UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GENERAC POWER SYSTEMS, INC.,

HARBOR FREIGHT TOOLS USA, INC., and

MWE INVESTMENTS, LLC,

Petitioners,

- vs. -

CHAMPION POWER EQUIPMENT, INC.

Patent Owner

PETITION FOR INTER PARTES REVIEW

OF U.S. PATENT NO. 10,306,667

Case No.: IPR2025-01099

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CLAIM LISTING

Element	Claim Language
[1.0]	A fuel selector for use with a dual fuel generator, the fuel selector comprising:
[1.1]	a valve assembly fluidly connected to each of a first fuel source and a second fuel source, the valve assembly being operable to selectively control a first fuel flow and a second fuel flow from the first fuel source and the second fuel source, respectively, to an engine of the dual fuel generator; and
[1.2]	a selector switch positioned on the valve assembly to allow a user to manually select one of the first fuel flow and the second fuel flow;
[1.3]	wherein the valve assembly comprises: two fuel inputs, with a first fuel input connected to the first fuel source and a second fuel input connected to the second fuel source; and two fuel outputs for selectively supplying fuel to the engine from the first fuel source or the second fuel source.
2	The fuel selector of claim 1 wherein the two fuel outputs selectively supply fuel to the engine from only one of the first fuel source or the second fuel source, responsive to selection of the first fuel flow or the second fuel flow via the selector switch, and a corresponding operation of the valve assembly.
3	The fuel selector of claim 1 wherein the valve assembly comprises: a first fuel valve having open and closed positions to selectively control the first fuel flow to the engine; and a second fuel valve having open and closed positions to selectively control the second fuel flow to the engine.
4	The fuel selector of claim 3 wherein the first fuel valve and the second fuel valve are non-solenoid, mechanical valves.

Element	Claim Language
5	The fuel selector of claim 3 wherein the selector switch provides for manual actuation of the first fuel valve and the second fuel valve between the open and closed positions.
6	The fuel selector of claim 1 further comprising a carburetor solenoid switch configured to activate an associated carburetor solenoid when actuated.
7	The fuel selector of claim 6 wherein, when the selector switch is in a first position, the selector switch actuates the carburetor solenoid switch, so as to activate the carburetor solenoid and stop the second fuel flow to the engine.
8	The fuel selector of claim 7 wherein, when the selector switch is in a second position, the carburetor solenoid allows the second fuel flow to the engine.
9	The fuel selector of claim 1 wherein the first fuel source is a liquefied petroleum gas (LPG) fuel source and wherein the second fuel source is a gasoline source.
[10.0]	A fuel selector of a dual fuel generator comprising:
[10.1]	a selector switch having a first fuel mode and a second fuel mode;
[10.2]	a fuel solenoid having open and closed positions; and
[10.3]	a solenoid switch having open and closed positions to activate and deactivate the fuel solenoid;
[10.4]	wherein, when the selector switch is in the first fuel mode, the solenoid switch and the fuel solenoid are in the closed positions and, when the selector switch is in the second fuel mode, the solenoid switch and the fuel solenoid are in the open positions;
[10.5]	and further comprising: a valve assembly fluidly connected to each of a first fuel source and a second fuel source, the valve assembly being operable to selectively control a first fuel flow and a second fuel flow from the first fuel source and the second fuel source, respectively, to an engine of the dual fuel generator; and
[10.6]	wherein positioning of the selector switch in the first fuel mode and the second fuel mode enables a selection of one of the first fuel flow and the second fuel flow.

Element	Claim Language
11	The fuel selector of claim 10 wherein the selector switch triggers the solenoid switch when changed from the second fuel mode to the first fuel mode, so as to cause the solenoid switch and the fuel solenoid to operate in the closed positions.
12	The fuel selector of claim 10 wherein the valve assembly is positioned on or adjacent the selector switch.
13	The fuel selector of claim 10 wherein the valve assembly comprises: two fuel inputs, with a first fuel input connected to the first fuel source and a second fuel input connected to the second fuel source; and two fuel outputs for selectively supplying fuel to the engine from the first fuel source or the second fuel source.
14	The fuel selector of claim 13 wherein the two fuel outputs selectively supply fuel to the engine from only one of the first fuel source or the second fuel source, responsive to selection of the first fuel flow or the second fuel flow via the selector switch and a corresponding operation of the valve assembly.
15	The fuel selector of claim 13 wherein the valve assembly comprises: a first fuel valve having open and closed positions to selectively control the first fuel flow to the engine; and a second fuel valve having open and closed positions to selectively control the second fuel flow to the engine.
16	The fuel selector of claim 10 wherein the first fuel source is a liquefied petroleum gas (LPG) fuel source and wherein the second fuel source is a gasoline source.
17	The fuel selector of claim 10 wherein the fuel solenoid is a carburetor shutoff solenoid.
18	The fuel selector of claim 10 wherein positioning the selector switch in the first fuel mode enables the selection of the first fuel source to the generator, and positioning the selector switch

Element	Claim Language
	in the second fuel mode enables the selection of the second fuel source to the generator.

I. GROUNDS FOR STANDING

Petitioners[1] certify that the '667 Patent is available for *inter partes* review and Petitioners are not barred or estopped from requesting *inter partes* review challenging the patent claims on the grounds identified in this Petition.

II. REQUESTED RELIEF

Petitioners request the PTAB to review the accompanying prior art and analysis, institute *inter partes* review of the Challenged Claims (claims 1-18), and the Director to cancel all Challenged Claims as unpatentable.

III. REASONS FOR THE REQUESTED RELIEF

The '667 Patent is invalid in view of new prior art that was never previously considered by the USPTO. The '667 Patent describes a sliding panel for interlocking a pair of valve handles on a valve assembly of a generator to lock one valve handle in the off position before the panel or "selector switch" can provide access to actuate the other valve handle in the on position. This multi-step process prevents both fuel valves from being open at the same time. EX1001, 2:5-15; 5:58-6:2. "Beneficially, the design of the fuel selector 22 and of the selector switch 30 described herein prevents differing fuels from two separate fuel sources from flowing to the engine … at the same time." *Id.*, 7:3-6. The '667 Patent describes and claims this sliding panel as a "selector switch" 30 shown below in yellow:

[1] A table of abbreviations is provided for convenience at EX1003, 7.

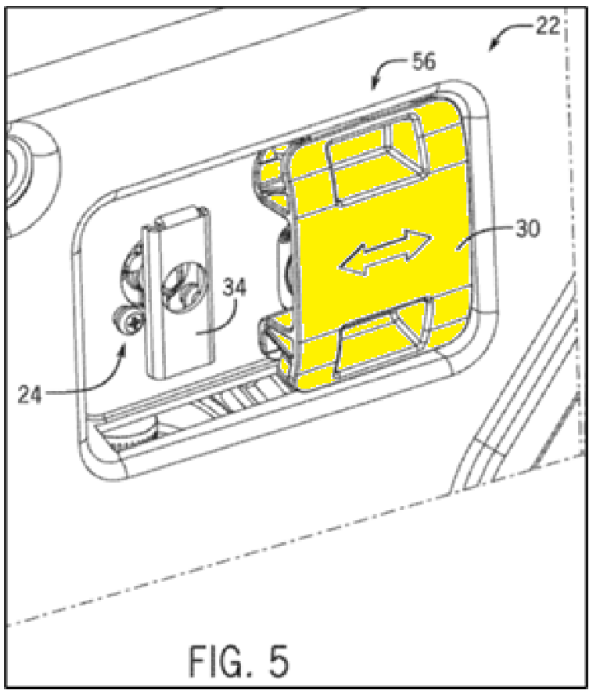


FIG. 5

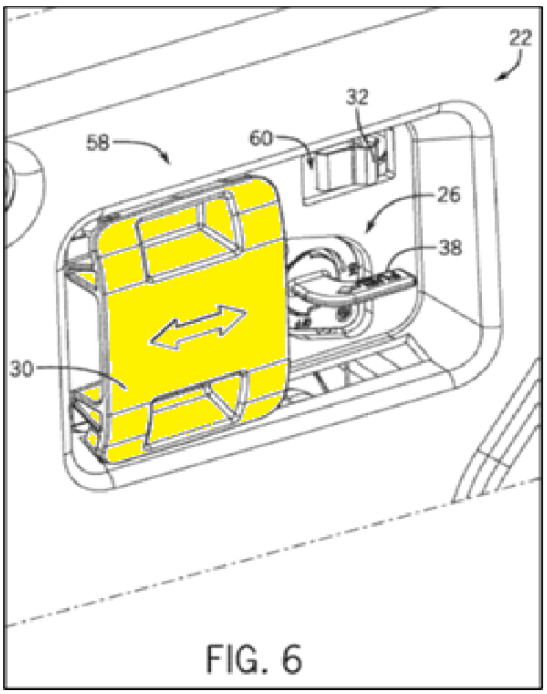


FIG. 6

Id., FIGS. 5-6 (annotated).

The ’667 Patent claims any “selector switch” to allow a user access to manually actuate the valves of a dual fuel generator. The prior art shows that Applicant did not invent “selector switches” for interlocking the valve handles of a dual fuel generator. Nor did Applicant invent mechanical valve assemblies for use in a dual fuel generator. Dual fuel generators having switching mechanisms, valve interlocks, and valve assemblies were well-known long before Applicant’s alleged invention.

Patent Owner’s overly broad interpretation of its claims in the Related Litigations completely vitiates any distinction between the “selector switch” and

"valve assembly." Specifically, Patent Owner construes a single dial to be both a "selector switch" and the "valve handle" component of the "valve assembly."

Patent Owner's apparent interpretation of its claims directly contradicts the arguments that Applicant made in its appeal brief for the '101 Patent— the parent of the '667 Patent—requiring the "selector switch" and "valve assembly" components to be separate and distinct structures. Regardless, even when read according to Patent Owner's new apparent construction, the '667 Patent claims are invalid over Fujisawa and Nakafushi.

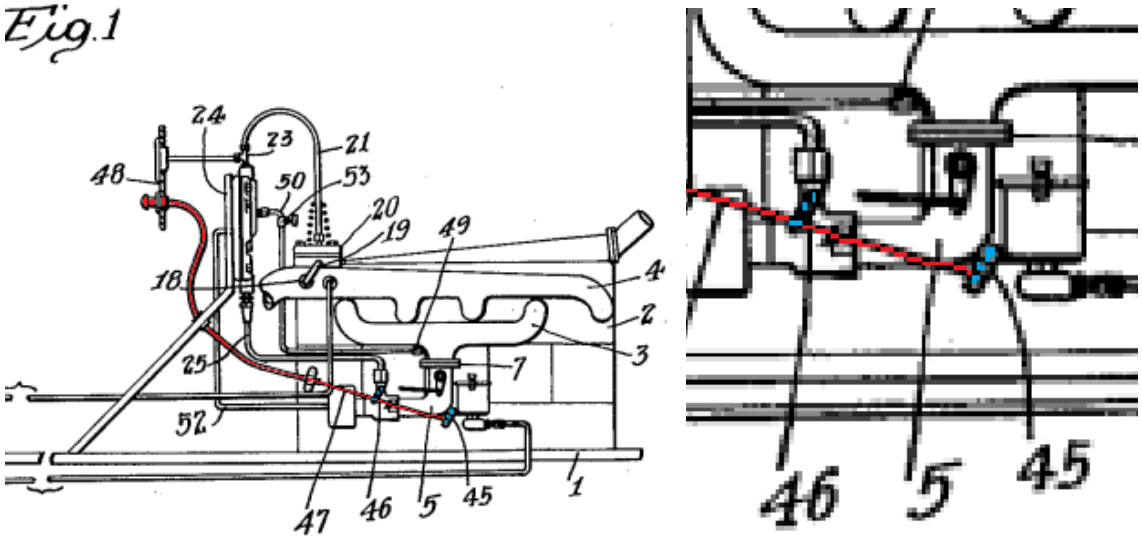
Petitioner requests IPR of the Challenged Claims on the grounds set forth below.

Ground	'667 Patent Claims	Basis for Rejection
Ground 1	1-5 and 9	§103 over DuroMax in view of De Vries
Ground 2	1-18	§103 over DuroMax in view of De Vries, Nakafushi, and Olmr
Ground 3	1-5	§102 over Fujisawa
Ground 4	1-5 and 9	§103 over Fujisawa in view of DuroMax
Ground 5	1-18	§103 over Fujisawa in view of DuroMax, Nakafushi, and Olmr

IV. STATE OF THE PRIOR ART

A. Dual Fuel Engines

Dual fuel engines that can alternatively run on liquid and gaseous fuel have been known in the art for nearly 100 years. For example, Holzapfel discloses a "fuel system embodying the supply of liquid fuel and gaseous fuel to an engine in alternation at will." EX1012, 1:1-5. Holzapfel discloses a liquid fuel valve 14 and gaseous fuel valve 39. *Id.*, 1:104-2:2, 2:86-90. Holzapfel discloses a wire 47 coupled to operating levers 45 and 46, which actuate valves 14 and 39 such that only one fuel line is connected at a given time. *Id.*, 2:100-123.



