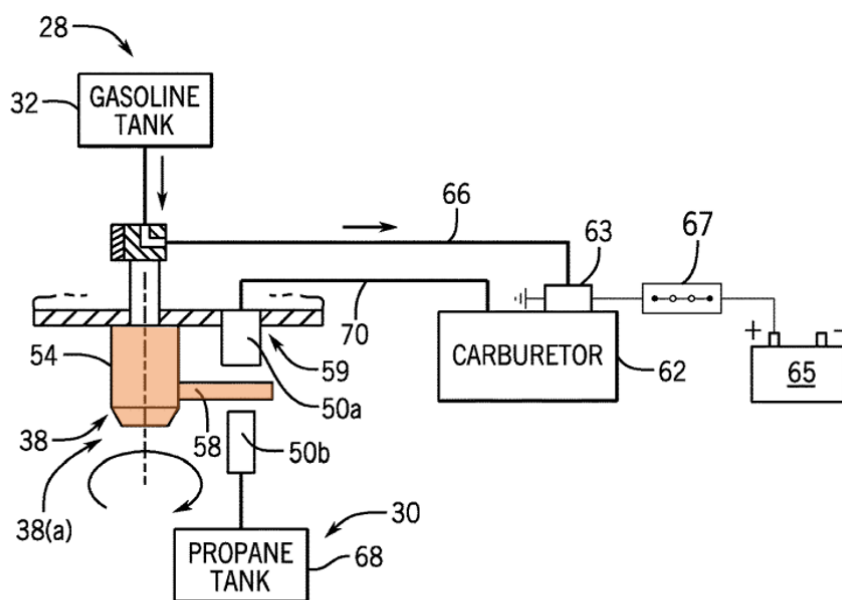


FIG. 4A

Ex.1001, FIG. 4A (Annotated)

FIGS. 3 and 4B depict mechanical fuel lockout switch 38 in a second position 38(b), unblocking fuel inlet 59 for LPG. *Id.*, 6:51–60. In this position, the mechanical fuel lockout switch 38 stops gasoline flow from gasoline tank 32 to the engine while allowing coupling of LPG supply hose 36 to fuel inlet 59 of the second fuel line. *Id.* FIGS. 3 and 4B show LPG supply hose 36 coupling second fuel source 30 to generator 20 to deliver LPG to the generator. *Id.*

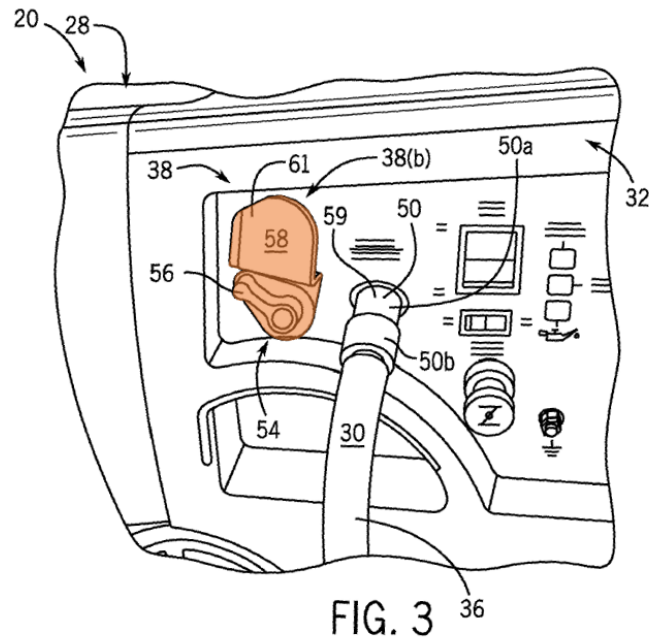


FIG. 3 36

Ex.1001, FIG. 3 (Annotated).

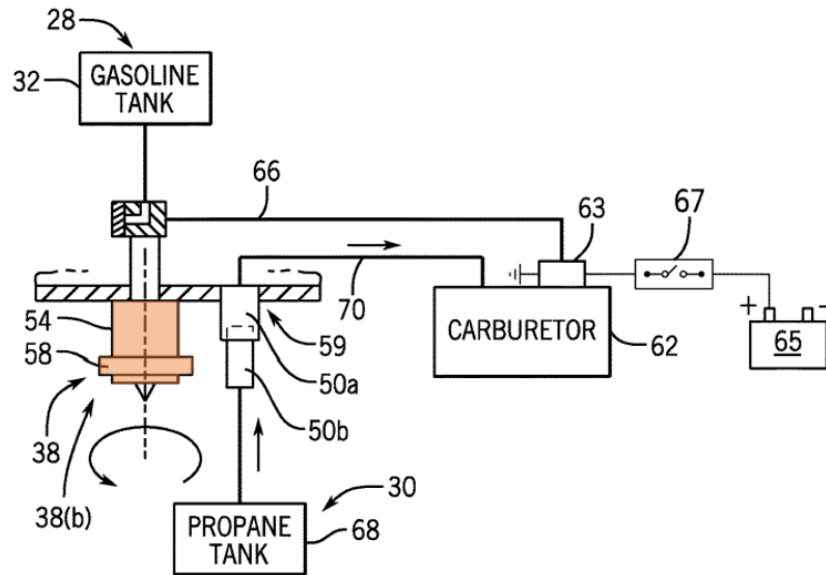


FIG. 4B

Ex.1001, FIG. 4B (Annotated)

IV. LEVEL OF ORDINARY SKILL IN THE ART

A person of ordinary skill in the art (hereinafter “POSA”) would “be aware of all the pertinent prior art” at the time of the alleged invention (*Custom Accessories, Inc. v. Jeffrey-Allan Indus.*, 807 F.2d 955, 963 (Fed. Cir. 1986)), including specialized knowledge applicable to various aspects of the claimed invention. *See, e.g., AVX Corp. v. Greatbatch, Ltd.*, IPR2014-00697, Paper 60 at 3 (P.T.A.B. Jan. 11, 2016). A POSA is also a person of ordinary creativity, not an automaton, and thus is able to make inferences from the art. *KSR Int’l Co. v. Teleflex*, 550 U.S. 398, 420–21 (2007).

For purposes of this Petition, a POSA as of June 12, 2015 (the earliest priority date of the ’895 patent), would have at least a Bachelor of Science degree

in mechanical engineering, physics, or related fields, and three years of work experience in combustion engines. **Ex.1003**, [0028]. Additional higher graduate education could substitute for work experience, and extensive experience/technical training could substitute for formal education. *Id.*

V. CLAIM CONSTRUCTION

Claims should be given their ordinary and customary meaning as understood by a POSA viewing the claim terms in the context of the entire patent. *Xerox Corp. v. Bytemark, Inc.*, IPR2022-00624, Paper 9 at 8 (P.T.A.B. Aug. 24, 2022) (precedential).

Petitioners therefore propose the following claim constructions for certain claim terms. For the purpose of this Petition, no other terms in the Challenged Claims require construction. Petitioners reserve the right to respond to any constructions offered by the Patent Owner or adopted by the Board.

A. The Claimed “Fuel Lockout Apparatus”

Every claim of the '895 Patent requires “a fuel lockout apparatus.” As explained below, the term “fuel lockout apparatus” is a means-plus-function claim term that covers the following corresponding structure and equivalents thereof:

Items 58, 61 in Figs. 2, 3, 4A, 4B, as described at **Ex.1001**, 5:56–6:16; 6:29–50; 6:61–7:36; 8:6–19; 9:1–16.¹

1. “Fuel Lockout Apparatus” Does Not Recite Any Structure and Therefore Invokes §112(f).

The term “fuel lockout apparatus” does not provide any structure corresponding to the function of providing fuel lockout and therefore invokes 35 U.S.C. §112(f).

Section 112(f) applies to claim terms that recite “function without reciting sufficient structure for performing that function.” *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1349 (Fed. Cir. 2015). The “critical question” in making this assessment “is whether the claim term is used in common parlance or by persons of skill in the pertinent art to designate structure.” *MTD Prods. Inc. v. Iancu*, 933 F.3d 1336, 1341 (Fed. Cir. 2019) (internal citations omitted). Generic terms such as “mechanism,” “element,” “device,” and other nonce words . . . [are] tantamount to using the word “means” because they “typically do not connote sufficiently definite structure” and therefore invoke Section 112(f). *Williamson*, 792 F.3d at 1350 (Fed. Cir. 2015). “Apparatus” is another example of a generic term that invokes §112(f). *See* MPEP §2181(I)(A).

¹ If this term is not treated as a means-plus-function limitation, it should be given the meaning that the Patentees chose for it, as clearly supported by the sole embodiment in the specification and discussed below: “a moveable barrier capable of blocking physical access for attaching a fuel source to a fuel inlet on the second fuel line.”

Here, the phrase “fuel lockout apparatus” recites a function without providing any structure for performing that function. The phrase “fuel lockout apparatus” is not understood by POSAs to connote a specific structure. The claim merely replaces the term “means” with “apparatus.” The term “fuel lockout apparatus” has no independent meaning aside from “a means for providing fuel lockout.” The claim language fails to provide any structure for the “providing fuel lockout” function and is therefore subject to construction under §112(f).

2. The Corresponding Structure for “Fuel Lockout Apparatus”

The '895 Patent describes a single embodiment of a “fuel lockout apparatus.” In that embodiment, the “fuel lockout apparatus 58” is a “flange” that “is rigidly coupled to the rotating handle [56].” **Ex.1001**, 6:38–50. The flange “extends radially outward from fuel valve handle 56” and “sweeps over” the LPG fuel hose coupling “as the fuel valve handle rotates.” *Id.* Based on the user selection, the flange “blocks off” or “uncovers” the “first end 50a of the quick-disconnect hose coupling when fuel valve handle is rotated” between the first and second positions. *See id.*, 7:32–36.

Specifically, when the fuel lockout apparatus is in the first position (selecting gasoline), the flange provides a barrier that extends over the fuel hose coupling 50a and prevents the user from coupling an LPG supply hose to the fuel

hose coupling 50, thereby providing LPG fuel lockout. **Ex.1001**, 7:23–36; FIGS. 2,4A.

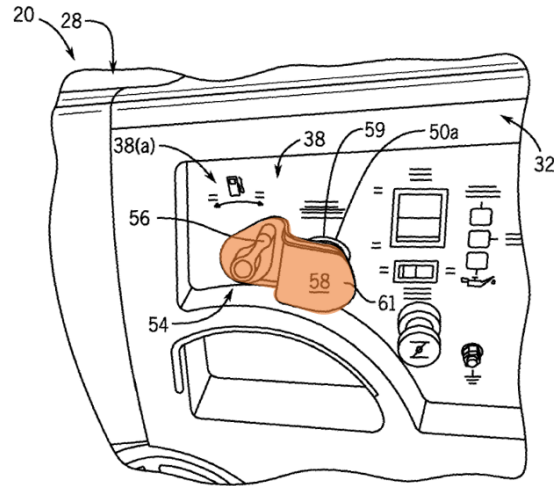


FIG. 2

Ex.1001, FIG. 2 (Annotated).

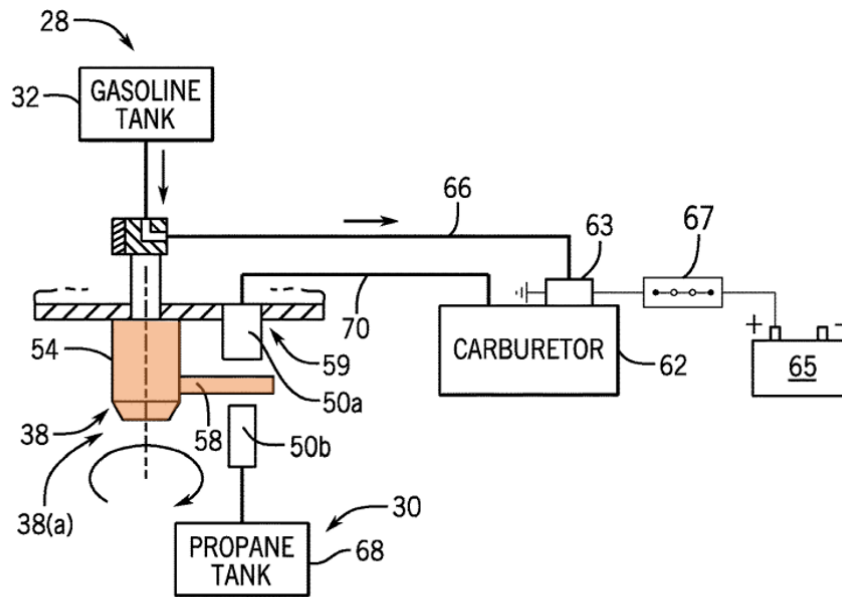


FIG. 4A

Ex.1001, FIG. 4A (Annotated).

When the fuel lockout apparatus is in the second position (selecting LPG), the fuel lockout apparatus prevents the user from selecting gasoline until the LPG supply hose is removed, and thereby providing gasoline fuel lockout. **Ex.1001**, 7:37–48; FIGS. 3,4B.

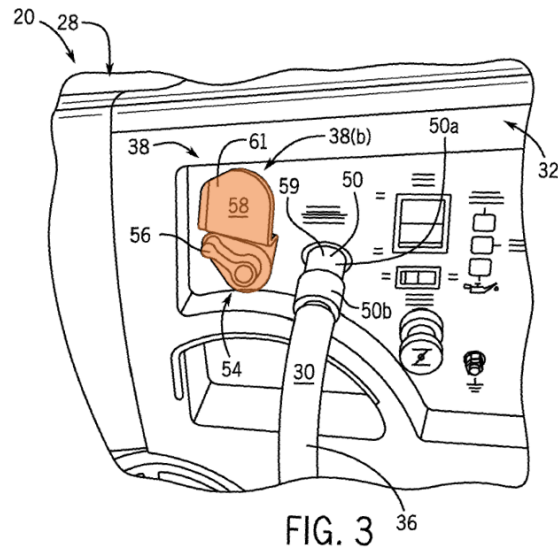


FIG. 3
Ex.1001, FIG. 3 (Annotated).

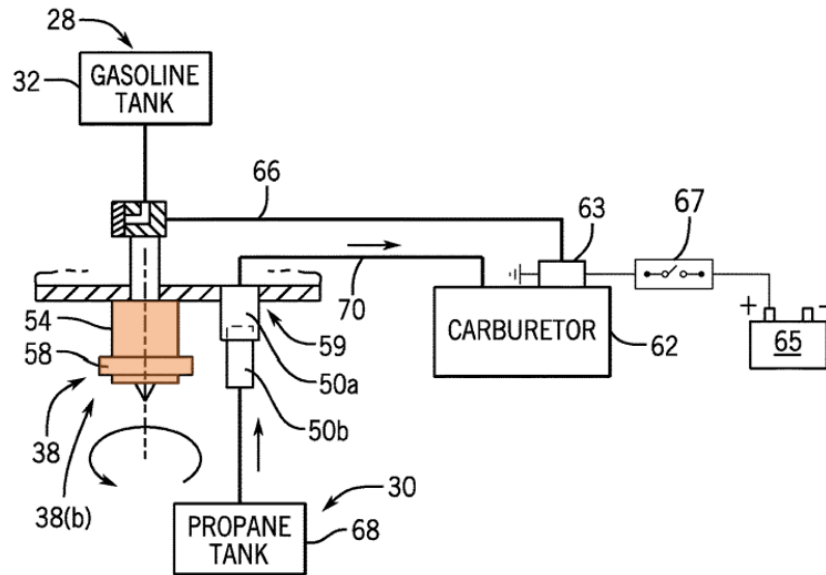


FIG. 4B

Ex.1001, FIG. 4B (Annotated)

The flange that extends radially outward from the valve handle and rotates with the valve handle over the fuel hose coupling provides both the gasoline and LPG lockout functionality. Thus, the proper structure corresponding to the “providing fuel lockout” functionality is: Items 58, 61 in Figs. 2, 3, 4A, 4B, as described at **Ex.1001**, 5:57–6:16; 6:29–50; 6:61–7:36; 8:6–19; 9:1–16.

B. The Claimed Terms “Prevent...Coupling” and “Permit...to Couple”

Claim 1 of the '895 Patent recites:

[A] fuel lockout apparatus coupled to the mechanical fuel valve and 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

The terms “coupling” and “to couple” refer to physically connecting or attaching two items. **Ex.1003**, [0125]-[0131]; **Ex.1007**, p.14. As it was with the term “fuel lockout apparatus,” the specification of the ’895 Patent is the best guide for ascertaining what a POSA would have understood the terms “prevent[s]...coupling” and “permit...to couple” to mean.

The specification of the ’895 Patent discloses only one way in which the fuel lockout apparatus “prevent[s]...coupling” of the second fuel source to the second fuel line: the “flange” (item 61) of the fuel lockout apparatus “block[s] fuel inlet 59 to prevent coupling the first end 50a and second end 50b of the quick-disconnect hose coupling together.” **Ex.1001** 8:12–16; *see also id.* 6:4–16, 6:29–50. FIGS. 2 and 4A illustrate this:

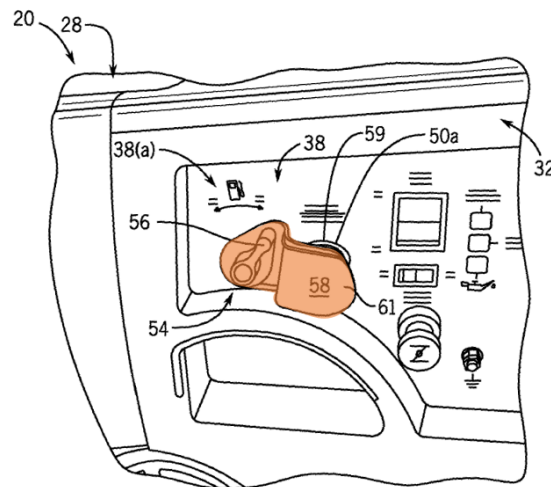


FIG. 2

Ex.1001, FIG. 2 (Annotated).

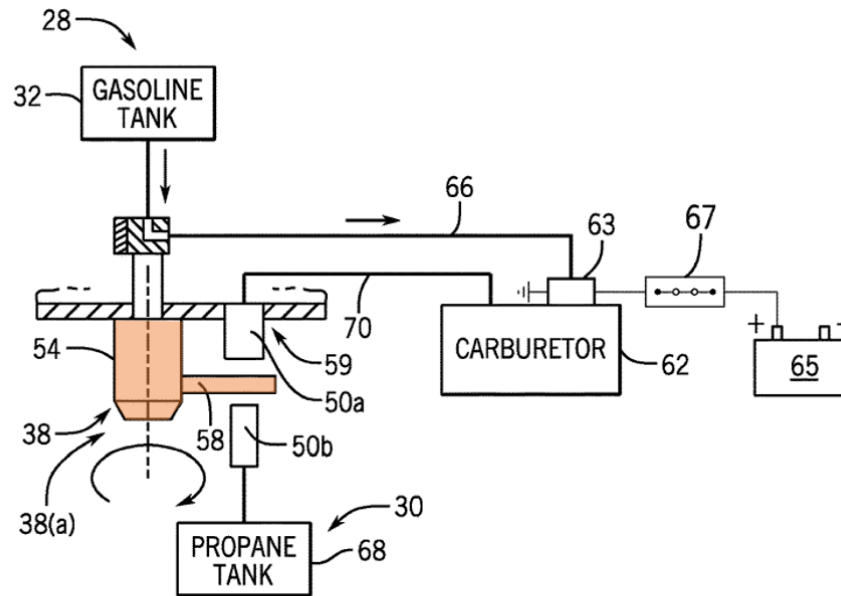
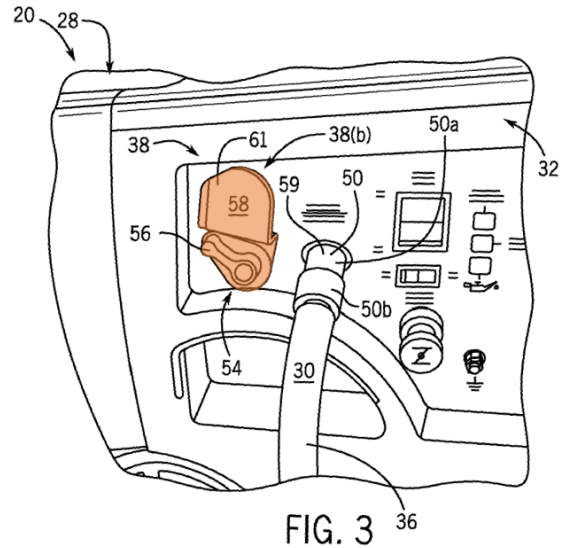


FIG. 4A

Ex.1001, FIG. 4A (Annotated).

The specification of the '895 Patent also discloses only one way in which the fuel lockout apparatus “permits” the second fuel source “to couple” to the second fuel line: “fuel lockout apparatus 58 unblock[s] fuel inlet 59 to permit attaching first end 50a and second end 50b together.” **Ex.1001** 8:16–19; Figs. 3, 4B; *see also id.* 6:51–60, 8:57–67. FIGS. 3 and 4B illustrate this:



Ex.1001, FIG. 3 (Annotated).

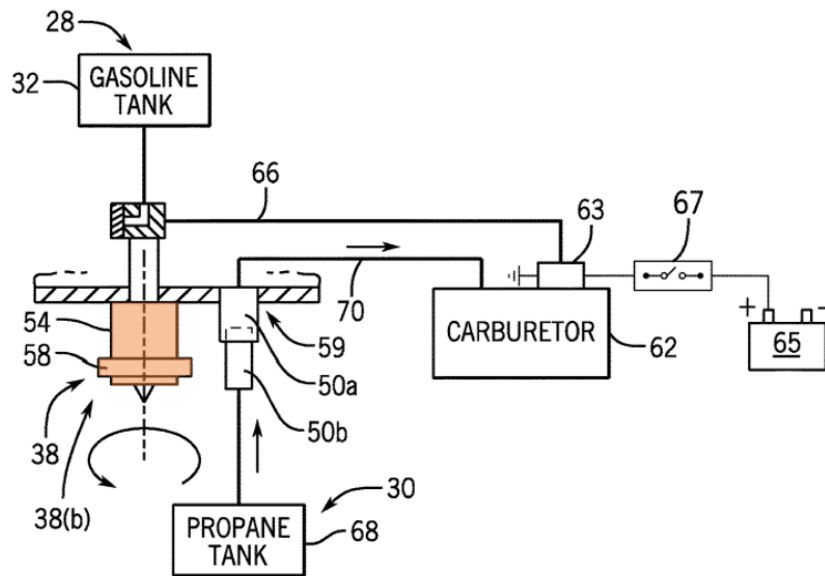


FIG. 4B

Ex.1001, FIG. 4B (Annotated)

The construction of “prevent...coupling” and “permit...to couple” to mean “prevent...attaching” and “permit...to attach” thus finds ample support in the specification of the '895 Patent.

Moreover, during prosecution of the parent U.S. Patent No. 10,221,780 (the “’780 Patent”), the Examiner stated that a dependent claim would be allowable if presented as an independent claim based on the understanding that the “fuel lockout apparatus **prevent[s] the second fuel source from coupling to the second fuel line...mean[ing] that not only are the two not in fluid communication but they are not physically connected in any manner** (Emphasis Added).” **Ex.1008**, p.160. In his reasoning, the Examiner stated that the prior art Champion Manual “discloses a dual fuel system as discussed...but its lockout switch **does not prevent the hose of the propane tank from even coupling to the engine fuel system lines** (Emphasis Added).” *Id.* The Examiner thus interpreted the term “coupling” to require not only “fluid communication,” but “physical[] connect[ion].”

Therefore, a POSA would have understood the terms “prevent...coupling” and “permit...to couple” to mean “prevent...attaching” and “permit...to attach,” respectively.

C. Patent Owner Has Construed “Fuel Lockout Apparatus,” “Prevent...Coupling,” and/or “Permit...to Couple” Incorrectly in the Related Litigations

Patent Owner filed multiple patent infringement lawsuits alleging that accused competitor products infringe at least claim 1 of the ’895 Patent. §VIII.B below. Based on Patent Owner’s infringement allegations in the Related

Litigations, Patent Owner appears to adopt a claim construction wherein (1) the “fuel lockout apparatus” can be any apparatus that prevents selection of more than one fuel source; (2) “prevent...coupling” can be any means to prevent fuel flow without necessarily preventing physical attachment of a fuel source to a fuel line; and (3) “permit...to couple” can be any means to permit fuel flow without necessarily permitting physical attachment of a fuel source to a fuel line. *See, e.g., Ex.1009*, pp. 17,19.

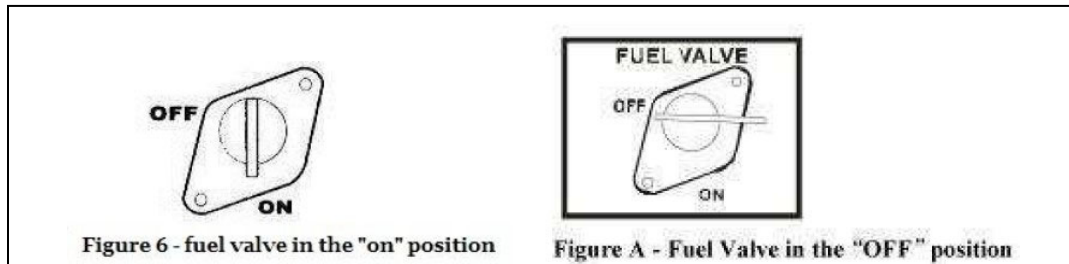
Patent Owner’s apparent constructions are wrong, as explained above, and under the proper constructions all of the claims of the ’895 Patent are invalid as described below in Grounds 1 and 2. However, and in the alternative, Petitioners include Grounds 3A/B and 4, showing how even under Patent Owner’s apparent construction the claims are anticipated or obvious over the prior art. In arguing in the alternative, Petitioners do not admit or concede that Patent Owner’s apparent constructions are correct.

VI. OVERVIEW OF THE ASSERTED PRIOR ART

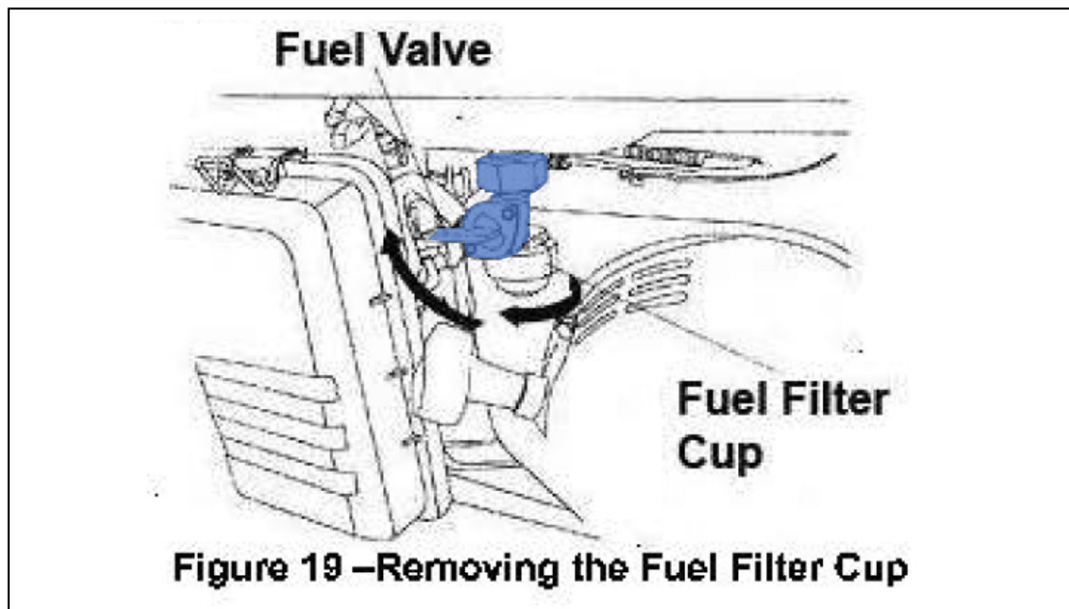
A. DuroMax

DuroMax was published/publicly available at least by November 1, 2012, before the filing date of the earliest application to which the ’895 Patent claims priority. **Ex.1011**, ¶¶18–19. DuroMax is prior art to the ’895 Patent under 35 U.S.C. §102(a).

DuroMax discloses the XP4400EH dual fuel generator—a dual fuel generator that runs alternatively on gasoline or liquefied petroleum gas (LPG). The generator includes a mechanical fuel shutoff valve having a valve handle.

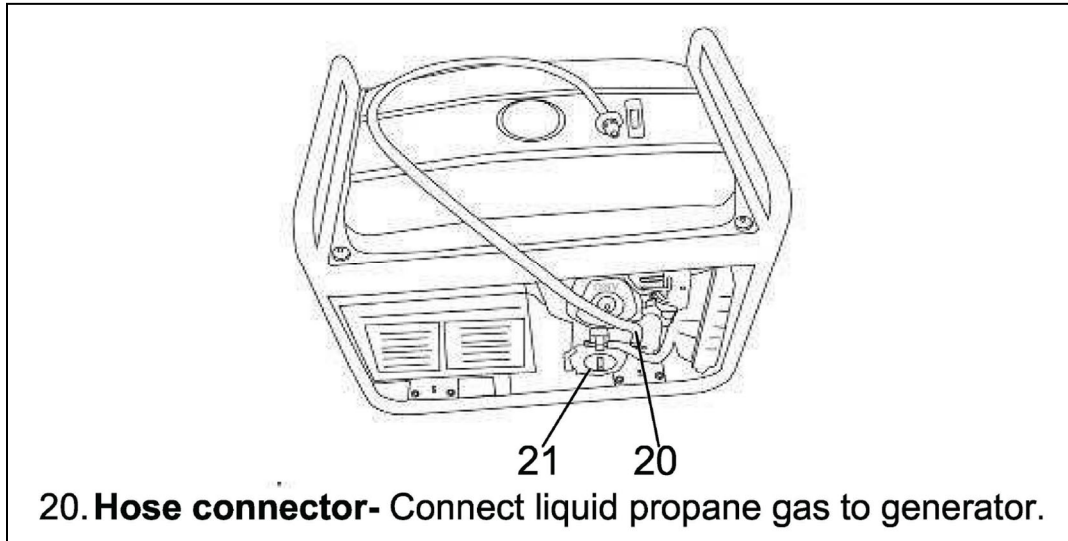


Ex.1010, pp.11,12.



Ex.1010, p.20 (Annotated).

The generator also includes an LPG fuel inlet.

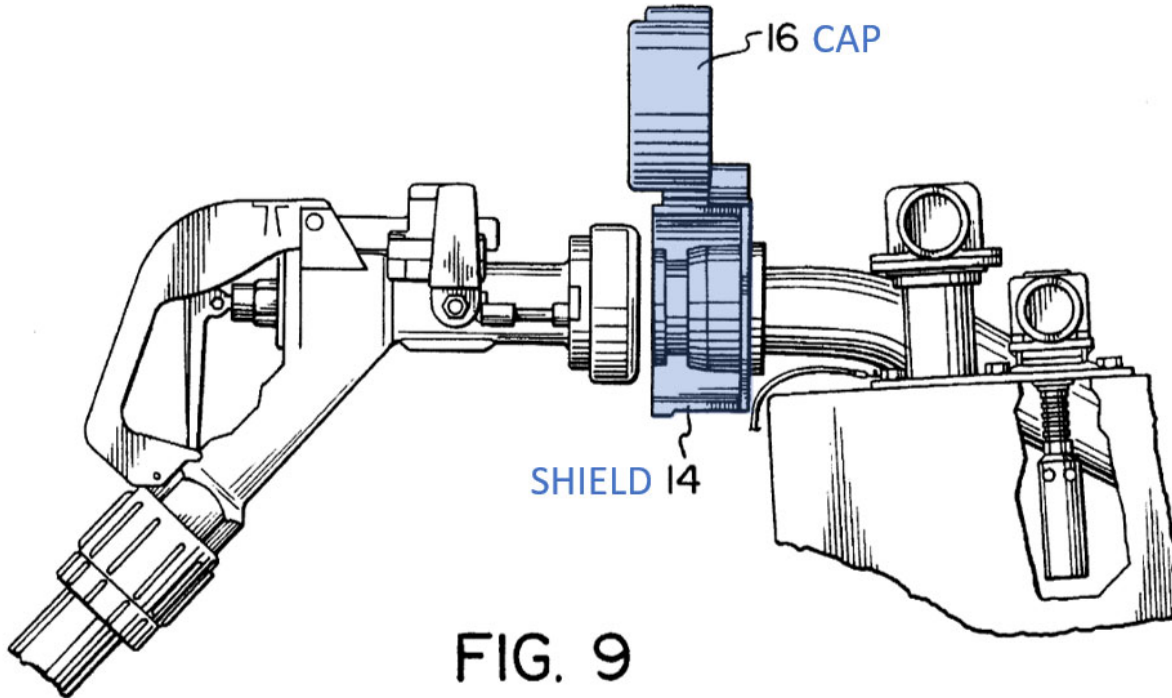


Ex.1010, p.7.

B. Elsdon

Elsdon was filed on February 24, 1995. Elsdon issued on February 17, 1998. Elsdon is prior art to the '895 Patent under 35 U.S.C. §102(a).

Elsdon discloses an assembly having cap 16 and shield 14 assembly of a fluid conduit coupler 12 that is used for “flammable or other hazardous fluids, such as fuel...” **Ex.1012**, 1:10-13, 3:3-4, FIG. 9.



Ex.1012, FIG. 9 (Annotated).

Cap 16 is hingedly connected to shield 14 and is readily moveable between an open position (FIG. 9 above and FIG. 1 below) and a closed position (FIG. 2 below) in which cap 16 is positioned over the coupler 12 to prevent coupling with a fuel hose. **Ex.1012**, 3:4-11.

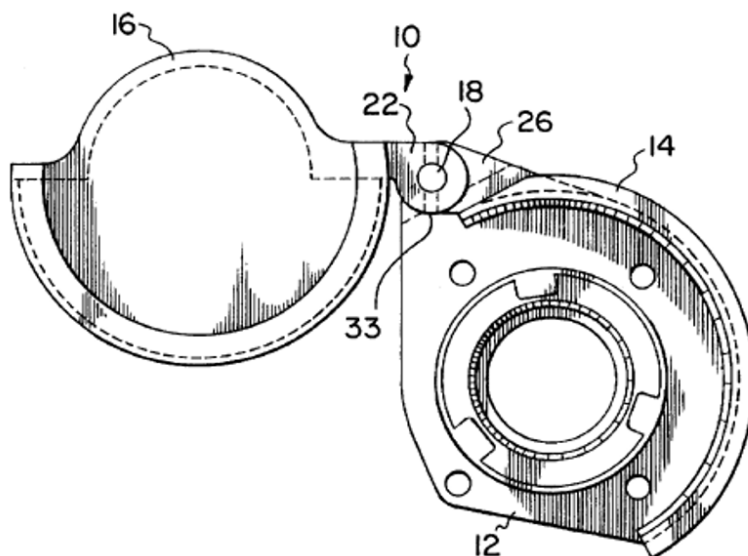


FIG. 1

Ex.1012, FIG. 1.

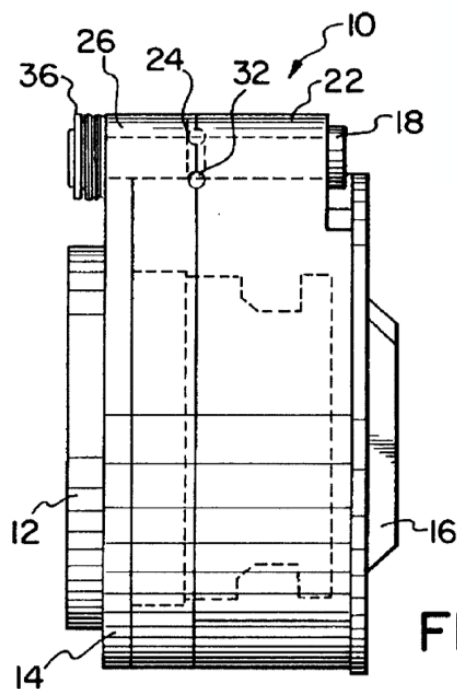


FIG. 2

Ex.1012, FIG. 2.

C. Parlatore

Parlatore, filed November 5, 2009, is prior art under at least 35 U.S.C. §103.

Ex.1013, cover page.

Parlatore discloses a “method and system [having] one or more fuel storage tanks housing propane, one or more regulators through which fuel may flow and one or more fuel metering devices or systems.” *Id.*, Abstract. “[T]he LPG tank 102 may be connected to a regulator, such as a primary regulator 106.” *Id.*, [0016]. “The primary regulator 106 may step down the pressure of any stored propane vapor energy in tank 102, and may further output this lowered pressure to a secondary regulator 110.” *Id.* “The secondary regulator 110 can act as a vacuum-controlled flow rate regulator. Further, the secondary regulator 110 can meter propane gas to an engine 116.” *Id.*

“In further exemplary embodiments, and referring to FIG. 2, the regulator arrangement of the primary regulator 106 and the secondary regulator 110 may be such that they are combined as a single, two-stage, regulator 202 would then feed the vaporized propane into carburetor 114 through hose 112.” **Ex.1013** [0018]. “The LPG tank 300 may be connected to the primary regulator 304 as described previously, for example by connector 302. Additionally a low pressure output of the secondary regulator 308 may be attached to a propane carburetor (not pictured) on the engine 310 in any of a variety of manners, for example through hose 312

and coupling 314. Further, a low pressure output of the secondary regulator 308 may be attached to the propane carburetor either permanently or releasably.” *Id.*, [0020].

“Still referring to exemplary FIG. 3, the primary regulator 304 and the secondary regulator 308 may be two separate regulators that can be based on the design and size of an engine. The primary regulator 304 in this exemplary embodiment may be connected to LPG tank 300 as described above. Additionally, the primary regulator 304 may be connected to the secondary regulator 308 by a hose 306, pipe, tube or the like, such as that described above.” *Id.*, [0021]. Parlato further discloses that its propane vapor delivery system can be used for “generators” “or any situation where more fuel may be desired.” *Id.*, [0019],[0024].

D. LP-Gas Code Handbook

LP-Gas Handbook was published/publicly available in 2008. Ex.1005, 3; Ex.1003, [0076]. It is prior art under §102(a).

LP-Gas Handbook is the Eighth Edition in its series. Ex.1005, 2. It is a commentary on the 2008 edition of NFPA® 58, *Liquefied Petroleum Gas Code*, (“LP-Gas Code”) and includes the full text of the code. *Id.*, 2,24.

LP-Gas Handbook provides commentary on the definition for “Quick Connectors”:

3.3.62 Quick Connectors. Fittings used to connect hose assemblies to piping and valves without the use of tools.

Quick connectors are used to connect transfer hose to piping and valves for loading and unloading cargo tank vehicles or railroad tank cars. They can also be used as connectors on swivel-type transfer piping. Quick connectors are also used in other LP-Gas systems, such as those used for engine fuel refueling and cylinder filling, connecting cylinders to gas-fired barbecue grills, and connecting gas systems between two sections of mobile homes.

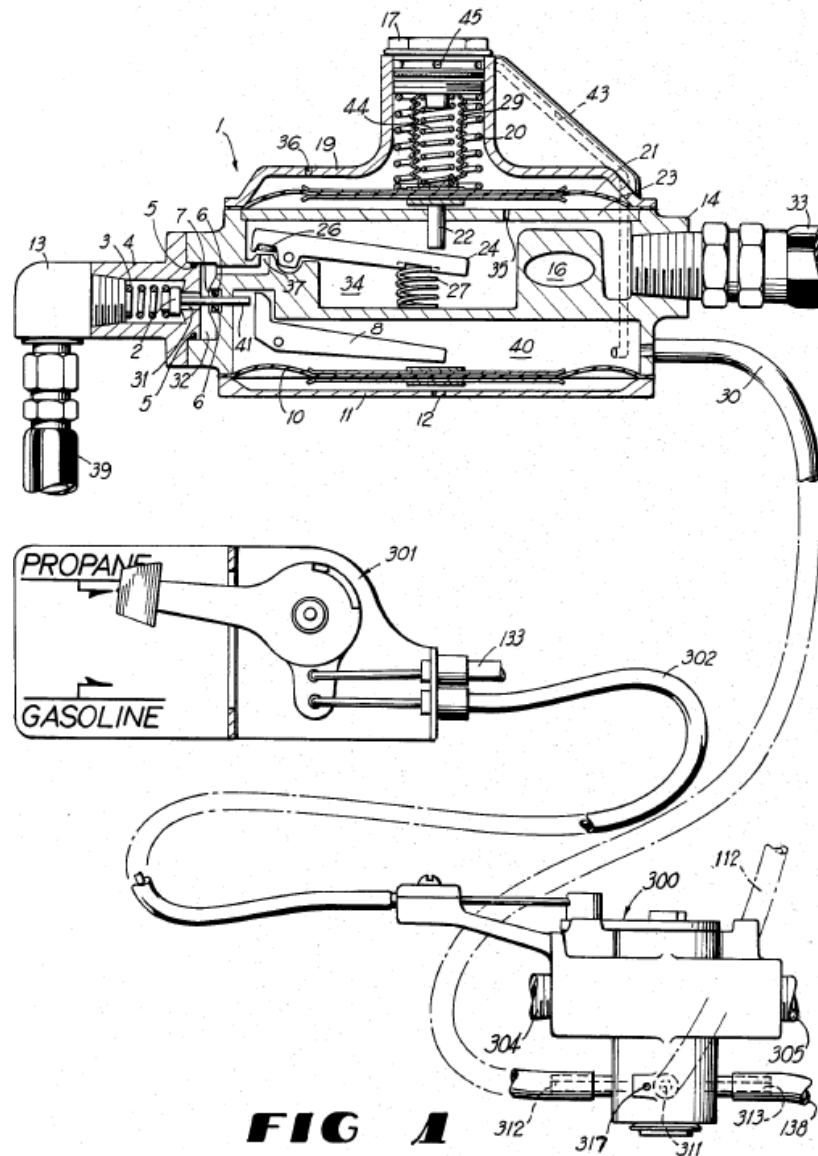
Ex.1005, 40.

E. Hallberg

Hallberg was filed on February 27, 1981, and issued on January 8, 1985.

Hallberg is prior art to the '895 Patent under 35 U.S.C. §102(a).

Hallberg discloses a dual fuel system for use with internal combustion engines. **Ex.1014**, Abstract. Fuel to be utilized is selected by positioning fluid dual value control 301 in one of two positions, either “gasoline” or “propane.” *Id.*, 7:27–29, Fig. 1.

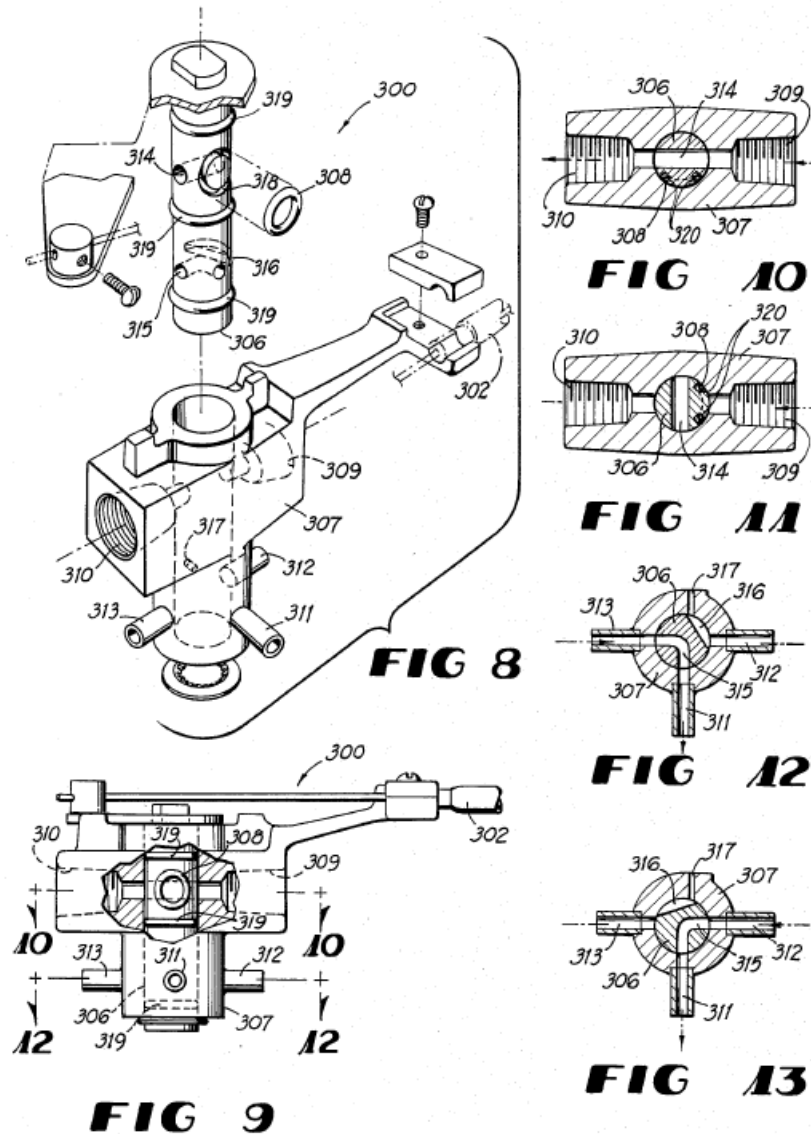


Ex.1014, FIG. 1.