Id., FIG. 1 (annotated).

Prior art dual fuel engines typically include a carburetor to mix fuel with air before it is delivered to the combustion chamber of a spark-ignition engine. *See, e.g.*, *id.*, 1:6-18; EX1003, ¶¶113, 123-124. Although car engines have largely replaced

carburetors with fuel injectors to meet emissions standards, many generators still use carburetors. *Id.*, ¶113.

B. DuroMax

One example of a prior art dual fuel generator is shown in DuroMax. EX1006. DuroMax was published/publicly available at least by November 1, 2012, before the filing date of the earliest application to which the '667 Patent claims priority (i.e. Nov. 1, 2013). EX1007, ¶¶18-19. DuroMax is thus prior art to the '667 Patent under 35 U.S.C. §102(a).

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

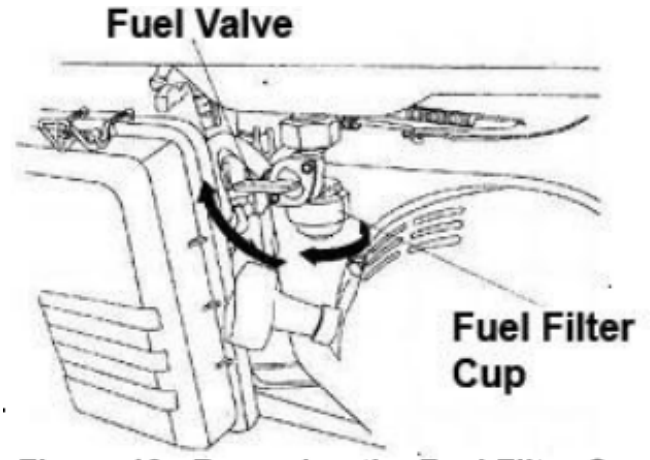


Figure 19 –Removing the Fuel Filter Cup

EX1006, 20.

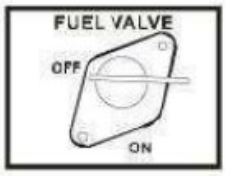


Figure A - Fuel Valve in the "OFF" position

Figure B - Connect the Hose

Figure C-Connect Valve

Figure D -Button on Presssure Release Valve

Figure F - Start with LPG(Liquid Propane Gas)

EX1006, 12.

Despite having the capability of running on two alternative fuel sources, DuroMax stresses the importance of shutting off each of the fuel sources before switching fuels:

⚠ CAUTION:
When using gasoline, LPG must be shut off! When using LPG, gasoline must be shut off!

EX1006, 11.

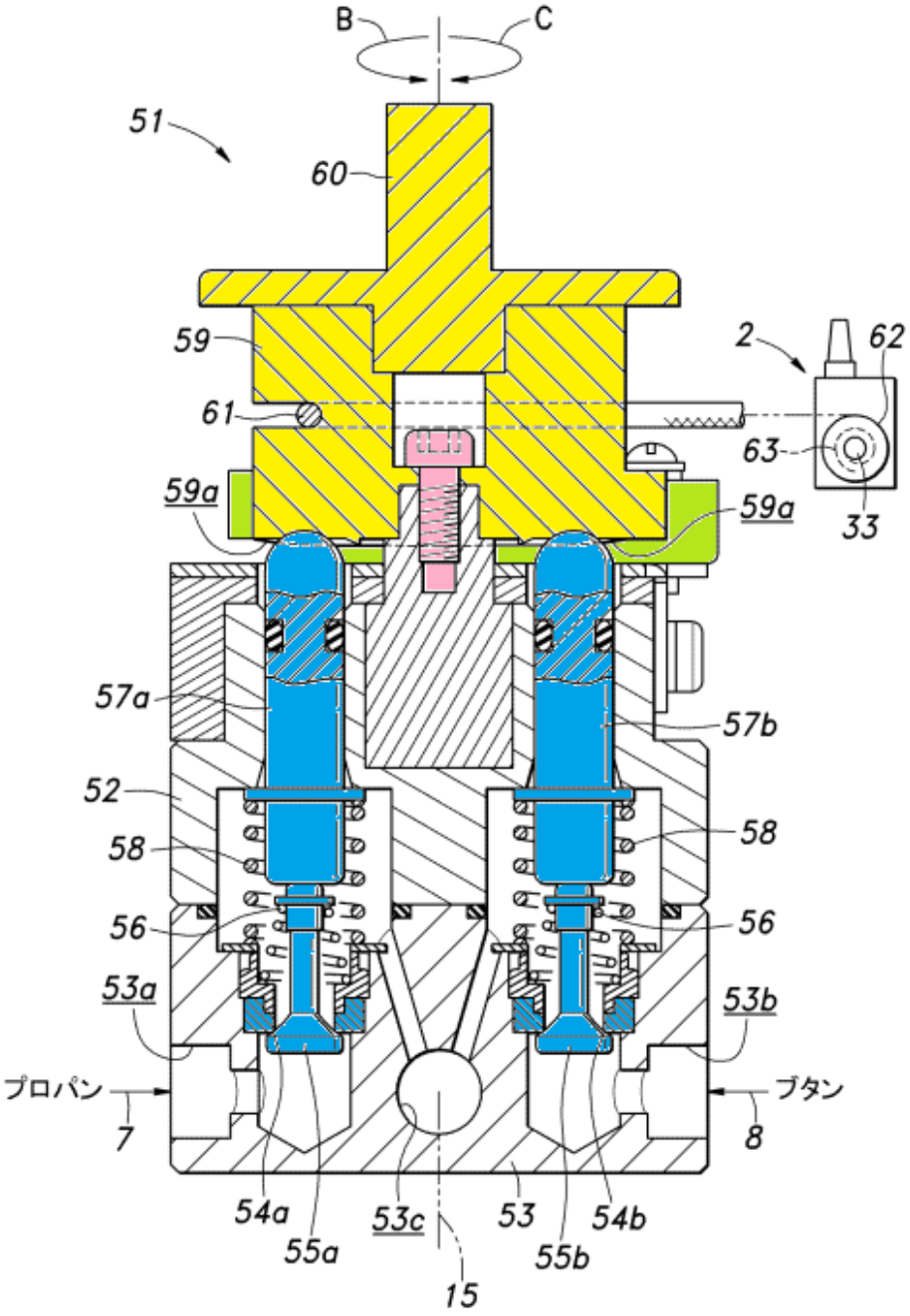
C. Fujisawa

Fujisawa (EX1004 (original), EX1005 (translation)) is another example of a prior art dual fuel generator. Fujisawa was published on December 2, 2005. Fujisawa is thus prior art to the '667 Patent under 35 U.S.C. §102(a).

Fujisawa is directed to a "fuel switching means for switching the fuel supplied to the engine" of a "power generator." EX1005, ¶¶[0010]-[0012]. Fujisawa teaches that fuel supply switching can involve complex operation sequences that can be simplified by coupling operational steps. *Id.*, ¶¶[0007]-[0010]. Fujisawa teaches coupling of the fuel selection such that a first fuel source is closed while a second fuel source is simultaneously opened. *Id.*, ¶¶[0010]-[0012].

Fujisawa discloses a valve assembly comprising at least valve seats 54a and 54b, valve bodies 55a and 55b, and cam follower rods 57a and 57b. The cam follower rods 57a and 57b (blue) are moved up and down by the cam body 59 and rotary knob 60 (yellow) to open and close the valves (blue).

【図５】



EX1004, FIG. 5 (annotated).

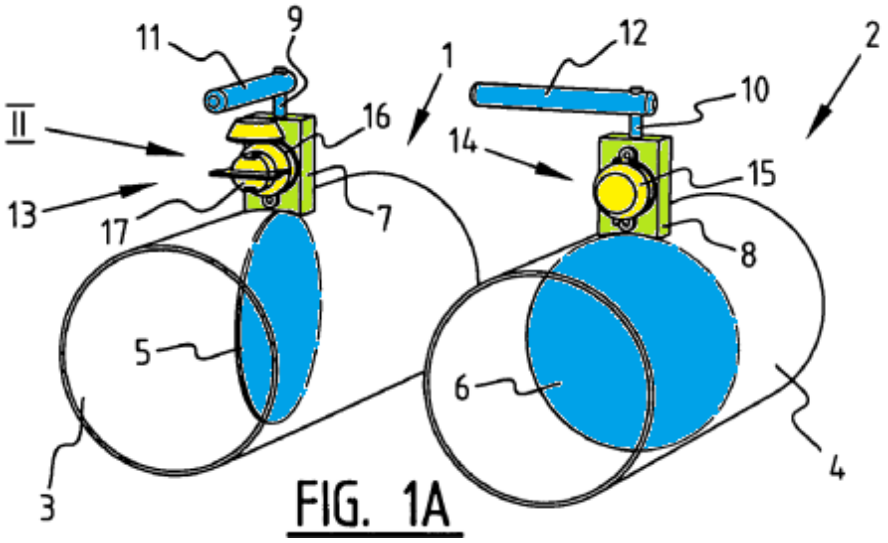
Fujisawa discloses a rotary knob 60 and cam body 59 (yellow). Cam surface 59a is constructed to selectively control the position of cam followers 57a and 57b to open and close the valves. EX1005, ¶[0035]. Thus, Fujisawa discloses a generator with a fuel selection mechanism, e.g. rotary knob 60 and cam body 59, in which only one of the first and second fuel sources can be selected at a given time.

D. De Vries

Like Fujisawa, De Vries recognizes that many industrial appliances require specific valve operation sequences to ensure safe operation. EX1011, 1:12-20. To solve this problem, De Vries teaches an interlocked valve system. EX1011. De Vries issued on January 27, 2009. De Vries is thus prior art to the '667 Patent under 35 U.S.C. §102(a).

De Vries teaches that valve assemblies often require a "correct, predetermined sequence of closing or opening of the closing valves, for instance so as to prevent hazardous situations." EX1011, 1:55-60. De Vries teaches a valve interlock system to prevent "undesired or even dangerous situations" by ensuring correct order of operations. *Id.*, 5:58-62. De Vries teaches that its interlock system can be used to secure safe operation of appliances with shut-off valves and valve assemblies. *Id.*, 1:17-2:26.

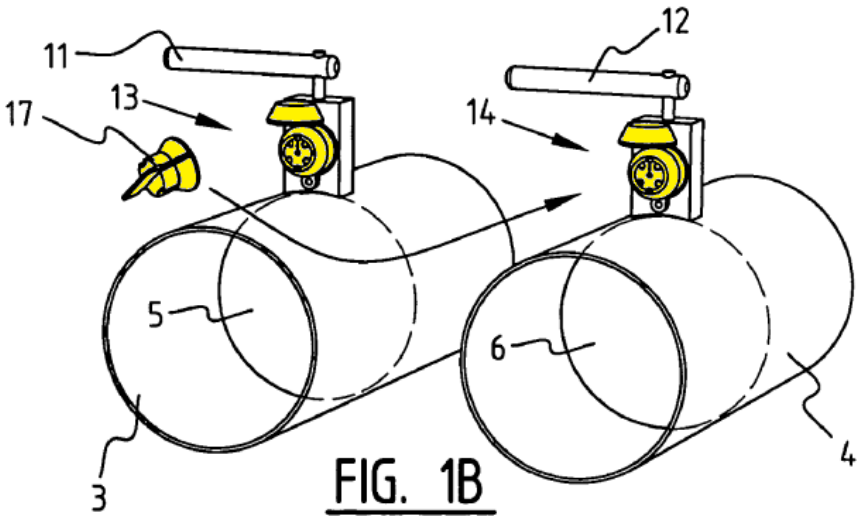
De Vries discloses a valve assembly comprising at least pipelines 3 and 4, valves 5 and 6, rotation shafts 9 and 10, and valve handles 11 and 12.



Id., FIG. 1A (annotated).

De Vries discloses that valves 5 and 6 are "mounted rotatably on pipeline[s] 3 [and 4]" through supports 7 and 8 and rotation shafts 9 and 10. *Id.*, 5:27-39. Valves 5 and 6 are "operated manually" using handles 11 and 12. *Id.*

De Vries discloses a "selector switch" comprising one or more of safety systems 13 and 14 and key 17. The safety systems lock the valves in closed position. *Id.*, 5:63-6:4. Inserting the key into a safety system unlocks the corresponding valve. *Id.*, 5:40-62. Because the key cannot be removed while the valve is opened, only one valve can be opened at a time. *Id.*, 5:63-6:4.



Id., FIG. 1B (annotated).

E. Solenoid Valves and Switches

Another old type of valve for controlling fluid flow is a solenoid valve. A solenoid valve is an electro-mechanical valve. EX1003, ¶125. It uses a wire coil to generate a magnetic field when the coil is energized, which can be controlled by an electrical switch. *Id.* The magnetic field moves a piston to change the position of the valve. Solenoid valves are widely used in a range of fluid control applications, including the control of fuel in an engine. *Id.* In carbureted engines, solenoid valves have been used for decades and are commonly used downstream of the float chamber to control the flow of fuel or to cut-off the flow of fuel. *Id.*, ¶¶125-126.

F. Nakafushi

Nakafushi (EX1008 (original); EX1009 (certified translation)) is one example of an electro-mechanical valve used to control the fuel flow in a dual fuel engine.

Nakafushi was published on December 13, 1986. Nakafushi is thus prior art to the '667 Patent under 35 U.S.C. §102(a).

Nakafushi is directed to an engine configured to selectively use gasoline or LPG as fuel. EX1009, ¶[0001]. Nakafushi identifies two problems to be solved by the invention. First, when an engine operating on gasoline is switched to LPG, a residual amount of gasoline remains in the carburetor, which is sucked into the engine and mixed with the LPG, resulting in over-rich air-to-fuel ratio. *Id.*, ¶¶[0003]-[0004]. Second, because the residual gasoline is drained from the carburetor during this switching operation, when the engine is switched back to gasoline, gasoline delivery is delayed until the level of gasoline in the carburetor recovers. *Id.*, ¶[0004]. During this delay, the air-to-fuel ratio becomes over-lean. *Id.* Nakafushi solves these problems by including a control valve 23 to prevent the carburetor from being emptied of gasoline when switching to LPG operation. *Id.*, ¶¶[0006]-[0007], [0014].

Specifically, Nakafushi discloses a carburetor. EX1009, ¶[0012]. Gasoline cut valve 17 opens and closes the gasoline flow to the carburetor. *Id.*, ¶ [0013]. Control valve 23 is positioned within the carburetor and controls the gasoline flow from the carburetor. *Id.*, ¶[0014]. Separately, the flow of LPG is controlled by LPG cut valve 18. *Id.*, ¶[0013].

Nakafushi discloses a switch 19 that controls which fuel, gasoline or LPG, is fed to the engine. *Id.*, ¶¶[0013]-[0014]. When switch 19 is set to the gasoline-side

contact 19a: (1) a cut signal is sent to LPG cut valve 18 to block the LPG flow; (2) gasoline cut valve 17 opens to allow the flow of gasoline from gasoline tank 11 to the carburetor; and (3) control valve 23 opens to allow gasoline to flow from the carburetor. *Id.*

Conversely, when switch 19 is set to the LPG-side contact 19b: (1) a cut signal is sent to gasoline cut valve 17 to block the flow of gasoline from tank 11 to the carburetor; (2) control valve 23 is closed, blocking gasoline flow from the carburetor to the engine; and (3) LPG cut valve 18 is opened, allowing LPG to flow to the engine. *Id.*

Closing control valve 23 in the carburetor prevents residual gasoline in the carburetor from flowing to the engine during LPG operation. *Id.*, ¶[0014], FIG. 1. Conversely, because the gasoline is not drained from the carburetor when switching to LPG, gasoline is more readily available to flow to the engine upon switching back to gasoline as the fuel source. *Id.*

G. Olmr

Olmr (EX1010) issued on April 12, 1994. Olmr is thus prior art to the '667 Patent under 35 U.S.C. §102(a).

Olmr is directed to a solenoid valve 42 within the carburetor of an internal combustion engine. EX1010, 1:33-48, 2:30-42, FIG. 2. The purpose of the solenoid valve 42 is to "provide a mechanism for cutting off the supply of fuel to an internal

combustion engine when the engine is being stopped." *Id.*, 1:33-37; EX1003, ¶¶150-151.

V. LEVEL OF ORDINARY SKILL IN THE ART

For purposes of this IPR, as of November 1, 2013, a POSA would have a college degree in mechanical engineering, physics, or related fields, and three years of work experience in combustion engines operating on various fuel sources. EX1003, ¶110. Additional higher graduate education could substitute for work experience, and additional work experience/training could substitute for formal education. *Id*.

VI. SUMMARY OF THE '667 PATENT

A. Subject Matter of the '667 Patent

The '667 Patent relates to a "selector switch" for use on a dual fuel generator. EX1001, 1:16-20. Dual fuel generators are selectively fueled by one of two available fuel sources. *Id.*, 1:35-38. The user can selectively switch between fuel sources. *Id.*, 1:38-44. Applicant stated that "[t]ypical" prior art dual fuel generators contained a separately actuatable valve for each fuel source. *Id.*, 1:44-50. This permitted the user to turn both fuel lines on at the same time, resulting in fuel mixing and resulting in a potentially unsafe condition. *Id.*, 1:47-53.

The solution proposed by the '667 Patent was to include a "selector switch" on a dual fuel generator that would "prohibit the mixing" of the two fuel types by

"inhibit[ing] positioning/actuation of the valves" such that the valves cannot be simultaneously actuated. *Id.*, 1:54-60. The Background does not mention any existing prior art solutions to interlock the valves of a dual fuel system, such as Fujisawa, De Vries, Nakafushi, or Holzapfel. The Abstract explains that the claimed fuel selector includes: (1) first and second valve assemblies actuatable by a user to "selectively control" their corresponding fuel flows; and (2) a selector switch that "enable[s] positioning of only one of the first fuel valve assembly and the second fuel valve assembly in the ON position at a given time." *Id.*, Abstract. The specification also describes a solenoid switch coupled to the selector switch. *Id.*, 6:49-7:2.

Valve Assembly: The claimed valve assembly of the '667 Patent functions the same way as in the "typical" prior art dual fuel generator. *See* EX1001, 1:44-46. The '667 Patent discloses that the fuel flow is controlled by one or more valve assemblies. *Id.*, 4:26-36. In addition to a valve, the valve assembly includes at least a valve handle (blue). *Id.*, 4:30-36. The user actuates the valve handle to control the fuel flow. *Id.*, 4:40-51.

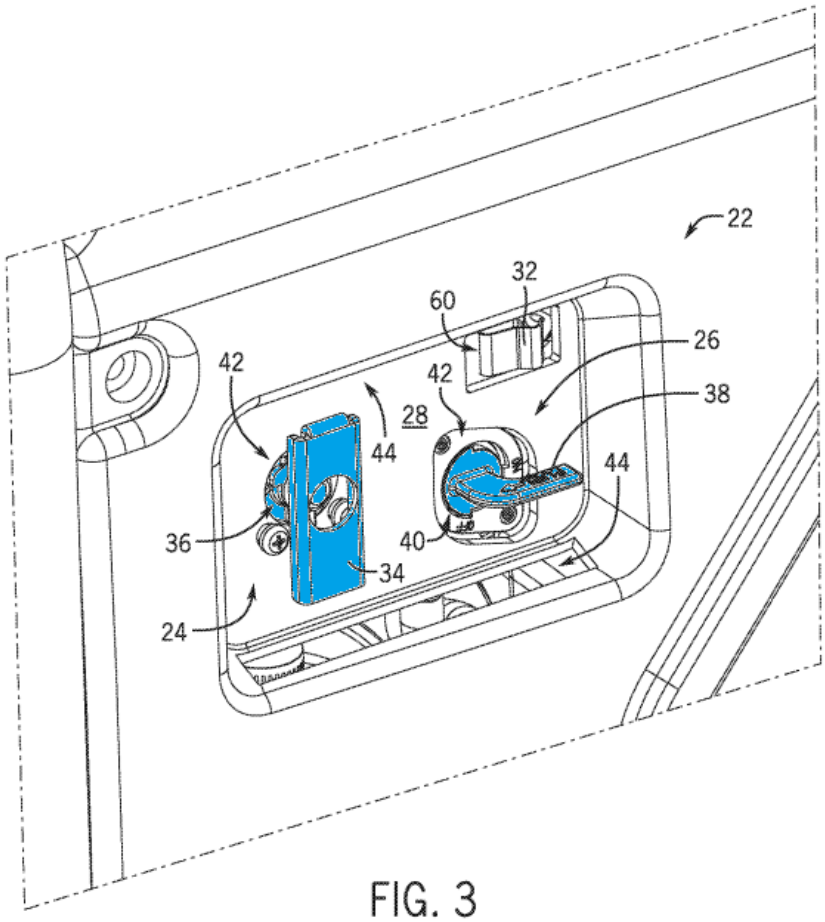


FIG. 3

EX1001, FIG. 3 (annotated).

Selector Switch: The '667 Patent discloses that the "selector switch" (yellow) "enable[s] positioning of only one of the first fuel valve assembly and the second fuel valve assembly in the ON position at a given time, such that the first and second fuel valve assemblies cannot be in the ON position concurrently." EX1001, Abstract. "The interaction of the selector switch 30 with the first and second fuel valve assemblies 24, 26—with the selector switch 30 sliding back and forth to selectively

cover/engage first and second fuel valve assemblies 24, 26—prohibits both valve assemblies from being in the 'ON' position at the same time." *Id.*, 7:6-7:11. This strucure was considered important for safety reasons: "The selector switch 30 is thus a foolproof device that prevents the mixing of fuels so as to provide additional safety to the usage of dual fuel generators." *Id.*, 7:11-14; *see also id.*, 3:66-4:6, 4:10-22; 5:42-49, 5:58-6:2.

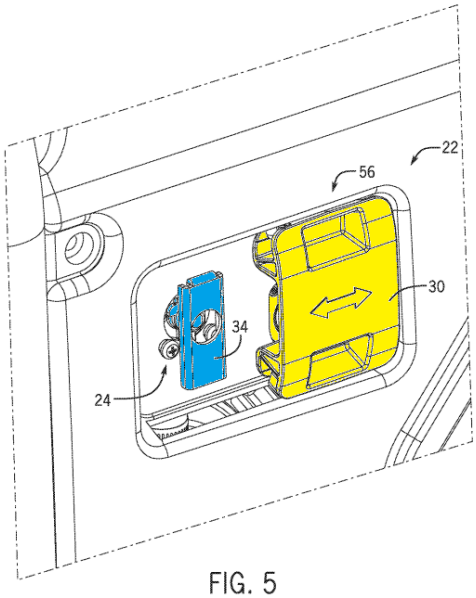


FIG. 5

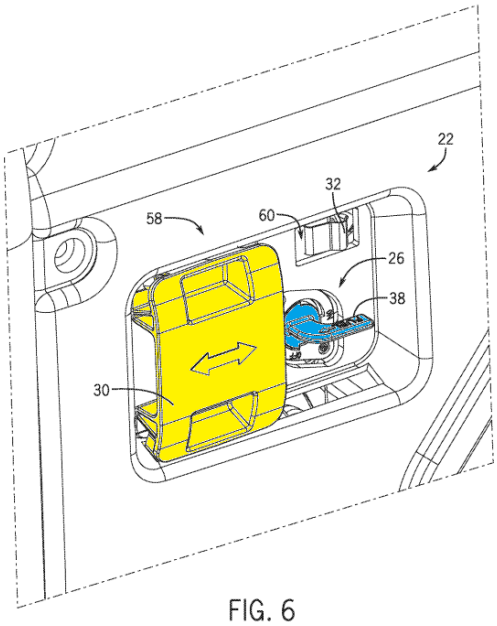


FIG. 6

EX1001, FIGS. 5-6 (annotated).