Positioning of control 301 in the “gasoline” mode acts through control cable 302 to rotate spool 306 within valve body 307. *Id.*, 7:30–32. Simultaneously, gasoline from gasoline supply line 304 is supplied to the carburetor 110 through engine gasoline line 305, which lines communicate through tunnel 314 (as shown in FIG. 10) connecting liquid inlet opening 309 and liquid outlet opening 310 in

fluid dual valve 300. *Id.*, 7:33–44. In this mode, the carburetor functions normally. *Id.*

When the “propane” mode of control 301 is selected, spool 306 is rotated within valve body 307 by control cable 302 such that O-ring 308 on the face of spool 306 forms a seal between spool 306 and valve body 307 around liquid inlet opening 309 (as shown in FIG. 11) thereby prohibiting flow of gasoline to a conventional carburetor 110. *Id.*, 8:3–10.



Ex.1014, FIGS. 8–13.

When the engine is started, a vacuum communicated to the engine intake manifold pressure chamber 40 via lines 112 and 30 creates a reduced pressure on the upper side of the liquid inlet diaphragm 10. *Id.*, 8:31–36. Atmospheric pressure on the opposite side of diaphragm 10 urges diaphragm upward against the liquid inlet lever 8, the opposite end of which drives inlet valve shaft 41 against bias

spring 3 and opens liquid inlet valve 2. *Id.*, 8:36–40. Upon opening valve 2, liquified gaseous fuel (e.g., propane) flows through inlet valve orifice 31 into liquified fuel passage 32 and onto the mixer 100. *Id.*, 8:40–60. When valve 2 is closed, valve 2 and related structures provide a “lock-off” of liquified gaseous fuel. *Id.*, 7:64–68.

VII. THE CHALLENGED CLAIMS ARE UNPATENTABLE

A. Ground 1: The Combination of DuroMax and Elsdon Renders Obvious Claims 1–4, 6–10, and 12–13.

1. Claim 1

a. Element [1.0]

To the extent the preamble is limiting, the combination of DuroMax and Elsdon discloses [1.0]. DuroMax discloses a dual fuel generator in which either LPG or gasoline may be selected for operation of the generator. **Ex.1010**, pp.11–12. DuroMax also discloses a mechanical fuel valve coupled to the internal combustion engine. *Id.*

Elsdon discloses a fuel conduit coupler shield 14 and cap 16 that when closed prevents connection of a fuel source. **Ex.1012**, 3:3–14. As discussed in §§VII.A.1.a(1)–VII.A.1.a(2) below, a POSA would have understood it to be obvious to combine the Elsdon fuel conduit coupler cap with the mechanical fuel valve of DuroMax to provide a mechanical fuel lockout switch and prevent unsafe

operating conditions, such as where both fuels are simultaneously delivered to the generator engine.

(1) Motivation to Combine DuroMax and Elson

DuroMax discloses a dual fuel generator that is configured to operate on both LPG and gasoline fuel sources. **Ex.1010**, pp.11–12.

To start your generator with gasoline, perform the following steps:

- 3 Turn the gasoline fuel valve to the "ON" position

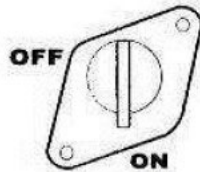


Figure 6 - fuel valve in the "on" position

Ex.1010, p.11.

To start your generator with LPG, perform the following steps:

3. Turn the gasoline fuel valve to the "OFF" position (see *figure 6*).

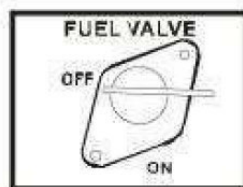


Figure A - Fuel Valve in the "OFF" position

Ex.1010, p.12.

DuroMax discloses that the generator includes a gasoline fuel tank with a mechanical fuel valve that stops gasoline fuel from exiting the gasoline tank and being delivered to the generator engine when run on LPG fuel. **Ex.1010**, p.12.

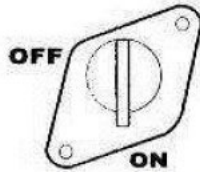


Figure 6 - fuel valve in the "on" position

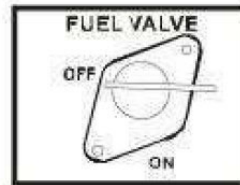


Figure A - Fuel Valve in the "OFF" position

Ex.1010, pp.11,12.

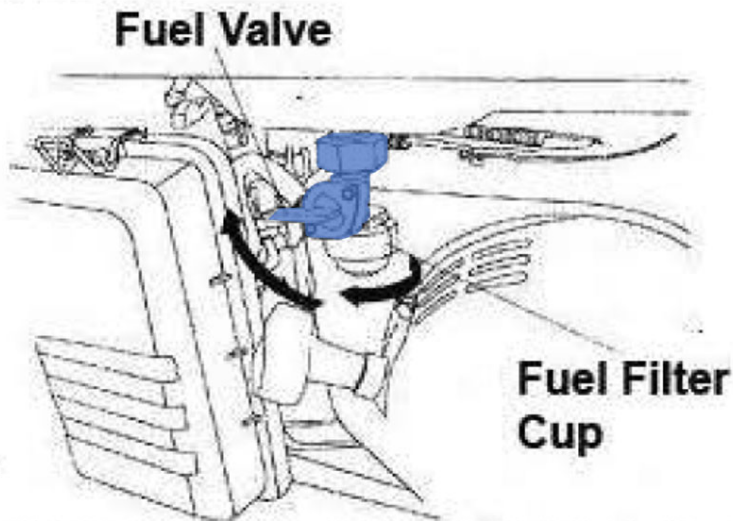
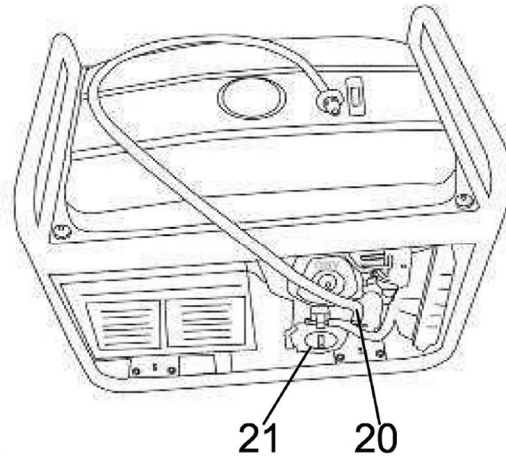


Figure 19 -Removing the Fuel Filter Cup

Ex.1010, p.20 (Annotated).

DuroMax also discloses an onboard LPG tank connector which couples to an LPG hose of an external LPG tank for delivering LPG fuel to the generator engine when run on LPG fuel. **Ex.1010**, p.7.



20. Hose connector- Connect liquid propane gas to generator.

Ex.1010, pp.7-8.

A POSA would understand that while DuroMax can run on either gasoline fuel or LPG fuel, DuroMax is not configured to run on both fuel sources at the same time. **Ex.1003**, [0153]. For example, DuroMax provides the following warning:



CAUTION:

**When using gasoline, LPG must be shut off! When using LPG,
gasoline must be shut off!**

Ex.1010, p.11.

This is consistent with the background section of the '895 Patent, which discloses that prior art dual fuel engines “can experience overly rich air-fuel ratio when both fuels are simultaneously engaged” which can “make the engine hard to start or lead to unstable operating conditions.” **Ex.1001**, 1:64–2:4. *See Qualcomm Inc. v. Apple Inc.*, 24 F.4th 1367, 1375 (Fed. Cir. 2022) (“[I]t is appropriate to rely on admissions in a patent’s specification when assessing whether that patent’s claims would have been obvious’ in an *inter partes* review proceeding.”); *see also* USPTO, Updated Guidance on the Treatment of Statements of the Applicant in the Challenged Patent in Inter Partes Reviews under §311, at 4 (June 9, 2022).

Elsdon discloses a cap and shield assembly for covering a fluid conduit (i.e., a fuel line). **Ex.1012**, 3:3–14; **Ex.1003**, [0155]. Elsdon discloses that by rotating cap 16 over conduit coupler 12, cap 16 prohibits access to the coupler interface, thereby preventing connecting of a hose with the coupler interface. **Ex.1012**, 3:3–14, 5:1–10.

Elsdon explicitly recognizes the importance of properly sequencing the connection of fuel sources with the opening of associated valves. For example, Elsdon notes that it may be important to ensure the closing or opening of fuel valves before permitting coupling or uncoupling to the connection interface. **Ex.1012**, 1:23–40. Elsdon discloses that its cap and shield may be utilized in such sequenced interconnected valve and coupler arrangements. **Ex.1012**, 4:44–53.

A POSA would be motivated to implement the fuel conduit coupler cap assembly of Elsdon to selectively cover and uncover the LPG fuel conduit coupler of DuroMax. **Ex.1003**, [0157]. Specifically, a POSA would have been motivated to connect the Elsdon fuel conduit coupler cap to the mechanical fuel valve of DuroMax to restrict access to the LPG hose connector interface of DuroMax when the DuroMax generator is running gasoline fuel. *Id.*

A POSA would have understood that by implementing the Elsdon fuel conduit coupler cap assembly in this way, one could link the opening and closing of the DuroMax mechanical fuel valve with the covering and uncovering of the LPG fuel conduit coupler. **Ex.1003**, [0158]. A POSA would have understood such an arrangement to prevent simultaneous use of LPG and gasoline, which was a known problem with generators such as DuroMax. **Ex.1010**, p.11; **Ex.1001**, 1:43–55; **Ex.1003**, [0158].

(2) Reasonable Expectation of Success in Combining DuroMax and Elson

A POSA would have had a reasonable expectation of success in implementing the fuel conduit coupler cap of Elsdon onto the LPG fuel conduit coupler of DuroMax. **Ex.1003**, [0159]. Elsdon emphasizes that its cap assembly may be “retrofit” to cover existing fuel couplers on “construction equipment” such as a generator. **Ex.1012**, 2:27–32; 5:11–14. Elsdon utilizes a simple connection

arrangement, in which cap 16 rotates around the axis of the shaft 18. See **Ex.1012**, FIGS. 1, 3 below (annotated).

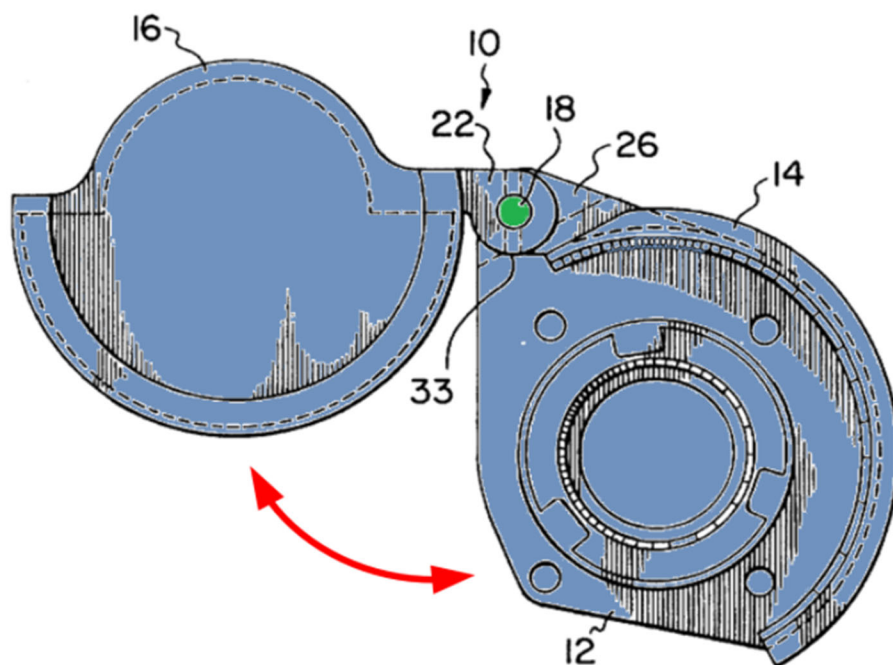


FIG. 1

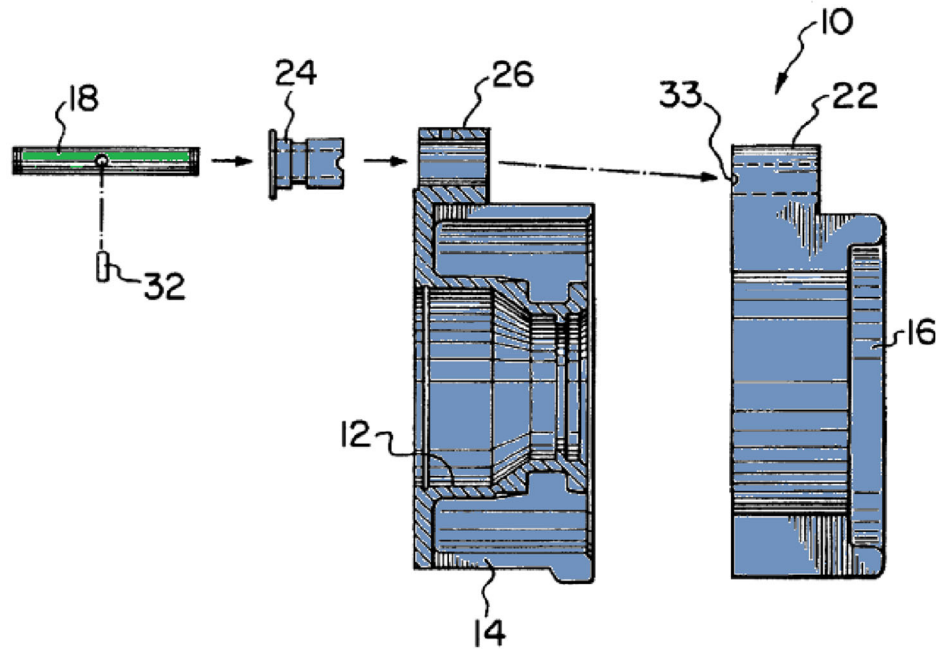


FIG. 3

A POSA would have understood that the fuel valve of DuroMax is a simple mechanical fuel valve utilizing a valve handle that rotates a shaft connected to a stop inside of the valve body for preventing fuel flow. **Ex.1010**, pp.11, 12; **Ex.1003**, [0160].

A POSA would have understood that the valve handle and shaft of the DuroMax fuel valve could be readily connected to cap 16 of Elsdon such that the DuroMax valve handle and shaft rotate together with Elsdon cap 16. **Ex.1003**, [0161].

A POSA would have further understood that the fuel valve and LPG fuel conduit coupler of DuroMax could easily be moved to different positions on the generator such that the two components are located immediately next to each other.

Ex.1003, [0162]; *see also* **Ex.1015**, 00:15:39–00:16:20 (discussing how the position of the LPG inlet connector on a portable generator can be easily moved around the generator). In that case, cap 16 of Elsdon would rotate with the valve handle of the DuroMax fuel valve to cover the LPG fuel conduit coupler when the DuroMax fuel valve is open, and could rotate to permit access to the LPG fuel conduit coupler when the DuroMax fuel valve is closed. **Ex.1003**, [0162].

b. Element [1.1]

DuroMax discloses a mechanical fuel valve coupled to the internal combustion engine. **Ex.1010**, pp.11–12.

To start your generator with gasoline, perform the following steps:

- 3 Turn the gasoline fuel valve to the "ON" position

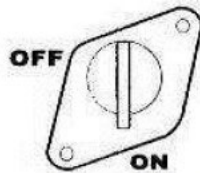


Figure 6 - fuel valve in the "on" position

Ex.1010, p.11.

To start your generator with LPG, perform the following steps:

3. Turn the gasoline fuel valve to the "OFF" position (see *figure 6*).

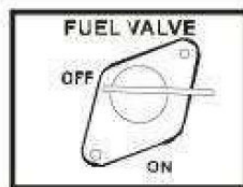


Figure A - Fuel Valve in the "OFF" position

Ex.1010, p.12.

Elsdon discloses a fuel conduit coupler shield 14 and cap 16 that when closed prevents connection of a fuel source. **Ex.1012**, 3:3–14. Elsdon discloses that by rotating cap 16 over conduit coupler 12, cap 16 prohibits access to the coupler interface, thereby preventing connecting of a hose with the coupler interface. *Id.*, 3:3–14, 5:1–10.

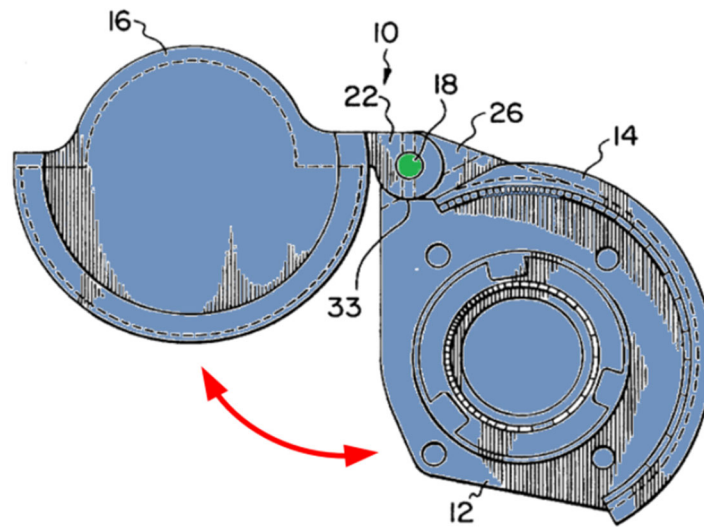


FIG. 1

Ex.1012, FIG. 1 (annotated).

It would have been obvious to a POSA to combine the Elsdon fuel conduit coupler cap with the gasoline fuel valve of DuroMax to provide a mechanical fuel valve that both controls the flow of gasoline from the tank through the gasoline line (as disclosed by DuroMax) and simultaneously rotates to block and unblock the LPG inlet (as disclosed by Elsdon). **Ex.1003**, [0167]. By blocking and unblocking the LPG inlet, this combined apparatus would selectively control the

flow of LPG through the LPG fuel line. *Id.* This combination would appear and function the same way as Figures 2–4B of the '895 Patent. **Ex.1003**, [0167].

c. Element [1.2]

The DuroMax mechanical fuel valve rotates between a first position in which the valve is opened (communicating the gasoline fuel source to the dual fuel engine) and a second position in which the valve is closed (interrupting communication of the gasoline fuel source to the dual fuel engine). It would have been obvious to connect the valve handle and shaft of the DuroMax fuel valve to cap 16 of Elsdon to prevent the simultaneous flow of gasoline and LPG fuel to the dual fuel engine. *See*, §§VII.A.1.a(1)–(2) above.

Specifically, it would have been obvious to connect these components so that cap 16 covers the LPG fuel conduit coupler when the mechanical fuel valve is in the open (first) position (preventing communication between the LPG fuel source and the dual fuel engine) and to uncover the LPG fuel conduit coupler (communicating the second fuel source to the dual fuel engine) when the mechanical fuel valve is in the closed (second) position. *See*, §§VII.A.1.a(1)–(2) above.

d. Element [1.3]

The term “fuel lockout apparatus” is properly construed as a means plus function term covering items 58, 61 in Figs. 2, 3, 4A, 4B, as described at **Ex.1001**,

5:56–6:16; 6:29–50; 6:61–7:36; 8:6–19; 9:1–16, and equivalents thereof. *See*, §V.A above.

As noted above, it would have been obvious to have connected the valve handle and shaft of the DuroMax fuel valve to cap 16 of Elsdon, which would have resulted in a flange that is rigidly coupled to a fuel valve handle, with the flange extending radially from the fuel valve handle so that the flange rotates with the fuel valve handle and rotates transversely over the fuel inlet for LPG between a first position in which the flange blocks access to the fuel inlet for the LPG when the fuel valve handle is in position to allow gasoline to run the engine, and between a second position in which the flange does not block the fuel inlet for the LPG when the fuel valve handle is in position to restrict gasoline from running the engine. *See*, §§VII.A.1.a(1)–(2) above. Thus, the combination of DuroMax and Elsdon teaches a “fuel lockout apparatus coupled to [a] mechanical fuel valve.”

e. Element [1.4]

It would have been obvious to have connected the valve handle and shaft of the DuroMax fuel valve to cap 16 of Elsdon so that cap 16 covers the LPG fuel conduit coupler when the mechanical fuel valve is in the open (first) position and to uncover the LPG fuel conduit coupler when the mechanical fuel valve is in the closed (second) position. *See*, §VII.A.1.c above. When covering the LPG fuel conduit coupler, cap 16 would prevent the LPG hose from coupling to the LPG

fuel conduit connector. When uncovering the LPG fuel conduit connector, cap 16 would permit the LPG hose to couple with the LPG fuel conduit connector.

Ex.1003, [0172].

2. Claim 2

Claim 2 depends from claim 1. The combination of DuroMax and Elsdon discloses a fuel lockout apparatus coupled to a mechanical fuel valve. *See*, §VII.A.1.d above. Elsdon discloses a fuel lockout apparatus comprising a cap and shield. *Id.* As seen in FIG. 1 (below), when the cap is in the open position the second fuel source (LPG) may be communicated to the internal combustion engine.

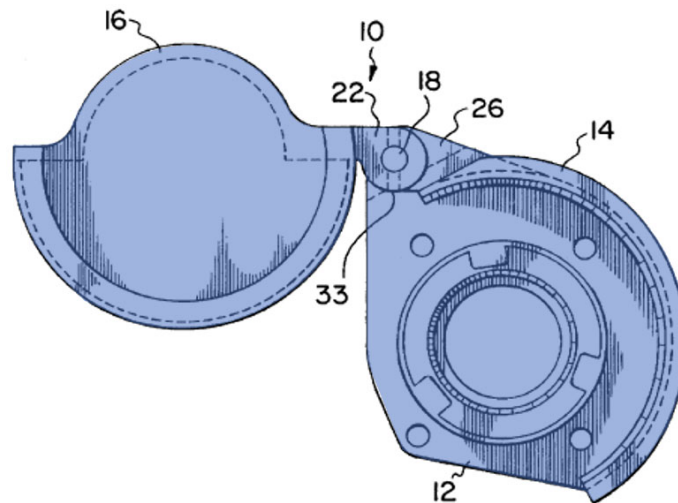
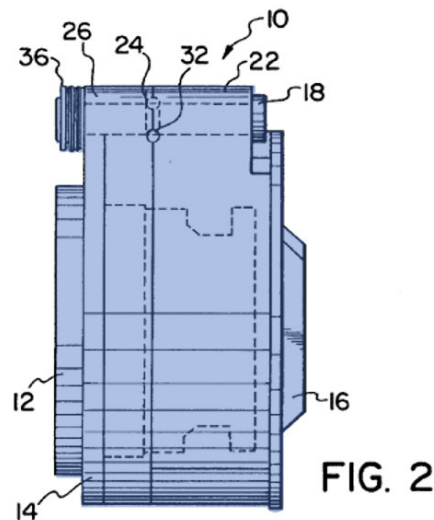


FIG. 1

Ex.1012, FIG. 1 (Annotated).