Solenoid Switch: The '667 Patent discloses that the fuel selector may include a carburetor solenoid switch (red) coupled to the "selector switch." EX1001, 6:49-7:2. As carburetor solenoids were well known, there is no detailed provided on implementing the carburetor solenoid. *Id.*

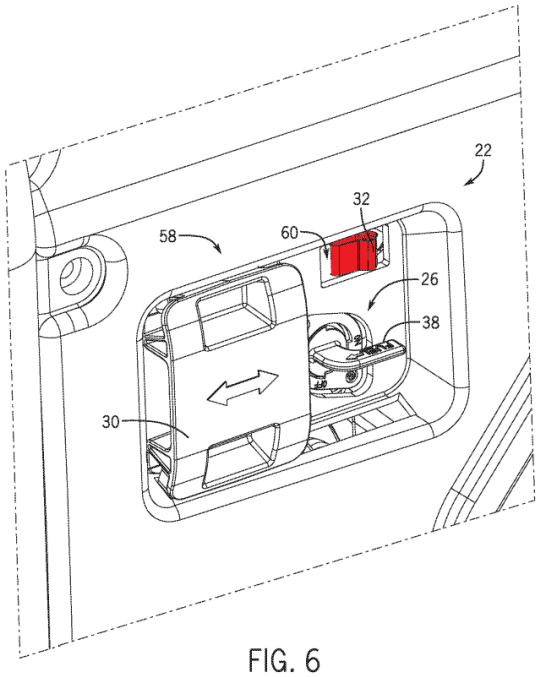


FIG. 6

EX1001, FIG. 6.

B. The ’101 Patent Prosecution History

The ’667 Patent application was filed on February 13, 2020, and is a continuation of the ’101 Patent, which is a continuation of the ’273 Patent filed on November 1, 2013. EX1001. Each independent claim of the ’273 Patent describes the structural and functional relationship between the “selector switch” and the valve assembly. EX1013, Claims 1, 9, 14, and 19. The ’101 and ’667 Patent claims cover the same embodiment, but were broadened to remove any such structural definition around these components.

During the over four years of prosecution of the parent ’101 Patent, the Examiner initially rejected the claims over Poehlman and later rejected the claims

over Sugimoto. *See* EX1028, 142-154, 212-227, 259-271. During this prosecution, Applicant distinguished over the prior art in a number of key ways.

i. Distinguishing Poehlman's Fuel Switching Mechanism

The Examiner rejected Claim 1 of the '101 Patent as obvious over Poehlman on the grounds that Poehlman disclosed a dual fuel engine with a "selector switch" and a "valve assembly." EX1028, 212-227. The Examiner defined the valve assembly as "all the components that are necessary … to switch from the different fuels[.]" *Id.*, 223. The Examiner further reasoned that Poehlman's electrical switch 57, comprising part of the valve assembly, also disclosed the claimed "selector switch." *Id.*, 217. In response to the Examiner's rejection over Poehlman, Applicant filed an appeal brief, arguing over Poehlman on the grounds that the Specification defines the "valve assembly" as having one or more valve handles.

Applicant previously explained that these valve handles "provide a specific benefit" that solves the stated problem because the handles "inhibit positioning/actuation of the valves in such a manner that the valve for a first fuel source is prevented from being 'on' when the valve for a second fuel source is 'on', and vice versa." *Id.*, 252-253. Thus, based on this description in the specification, Applicant argued that the valve assembly of Poehlman, which disclosed electrical valves, as opposed to valves having a valve handle to control actuation, failed to meet the requirements of the claimed "valved assembly." *Id.*, 177-178.

Applicant also argued that the valve assembly and selector switch are separate and distinct structures. *See infra* Section VII.C.ii. Thus, because Poehlman disclosed a fuel selector 51 that the Examiner also identified as being a component of the valve assembly, Applicant argued that Poehlman failed to disclose the "valve assembly" and "selector switch" as separate structures. *See infra* Section VII.C.ii.

In response to Applicant's appeal brief arguments, the Examiner withdrew the rejections over Poehlman and raised a new ground of rejection over Sugimoto. *Id.*, 152.

ii. Distinguishing Sugimoto's Fuel System Selector Valve

The Examiner asserted that Sugimoto disclosed a dual fuel generator with a fuel selector having a valve assembly 12, used to select between a first fuel source and a second fuel source, and a solenoid switch 74. EX1028, 147-149.

In response to the rejection of claims 1 and 10 of the '101 Patent, Applicant amended its claims to further require that the valve assembly comprises two mechanical fuel valves. *Id.*, 119-121. Applicant proceeded to argue that because Sugimoto only disclosed a single selector valve 12 for selecting between a first fuel source and a second fuel source, Sugimoto failed to disclose all the elements of the amended claims. *Id.*, 126. Applicant also argued that the claims were not obvious over Sugimoto in view of Poehlman because even though Poehlman disclosed two valves for selecting between the different fuel sources, because Poehlman's valves

are electrical—not mechanical—it would not be obvious to replace Sugimoto's selector valve 12 with a pair of mechanical valves. *Id.* Finally, Applicant argued that Sugimoto failed to anticipate claim 18 because Sugimoto's solenoid valve was not directly coupled to actuation of selector valve 12. *Id.*, 127-128.

In response to Applicant's arguments, the Examiner issued a notice of allowance, in which the Examiner allowed claims 1 and 10 of the '101 Patent and further amended claim 18 to specify that the fuel selector switch triggers the solenoid switch to move between an opened and closed position. *Id.*, 9-18.

C. The '667 Patent Prosecution History

During prosecution of the '667 Patent, Applicant used the same "selector switch" and "valve assembly" claim terms as it used in the '101 Patent. The Examiner again issued rejections over Sugimoto, alone or in combination with Poehlman, U.S. Patent No. 3,696,333 or U.S. Publication No. 2004/0246118. EX1002, 52-59, 275-287. In response, Applicant again argued that Sugimoto only disclosed a single selector valve 12 with a single fuel output, and that Sugimoto's solenoid valve was not directly coupled to actuation of selector valve 12. *Id.*, 149-155.

In response to Applicant's arguments, the Examiner issued a notice of allowance, in which the Examiner allowed claim 1 and further amended claim 10 to include the valve assembly and describe the function of the selector switch. *Id.*, 9-18.

VII. 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). "When multiple patents derive from the same initial application, the prosecution history regarding a claim limitation in any patent that has issued applies with equal force to subsequently issued patents that contain the same claim limitation." *Elkay Mfg. Co. v. Ebco Mfg. Co.*, 192 F.3d 973, 980 (Fed. Cir. 1999).

Both the intrinsic and extrinsic evidence show that the "selector switch" is a movable component whose positioning enables subsequent user selection of only one fuel source. The intrinsic and extrinsic evidence further shows that the valve assembly is (1) separate from the selector switch, and (2) comprises at least one valve operatively connected to at least one valve handle. For the purposes of this Petition, no other terms in the Challenged Claims require construction. *See Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) ("The Board is required to construe 'only those terms … that are in controversy, and only to the extent necessary to resolve the controversy.'").

A. The Claimed "Selector Switch" and "Valve Assembly" Should be Construed Consistently with the '101 Patent

Patents derived from the same parent application and sharing common terminology must be construed in a consistent manner. *Sightsound Techs., LLC v. Apple Inc.*, 809 F.3d 1307, 1316 (Fed. Cir. 2015); *Maplebear Inc. v. Consumeron, LLC*, IPR2022-01357, Paper 35 at 8 (P.T.A.B. Feb. 29, 2024); *Netflix, Inc. v. Affinity Labs of Texas, LLC*, IPR2016-01701, Paper 31 at 6 (P.T.A.B. Feb. 28, 2018). The '667 Patent is the child of the '101 Patent, which is the child of the '273 Patent, and all three patents share terminology and a common specification. *Compare* EX1001, *with* EX1013, *and* EX1027. Thus, "selector switch" and "valve assembly" in the '667 Patent should have identical constructions as in the '101 Patent.

B. The Claimed "Selector Switch" Comprises a Movable Component Whose Positioning Enables Subsequent User Selection of Only One Fuel Source

Claim 1 of both the '101 Patent and the '667 Patent recites:

> [A] selector switch positioned on the valve assembly to allow a user to manually select one of the first fuel flow and the second fuel flow;

EX1001, Claim 1; EX1027, Claim 1.

The Federal Circuit recognizes that where the specification "reveal[s] a special definition given to a claim term by the patentee that differs from the meaning it would otherwise possess" then "the inventor's lexicography governs" the meaning of that claim term. *Phillips v. AWH Corp*., 415 F.3d 1303, 1316 (Fed. Cir. 2005).

Here, because the shared specification uses the term "selector switch" in a way that is inconsistent with its commonly understood meaning, "selector switch" is properly construed as "a movable component whose positioning enables subsequent user selection of only one fuel source."

i. The term "selector switch" does not employ the ordinary and customary meaning of "switch"

A POSA would have understood that the claim term "selector switch" does not employ the ordinary and customary meaning of "switch." EX1003, ¶¶84-86. The ordinary and customary meaning of "switch" is "a device for making, breaking, or changing the connections in an electrical circuit." EX1014; EX1015; *see also* EX1016; EX1017; EX1018; EX1044. As a device, "switch" specifically refers to a component in an electrical circuit. Indeed, mechanical engineering dictionaries either omit the term "switch" entirely (*see, e.g.*, EX1019; EX1020; EX1021) or use the electrical engineering definition (*see, e.g.*, EX1022).

The "selector switch" described in the specification does not make, break, or change the connection of an electrical circuit. EX1003, ¶85. Instead, the "selector switch" is selectively positioned to physically enable or inhibit the subsequent actuation of the only one valve handle while the other remains locked in the off position. EX1001, 6:18-48; EX1027, 6:11-41; *see also* EX1028, 181 (arguing that it would not be obvious to relocate the ***electrical*** switch of Poehlman because the

claimed positioning is a consequence of the ***mechanical*** nature of the claimed "selector switch").

Even if a POSA understood the plain and ordinary meaning of "switch" to encompass non-electrical devices, the disclosed "selector switch" would still not be a "switch" as understood by a POSA. EX1003, ¶86. Moving the disclosed "selector switch" between first and second positions does not change the selection of fuel flow, but instead merely ***allows*** or ***enables*** a user access to subsequently select a fuel flow, for example by providing access for a user to physically move a valve handle to its open position. EX1001, 4:10-22, Claim 1; EX1027, 4:4-16, Claim 1.

ii. The selector switch is "a movable component whose positioning enables subsequent user selection of only one fuel source"

Because the disclosed "selector switch" is not the plain-and-ordinary-meaning of "switch," a POSA would understand that the intrinsic evidence provides a special definition of "selector switch." EX1003, ¶¶87-90. The specification clearly defines the "general structure of [the] selector switch." EX1001, 5:29-49, FIG. 4; EX1027, 5:22-42, FIG. 4.

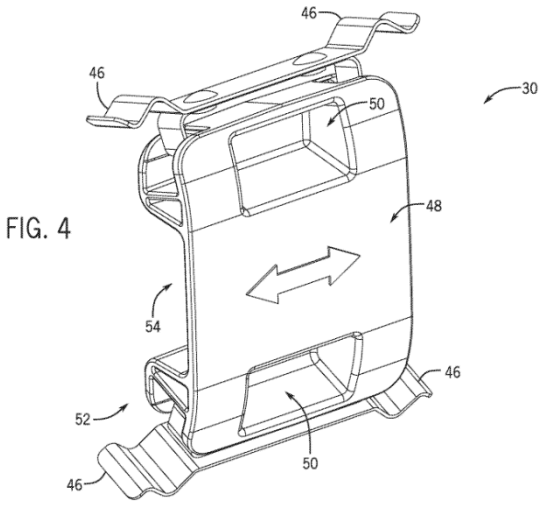


FIG. 4

EX1001, FIG. 4; EX1027, FIG. 4.

As defined in the specification, the "selector switch" is a moveable component. The selector switch contains structure, such as finger-holds, "by which the operator can operate (i.e., slide) the selector switch." EX1001, 5:38-42; EX1027, 5:30-35.

Selective positioning of the selector switch enables subsequent user selection of only one fuel source while locking the other in the off position. As defined in the specification, "selector switch 30 is translatable in a horizontal motion … to selectively restrict actuation of the first and second fuel valve handles." EX1001, 5:58-62; EX1027, 5:51-55. "The interaction of the selector switch 30 with the first and second fuel valve assemblies 24, 26—with selector switch 30 sliding back and forth to selectively cover/engage first and second fuel valve assemblies 24, 26—

prohibits both valve assemblies from being in the 'ON' position at the same time." EX1001, 7:6-7:11; EX1027, 6:66-7:4. The positioning of the selector switch "selectively restricts the selection of a fuel source so as to ***enable the use of only one fuel at a time***." EX1001, 4:2-6 (emphasis added); EX1027, 3:63-67.

Therefore, in view of the specification's special definition of the general structure of a "selector switch," a POSA would have understood a "selector switch" to mean "a movable component whose positioning enables subsequent user selection of only one fuel source." EX1003, ¶¶87-90.

C. The Claimed "Valve Assembly" is a Separate Structure from the Selector Switch that Comprises At Least One Fuel Valve and Corresponding Valve Handle

Claim 1 of both the '101 Patent and the '667 Patent recites:

> [A] valve assembly fluidly connected to each of a first fuel source and a second fuel source, the valve assembly being ***operable to selectively control a first fuel flow and a second fuel flow*** from the first fuel source and the second fuel source, respectively, to an engine of the dual fuel generator….

EX1001, Claim 1 (emphasis added); EX1027, Claim 1.

The prosecution history of the '101 Patent is clear regarding the proper construction of the term "valve assembly." *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1317 (Fed. Cir. 2005) ("[T]he prosecution history can often inform the meaning of the claim language by demonstrating … whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it

would otherwise be."). Applicant made clear arguments about the claim scope, and the public should be allowed to rely on the Applicant's arguments to gain allowance. During prosecution of the '101 Patent, Applicant filed an appeal brief in which it specifically defined the "valve assembly" as: (1) having at least one fuel valve and corresponding valve handle; and (2) being a separate structure from the selector switch. EX1028, 177-179. Based on these structural requirements, Applicant distinguished the prior art valve assembly of Poehlman as failing to teach the "claimed 'valve assembly.'" *Id.* Based on Applicant's arguments, the "valve assembly" is properly construed as "having at least one fuel valve and corresponding valve handle" and "being a separate structure from the selector switch."

i. The valve assembly comprises at least one fuel valve and corresponding valve handle

The specification is clear: a "valve assembly" includes at least one valve and valve handle. In its appeal brief filed in the prosecution of the '101 Patent, Applicant specifically defined the valve assembly:

> ***[T]he claimed 'valve assembly' is comprised of*** one or more of the first valve assembly 24 and second valve assembly 26 – with the first valve assembly 24 ***including a first fuel valve handle 34*** that is operatively connected to a first fuel valve 36 to control an opening and closing of the first fuel valve and the second valve assembly 26 ***including a second fuel valve handle 38*** that is operatively connected to a second fuel valve 40 to control an opening and closing of the second fuel valve.

EX1028, 177-178 (emphasis added).

Relying on the arguments made by Applicant in its appeal brief, the Examiner withdrew the rejection of Poehlman and issued a new ground of rejection. EX1028, 152.

Indeed, the specification defines the valve assembly consistently with the Applicant's arguments. The specification describes "[f]irst fuel valve assembly includes a first fuel valve handle 34" and "second valve assembly includes a second valve handle 38." EX1001, 4:30-36; EX1027, 4:24-30. Specifically, the specification states that the valve handle is "***operatively*** connected" to the fuel valve to "***control*** an opening and closing" of the valve. EX1001, 4:30-36; EX1027, 4:24-30. Thus, the valve assembly must comprise a valve handle so that the valve assembly is "operable to selectively control" the fuel flow. Figure 3 depicts the valve assembly (blue), comprised of fuel valve handles 34, 38 operatively connected to valves 36, 40.

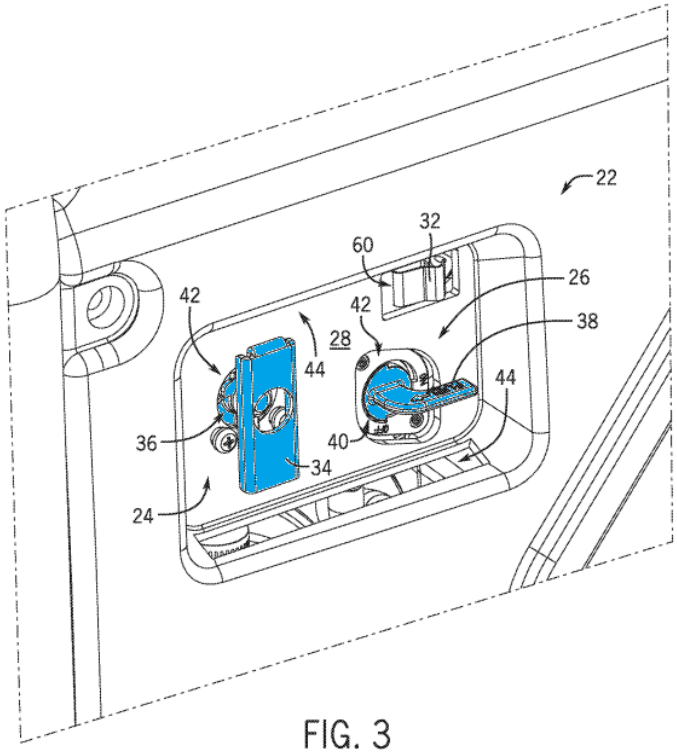


FIG. 3

EX1001, FIG. 3 (annotated); EX1027, FIG. 3.

Thus, based on the intrinsic record of both the '101 Patent and the '667 Patent, including the Applicant's appeal brief arguments, the "valve assembly" must include "at least one fuel valve and corresponding valve handle." EX1003, ¶¶92-95.

ii. Furthermore, the selector switch and the valve assembly are separate and distinct structures

During prosecution of the '101 Patent, Applicant argued in its appeal brief that the selector switch and valve assembly are separate and distinct structures to overcome a rejection based on Poehlman:

> ***[C]laim 1 distinctly calls for a valve assembly and a selector switch as two separate elements/structures*** – with claim 1 clearly and separately defining each of these elements and setting forth a relationship

> therebetween. ***These elements should not be confused with one another***, as the Examiner has attempted to do. The Examiner has stretched and distorted the teachings of Poehlman in an attempt to satisfy the elements called for in claim 1 by asserting that an individual structure disclosed in Poehlman (i.e., fuel selector switch 51) discloses different, distinct elements of claim 1. Such a categorization of the electrical fuel selector switch 51 as being both a "selector switch" and part of a "valve assembly" distorts the teachings of Poehlman….

EX1028, 178-179 (underlining in original).

Relying on Applicant's appeal brief argument, the Examiner withdrew the rejection of Poehlman and issued a new ground of rejection. EX1028, 152.

Applicant's arguments regarding the separately claimed selector switch being separate and distinct from the valve assembly are consistent with the case law on claim construction. *See Ex parte Abdallah*, Appeal No. 2020-004410 at 6 (PTAB Sept. 29, 2021) ("[W]here, as here, a claim lists elements separately, the clear implication of the claim language is that those elements are distinct components of the patented invention.") (citing *Becton, Dickinson & Co. v. Tyco Healthcare Grp.*, 616 F.3d 1249, 1254 (Fed. Cir. 2021)).

Applicant's appeal brief argument is also consistent with the Specification, which teaches that the selector switch and valve assembly are separate and distinct structures with separate functions. The selector switch provides access that "***allow[s]*** a user to manually select one of the first fuel flow and the second fuel flow," whereas

the valve assembly is "***operable [by the user] to selectively control*** a first fuel flow and a second fuel flow." EX1001, Claim 1; EX1027, Claim 1.

As described in the specification, "fuel selector 22 includes ***a first valve assembly 24, a second valve assembly 26***, a selector plate 28, ***a selector switch 30***, and a carburetor solenoid switch 32." EX1001, 4:12-15 (emphasis added); EX1027, 4:6-9. Figure 3 depicts fuel selector 22 "with selector switch 30 ***removed therefrom,*** so as to best illustrate the construction of the first valve assembly 24 and the second valve assembly 26." EX1001, 4:23-26, FIG. 3 (emphasis added); EX1027, 4:17-20; FIG. 3. Figure 3 depicts the valve assembly (blue), comprised of fuel valve handles 34, 38 operatively connected to valves 36, 40.

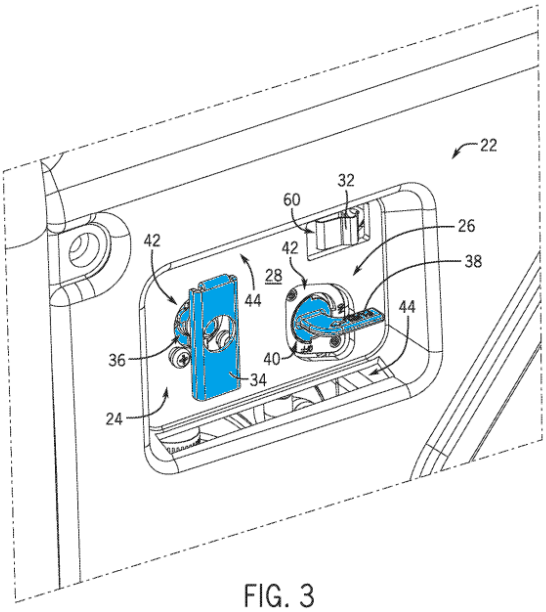


FIG. 3

EX1001, FIG. 3 (annotated); EX1027, FIG. 3.

The separate and distinct selector switch is shown in Figure 4. EX1001, 3:16-18, 5:29-32, FIG. 4; EX1027, 3:9-11, 5:23-25, FIG. 4.

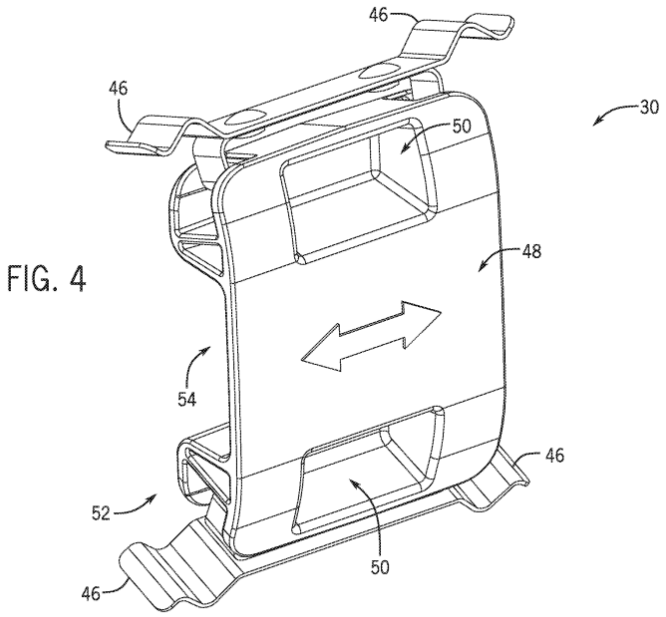


FIG. 4

EX1001, FIG. 4; EX1027, FIG. 4.

Figures 5 and 6 show the structural relationship between the selector switch (yellow) and valve assembly (blue). In Figure 5, the selector switch is positioned to allow access to one valve handle of the valve assembly. In Figure 6, the selector switch is positioned to allow access to the other valve handle of the valve assembly.

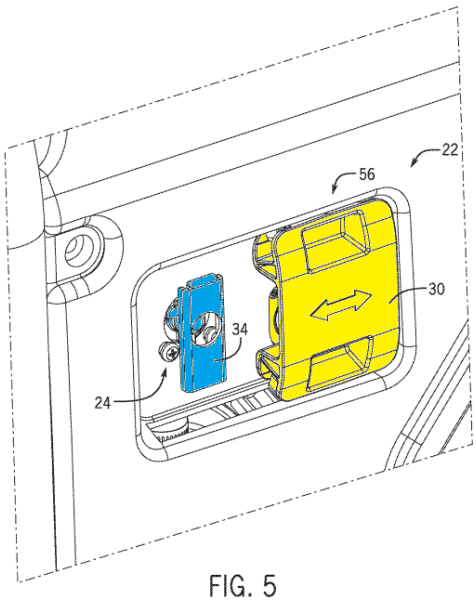


FIG. 5

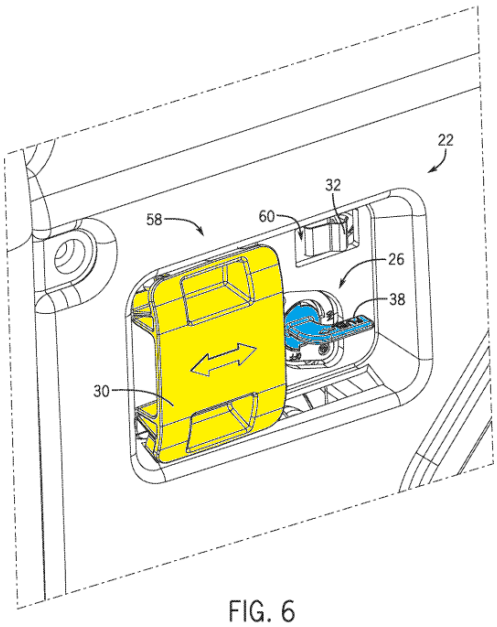


FIG. 6

EX1001, FIGS. 5, 6 (annotated); EX1027, FIGS. 5, 6.