As shown in FIG. 2 (below), when the cap is in the closed position, the second fuel source (LPG) is prevented from being communicated with the internal combustion engine.



Ex.1012, FIG. 2 (Annotated).

As described in §VII.A.1.e above, a POSA would have understood that operation of the mechanical fuel valve and the fuel lockout apparatus is interconnected such that only one fuel can be communicated to the engine at one time. **Ex.1003**, [0175].

Specifically, the mechanical gasoline fuel valve of DuroMax would be rigidly connected to the cap of Elsdon such that when the gasoline valve is rotated into a closed position, the cap of Elsdon is moved into the open position and when the gasoline valve is rotated into an open position, the cap of Elsdon is moved into the closed position. A POSA would have therefore understood that when the fuel

lockout apparatus of Elsdon is interconnected with the mechanical fuel valve of DuroMax, the mechanical fuel valve would be prevented from moving into the first position when the second fuel source communicates with the dual fuel engine (due to the cap coming into contact with the LPG input line). **Ex.1003**, [0177].

Accordingly, a POSA would have understood that the combination of DuroMax and Elsdon teaches claim 2. **Ex.1003**, [0178].

3. Claim 3

Claim 3 depends from claim 1. The combination of DuroMax and Elsdon discloses a fuel lockout apparatus coupled to a mechanical fuel valve. *See*, §VII.A.1.d above. The fuel lockout apparatus includes a cap. *Id.*

A POSA would have understood it to be obvious to have rigidly connected the DuroMax gasoline fuel valve to the cap of Elsdon such that the DuroMax valve handle and shaft rotate together with Elsdon cap 16. *See*, §§VII.A.1.a(1)–(2) above; §VII.A.1.d above. A POSA would have further considered it to be obvious to have arranged the gasoline fuel valve and cap assembly of DuroMax and Elsdon adjacent to the LPG input such that the cap of Elsdon rotates over and covers the LPG inlet (preventing coupling thereto) when the gasoline fuel valve is placed into an open position and uncovers the LPG inlet (permitting coupling thereto) when the gasoline fuel valve is placed into the closed position. *See*, §§VII.A.1.a(1)–(2) above.

Accordingly, a POSA would have understood that the combination of DuroMax and Elsdon teaches claim 3. **Ex.1003**, [0180]-[0181].

4. Claim 4

Claim 4 depends from claims 1 and 3. DuroMax discloses a mechanical fuel valve that rotates between a first position and a second position. *See*, §VII.A.1.b above. Elsdon discloses a flange comprising a cap and shield. *Id.* That the cap and shield are arranged such that when the cap is in a closed position, the fluid coupler is concealed, and when the cap is rotated from a closed position to an open position, the coupler is exposed. **Ex.1012**, 2:19–23. A POSA would have understood that the cap can thus rotate transversely across the inlet of a fuel line. **Ex.1003**, [0182].

Accordingly, a POSA would have understood that when the fuel valve of DuroMax is connected to the cap of Elsdon, 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 as recited in claim 4. *See*, §§VII.A.1.a(1)–(2) above.

5. Claim 6

Claim 6 depends from claim 1. A POSA would have considered it obvious to have connected the mechanical fuel valve of DuroMax to the cap of Elsdon to

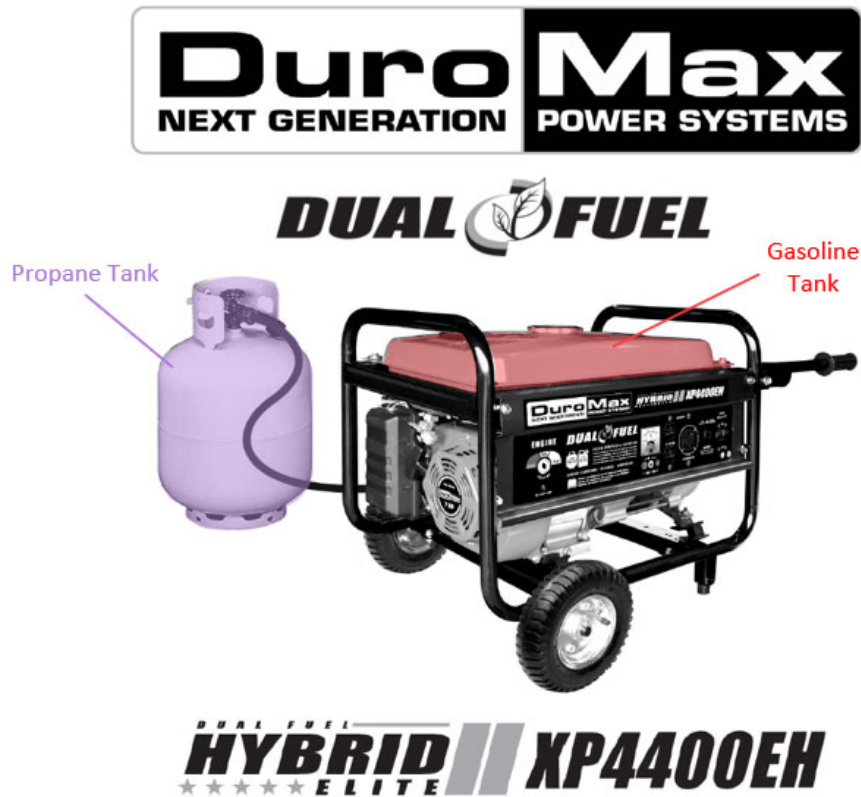
prevent the simultaneous delivery of gasoline and LPG fuel to the engine. *See*, §§VII.A.1.a(1)–(2) above.

Specifically, a POSA would have been motivated to connect the Elsdon fuel conduit coupler cap to the gasoline fuel valve of DuroMax to restrict access to the LPG hose connector interface of DuroMax when the DuroMax generator gasoline valve is in the open position. Likewise, the combination would prevent the gasoline valve of DuroMax from being moved from the closed to the open position when an LPG hose is connected to the LPG hose connector interface due to the interference between the Elsdon flange with the LPG hose. *See*, §§VII.A.1.a(1)–(2) above.

Accordingly, a POSA would have understood that the combination of DuroMax and Elsdon teaches claim 6. **Ex.1003**, [0186].

6. Claim 7

Claim 7 depends from claims 1 and 6. DuroMax discloses a first fuel tank and a second fuel tank. **Ex.1010**, p.1.



Ex.1010, p.1 (Annotated)

The first fuel tank provides gasoline, and the second fuel tank provides propane. **Ex.1010**, pp. 7, 11–12. A POSA would have understood that DuroMax discloses a first fuel source that provides liquid fuel from a liquid fuel tank to the dual fuel engine, a second fuel source that provides gaseous fuel from a pressurized fuel container to the dual fuel engine, and a mechanical fuel valve configured to provide either the liquid fuel while in its first position or the gaseous fuel when in its second position. *See* §§VII.A.1.a–c above; **Ex.1003**, [0187].

Accordingly, a POSA would have understood that DuroMax teaches claim 7. **Ex.1003**, [0188].

7. Claim 8

a. Element [8.0]

To the extent the preamble is limiting, DuroMax teaches [8.0] for at least the same reasons as [1.0]. *See*, §VII.A.1 above.

b. Element [8.1]

DuroMax teaches [8.1] for at least the same reasons as [1.1]. *See*, §VII.A.1.b above.

c. Element [8.2]

DuroMax teaches [8.2] for at least the same reasons as [1.2]. *See*, §VII.A.1.c above.

d. Element [8.3]

The combination DuroMax and Elsdon teaches [8.3] for at least the same reasons as [1.3]. *See*, §VII.A.1.d above.

e. Element [8.4]

The combination of DuroMax and Elsdon teaches and/or suggests the limitations of [8.4] for at least the same reasons as claim 2. *See*, §VII.A.2 above.

8. Claims 9 and 10

Claims 9 and 10 recite limitations identical to claims 3 and 4, respectively, changing only their dependance. Faced with the problem of preventing coupling of a second fuel line to a mechanical fuel valve while a first fuel is being fed to a dual

fuel engine, and allowing coupling of the second fuel line when operation of the dual fuel engine on the second fuel is desired, a POSA would have been motivated to pursue a solution based on the combination of DuroMax and Elsdon as one of the finite number of predictable solutions for the problem. See §§VII.A.3–4 above; **Ex.1003**, [0195].

9. Claim 12

Claim 12 recites limitations identical to claim 6, changing only its dependance. The combination of DuroMax and Elsdon also teaches the limitations of claim 12 for at least the same reasons as claim 6. See §VII.A.5 above.

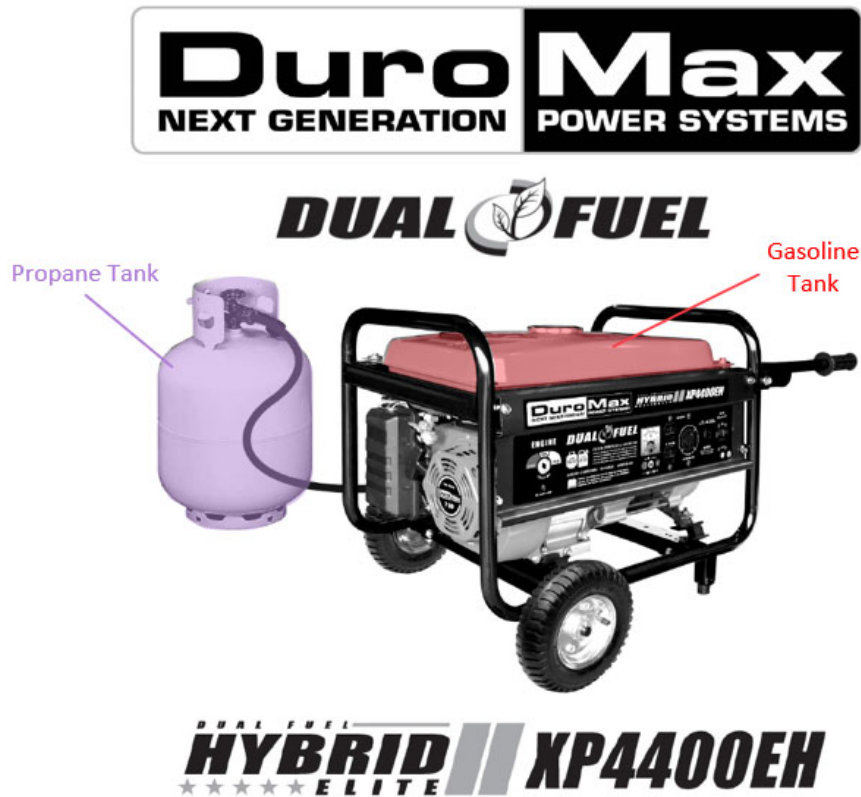
10. Claims 13

Claim 13 recites limitations identical to claim 7, changing only its dependance. DuroMax also teaches the limitations of claim 13 for at least the same reasons as claim 7. See §VII.A.6 above.

B. Ground 2: Claims 5, 11, and 14–21 Are Obvious Over the Combination of DuroMax, Elsdon, and Parlature in View of LP-Gas Handbook.

1. Motivation to Combine DuroMax, Elsdon, Parlature, and LP-Gas Handbook, and POSA’s Reasonable Expectation of Success

A POSA would have been motivated to use Parlature’s off-board fuel regulator system with the DuroMax dual fuel system. **Ex.1003**, [0203]. DuroMax discloses a first fuel tank and a second fuel tank. **Ex.1010**, p.1.



Ex.1010, p.1 (Annotated)

The first fuel tank provides gasoline, and the second fuel tank provides propane. **Ex.1010**, pp. 7, 11–12. A POSA would have understood that DuroMax discloses a first fuel source that provides liquid fuel from a liquid fuel tank to the dual fuel engine. **Ex.1003**, [0204]. A POSA would also have understood that DuroMax discloses a second fuel source that provides gaseous fuel from a pressurized fuel container to the dual fuel engine. *Id.*

Parlatore discloses a fuel delivery system that includes “a fuel tank that houses propane; a first regulator coupled to the fuel tank; a second regulator coupled to the first regulator; and a fuel metering system coupled to the second

regulator and delivering propane to an engine.” **Ex.1013**, [0005]. Parlatore further discloses that its fuel system where “a gas, such liquefied petroleum gas or propane, may be supplied to an engine as fuel.” *Id.*, [0014]. Parlatore discloses the LPG tank is pressurized. *Id.*, [0016] (LPG in tank is in a “high pressure state,” which is “approximately 180-250 psi”). The LPG is in gaseous state when delivered to the engine through a gaseous fuel line (one or more hoses). *Id.*, [0017] (system lets “fuel vapor flow into the carburetor 114”), [0018] (system feeds “vaporized propane into carburetor 114 through hose 112”), [0022], [0025]; **Ex.1003**, [0206].

One reason to locate the fuel delivery regulators off-board from the generator and near or at the LPG tank is so that the fuel line leading to the engine will already be at the relatively lower pressure set by the output of the secondary regulator. **Ex.1003**, [0207]. This enhances safety in case this fuel line is punctured or damaged in some way, since the fuel in this line will be at a lower pressure. *Id.* Additional benefits include improved access for servicing and more stable operating conditions (i.e., less exposure to heat and vibrations created by the generator, both of which can prematurely wear the regulator components). *Id.*

It would have been obvious to a POSA to use the off-board fuel regulator system disclosed in Parlatore because Parlatore discloses the use of a regulator system with “any desired form of engine” and specifically suggests the use of its

regulator system with generators. **Ex.1013**, [0019], [0025]; *see also id.*, [0024] (suggesting off-board configuration “where more fuel may be desired”); **Ex.1003**, [0208]. A POSA would thus be motivated to combine the regulator systems described in Parlatore to regulate the gaseous fuel from a pressurized fuel container to the dual fuel engine described in DuroMax. *Id.*

A POSA would have had a reasonable expectation of success in using Parlatore’s off-board fuel regulator system with the DuroMax dual fuel system given that this implementation was already demonstrated by Parlatore. *See Ex.1013*, [0019] (“For example, this embodiment may be beneficial in some desired situations ... such as generators.”). Moreover, the use of regulators with LPG tanks has been commonplace for decades. **Ex.1003**, [0209].

A POSA also would have been motivated to use a quick connector because Parlatore states that the secondary regulator may be connected to the carburetor or engine “either permanently or releasably” (**Ex.1013**, [0020]) and refers to “releasably coupling the second regulator to the engine” (*id.*, claim 10, 15). **Ex.1003**, [0210].

A POSA would have understood that a quick-connect could be used to achieve the releasable connection as coupling 314. **Ex.1003**, [0211].

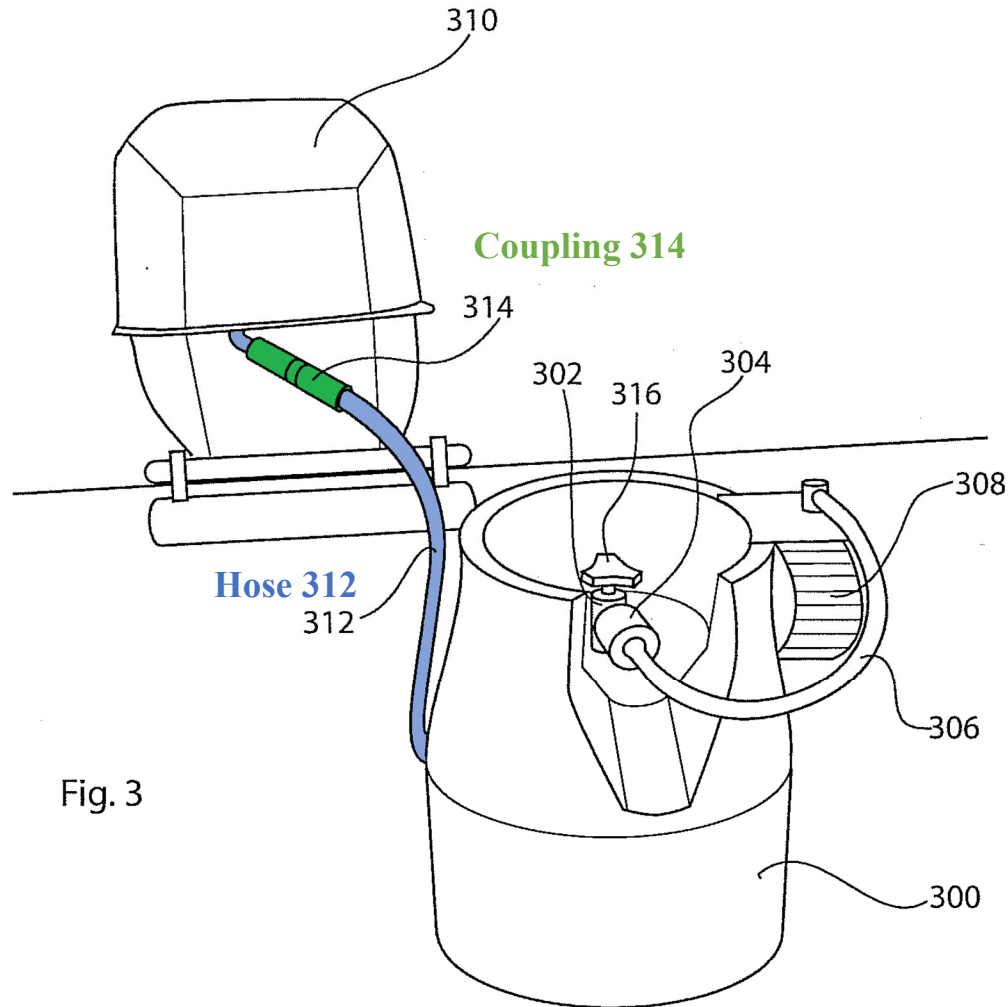


Fig. 3

Ex.1013, FIG. 3 (Annotated).

As such, a first end would be coupled to the outlet of the secondary regulator 308 and a second end would be coupled to an inlet of the gaseous fuel line of the engine to couple the secondary pressure regulator to the gaseous fuel line. *Id.*

At the time of the invention, quick-connect couplings were a standard, well understood solution for fuel lines where connections need to be secure but detachable, safe against leaks, and tool-free for ease of service. **Ex.1003**, [0213];

Ex.1005, 40 (§3.3.62: “Quick Connectors. Fittings used to connect hose assemblies to piping and valves without the use of tools.”).

A POSA would have also been motivated to use a quick connector for easy connection and disconnection of Parlatore’s LPG tank for refilling the tank or replacing an empty tank with a full tank. **Ex.1003**, [0214]. A POSA would have been further motivated to provide for easy connection/disconnection so that the tank could be used for other common applications when not in use by the generator, such as a BBQ grill. **Ex.1003**, [0215]. A POSA would have been further motivated to use a quick connector to allow easy and rapid connection and disconnection so that the portable generator could be more easily moved to other locations or could be stored when not in use. *Id.*

Additionally, many quick connectors stop gas flow when disconnected, preventing propane from escaping during tank swaps or maintenance. *Id.*, [0216]. This is especially valuable in off-board regulator setups. *Id.*

Quick connectors also allow users to connect and disconnect the hose effortlessly, making them ideal for non-experts using portable generators in residential or emergency settings. *Id.*, [0217]. This minimizes downtime when replacing the propane tank, which is common in extended generator use or mobile applications. *Id.*

A POSA would have had a reasonable expectation of success because quick connectors were commonly used in propane and fuel systems, including portable setups like those described in Parlature. **Ex.1003**, [0218]; **Ex.1005**, 40 (§3.3.62). The benefits of a quick-connect coupling, such as rapid setup, easy maintenance, and safety, would have been especially attractive in systems that were meant to be modular or portable, as the Parlature system is. *See* **Ex.1013**, Fig. 3; **Ex.1003**, [0218].

2. Claim 5

Claim 5 depends from claims 1 and 3. Claim 1 is rendered obvious by the combination of DuroMax and Elsdon. §VII.A.1 above. Claim 3 is rendered obvious by the combination of DuroMax and Elsdon. §VII.A.3 above. A POSA would have looked to Parlature, in view of LP-Gas Handbook, to teach, and render obvious, any limitation of claim 5 not disclosed by the combination of DuroMax and Elsdon.

FIG. 3 of Parlature discloses an LPG tank 300 coupled to an engine 310 via: a primary regulator 304, a hose 306, a secondary pressure regulator 308, a hose 312, and a coupling 314. **Ex.1013**, [0020]–[0021], and FIG. 3.