Based on the intrinsic record of both the '101 Patent and the '667 Patent, including Applicant's arguments and the specification, the claimed "valve assembly" must also be a separate structure from the selector switch. EX1003, ¶¶96-101. Thus, "valve assembly" is properly construed as "having at least one fuel valve and corresponding valve handle" and "being a separate structure from the selector switch."

D. Patent Owner Has Construed Selector Switch and/or Valve Assembly Incorrectly in the Related Litigations

Patent Owner filed multiple patent infringement lawsuits alleging that accused competitor products infringe at least claim 1 of both the '101 Patent and the '667 Patent. *See infra* Section XIV.B. For example, Patent Owner alleged that Generac's

dual fuel generator model DF3500E infringes the ’667 Patent. EX1023. As shown in the example image of the DF3500E generator below, the only structure on the accused generators that changes the fuel source is a single dial (circled in green in the image below):

EX1024 (annotated).

Based on Patent Owner’s infringement allegations in the Related Litigations, Patent Owner appears to adopt a claim construction wherein (1) the “selector switch” can be a dial or knob that directly actuates the valve assembly; (2) the valve assembly does not contain a valve handle; and/or (3) the selector switch is a part of the valve assembly. For example, in its infringement contentions in the ’281 Litigation, Patent Owner identifies the dial above as the “selector switch.” EX1038, 4-5. In the ’281 Litigation, Patent Owner also asserts claim 15 of the ’667 Patent’s grandchild patent:

the ’896 Patent. Claim 15 of the ’896 Patent recites: “at least one valve handle mechanically coupled to the first fuel valve and the second fuel valve.” Identifying the dial on the DF3500E generator, Patent Owner argues that: “the selector switch has LPG and Gasoline Modes to manually select one of an LPG fuel flow and a gasoline fuel flow. ***The selector switch is a valve handle*** mechanically coupled to the LPG and gasoline valves….” EX1051, 10 (emphasis added).

Patent Owner’s apparent constructions are wrong, as explained above. EX1003, ¶¶107-108. However, and in the alternative, Petitioners include invalidity Grounds 3-5, showing how 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.

VIII. GROUND 1: CLAIMS 1-5 AND 9 ARE UNPATENTABLE AS OBVIOUS OVER DUROMAX IN VIEW OF DE VRIES

A. Motivation to Combine DuroMax and De Vries

DuroMax discloses a dual fuel generator that is configured to operate on both LPG and gasoline fuel sources. DuroMax discloses that the generator includes a gasoline fuel shutoff valve that stops gasoline fuel from exiting the gasoline fuel tank and being delivered to the engine of the generator when the generator is run on LPG fuel.

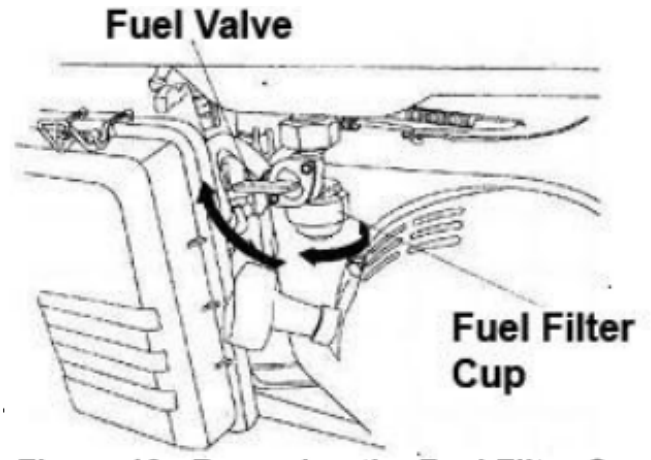


Figure 19 –Removing the Fuel Filter Cup

EX1006, 20.

DuroMax also discloses a propane tank connector and hose that can be used to connect the generator to an external LPG tank for delivering LPG fuel to the engine of the generator when the generator is being run on LPG fuel.

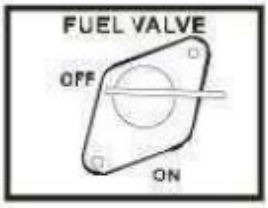


Figure A - Fuel Valve in the "OFF" position

Figure B - Connect the Hose

To LPG Supply

Figure C-Connect Valve

Figure D -Button on Presssure Release Valve

Figure F - Start with LPG(Liquid Propane Gas)

EX1006, 12.

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. For example, DuroMax provides the following warning label:

⚠ CAUTION:
When using gasoline, LPG must be shut off! When using LPG, gasoline must be shut off!

EX1006, 11.

This is consistent with the Background section of the '667 Patent, which describes that "***[t]ypical dual fuel generators*** utilize separate valves for each fuel type, such as an LPG valve and a gasoline valve, to control flow of the respective fuels to the engine." EX1001, 1:44-47 (emphasis added). The '667 Patent further recognizes that, despite allowing for the individual selection of LPG and gasoline fuels, "there is nothing to prevent both valves from being 'on' at the same time. As such, it is possible for both valves to be in the 'on' position, ***which can lead to a potentially unsafe condition resulting from the mixture of the fuels***." *Id.*, 1:47-53 (emphasis added). *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).

De Vries discloses a valve assembly comprising a pair of fluid valves, with each valve coupled to a separate valve handle. EX1011. Like DuroMax and the '667 Patent, De Vries recognizes that many appliances and industrial processes require specific operation sequences to ensure safe operation. For example, De Vries teaches that valve assemblies often require a "correct, predetermined sequence of closing or opening of the closing valves, for instance so as to prevent hazardous situations."

Id., 1:55-60. Thus, De Vries teaches that its valve assembly is paired with a "safety interlock system" to prevent "undesired or even dangerous situations" by ensuring correct order of operations. *Id.*, 5:58-62, 10:53. Specifically, the "safety interlock system" of De Vries is configured such that only one of the valves in the valve assembly can be positioned in the opened position at a given time. *Id.*, 5:41-63. De Vries discloses that such safety interlocks can be "supplied independently of the process or appliance to be controlled" to solve safety problems arising from incorrect order of operations. *Id.*, 2:22-26.

Trapped key interlock systems such as De Vries have been used for over 100 years to reduce human error when performing sequential operations on machinery. EX1029; EX1030 at [0:13]. Prior to 2013, trapped key interlocks were widely used in "virtually every industry" in Europe and were required by law in the United Kingdom for certain applications. EX1029; EX1030 at [0:26], [1:09], [2:57]. Statistics demonstrate that trapped key interlocks reduce injuries from human error during machine operation. EX1029; EX1030 at [0:49]-[1:24].

A POSA would have been motivated to implement the valve assembly with the safety interlock of De Vries into the dual fuel generator of DuroMax to prevent both the LPG and gasoline fuel sources from simultaneously supplying fuel while the generator is operating to make the generator safer. EX1003, ¶158. By substituting the gasoline fuel shutoff valve of DuroMax with a first valve of De Vries

and adding a second fuel valve of De Vries onto the LPG intake of DuroMax, an operator would be prevented from running the generator with both gasoline and LPG fuels simultaneously. Specifically, De Vries' lock-and-key interlock system would prevent this unsafe condition from occurring because the lock-and-key system would only allow for one of the LPG or gasoline valves to be opened at a given time. *Id.*

B. Reasonable Expectation of Success in Combining DuroMax and De Vries

A POSA would have had a reasonable expectation of success in using De Vries' interlocked valve assembly in the DuroMax dual fuel generator. *See* EX1029; EX1030 at [2:57] ("[Trapped key interlocks] can be fitted to virtually any piece of equipment or machine…."). De Vries teaches that the interlocked valve assembly can be used to control the flow of gaseous or liquid fluids in an "industrial appliance" such as "a petrochemical appliance." EX1011, 5:40-43, 10:50-53, 14:58-62. A POSA would have understood that an "industrial appliance" such as "a petrochemical appliance" would include a dual fuel generator, such as the dual fuel generator disclosed in DuroMax. Therefore, a POSA would have understood that the interlocked valve assembly of De Vries would be capable of controlling the flow of gaseous or liquid fuel sources in the dual fuel generator of DuroMax to make it safer. EX1003, ¶159.

C. Claim 1

Element [1.0]: De Vries describes an interlocked valve system used to select the flow of one of two fluids flowing through the system. DuroMax describes a dual fuel generator in which either LPG or gasoline may be selected for operation of the generator. A POSA would have understood it to be obvious to implement the interlocked valve system of De Vries into the dual fuel generator of DuroMax to prevent unsafe operating conditions, such as where both fuels are simultaneously delivered to the generator engine. EX1003, ¶160.

Element [1.1]: DuroMax describes a dual fuel generator with an LPG intake and a gasoline fuel shutoff valve at a gasoline fuel intake. EX1006.

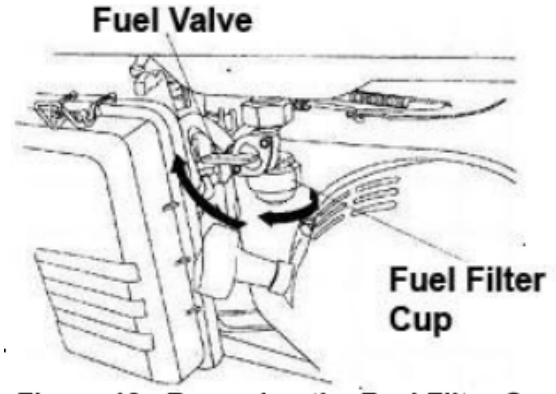


Figure 19 –Removing the Fuel Filter Cup

Figure C-Connect Valve

EX1006, 12, 20.

De Vries teaches a valve assembly comprising at least two butterfly valves 5 and 6, rotation shafts 9 and 10, and valve handles 11 and 12. Butterfly valves are

mechanical valves with open and closed positions. EX1003, ¶162. The valve assembly is fluidly connected to two "liquid and/or gas" lines. EX1011, 5:25-40.

A POSA would have been motivated to implement the valve interlock system of De Vries in a dual fuel generator such as DuroMax so that the valve assembly is fluidly connected to two fuel sources and selectively controls fuel flow to the engine. *Supra* Section VIII.A. Specifically, a POSA would have been motivated to substitute the gasoline fuel shutoff valve of DuroMax with a first valve of De Vries and would have been further motivated to add the second valve of De Vries to the intake of the LPG fuel to prevent unsafe operating conditions for a user that is using the DuroMax generator. *Supra* Section VIII.A.

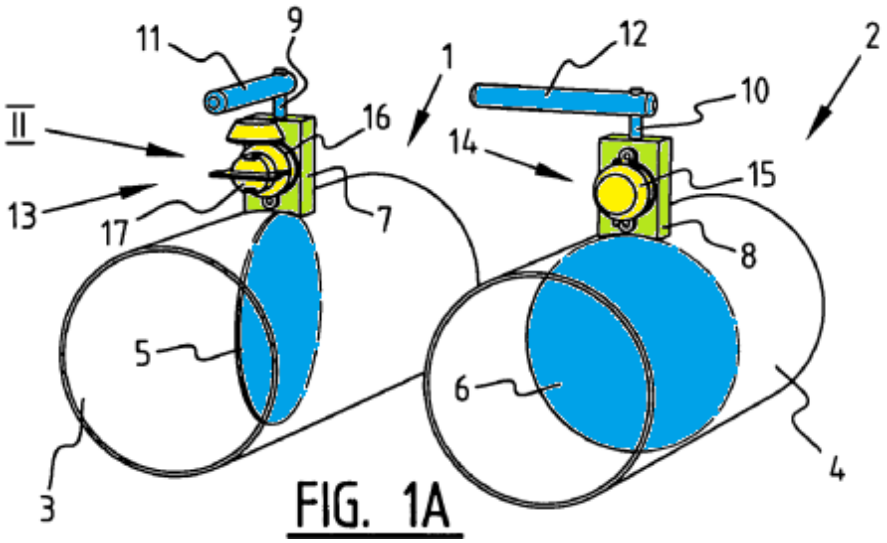
When implemented onto the generator of DuroMax, the De Vries valve assembly would be fluidly connected to two fuel sources and would allow for selective control of a first and a second fuel flow to the generator engine. EX1003, ¶163.

Element [1.2]: De Vries teaches a selector switch comprising safety systems 13 and 14 and key 17. The selector switch is positioned on the valve assembly and contains locking mechanisms to lock rotation shafts 9 and 10 of the valve assembly. EX1011, 5:32-40, 7:36-39. The selector switch selectively unlocks the valve handles to allow a user to manually select a fuel flow. *Id.*, 5:41-6:4.

A POSA would have been motivated to implement the selector switch of De Vries in in a dual fuel generator such as DuroMax to interlock the valves and ensure correct order of operation. *Supra* Section VIII.A.

Element [1.3]: DuroMax discloses a dual fuel generator with two separate inputs for gasoline and LPG. EX1006, 7, 11-12.

De Vries discloses that fluid flows through lines 3 and 4 past the butterfly valves 5 and 6 of the valve assembly. Each line has an input side ending at the valve and an output side beginning at the other side of the valve. EX1011, 5:25-27.



Id., FIG. 1A (annotated).

A POSA would have been motivated to implement the interlocked valve assembly of De Vries into the dual fuel generator of DuroMax with a reasonable expectation of success. Such a combination would have resulted in the claimed valve assembly having separate LPG and gasoline inputs leading to the butterfly valves of

De Vries and separate LPG and gasoline outputs exiting from each of the butterfly valves of De Vries. EX1003, ¶¶166-167.

D. Claim 2

De Vries teaches a valve assembly comprising two butterfly valves, with each valve having an output. *Supra* Section VIII.C, Element [1.3]. The selector switch of De Vries allows only one of the valves and corresponding fuel line to be open at a time. EX1011, 5:63-6:4. To select a fuel flow, the user must unlock the selected valve handle with key 17 and then operate the corresponding valve handle. *Id.* A POSA would have been motivated to implement the valve interlock system of De Vries in a dual fuel generator such as DuroMax such that both fuel sources cannot flow to the engine simultaneously. *Supra* Section VIII.A.

E. Claim 3

De Vries teaches a valve assembly comprising two butterfly valves with open and closed positions. *Supra* Section VIII.C, Element [1.1]. A POSA would be motivated to implement the valve interlock system of De Vries in a dual fuel generator such as DuroMax such that the valves control fuel flow to the engine of the dual fuel generator. *Supra* Section VIII.A.

F. Claim 4

De Vries teaches a valve assembly comprising two butterfly valves. *Supra* Section VIII.C, Element [1.1]. The butterfly valves are non-solenoid mechanical valves that rotate with the rotating shaft and handle.

G. Claim 5

De Vries describes that "valve[s 5 and] 6 can be manually operated via … rotation shaft[s 9 and] 10 using handle[s 11] and 12." EX1011, 5:31-39. The selector switch provides for manual actuation of the valves by selectively unlocking the rotation shafts. *Id.*, 5:41-6:4.

H. Claim 9

De Vries teaches that lines 3 and 4 can carry "liquid and/or gas." *Id.*, 5:25-27. DuroMax discloses that its dual fuel generator is configured to run on either "LPG or Gasoline." EX1006, 2. A POSA would have been motivated to implement the interlocked valve assembly of De Vries onto the dual fuel generator of DuroMax for at least safety reasons and would have had a reasonable expectation of success in doing so. *Supra* Sections VIII.A-B. Such a modification would have resulted in the first fuel valve being attached to an LPG fuel source and a second fuel valve being attached to a gasoline fuel source.

IX. GROUND 2: CLAIMS 1-18 ARE UNPATENTABLE AS OBVIOUS OVER DUROMAX AND DE VRIES IN VIEW OF NAKAFUSHI AND OLMR

A. Motivation to Combine DuroMax, De Vries, Nakafushi, and Olmr.

As noted above, it would have been obvious to a POSA to implement the interlocked valve assembly of De Vries in a dual fuel generator such as DuroMax. *Supra* Section VIII.A.

DuroMax discloses that the dual fuel engine includes a carburetor through which the gasoline fuel is routed prior to combustion in the engine. EX1006, 13. DuroMax discloses that when starting the generator on LPG fuel, the performance of the generator may be unsteady due to leftover gasoline in the carburetor. *Id.* Because the leftover gasoline in the carburetor is downstream of gasoline fuel shutoff valve, it continues to be delivered to the dual fuel engine while the engine runs on LPG, creating a potentially unsafe operating condition in which the gasoline fuel is sucked into the intake passage and mixed with the LPG, resulting in over-rich air-to-fuel ratio. EX1003, ¶174. A POSA would have understood that over-rich fuel mixtures could cause carbon monoxide poisoning and dangerous backfires and afterfires. *Id.*, ¶¶175-176.

Nakafushi discloses an engine configured to selectively use gasoline or LPG as fuel. EX1009, ¶[0001]. Nakafushi identifies two problems to be solved by the invention. First, when an engine operating on gasoline is switched to LPG, a residual

amount of gasoline remains in the float chamber (i.e., float bowl), and is sucked into the intake passage and mixed with the LPG, resulting in over-rich air-to-fuel ratio. *Id.*, ¶¶[0003]-[0004]. Second, because the residual gasoline is drained from the float chamber during this switching operation, when the engine is switched back to gasoline, gasoline delivery is delayed until the level of gasoline in the float chamber recovers. *Id.*, ¶[0004]. During this delay, the air-to-fuel ratio becomes over-lean. *Id.* Nakafushi solves these problems by including a control valve 23 ***downstream of the float chamber*** to prevent the float chamber from being emptied of gasoline when switching to LPG operation. *Id.*, ¶¶[0006]-[0007].

A POSA would have been motivated to combine the control valve of Nakafushi with the dual fuel engine of the DuroMax generator to solve the problems of unsteady engine performance, carbon monoxide poisoning, backfire, and afterfire of the DuroMax generator when the fuel is switched between gasoline and LPG. EX1003, ¶¶177-179. A POSA would have understood that this is the same problem recognized by Nakafushi and solved by the implementation of its control valve 23 arranged downstream of the carburetor float chamber and coupled to the fuel switching switch 19.

Nakafushi does not expressly say what type of valve is used for this purpose, but Olmr expressly teaches a solenoid (valve 42) for cutting off the flow of gasoline from the float bowl 30 of the carburetor when the engine is off. EX1010, 2:30-56;

see also id., 1:33-36, FIG. 2. Olmr thus teaches a more specific example—a solenoid valve—for accomplishing the same function taught by Nakafushi, i.e., cutting gasoline flow to the carburetor when needed. A POSA would have therefore been motivated to rely on Olmr's express teaching of a solenoid valve to accomplish the goal of Nakafushi. EX1003, ¶181.

B. Reasonable Expectation of Success in Combining DuroMax, De Vries, Nakafushi, and Olmr

A POSA would have had a reasonable expectation of success in using Nakafushi's control valve 23 in the generator of DuroMax and De Vries. Both DuroMax and Nakafushi disclose dual fuel engines with carburetors for the liquid fuel supply. DuroMax discloses the same problems regarding leftover fuel in the carburetor after fuel switching that are recognized and addressed by Nakafushi. A POSA would have therefore had a reasonable expectation of success in implementing the carburetor control valve 23, actuated by the switch 19 into the generator of DuroMax due to the similarity of the engine configuration. EX1003, ¶182.

A POSA would have further had a reasonable expectation of success in coupling the control valve 23 and switch of Nakafushi with the interlocked valve assembly of De Vries. EX1003, ¶¶182-184. Nakafushi discloses coupling the control valve 23 to the fuel switching switch 19, thereby linking the closing of the carburetor

liquid fuel shutoff valve with the selection of LPG fuel. Nakafushi discloses that the control valve 23 is controlled by the completion of a circuit caused by the switching of fuel switching switch 19. A POSA would have understood it to be obvious to couple the control valve 23 to the lock and key interlock system of De Vries, so that the placement of the key 17 onto the safety systems 13, 14 would simultaneously actuate the control valve 23 of Nakafushi. Indeed, De Vries discloses an embodiment in which the safety systems 13, 14 are coupled to an electric switch for controlling various operations of the appliance. EX1011, 7:32-42. Therefore, a POSA would have had a reasonable expectation of success in coupling the control valve 23 of Nakafushi to the interlocked valve system of De Vries using the electric switch of De Vries.

A POSA would also have had a reasonable expectation of success in using Olmr's solenoid valve 42 with the control valve 23 of Nakafushi. At the time of the invention, the use of solenoid valves to cut off fuel flow to an engine was ubiquitous, with Olmr being just one example. EX1003, ¶185. Furthermore, Nakafushi discloses a simple electrical circuit to open and close the control valve 23. EX1009, ¶¶[0013]-[0014], FIG. 1. A POSA would have recognized that Nakafushi's electrical circuit could energize a solenoid valve, such as the solenoid valve 43 disclosed in Olmr, to open and close as called for by Nakafushi's control valve 23. EX1003, ¶185. Indeed, Olmr likewise teaches an electrical circuit for operating its solenoid valve. EX1010,

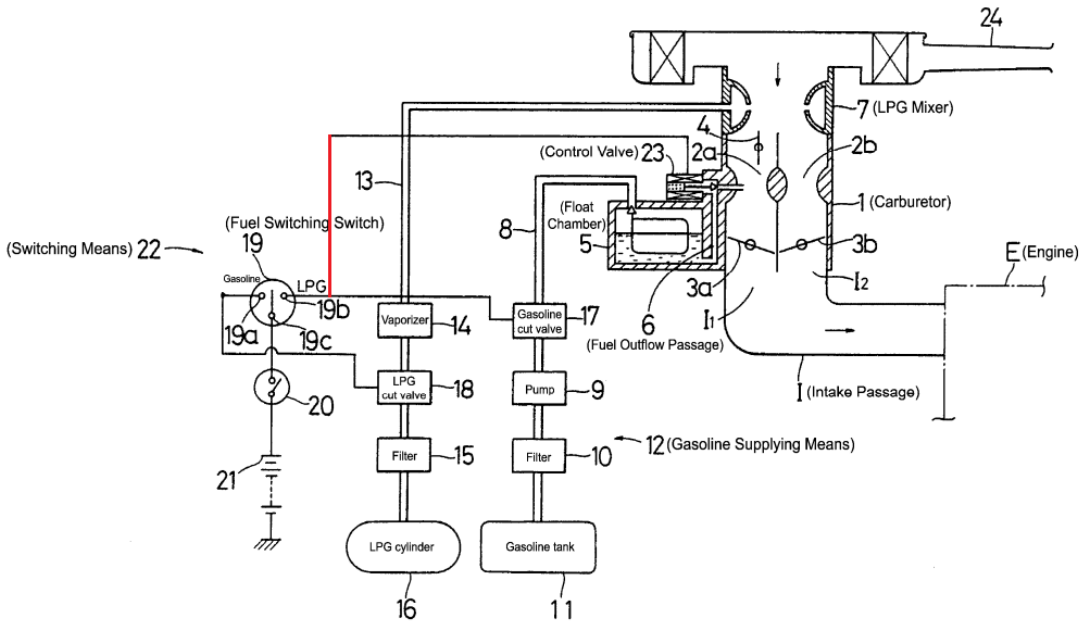
2:57-4:27, FIGS. 2-3. A POSA would have therefore reasonably expected that Olmr's solenoid valve could be successfully implemented to serve as Nakafushi's liquid fuel cutoff control valve 23 to accomplish the desired function of cutting off the supply of gasoline from Nakafushi's float chamber 5 to the intake of the engine.

C. Claims 1-5

Claims 1-5 are taught by the combination of De Vries, DuroMax, Nakafushi, and Olmr. *Supra* Sections VIII.C-G.

D. Claims 6-8

Nakafushi discloses a carburetor shutoff solenoid 23 and carburetor solenoid switch 19. To the extent it is not obvious that valve 23 is a solenoid valve, Olmr explicitly discloses that the carburetor shutoff valve is a solenoid valve. EX1010, 2:30-56; *see also id.*, 1:33-36, FIG. 2. A POSA would have understood that using the normally open solenoid of Olmr in place of the normally closed control valve of Nakafushi would involve connecting the solenoid downstream of contact point 19b instead of 19a, shown below. EX1003, ¶187.



EX1009, FIG. 1 (modified).

A POSA would have been motivated by the teachings of De Vries, which discloses a switching means to safely sequence the switching operation, and the teachings of Nakafushi and Olmr, which disclose a normally open carburetor shutoff solenoid coupled to the switching means, to modify the generator of DuroMax to include a carburetor with a carburetor shutoff solenoid coupled to the switching means of De Vries. A POSA would have been motivated to couple the solenoid circuitry to the selector switch of De Vries such that when the key is inserted into the first safety system ("first position" for LPG), the key actuates the carburetor solenoid switch and activates the carburetor solenoid to shut off fuel flow; and when key is inserted into the second safety system ("second position" for gasoline), the

carburetor solenoid is in its normally open state. *Supra* Section IX.A. A POSA would have had a reasonable expectation of success, given that the selection mechanism of Nakafushi is configured to couple the solenoid circuit to the switching means. *Supra* Section IX.B.