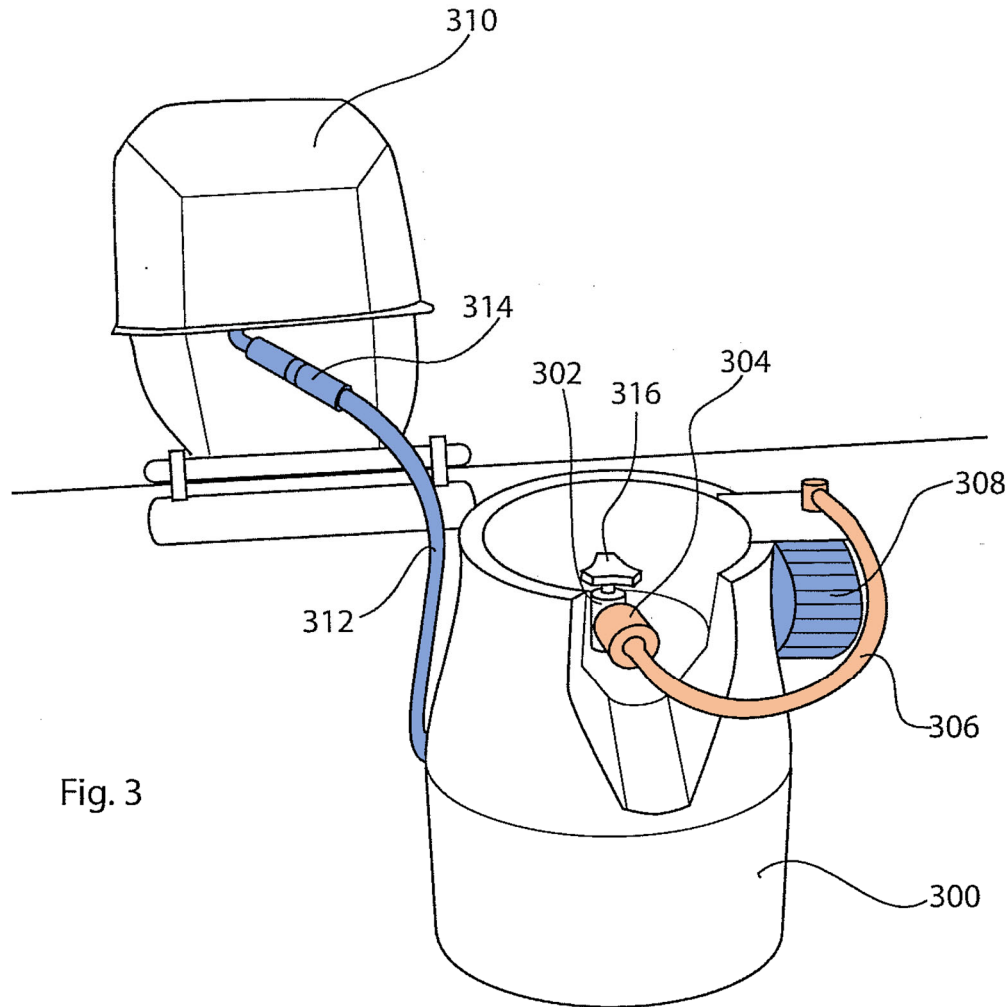


Fig. 3

Ex.1013, FIG. 3 (Annotated).

Parlatore also discloses that a low pressure output of the secondary regulator 308 can be releasably attached to a propane carburetor. **Ex.1013**, [0020]. The low pressure output can be attached to the propane carburetor through hose 312 and coupling 314. *Id.*

Parlatore does not explicitly disclose which type of hose coupling it uses. However, LP-Gas Handbook discloses the use of quick-connect couplings in LP-gas systems. **Ex.1005**, 40 (§3.3.62 commentary: “Quick connectors are also used

in other LP-Gas systems, such as those used for engine fuel refueling and cylinder filling, connecting cylinders to gas-fired barbecue grills, and connecting gas systems between two sections of mobile homes.”). It would have been obvious to a POSA to use a quick connector at the end of the Parlature hose (e.g., as coupling 314) in view of the teachings of LP-Gas Handbook. **Ex.1003**, [0222].

A POSA would therefore understand that the combination of DuroMax, Elsdon, and Parlature teaches claim 5.

3. Claim 11

Claim 11 recites limitations identical to claim 5, changing only its dependance. A POSA would therefore understand that the combination of DuroMax, Elsdon, and Parlature teaches claim 11 for same reasons as claim 5. §VII.B.2 above.

4. Claim 14

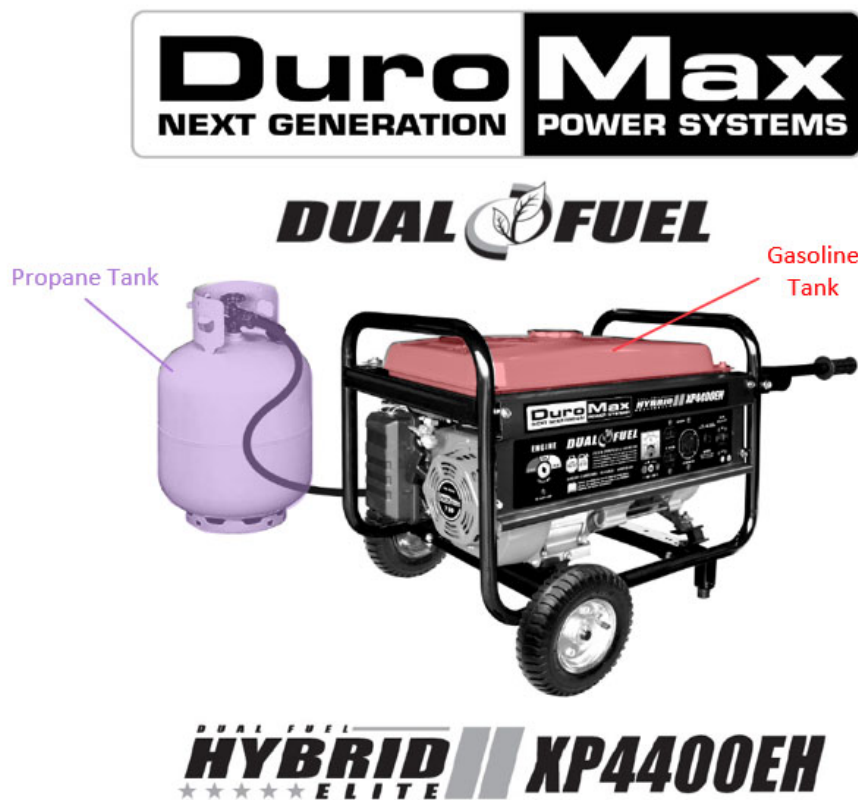
Claims 14–21 include limitations similar to those of claims 1–3, 8, and 9, with additional limitations drawn to a fuel regulator system. A POSA would have looked to Parlature, in view of LP-Gas Handbook, to teach, and render obvious, any limitation not disclosed by the combination of DuroMax and Elsdon. *See* §VII.A.1–3, 7, and 8 above.

a. Element [14.0]

To the extent the preamble is limiting, DuroMax discloses a dual fuel generator in which either LPG or gasoline may be selected for operation of the generator. **Ex.1010**, pp.11–12.

b. Element [14.1]

DuroMax discloses a first fuel tank and a second fuel tank. **Ex.1010**, p.1.



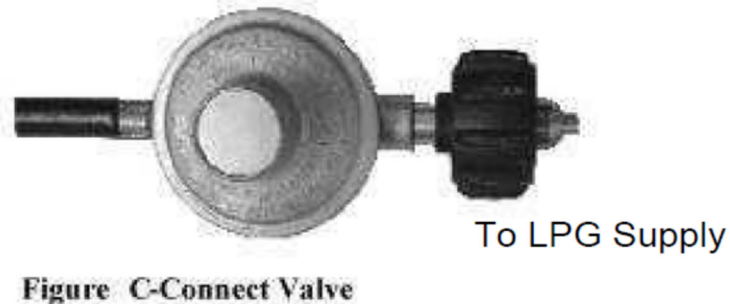
Ex.1010, p.1 (Annotated)

The first fuel tank provides liquid gasoline, and the second fuel tank provides gaseous propane. **Ex.1010**, pp. 7, 11–12. DuroMax discloses the liquid fuel (gasoline) is supplied from a liquid fuel source (tank) through a liquid fuel line. *Id.*, 9, 20–21, 30–31 (parts diagram/list depicting liquid fuel line as “Part No.

137, Outlet Pipe”). A POSA would have understood that DuroMax discloses a first fuel source that provides liquid fuel from a liquid fuel tank to the dual fuel engine.

Ex.1003, [0228].

DuroMax also discloses a gaseous fuel line that supplies the gaseous fuel (LFP) from a pressurized fuel source requiring a pressure regulator with a pressure release valve:



Ex.1010, 12.

A POSA thus would also have understood that DuroMax discloses a second fuel source that provides gaseous fuel from a pressurized fuel container to the dual fuel engine. **Ex.1003**, [0230].

Accordingly, a POSA would have understood that DuroMax teaches [14.1].

Ex.1003, [0231].

c. Element [14.2]

In FIGS. 1–3, Parlatore discloses a propane vapor delivery system. **Ex.1013**, [0013].

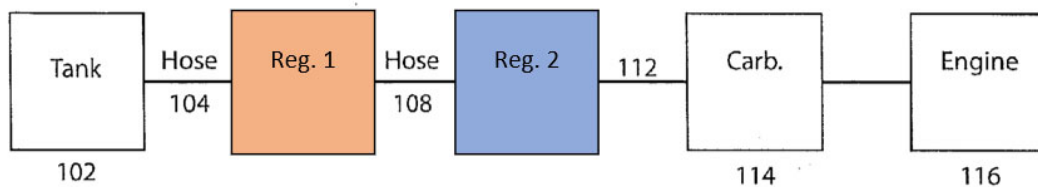


Fig. 1

Ex.1013, FIG. 1.

As shown in FIG. 3, the “LPG tank 300 may be located separate, but coupled to, an engine 310.”

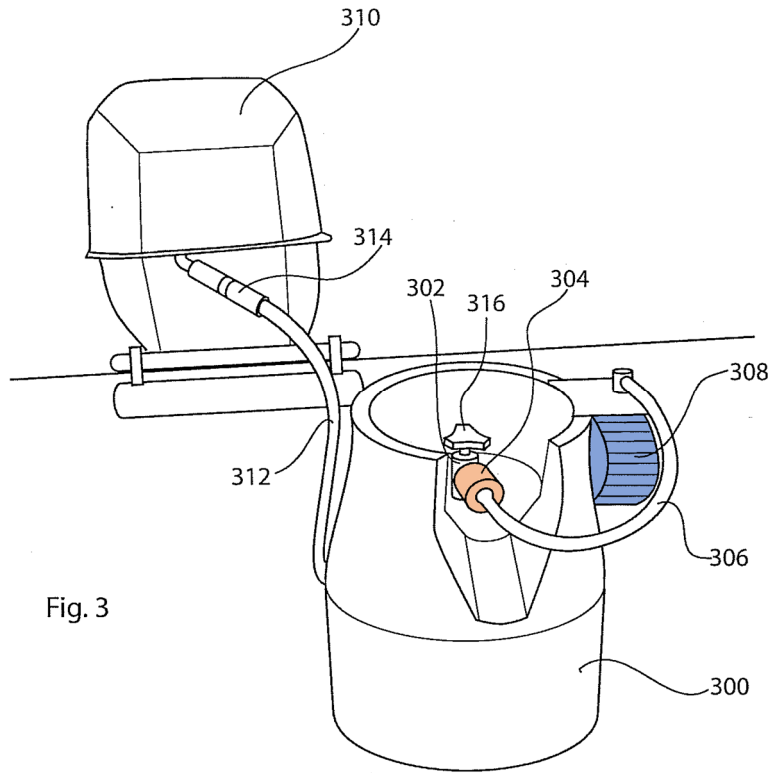


Fig. 3

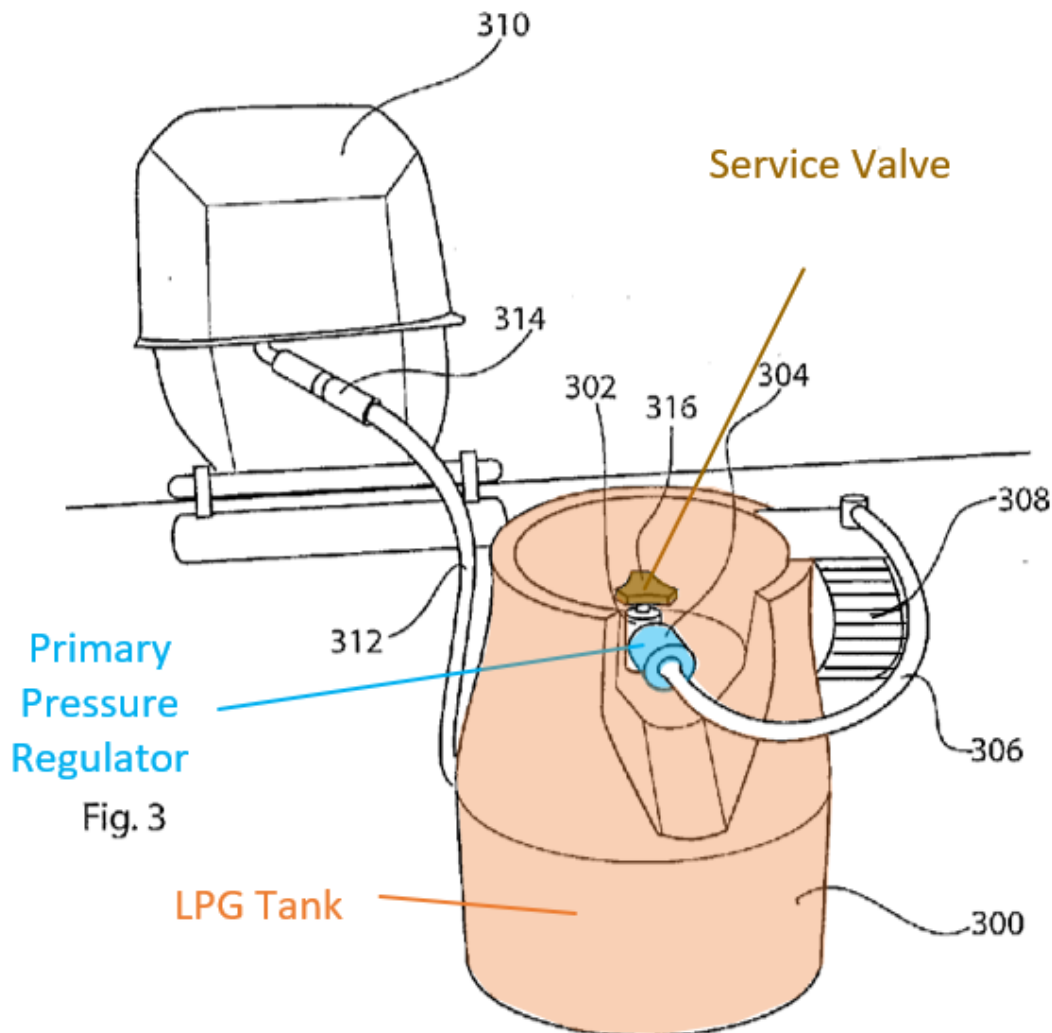
Ex.1013, FIG. 3 (Annotated).

Parlatore discloses that its propane vapor delivery system can be used for “generators” “or any situation where more fuel may be desired.” **Ex.1013**, [0019], [0024]. A POSA would therefore understand that the propane vapor delivery system of Parlatore is a fuel regulator system which can be located off board a dual fuel generator. **Ex.1003**, [0234]. Accordingly, a POSA would understand that Parlatore teaches [14.2].

d. Element [14.3]

Parlatore discloses that “[t]he LPG tank 300 may be connected to the primary regulator 304 as described previously, for example by connector 302.”

Ex.1013, [0020].



Ex.1013, FIG. 3 (Annotated).

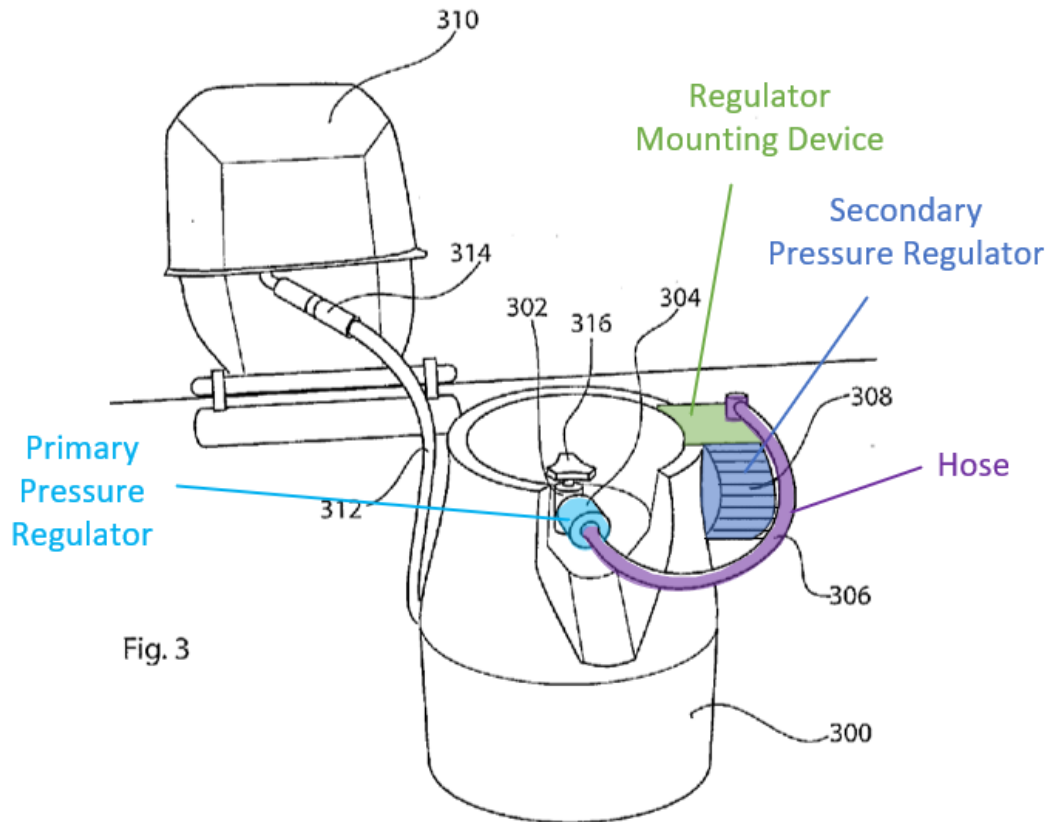
Parlatore discloses that the “primary regulator 106 may step down the pressure of any stored propane vapor energy in tank 102 and may further output this lowered pressure to a secondary regulator 110.” *Id.*, [0016]. A POSA would

thus understand that the primary pressure regulator of Parlature is coupled to a service valve (a “safety fuel shut-off valve 316,” *id.*, [0023]) of the pressurized fuel source and configured to regulate the fuel supplied from the pressurized fuel source to a reduced pressure. **Ex.1003**, [0236].

Accordingly, a POSA would understand that Parlature teaches [14.3]. **Ex.1003**, [0237].

e. Element [14.4]

“[P]rimary regulator 304 and...secondary regulator 308 may be two separate regulators that can be based on the design and size of an engine.” **Ex.1013**, [0021]. “The primary regulator 304 in this exemplary embodiment may be connected to LPG tank 300 as described above.” *Id.* Parlature discloses a secondary regulator 308 connected to the primary regulator 304 “by a hose 306, pipe, tube or the like” (e.g., a “gaseous fuel line”). *Id.*

**Ex.1013** FIG 3 (Annotated)

Parlatore discloses that the “the secondary regulator 110 can meter propane gas to an engine 116,” *id.*, [0016], and that the “low pressure output of the secondary regulator 308 may be attached to a propane carburetor (not pictured) on the engine 310 in any of a variety of manners.” *Id.*, [0020]. The LPG is in gaseous state when delivered to the engine through a gaseous fuel line (one or more hoses). *Id.*, [0017] (system lets “fuel vapor flow into the carburetor 114”), [0018] (system feeds “vaporized propane into carburetor 114 through hose 112”), [0022], [0025]; **Ex.1003**, [0241]. A POSA would thus understand that the primary pressure regulator is coupled to the secondary pressure regulator, and that the secondary

pressure regulator is 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. **Ex.1003**, [0242]. Accordingly, a POSA would understand that Parlatore teaches [14.4]. **Ex.1003**, [0243].

f. Element [14.5]

The combination of DuroMax and Elsdon discloses [14.5], for substantially the same reasons as [1.1]. *See* §VII.A.1.b above.

[14.5] is substantially identical to [1.1], specifying that the “first” fuel is liquid, and the “second” fuel is pressurized gas:

[14.5] (emphasis added)	[1.1] (emphasis added)
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	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

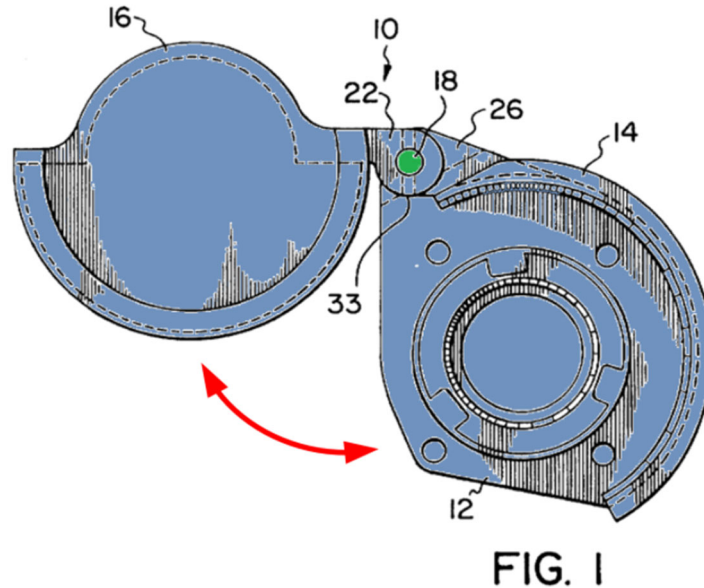
Further, as discussed above concerning claim 7, a POSA would have understood that the first fuel source in DuroMax provides liquid fuel from a liquid fuel tank to the dual fuel engine and the second fuel source provides gaseous fuel from a pressurized fuel container to the dual fuel engine. *See* §VII.A.6 above.

A POSA would thus have understood that the combination of DuroMax and Elsdon teaches [14.5]. **Ex.1003**, [0247].

g. Element [14.6]

The combination of DuroMax and Elsdon discloses [14.6].

Elsdon discloses a fuel conduit coupler shield 14 and cap 16 that when closed prevents connection of a fuel source. **Ex.1012**, 3:3–14. Elsdon discloses that by rotating cap 16 over conduit coupler 12, cap 16 prohibits access to the coupler interface, thereby preventing connecting of a hose with the coupler interface. *Id.*, 3:3–14, 5:1–10.



Ex.1012, FIG. 1 (Annotated).

It would have been obvious to a POSA to combine the Elsdon fuel conduit coupler cap with the gasoline fuel valve of DuroMax to provide a mechanical fuel valve that both controls the flow of gasoline from the tank through the gasoline line (as disclosed by DuroMax) and simultaneously rotates to block and unblock the LPG inlet (as disclosed by Elsdon). **Ex.1003**, [0250]. By blocking and

unblocking the LPG inlet, this combined apparatus would selectively control the flow of LPG through the LPG fuel line. *Id.* This combination would appear and function the same way as Figures 2–4B of the '895 Patent. **Ex.1003**, [0251].

Thus, a POSA would have understood that the combination of DuroMax and Elsdon teaches [14.6].

h. Element [14.7]

The combination of DuroMax and Elsdon teaches [14.7] for at least the same reasons as [1.3]. §VII.A.1.d above.

i. Element [14.8]

The combination of DuroMax and Elsdon discloses [14.8], for substantially the same reasons as [1.4]. *See* §VII.A.1.e above.

[14.8] is substantially identical to [1.4], specifying that the “first” fuel is liquid, and the “second” fuel is pressurized gas:

[14.8] (emphasis added)	[1.4] (emphasis added)
configured to: prevent the pressurized fuel source from coupling to the gaseous fuel line while the liquid fuel line is open , and permit the pressurized fuel source to couple to the gaseous fuel line while the liquid fuel line is closed by the mechanical fuel valve .	and 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 .

When the mechanical fuel valve is in the first position, the liquid fuel line is open. *See* §VII.A.1.e above. It would have been obvious to a POSA to combine the Elsdon fuel conduit coupler cap with the gasoline fuel valve of DuroMax to

provide a mechanical fuel valve that both controls the flow of gasoline from the tank through the gasoline line (as disclosed by DuroMax) and simultaneously rotates to block and unblock the LPG inlet (as disclosed by Elsdon). **Ex.1003**, [0256]. By blocking and unblocking the LPG inlet, this combined apparatus would selectively control the flow of LPG through the LPG fuel line. *Id.* Thus, a POSA would understand that the combination of DuroMax and Elsdon teaches [14.8]. **Ex.1003**, [0257].

5. Claim 15

The combination of DuroMax and Elsdon teaches claim 15 for at least the same reasons as claim 2 and [14.8]. §§VII.A.2, VII.B.4.i above.

6. Claim 16

The combination of DuroMax and Elsdon teaches claim 16 for at least the same reasons as Claims 3 and 9. §§VII.A.3, VII.A.8 above.

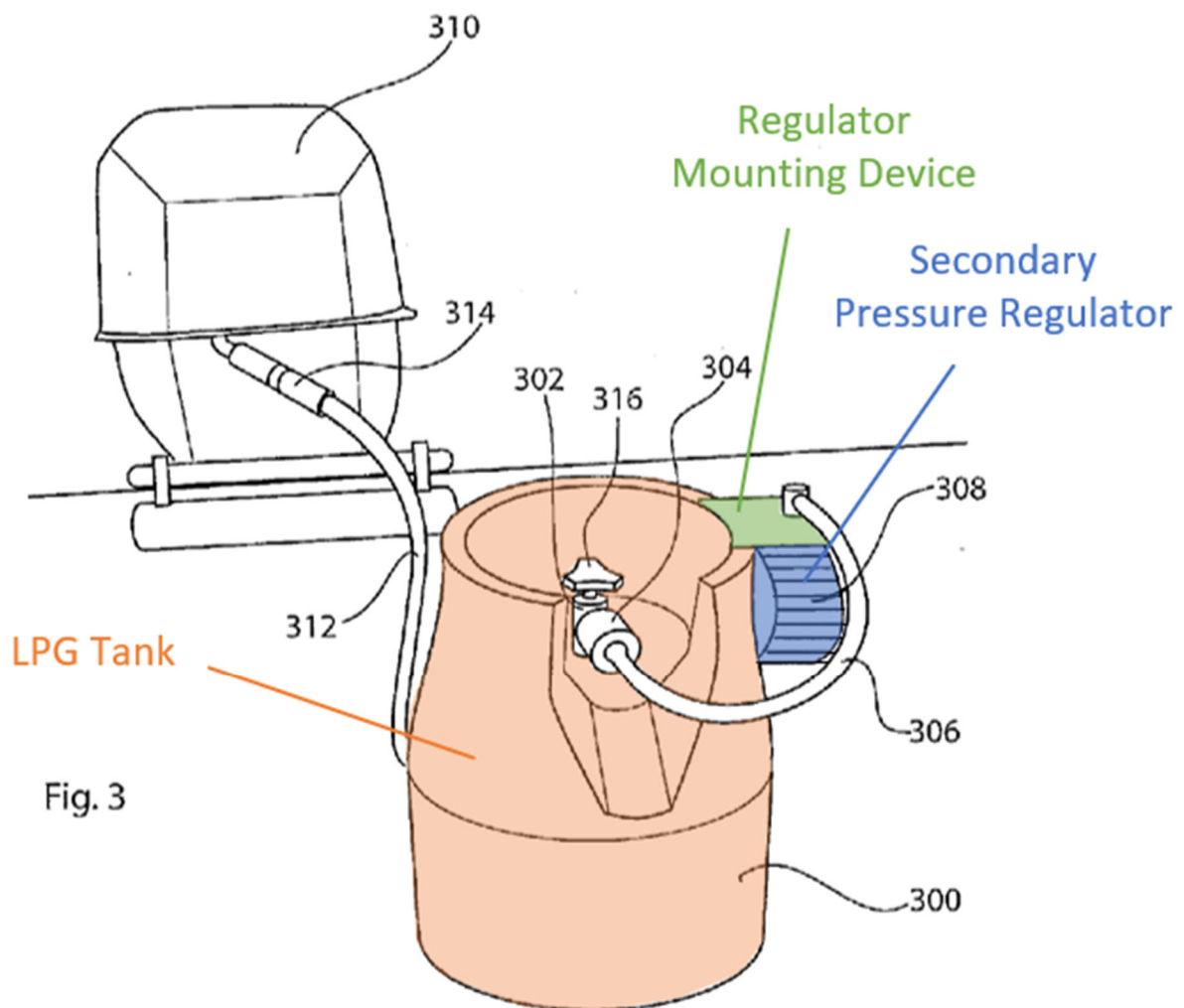
7. Claim 17

The combination of DuroMax, Elsdon, and Parlatore in view of LP-Gas Handbook teaches claim 17 for at least the same reasons as claims 5 and 11. §§VII.B.2–3 above.

8. Claim 18

The combination of DuroMax, Elsdon, and Parlatore teaches claim 14. §VII.B.4 above. Parlatore discloses the additional limitations of dependent claim 18.

As shown in Figure 3, Parlatore discloses that the secondary pressure regulator is mounted to the pressurized fuel source (the LPG tank) with a mounting device.



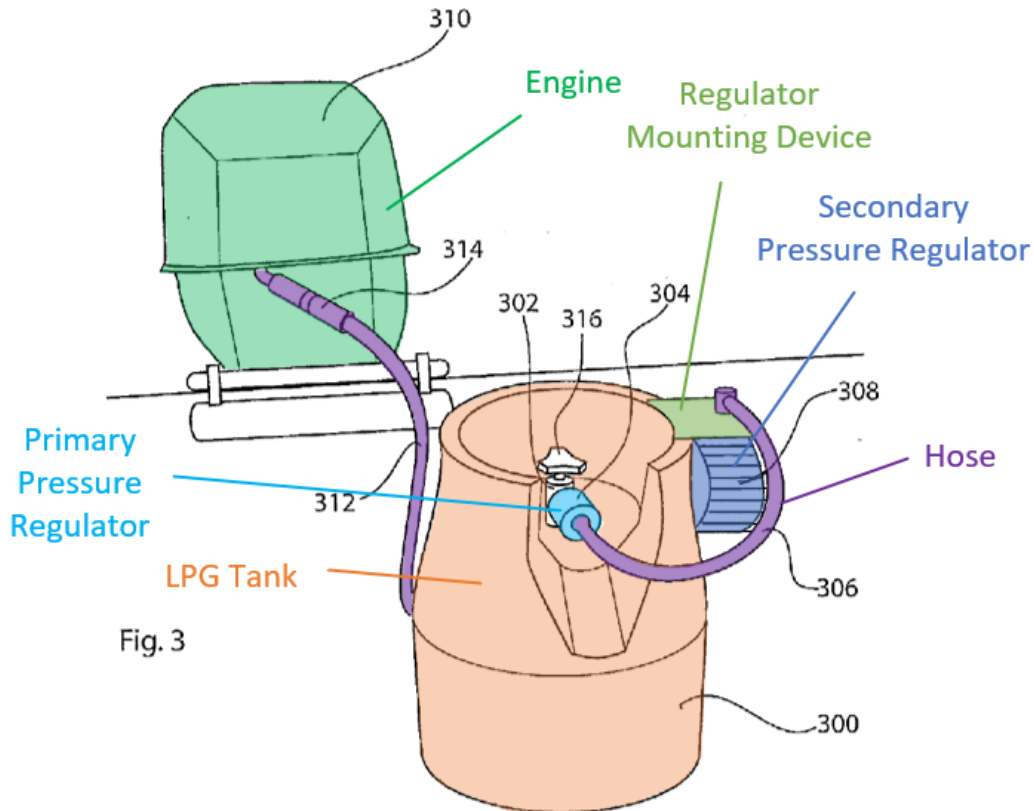
Ex.1013 FIG 3 (Annotated)

Thus, a POSA would understand that Parlatore teaches claim 18. **Ex.1003**, [0262]-[0263].

9. Claim 19

The combination of DuroMax, Elsdon, and Parlatore teaches claim 14. *See* §VII.B.4 above. Parlatore discloses the additional limitations of dependent claim 19.

Parlatore discloses that “the primary regulator 304 may be connected to the secondary regulator 308 by a hose 306, pipe, tube or the like.” **Ex.1013**, ¶[0021]. A rigid pipe connecting the primary pressure regulator to the secondary regulator—which is disclosed in Parlatore as being mounted on the regulator mounting device, *see* §VII.B.8 above—serves to mount the primary pressure regulator on the regulator mounting device via its connection to the secondary pressure regulator:



Ex.1013 FIG 3 (Annotated)

Parlatore also discloses that the primary and secondary regulators can be combined as a single, two-stage regulator, in which case, the primary pressure regulator would also be mounted onto the LPG tank. *Id.*, ¶ [0018]. Parlatore further discloses that this “exemplary embodiment ... may be utilized in any desired situation,” including specifically “further exemplary embodiments” as depicted in FIG 3. *Id.*, [0019]–[0020]. Thus, a POSA would understand that the combination of DuroMax, Elsdon, and Parlatore teaches claim 19. **Ex.1003**, [0267].

10. Claim 20

The combination of DuroMax, Elsdon, and Parlatore teaches claim 14. *See* §VII.B.4 above. Parlatore discloses the additional limitations of dependent claim 20. Parlatore discloses the mounting device secures to the collar of the propane tank:

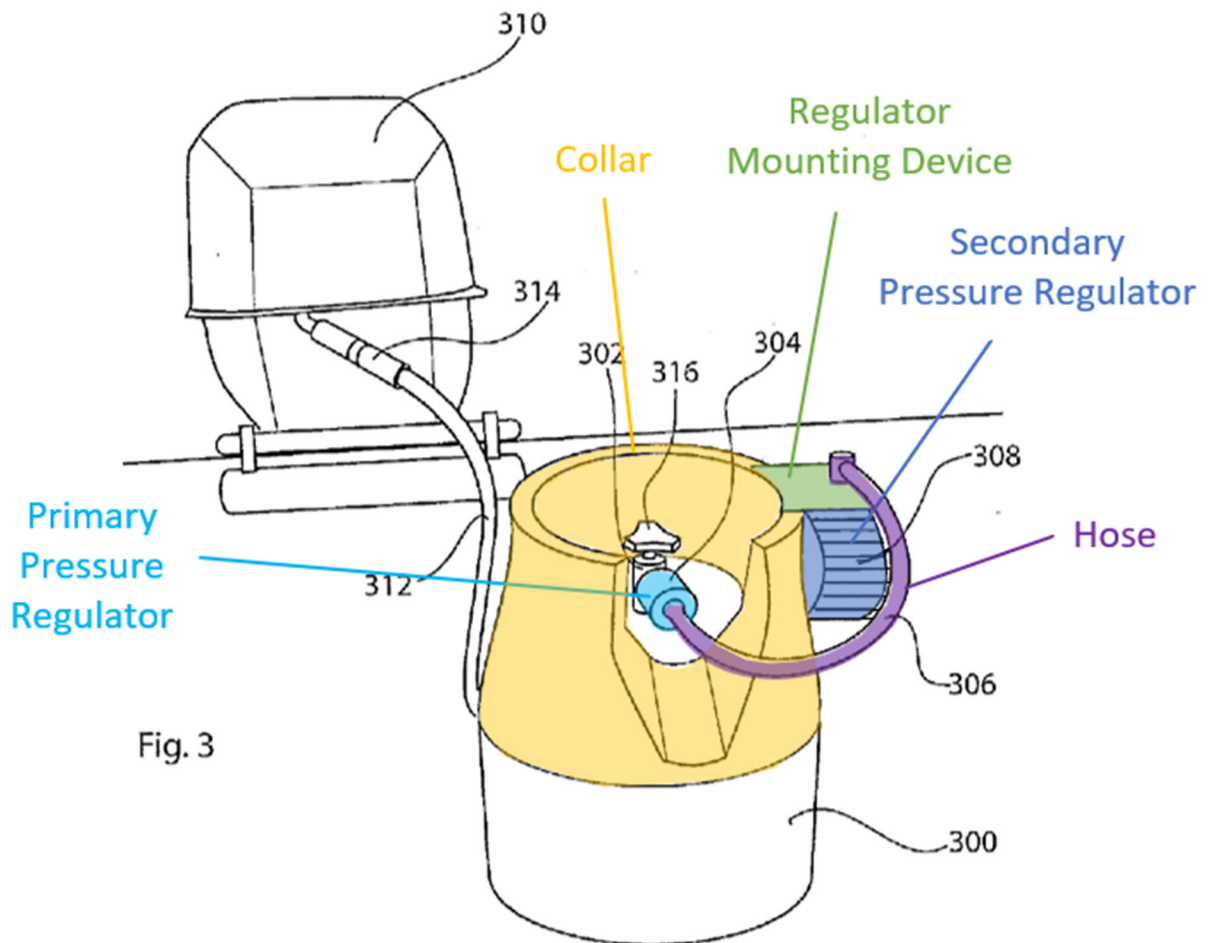


Fig. 3

Ex.1013 FIG 3 (Annotated)

Parlature also discloses the primary and secondary regulators can be combined as a single, two-stage regulator, in which case, the dual stage regulator

would be mounted on the collar. **Ex.1013**, [0018]. In this arrangement, the primary and secondary pressure regulators would be positioned adjacent each other along an outer periphery of the collar. **Ex.1003**, [0268]. Thus, a POSA would understand that the combination of DuroMax, Elsdon, and Parlatore teaches claim 20. **Ex.1003**, [0269].

11. Claim 21

The combination of DuroMax, Elsdon, and Parlatore teaches claim 14. *See* §VII.B.4 above. Parlatore discloses the additional limitations of dependent claim 21.

Parlatore states that “the regulator arrangement of the primary regulator 106 and the secondary regulator 110 may be such that they are combined as a single, two-stage, regulator 202 would then feed the vaporized propane into carburetor 114 through hose 112.” **Ex.1013** [0018]. Thus, a POSA would understand that the combination of DuroMax, Elsdon, and Parlatore teaches claim 21. **Ex.1003**, [0272].

C. Ground 3A/3B: Hallberg Anticipates Claims 1, 6, and 7 (Ground 3A) and Renders Obvious Claims 2, 8, 12, and 13 (Ground 3B).

Petitioners include Grounds 3A/B showing how even under Patent Owner’s apparent construction, claims 1, 6 and 7 of the ‘895 Patent are anticipated by Hallberg (**Ex.1014**) under §102, and claims 2, 8, 12, and 13 and 15 are rendered obvious by Hallberg under §103.

1. Claim 1

a. Element [1.0]

To the extent the preamble is limiting, Hallberg discloses [1.0].

Hallberg discloses a system which may be used with conventional internal combustion engines...to permit alternative utilization of a liquified gas fuel...such as propane...and a liquid fuel...such as gasoline. **Ex.1014**, 3:49–55. The system includes a mechanical fuel lockout switch comprising a fluid dual valve control 301, a liquified-to-gaseous fuel converter 1, and a fluid dual valve structure 300. *Id.*, 7:5–6, 7:27–29. As shown in FIG. 1 (below), the liquified-to-gaseous fuel converter and fluid dual valve structure are controlled by a fluid dual valve control 301 having a gasoline and propane position. *Id.*, 7:27–29, Fig. 1.



1

b. Element [1.1]

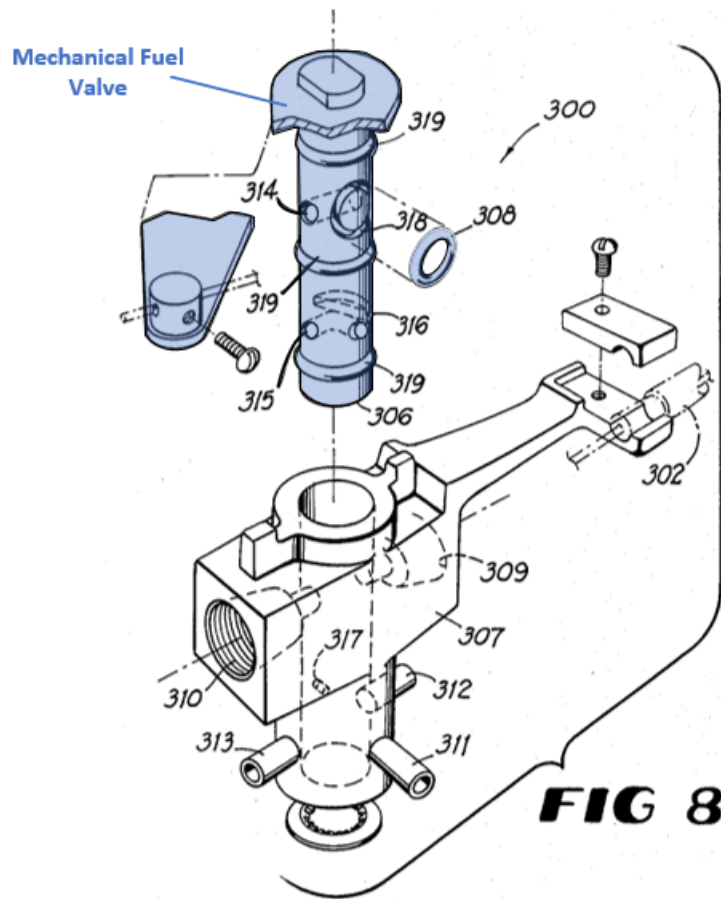
Hallberg teaches [1.1].

Hallberg discloses a mechanical fuel valve as shown in FIG. 8 below (“[i]n the figures...300 is the fluid dual valve structure.” **Ex.1014**, 7:5–7.

b.

Hallberg teaches [1.1].

Hallberg discloses a mechanical fuel valve as shown in FIG. 8 below (“[i]n the figures...300 is the fluid dual valve structure.” **Ex.1014**, 7:5–7.



Ex.1014, FIG. 8 (Annotated).

Positioning of control 301 in “gasoline” (i.e., a first fuel source) mode acts through control cable 302 to rotate spool 306 within valve body 307 such that gasoline from gasoline supply line 304 is supplied to the carburetor 110 and the flow of propane (i.e., a second fuel source) is locked out. *Id.*, 7:27–40. As shown in FIG. 10 below, when the mechanical fuel valve is in gasoline mode, liquid inlet opening 309 and liquid outlet opening 310 communicate through tunnel 314. *Id.*, 7:40–43. A POSA would have thus understood that when the mechanical fuel valve is in gasoline mode, it is actuatable in a first position to selectively control

fuel flow to the dual fuel engine from a first fuel source through a first fuel line.

Ex.1003, [0281].

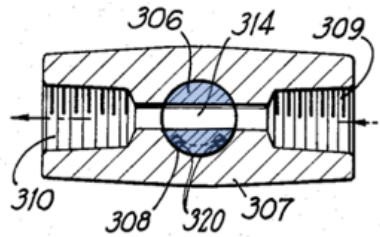


FIG 10

Ex.1014, FIG. 10 (Annotated).

As shown in FIG. 11 (below) when “propane” (i.e., a second fuel source) mode of control 301 is selected, spool 306 is rotated within valve body 307 by control cable 302 such that O-ring 308 on the face of spool 306 forms a seal between spool 306 and valve body 307 around liquid inlet opening 309. **Ex.1014**, 8:3–7. Forming a seal between the spool 306 and valve body 307, prohibits the flow of gasoline to conventional carburetor 110. *Id.*, 8:7–10.

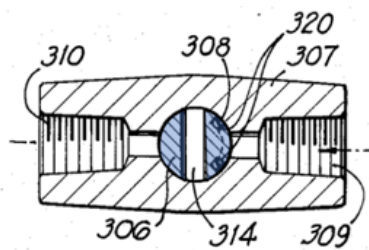
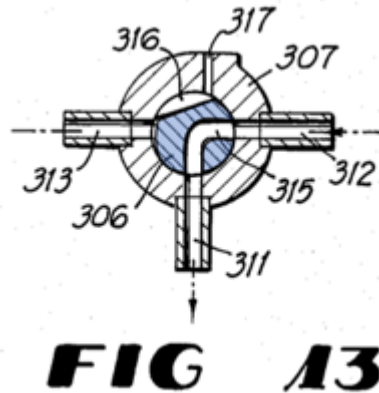


FIG 11

Ex.1014, FIG. 11 (Annotated).

However, as shown in FIG. 13 (below), during “propane” mode operation, duct 315 within spool 306 is simultaneously aligned to communicate with vacuum inlet port 311 and first vacuum outlet port 312. *Id.*, 8:23–26, Fig. 13. Communicating vacuum inlet port 311 with the first vacuum outlet port 312 connects converter vacuum line 30 (shown in FIG. 1) to the intake manifold, via intake manifold line 112. *Id.*, 8:26–30.



Ex.1014, FIG. 13 (Annotated).

When the engine is started, a vacuum is created in line 30, urging diaphragm 10 upward against liquid inlet lever 8. *Id.*, 8:31–38. Actuating inlet lever 8 drives inlet valve shaft 41 against bias spring 3 which opens liquid inlet valve 2 allowing propane to flow through the propane fuel line to the engine. *Id.*, 8:38–42.

A POSA would have thus understood that when the mechanical fuel valve is in propane mode, it is actuatable in a second position to selectively control fuel flow to the dual fuel engine from a second fuel source through a second fuel line.

Ex.1003, [0286]. Together, POSA would have thus understood that Hallberg

discloses a mechanical fuel valve actuatable between a first position (e.g., gasoline) and a second position (e.g., propane) 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. **Ex.1003**, [0287].

c. Element [1.2]

Hallberg discloses that when gasoline (i.e., a first fuel source) is selected on the fluid dual valve control 301, spool 306, within valve body 307, is rotated such that gasoline from gasoline supply line 304 is supplied to the carburetor 110 through engine gasoline line 305. **Ex.1014**, 7:27–44. As shown in FIG. 10 below, when gasoline is selected, gasoline is communicated through inlet opening 309, tunnel 314 and liquid outlet opening 310.

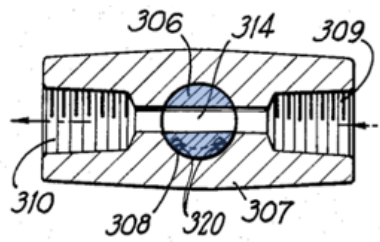


FIG 10

Ex.1014, FIG. 10 (Annotated).

During gasoline mode, the fuel lockout apparatus prevents the flow of propane (i.e., a second fuel source) to the internal combustion engine. See §VII.C.1.d below. A POSA would have therefore understood that when the mechanical fuel valve is in the first position, 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. **Ex.1003**, [0289].

When propane (i.e., a second fuel source) mode is selected on the fluid dual valve control 301, propane is provided to the dual fuel engine. **Ex.1014**, 7:27–44. As described in §VII.C.1.b above and §VII.C.1.d below, when propane mode is selected, spool 306 is rotated within valve body 307 to form a seal to prevent the flow of gasoline to the engine and a vacuum is created in line 30, urging diaphragm 10 upward against liquid inlet lever 8 which drives inlet valve shaft 41 against bias spring 3 which opens liquid inlet valve 2 allowing propane to flow through the propane fuel line to the engine. **Ex.1003**, [0291].

A POSA would have therefore also understood when the mechanical fuel valve is in a second position, the mechanical fuel lockout switch communicates the second fuel source to the dual fuel engine and interrupts the first fuel source communication with the dual fuel engine. **Ex.1003**, [0292].

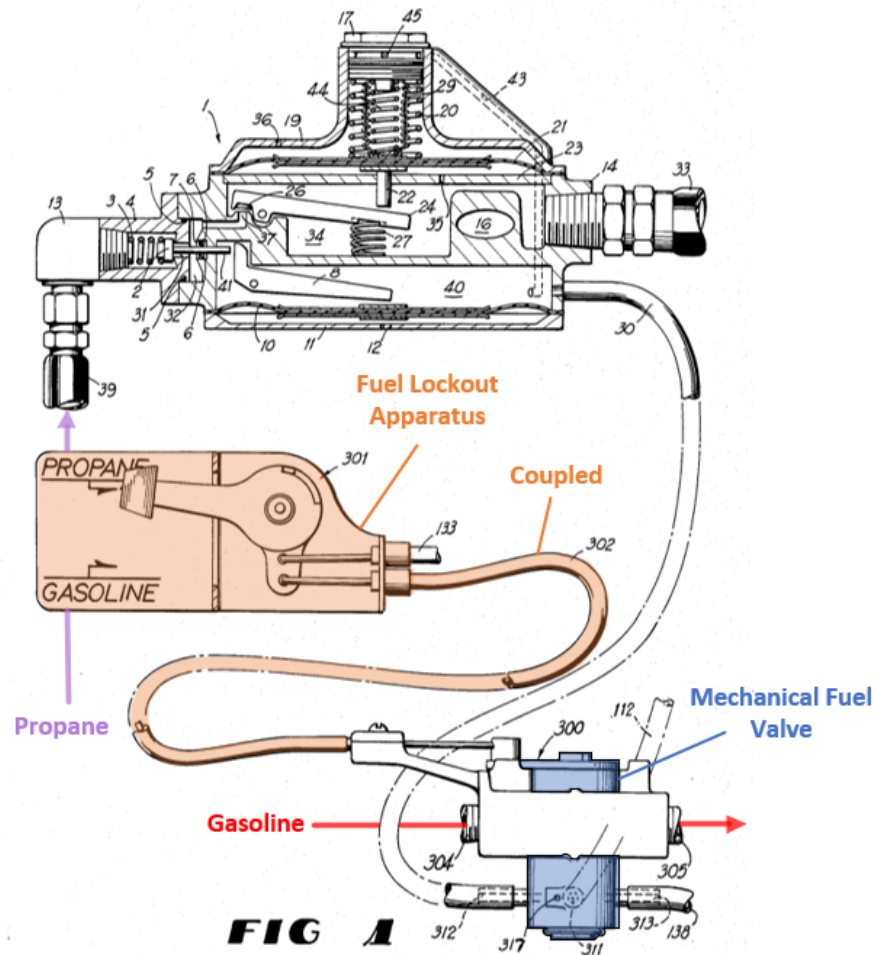
Accordingly, a POSA would have understood that Hallberg teaches [1.2]. **Ex.1003**, [0293].

d. Element [1.3]

Hallberg discloses a mechanical fuel valve. *See* §VII.C.1.b above. Hallberg also discloses a fuel lockout apparatus coupled to the mechanical fuel valve (fluid

dual valve structure 300), the fuel lockout apparatus being configured to perform the function described in [1.4]. *See* §VII.C.1.e below.

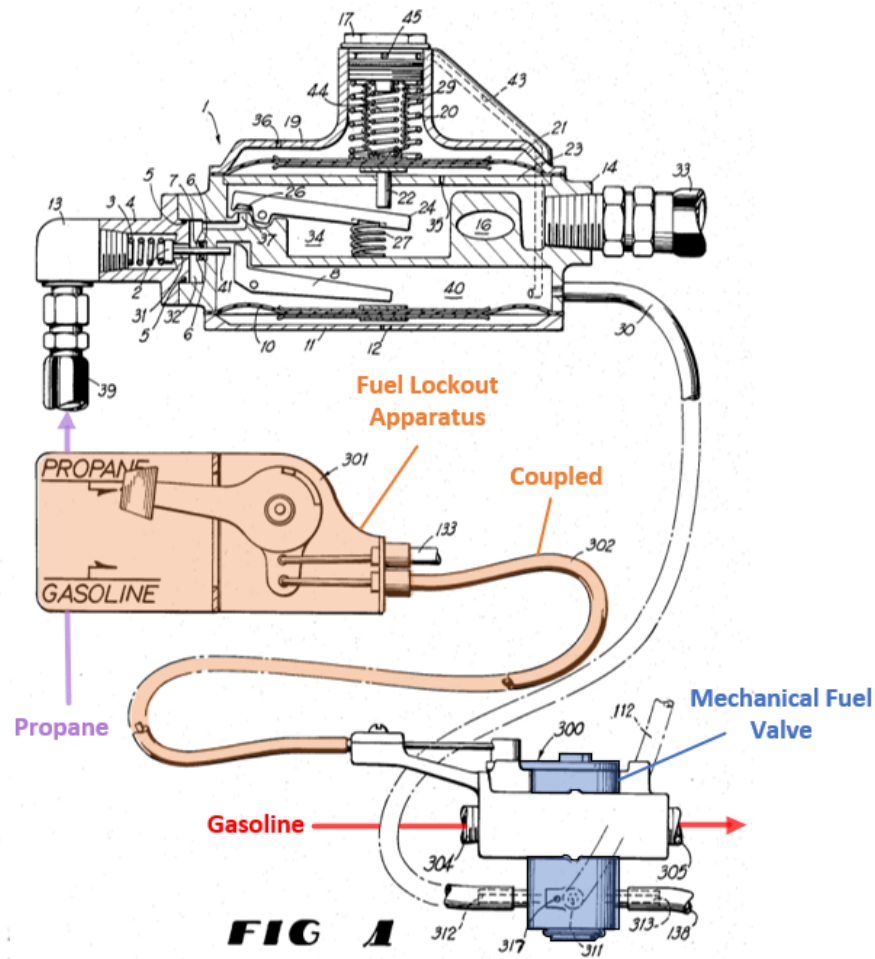
Hallberg discloses a fuel lockout apparatus comprising fluid dual value control 301 and control cable 302. **Ex.1014**, 7:27–44; **Ex.1003**, [0295]. As shown in FIG. 1 (below), the fuel lockout apparatus comprising fluid dual value control 301 and control cable 302 is coupled to fluid dual valve structure 300. **Ex.1014**, 7:30–36, 8:3–9. Positioning control 301 in the “gasoline” mode acts through control cable 302 to permit gasoline to flow through fluid dual valve structure 300, and to lock out propane from flowing through the propane fuel line to the engine. §VII.C.1.b above. Positioning control 301 in the “propane” mode acts through control cable 302 to permit propane to flow through the propane fuel line to the engine, and to lock out gasoline from flowing through fluid dual valve structure 300. *Id.*



Ex.1014, FIG. 1 (Annotated).

A POSA would understand that the components of the fuel lockout apparatus (fluid dual valve control 302 and control cable 302) can be actuated and/or engaged to allow propane to flow through propane supply line 39 to the internal combustion engine. If the components of the fuel lockout apparatus are not actuated and/or engaged, propane is not supplied to the dual fuel generator. Ex.1003, [0296].

Hallberg also discloses that the fuel lockout apparatus is coupled to the mechanical fuel valve. **Ex.1003**, [0297]. As shown in FIG. 1 (below), control cable 302 couples the fuel lockout apparatus comprising fluid dual valve control 301 and control cable 302 to the mechanical fuel valve. Without control cable 302, the fluid dual valve control 301 would be unable to rotate spool 306 within the valve body 307. **Ex.1014**, 7:30–33.



Ex.1014, FIG. 1 (Emphasis Added).

Accordingly, a POSA would have understood that Hallberg teaches a fuel lockout apparatus coupled to the mechanical fuel valve. **Ex.1003**, [0298].

e. Element [1.4]

Hallberg discloses [1.4].

Hallberg discloses a fuel lockout apparatus comprising fluid dual valve control 301 and control cable 302. *See* §VII.C.1.d above.

The fluid dual valve control 301 and control cable 302 can be actuated and/or engaged to allow either gasoline or propane to flow to the internal combustion engine. *Id.* Positioning control 301 in gasoline mode, acts through control cable 302, to rotate spool 306 within valve body 307 to permit gasoline (a first fuel) to flow through fluid dual valve structure 300 (a mechanical fuel valve) and lock out propane (a second fuel) from flowing through the propane fuel line to the engine. *See* §VII.C.1.b above. A POSA would have understood that the fluid dual valve control 301 and control cable 302 is therefore a fuel lockout apparatus configured to prevent a second fuel source from coupling to the second fuel line while the mechanical fuel valve is in the first position. **Ex.1003**, [0301].

Positioning control 301 in propane mode, acts through control cable 302, to rotate spool 306 within valve body 307, to create a vacuum in line 30, which opens liquid inlet valve 2, allowing propane to flow through the propane fuel line to the

engine. **Ex.1014**, 8:38–42. A POSA would have understood that the fuel lockout apparatus therefore is configured to permit the second fuel source to couple to the second fuel line while the mechanical fuel valve is in the second position. **Ex.1003**, [0302].

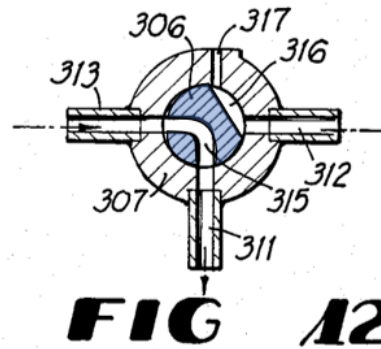
Accordingly, a POSA would understand that the fuel lockout apparatus of Hallberg prevents the mechanical fuel valve from coupling the second fuel source when the mechanical fuel valve is in the first position and permits the second fuel source to couple with the second fuel line when the mechanical fuel valve is in the second position. **Ex.1003**, [0303].

2. Claim 2

Hallberg discloses that 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. As described in §VII.C.1.e above, a POSA would have understood that operation of the mechanical fuel valve and the fuel lockout apparatus is interconnected such that only one fuel can be communicated to the engine at one time. **Ex.1003**, [0305]. A POSA would have therefore looked to the fuel lockout apparatus and mechanical fuel valve of Hallberg to render this limitation obvious. **Ex.1003**, [0306].

As shown in FIG. 12, positioning of control 301 in the “gasoline” mode acts through control cable 302 to rotate spool 306 within valve body 307 such that

converter vacuum line 30 (communicating with first vacuum outlet port 312) is open to the atmosphere through notch 316 between first vacuum outlet port 312 and vent 317. **Ex.1014**, 7:30–38. In this configuration, no vacuum is provided to vacuum line 30. **Ex.1003**, [0308].



Ex.1014, FIG. 12 (Annotated).

As described in §§VII.C.1.b and VII.C.1.d above, when propane mode is engaged, spool 306 is rotated within valve body 307 to form a seal between spool 306 and valve body 307. When the spool 306 is rotated, vacuum inlet port 311 and vacuum outlet port 312 are aligned to provide vacuum, via vacuum line 30, to the fuel lockout apparatus to open liquid inlet valve 2.

A POSA would have understood that when propane is communicated to the engine and vacuum is provided to the fuel lockout apparatus via vacuum line 30, the rotatable spool cannot be in a gasoline position as it is well known in the art that when a valve is in a first position, it cannot be in a second position. **Ex.1003**,

[0310]. The fuel lockout apparatus therefore prevents actuation of the mechanical fuel valve to a first position. **Ex.1003**, [0311].

Accordingly, a POSA would have understood that Hallberg teaches and/or suggests a fuel lockout apparatus that prevents actuation of the mechanical fuel valve to the first position when the second fuel source communicates with the dual fuel engine as recited in claim 2. *Id.*

3. Claim 6

Hallberg discloses 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 and a second fuel source. §VII.C.1.b above. Hallberg also discloses a fuel lockout apparatus 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. §VII.C.1.e above. The fuel lockout apparatus also prevents actuation of the mechanical fuel valve to the first position when the second fuel source communicates with the dual fuel engine. §VII.C.1.e above. A POSA would have thus understood that the mechanical fuel valve and fuel lockout apparatus “function with each other” to ensure that the first fuel and the second fuel are not simultaneously delivered to the dual fuel engine. **Ex.1003**, [0315].

Accordingly, a POSA would have understood that Hallberg teaches 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 as recited in claim 6. **Ex.1003**, [0316].

4. Claim 7

Hallberg discloses that gasoline is provided to the dual fuel engine by way of the carburetor. *See Ex.1014*, 7:36–43 (“gasoline from gasoline supply line 304 is supplied to the carburetor 110 through engine gasoline line 305.”). Propane is supplied to the dual fuel engine by way of the mixer. *Id.*, 8:56–60 (“the mixer 100 admits pressurized gaseous fuel to the engine.”). The propane is stored in a pressurized fuel tank. *Id.*, 1:54–58 (“[l]iquified petroleum gas, propane and the other “gaseous” fuels with which the present invention is intended to be used are normally held for use in a reservoir or tank under sufficient pressure and at a temperature such that the fuels are in a liquid state.”). Accordingly, a POSA would have understood that 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, as recited in claim 7. **Ex.1003**, [0317]-[0318].

5. Claim 8

a. Element [8.0]

Hallberg teaches [8.0] for at least the same reasons as [1.0]. §VII.C.1.a above.

b. Element [8.1]

Hallberg teaches [8.1] for at least the same reasons as [1.1]. §VII.C.1.b above.

c. Element [8.2]

Hallberg teaches [8.2] for at least the same reasons as [1.2]. §VII.C.1.c above.

d. Element [8.3]

Hallberg teaches [8.3] for at least the same reasons as [1.3]. §VII.C.1.d above.

e. Element [8.4]

Hallberg teaches and/or suggests the limitations of [8.4] for at least the same reasons as claim 2. §VII.C.2 above.

6. Claims 12 and 13

Claims 12 and 13 recite limitations identical to claims 6 and 7, respectively, changing only their dependance. Hallberg thus also teaches and/or suggests the

limitations of claims 12 and 13 for at least the same reasons as claims 6 and 7. §§VII.C.3, VII.C.4 above.

D. Ground 4: Claims 14, 15, and 17-21 Are Obvious Over the Combination of Hallberg and Parlatore in View of LP-Gas Handbook.

1. Motivation to Combine Hallberg and Parlatore, and POSA's Reasonable Expectation of Success

A POSA would have been motivated to use Parlatore's off-board fuel regulator system with the Hallberg dual fuel system. **Ex.1003**, [0327].

The engine of Hallberg is configured to operate on gaseous fuel (propane) and on a liquid fuel (gasoline). **Ex.1014**, 7:27–29, Fig. 1. Hallberg discloses an LPG regulator system but does not indicate whether the regulator system is “off-board.” *Id.*, 6:65–7:8, 8:31–9:61. A POSA would have been motivated to use Parlatore's “off-board” regulator system shown in Figure 3 with a generator having Hallberg's dual-fuel engine. **Ex.1003**, [0328].

Parlatore discloses using its fuel delivery system with “any desired form of engine,” including an engine for generators. **Ex.1013**, [0025], [0019]. As discussed, it would have been obvious to a POSA to use Parlatore's fuel regulator system with a dual-fuel generator. *See* §VII.B.4.c above. Hallberg discloses an example of a dual-fuel engine that could be used with a generator. **Ex.1003**, [0329].

As discussed, a POSA would have been motivated to use Parlatore's offboard regulator system for use with a generator and would have had a reasonable expectation of success. *See* §VII.B.1 above. Moreover, the use of regulators with LPG tanks has been commonplace for decades. **Ex.1003**, [0330].

2. Claim 14

a. Element [14.0]

To the extent the preamble is limiting, the combination of Hallberg and Parlatore discloses a dual fuel generator in which either LPG or gasoline may be selected for operation of the generator.

b. Element [14.1]

The engine of Hallberg is configured to operate on gaseous fuel (propane) and on a liquid fuel (gasoline). **Ex.1014**, 7:27-29, Fig. 1. Hallberg discloses that the liquid fuel is supplied from a liquid fuel source through a liquid fuel line. *Id.*, 7:27–44, FIG. 1, Claim 17.

Hallberg discloses a LPG regulator system but does not indicate whether the regulator system is “off-board.” **Ex.1014**, 6:65–7:8, 8:31–9:61. A POSA would have been motivated to use Parlatore's “off-board” regulator system shown in Figure 3 with a generator having Hallberg's dual-fuel engine. **Ex.1003**, [0334].

Accordingly, a POSA would have understood that the combination of Hallberg and Parlatore teaches [14.1]. **Ex.1003**, [0335].

c. Element [14.2]

Parlatore discloses [14.2]. *See* VII.B.4.c above.

d. Element [14.3]

Parlatore discloses [14.3]. *See* VII.B.4.d above.

e. Element [14.4]

Parlatore discloses [14.4]. *See* VII.B.4.e above.

f. Element [14.5]

Hallberg discloses [14.5], for substantially the same reasons as limitation [1.1]. *See* §VII.C.1.b above.

[14.5] is substantially identical to [1.1], with [14.5] specifying that the “first” fuel is liquid, and the “second” fuel is pressurized gas. *See* §VII.B.4.f above. Further, as discussed above concerning claim 7, a POSA would have understood that the first fuel source in Hallberg 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. *See* §VII.C.4 above.

A POSA would thus have understood that Hallberg discloses a mechanical fuel valve that is 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. **Ex.1003**, [0341].

g. Element [14.6]

Hallberg discloses a fuel lockout apparatus comprising control 301 and control cable 302. **Ex.1014**, 7:27–44; **Ex.1003**, [0342]. The fuel lockout apparatus (comprising control 301 and control cable 302) is coupled to fluid dual valve 300. **Ex.1014**, 7:30–36, 8:3–9, Fig. 1. Positioning control 301 in the “gasoline” mode acts through control cable 302 to permit gasoline to flow through fluid dual valve 300, and to lock out propane from flowing to the dual-fuel engine. §VII.C.1.b. Positioning control 301 in the “propane” mode acts through control cable 302 to permit propane to flow to the dual-fuel engine, and to lock out gasoline from flowing through fluid dual valve 300. *Id.*

Thus, a POSA would have understood that Hallberg teaches [14.6].

h. Element [14.7]

Hallberg teaches [14.7] for at least the same reasons as [1.3]. §VII.C.1.d above.

i. Element [14.8]

Hallberg teaches [14.8], for substantially the same reasons as limitation [1.4]. *See* §VII.C.1.e above.

[14.8] is substantially identical to [1.4], with [14.8] specifying that the “first” fuel is liquid, and the “second” fuel is pressurized gas. *See* VII.B.4.i above. Further, as discussed above concerning claim 7, a POSA would have understood

that the first fuel source in Hallberg 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. *See* §VII.C.4 above.

A POSA thus would understand that Hallberg teaches [14.8]. **Ex.1003**, [0346]-[0347].

3. Claim 15

The combination of Hallberg and Parlatore teaches claim 15 for at least the same reasons as claim 2 and [14.8]. §§VII.C.2, VII.D.2.i above.

4. Claim 17

Claim 17 depends from 14. The combination of Hallberg and Parlatore in view of LP-Gas Handbook teaches claim 14. §VII.D.2 above.

FIG. 3 of Parlatore discloses an LPG tank 300 coupled to an engine 310 via: a primary regulator 304, a hose 306, a secondary pressure regulator 308, a hose 312, and a coupling 314. **Ex.1013**, [0020]–[0021], and FIG. 3.

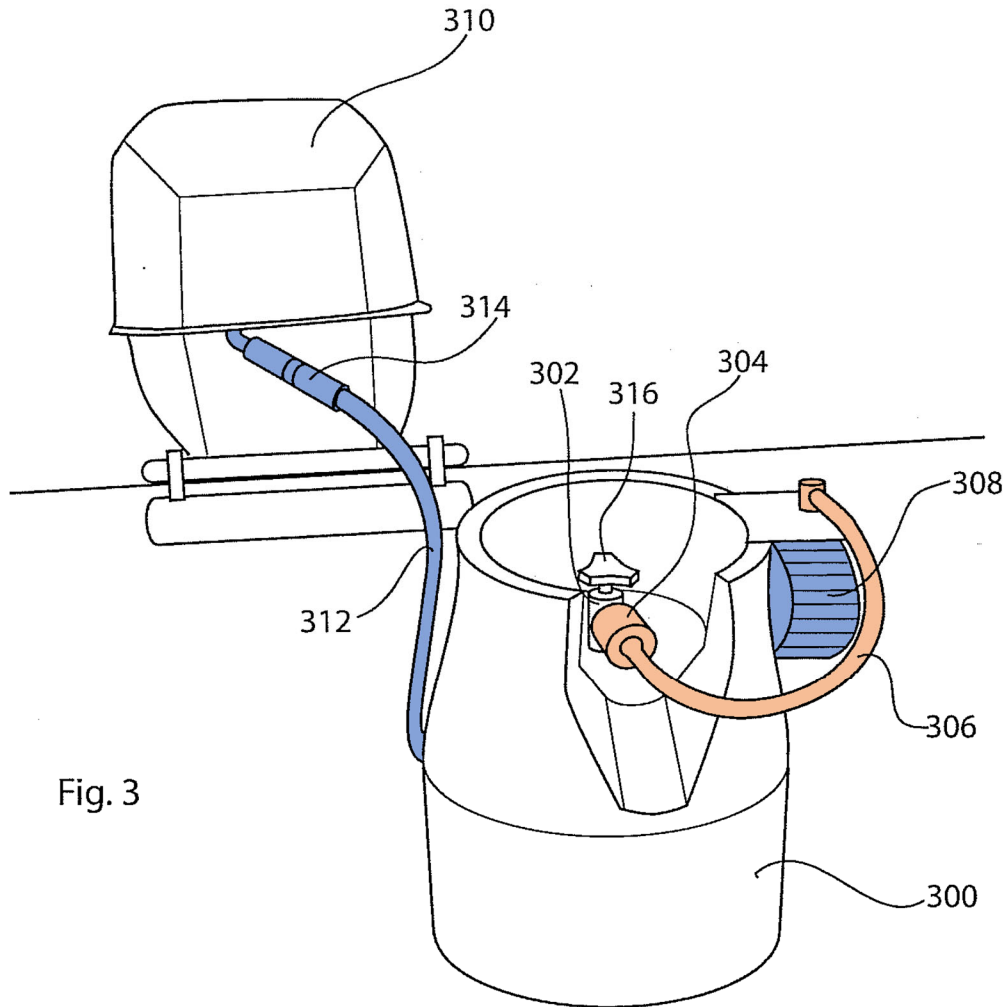


Fig. 3

Parlatore also discloses that a low pressure output of the secondary regulator 308 can be releasably attached to a propane carburetor. **Ex.1013**, [0020]. The low pressure output can be attached to the propane carburetor through hose 312 and coupling 314. *Id.*

Parlatore does not explicitly disclose which type of hose coupling it uses. However, LP-Gas Handbook discloses the use of quick-connect couplings in LP-gas systems. **Ex.1005**, 40 (§3.3.62 commentary: “Quick connectors are also used in other LP-Gas systems, such as those used for engine fuel refueling and cylinder

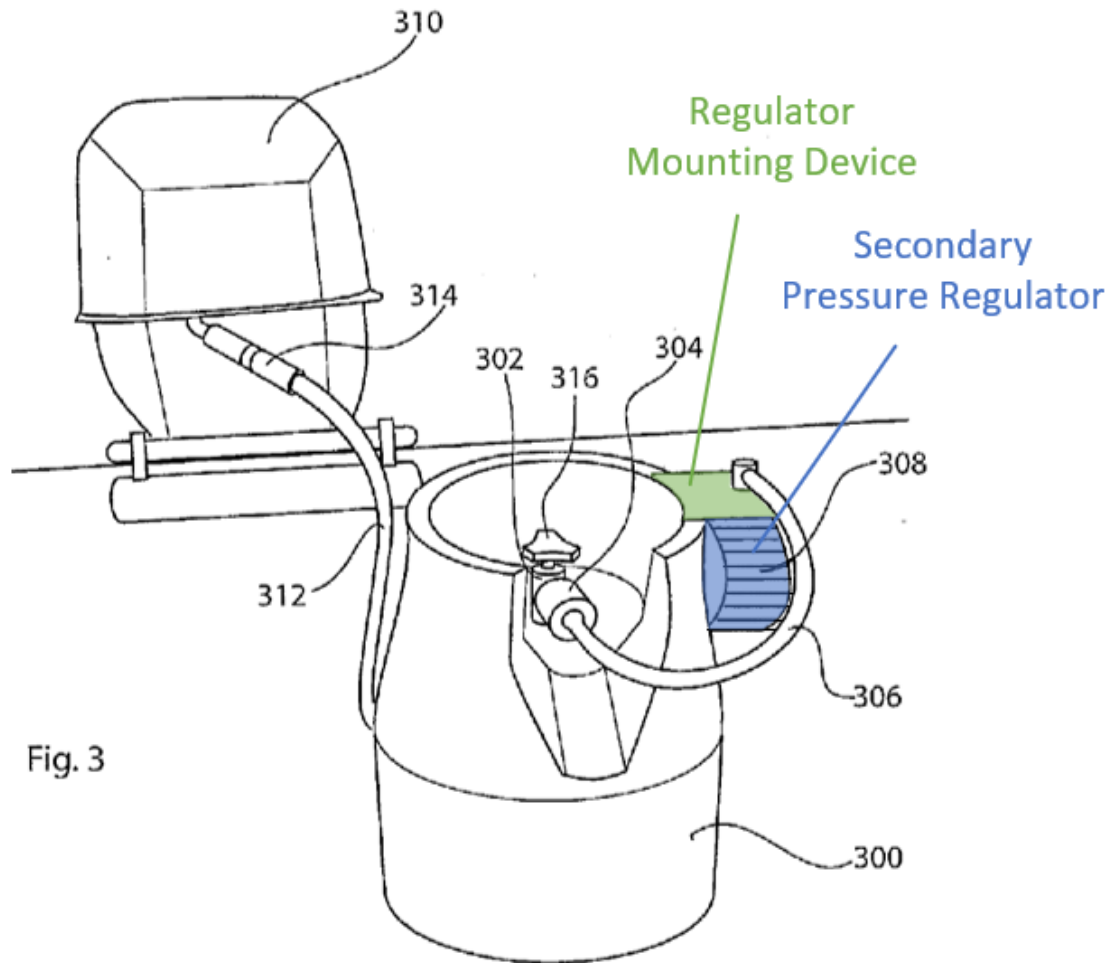
filling, connecting cylinders to gas-fired barbecue grills, and connecting gas systems between two sections of mobile homes.”). It would have been obvious to a POSA to use a quick connector at the end of the Parlatore hose (e.g., as coupling 314) in view of the teachings of LP-Gas Handbook. **Ex.1003**, [0352].

A POSA would therefore understand that the combination of Hallberg and Parlature in view of LP-Gas Handbook teaches claim 17.

5. Claim 18

The combination of Hallberg and Parlature teaches claim 14. *See* §VII.B.4 above. Parlature discloses the additional limitations of dependent claim 18.

As shown in FIG. 3, Parlature discloses that the secondary pressure regulator is mounted to the pressurized fuel source (the LPG tank) with a mounting device.



Ex.1013 FIG. 3 (Annotated)

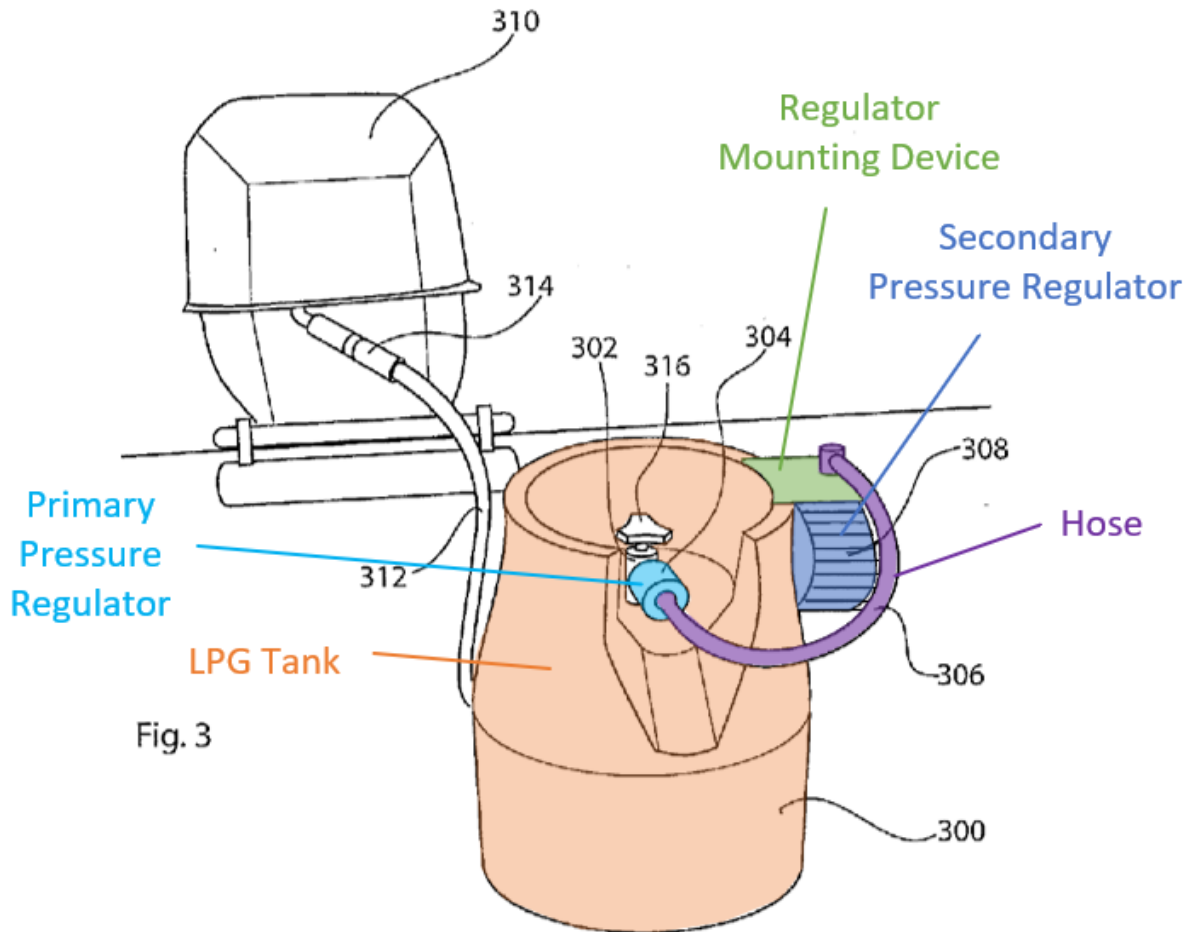
Thus, a POSA would understand that the combination of Hallberg and Parlatore teaches claim 18. **Ex.1003**, [0355]-[0356].

6. Claim 19

The combination of Hallberg and Parlature teaches claim 14. §VII.D.2 above. Parlature discloses the additional limitations of dependent claim 19.

Parlatore discloses that “the primary regulator 304 may be connected to the secondary regulator 308 by a hose 306, pipe, tube or the like.” **Ex.1013**, ¶[0021]. A

rigid pipe connecting the primary pressure regulator to the secondary regulator, which is disclosed in Parlato as being mounted on the regulator mounting device, *see* §VII.B.8 above, serves to mount the primary pressure regulator on the regulator mounting device via its connection to the secondary pressure regulator:



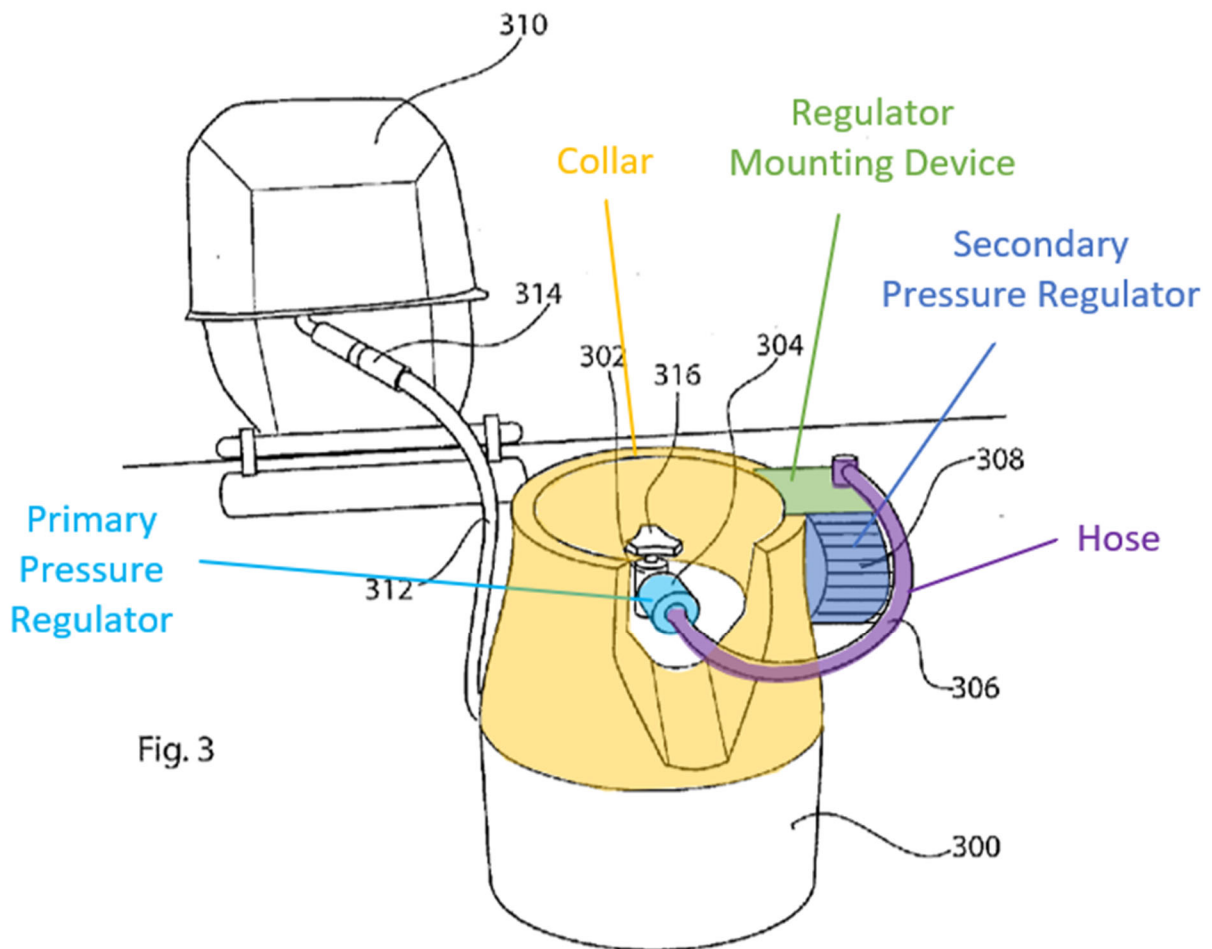
Ex.1013 FIG 3 (Annotated)

Parlatore also discloses that the primary and secondary regulators can be combined as a single, two-stage regulator, in which case, the primary pressure regulator would also be mounted onto the LPG tank. *Id.*, ¶ [0018]. Parlatore further

discloses that this “exemplary embodiment ... may be utilized in any desired situation,” including specifically “further exemplary embodiments” as depicted in FIG 3. *Id.*, [0019]–[0020]. Thus, a POSA would understand that the combination of Hallberg and Parlatore teaches claim 19. **Ex.1003**, [0358]–[0360].

7. Claim 20

The combination of Hallberg and Parlatore teaches claim 14. §VII.D.2 above. Parlatore discloses the additional limitations of dependent claim 20. Parlatore discloses the mounting device secures to the collar of the propane tank:



Ex.1013 FIG 3 (Annotated)

Parlatore also discloses the primary and secondary regulators can be combined as a single, two-stage regulator, in which case, the dual stage regulator would be mounted on the collar. **Ex.1013**, [0018]. In this arrangement, the primary and secondary pressure regulators would be positioned adjacent each other along an outer periphery of the collar. **Ex.1003**, [0362]. Thus, a POSA would understand that the combination of Hallberg and Parlatore teaches claim 20. *Id.*

8. Claim 21

The combination of Hallberg and Parlatore teaches claim 14. §VII.D.2 above. Parlatore discloses the additional limitations of dependent claim 21.

Parlatore states that “the regulator arrangement of the primary regulator 106 and the secondary regulator 110 may be such that they are combined as a single, two-stage, regulator 202 would then feed the vaporized propane into carburetor 114 through hose 112.” **Ex.1013** [0018]. Thus, a POSA would understand that the combination of Hallberg and Parlatore teaches claim 21. **Ex.1003**, [0364].

VIII. MANDATORY NOTICES**A. Real Party in Interest**

In addition to Petitioners, Midwest Equipment Sales, LLC, Harbor Freight Holdings, Inc., and Generac Holdings, Inc., are listed as potential real-parties-in-interest.

B. Related Matters

To the best of Petitioners' knowledge, the '895 Patent is or has been involved in the following district court litigations/proceedings:

Name	Number	Court	Filed
<i>Champion Power Equipment Inc. v. Firman Power Equipment Inc.</i>	2:23-cv-02371	DAZ	Nov. 10, 2023
<i>Champion Power Equipment Inc. v. Generac Power Systems Inc.</i>	2:24-cv-01281	EDWI	Oct. 9, 2024
<i>Harbor Freight Tools USA Inc. v. Champion Power Equipment Inc.</i>	2:24-cv-8722	CDCA	Oct. 9, 2024
<i>Champion Power Equipment Inc. v. Harbor Freight Tools USA Inc.</i>	2-24-cv-01302	EDWI	April 29, 2025
<i>Champion Power Equipment Inc. v. Westinghouse Elec. Corp. et al.</i>	2:25-cv-00844	DNV	May 14, 2025

Patent Owner has asserted the '895 Patent, and related 10,221,780 ('780 Patent), 10,393,034 ('034 Patent), 10,697,398 ('398 Patent), 11,143,120 ('120 Patent), 11,143,145 ('145 Patent), 11,492,985 ('985 Patent), 11,530,654 ('654 Patent), and 11,840,970 ('970 Patent), as well as other non-family member patents, in *Champion Power Equipment Inc. v. Firman Power Equipment Inc.*, 23-cv-02371-DWL (D. Ariz.).

Patent Owner has asserted the '895 Patent and related '398 Patent, '120 Patent, '145 Patent, '985 Patent, '654 Patent, '970 Patent, '780 Patent, as well as other non-family member patents, in *Champion Power Equipment Inc. v. Generac Power Systems Inc.*, 24-cv-01281-LA (E.D. Wis.).

Petitioner Harbor Freight has filed a declaratory judgment action alleging non-infringement of the '895 Patent and related '034 Patent, '654 Patent, '985 Patent, '398 Patent, '120 Patent, '145 Patent, '970 Patent, '780 Patent, as well as other non-family member patents, in *Harbor Freight Tools USA, Inc. v. Champion Power Equipment, Inc.*, 24-cv-08722-SVW-AS (C.D. Cal.).

Patent Owner has asserted the '895 Patent, and related '985 Patent, '034 Patent, '780 Patent, '398 Patent, '120 Patent, '145 Patent, as well as other non-family member patents, in *Champion Power Equipment Inc. v. Westinghouse Elec. Corp. et al.*, 2:25-cv-00844 (D. Nev.).

Patent Owner asserted the '895 Patent, and related '034 Patent, '398 Patent, '120 Patent, '145 Patent, '985 Patent, '654 Patent, '970 Patent, '780 Patent, as well as other non-family member patents, against Petitioner Harbor Freight in *Champion Power Equipment Inc. v. Harbor Freight Tools USA Inc.*, 24-cv-01302-PP (E.D. Wis.). This case was dismissed on April 29, 2025, in favor of the earlier filed action in C.D. California cited above.

C. Lead and Back-Up Counsel Under 37 C.F.R. §42.8(b)(3)

Pursuant to 37 C.F.R. §§42.8(b)(3) and 42.10(a), Petitioners provide the following designation of counsel, to which all correspondence should be addressed. Pursuant to 37 C.F.R. §42.10(b), a Power of Attorney for each Petitioner accompanies this Petition.

Lead Counsel	Backup Counsel
<p>Thomas Walsh Reg. No. 45,196 ICE MILLER LLP One American Square, Suite 2900 Indianapolis, IN 46282-0200 Tel: 317-236-5946 Email: thomas.walsh@icemiller.com</p>	<p>Thomas Rammer Reg. No. 62,591 ICE MILLER LLP 200 W. Madison Street, Suite 3500 Chicago, IL 60606 Tel: 312-705-6016 Email: tom.rammer@icemiller.com</p> <p>Aleksas Siliunas Reg. No. 79,826 ICE MILLER LLP 200 W. Madison Street, Suite 3500 Chicago, IL 60606 Tel: 312-726-8174 Email: alek.siliunas@icemiller.com</p> <p>Michael Houston Reg. No. 58,486 FOLEY & LARDNER LLP 321 N. Clark St., Suite 3000 Chicago, Illinois 60654 312-832-4500 mhouston@foley.com</p> <p>Jeffrey S. Gundersen Reg. No. 47,619 FOLEY & LARDNER LLP 777 E Wisconsin Ave Milwaukee, WI 53202-5306 414-271-2400 jgundersen@foley.com</p> <p>Kimberly K. Dodd Reg. No. 54,646 FOLEY & LARDNER LLP</p>

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D. Service Information Under 37 C.F.R. §42.8(b)(4)

Please address all correspondence and service to the addresses listed above. Petitioners consent to electronic service by email at thomas.walsh@icemiller.com, tom.rammer@icemiller.com, alek.siliunas@icemiller.com, and kristina.davis@icemiller.com. Petitioners consent to electronic service directed to the aforementioned email addresses.

E. Payment of Fees

The Office is authorized to charge fees for this Petition to Deposit Account No. 09-0007. Any additional fees that might be due are also authorized.

IX. CONCLUSION

Petitioners respectfully request that the Board institute an *inter partes* review trial for Claims 1–21 of the '895 Patent to cancel these claims as unpatentable.

August 20, 2025

Respectfully submitted,

/Thomas A. Walsh/
Thomas Walsh, Reg. No. 45,196

CERTIFICATE OF WORD COUNT UNDER 37 CFR §42.24

I hereby certify that the foregoing Petition for *Inter Partes Review* of U.S. Patent No. 11,905,895 complies with the type-volume limitations of 37 CFR §42.24 and general format requirements of CFR §42.6(a).

The foregoing Petition for *Inter Partes Review* of U.S. Patent No. 11,905,895 includes 13,669 words (as calculated by Microsoft Word), excluding those in the table of contents, table of authorities, mandatory notices, certificate of service, certificate of word count, and appendix of exhibits. The Petition for *Inter Partes Review* of U.S. Patent No. 11,905,895 has also been prepared using Microsoft® Word in 14-point Times New Roman.

August 20, 2025

Respectfully submitted,

/Thomas A. Walsh/

Thomas Walsh, Reg. No. 45,196

CERTIFICATE OF SERVICE

Pursuant to 37 CFR §§42.6(e)(4)(i) *et. seq.* and 42. 105(b), I hereby certify on August 20, 2025, that a true and correct copy of the Petition for *Inter Partes Review* of U.S. Patent No. 11,905,895 was served in its entirety via e-mail and courier service to the Patent Owner by serving the correspondence address of record for the 11,905,895 Patent:

26629 – ZIOLKOWSKI PATENT SOLUTIONS GROUP, SC (ZPS)
136 S WISCONSIN ST
PORT WASHINGTON, WI

Courtesy copies of the same documents were served electronically on Patent Owner's litigation counsel by email at the following address:

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August 20, 2025

Respectfully submitted,

/Thomas A. Walsh/

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