E. Claim 9

Claim 9 is taught by the combination of De Vries, DuroMax, Nakafushi, and Olmr. *Supra* Section VIII.H.

F. Claim 10

Elements [10.0], [10.5]: Elements [10.0] and [10.5] are taught by the combination of DuroMax, DeVries, Nakafushi, and Olmr. *Supra* Section VIII.C, Elements [1.0]-[1.1].

Element [10.1]: De Vries teaches a selector switch comprising safety systems 13 and 14 and key 17. *Supra* Section VIII.C, Element [1.2]. The selector switch has a first fuel mode in which key 17 is inserted into safety system 13 to unlock handle 11 and a second fuel mode in which key 17 is inserted into safety system 14 to unlock handle 12. EX1011, 5:63-6:4.

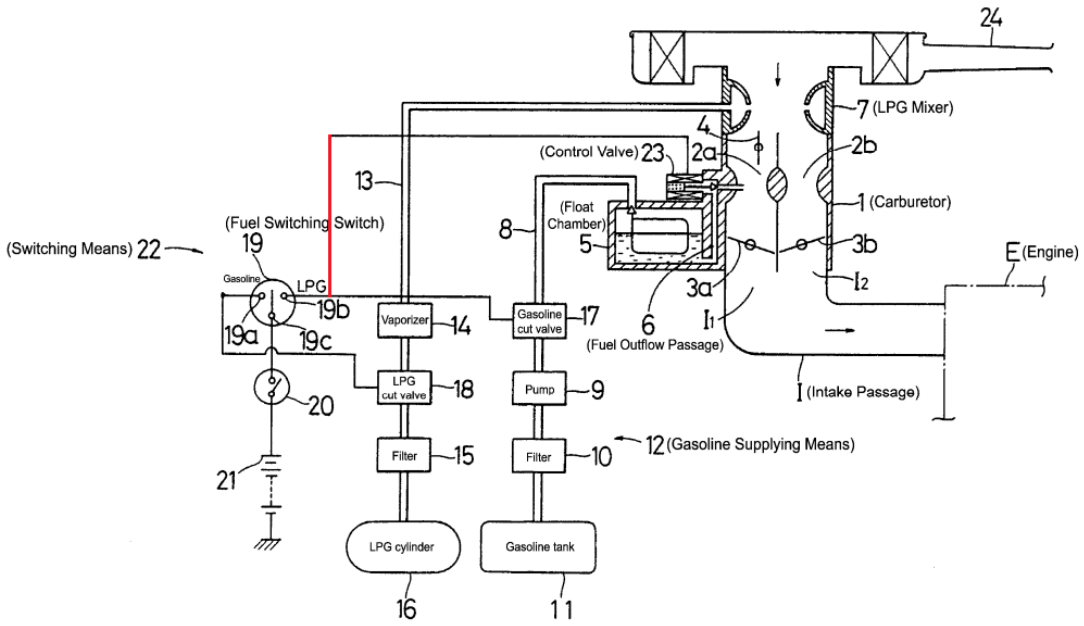
Element [10.2]: Nakafushi discloses a fuel solenoid valve 23. To the extent it is not obvious that valve 23 is a solenoid valve, Olmr explicitly discloses that the carburetor shutoff valve is a solenoid valve. Olmr discloses that the solenoid valve has open and closed positions. EX1010, 3:47-55. A POSA would have been

motivated by the teachings of Nakafushi and Olmr, which disclose a carburetor shutoff solenoid coupled to the switching means, to modify the generator of DuroMax to include a carburetor with a carburetor shutoff solenoid. *Supra* Section IX.A. A POSA would have a reasonable expectation of success, given that the selection mechanism of Nakafushi is configured to couple the solenoid circuit to the switching means. *Supra* Section IX.B.

Element [10.3]: Nakafushi discloses a solenoid switch 19 that controls a solenoid valve 23. Switch 19 has a closed position in which it is switched to contact point 19b to close the LPG circuit, and an open position in which it disconnected from contact point 19b. EX1009, ¶[0014]. To the extent it is not obvious that valve 23 is a solenoid valve, Olmr explicitly discloses that the carburetor shutoff valve is a solenoid valve. EX1010, 2:30-56; *see also id.*, 1:33-36, FIG. 2. A POSA would have been motivated by the teachings of Nakafushi and Olmr, which disclose a carburetor shutoff solenoid coupled to the switching means, to modify the generator of DuroMax to include a carburetor with a solenoid switch. *Supra* Section IX.A. A POSA would have a reasonable expectation of success, given that the selection mechanism of Nakafushi is configured to couple the solenoid circuit to the switching means. *Supra* Section IX.B.

Element [10.4]: Nakafushi describes a fuel switching means with a first fuel mode in which switch 19 connects to contact point 19b and a second fuel mode in

which switch 19 instead connects to contact point 19a. EX1009, ¶¶[0013]-[0014]. Nakafushi discloses that in the first fuel mode, the solenoid is "turned OFF by not receiving a cut signal to ***close*** the fuel outflow passage." *Id.,* ¶[0014] (emphasis added). In the second fuel mode, the solenoid is "turned ON upon receiving a cut signal to ***open*** the fuel outflow passage." *Id.* (emphasis added). To the extent Nakafushi does not explicitly disclose an open/closed solenoid, Olmr discloses that the carburetor solenoid is normally open when the circuit is open (i.e., when no electricity is flowing) and closes when the circuit is closed. EX1010, 3:47-55. A POSA would have understood that using the normally open solenoid of Olmr in place of the normally closed control valve of Nakafushi would involve connecting the solenoid downstream of contact point 19b instead of 19a, shown below. EX1003, ¶187.



EX1009, FIG. 1 (modified).

A POSA would have been motivated by the teachings of De Vries, which discloses a switching means to safely sequence the switching operation, and the teachings of Nakafushi and Olmr, which disclose a normally open carburetor shutoff solenoid coupled to the switching means, to modify the generator of DuroMax to include a carburetor with a carburetor shutoff solenoid coupled to the switching means of De Vries. A POSA would have been motivated to couple the solenoid circuitry to the selector switch of De Vries such that the solenoid switch and fuel solenoid are closed in the first fuel mode and open in the second fuel mode so that the liquid fuel flow through the carburetor is blocked in the first fuel mode. *Supra* Section IX.A. A POSA would have a reasonable expectation of success, given that

the selection mechanism of Nakafushi is configured to couple the solenoid circuit to the switching means. *Supra* Section IX.B.

Element [10.6]: De Vries describes that inserting key 17 into safety system 13, entering first fuel mode, enables a selection of the first fuel flow by unlocking valve handle 11. EX1011, 5:63-6:4. Inserting key 17 into safety system 14, entering second fuel mode, enables a selection of the second fuel flow by unlocking valve handle 12. *Id.*

G. Claim 11

A POSA would have been motivated by the teachings of DuroMax, which teaches a LPG/gasoline generator with a carburetor, the teachings of De Vries, which discloses a switching means to safely sequence the switching operation, and the teachings of Nakafushi and Olmr, which disclose a carburetor shutoff solenoid coupled to the switching means, to modify the generator of DuroMax to include a carburetor with a normally open carburetor shutoff solenoid coupled to the selector switch of De Vries. *Supra* Section IX.F, Elements [10.2]-[10.4]. A POSA would be motivated to couple the selector switch of De Vries to the solenoid circuit of Nakafushi to simplify operation of the generator and would have a reasonable expectation of success. *Supra* Sections IX.A-B. This would have resulted in a configuration where key 17 of De Vries actuates the carburetor solenoid switch of Nakafushi when inserted into the first safety system (changed to "first fuel mode")

of the selector switch to activate the carburetor solenoid and stop the second fuel flow to the engine. EX1003, ¶205.

H. Claim 12

Claim 12 is taught by the combination of De Vries, DuroMax, Nakafushi, and Olmr. *Supra* Section VIII.C, Elements [1.1]-[1.2].

I. Claim 13

Claim 13 is taught by the combination of De Vries, DuroMax, Nakafushi, and Olmr. *Supra* Section VIII.C, Element [1.3].

J. Claim 14

Claim 14 is taught by the combination of De Vries, DuroMax, Nakafushi, and Olmr. *Supra* Section VIII.D.

K. Claim 15

Claim 15 is taught by the combination of De Vries, DuroMax, Nakafushi, and Olmr. *Supra* Section VIII.E.

L. Claim 16

Claim 16 is taught by the combination of De Vries, DuroMax, Nakafushi, and Olmr. *Supra* Section VIII.H.

M. Claim 17

Nakafushi and Olmr both teach a fuel solenoid that shuts off fuel flow through the carburetor. *Supra* Section IX.F, Elements [10.2]-[10.3].

N. Claim 18

De Vries describes that inserting key 17 into safety system 13, entering first fuel mode, enables a selection of the first fuel source by unlocking valve handle 11. EX1011, 5:63-6:4. Inserting key 17 into safety system 14, entering second fuel mode, enables a selection of the second fuel source by unlocking valve handle 12. *Id.*

X. GROUND 3: UNDER THE PATENT OWNER'S APPARENT CONSTRUCTION, CLAIMS 1-5 ARE UNPATENTABLE AS ANTICIPATED BY FUJISAWA

Under the proper construction of "selector switch" (*supra* Section VII.B), Fujisawa lacks a "selector switch." However, under Patent Owner's apparent construction of "selector switch" (*supra* Section VII.D), which is presented here in the alternative in Grounds 3-5, and under either party's construction of "valve assembly," Fujisawa anticipates claims 1-5. Fujisawa was not previously considered by the Examiner.

A. Claim 1

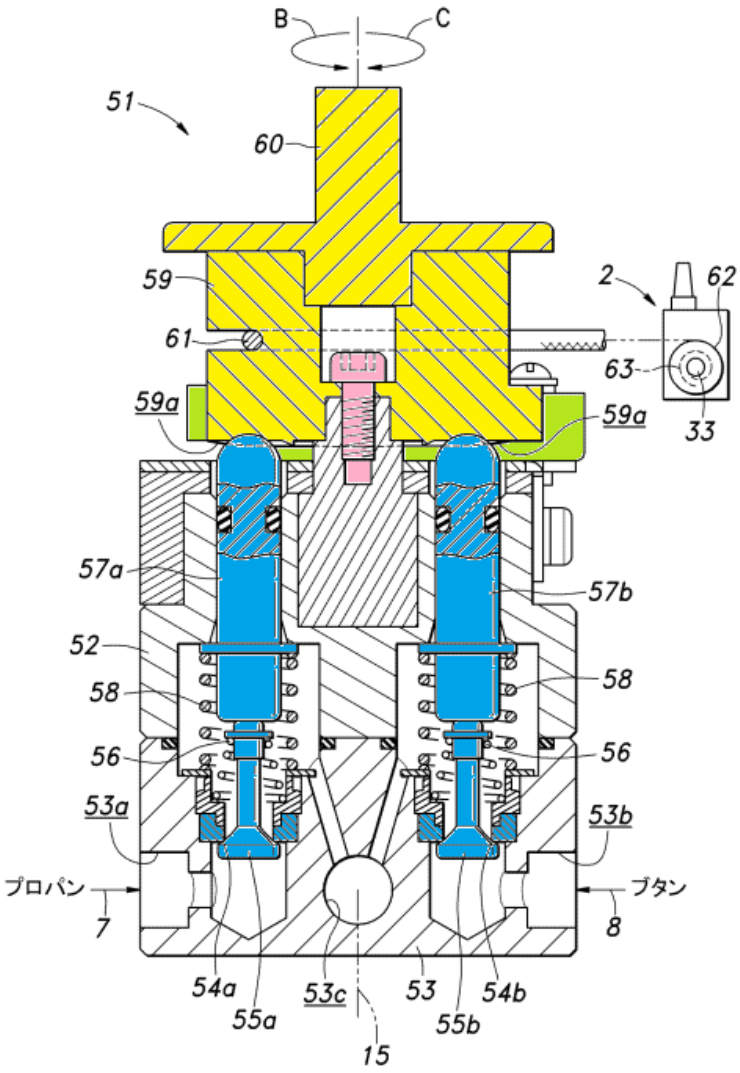
Fujisawa anticipates Claim 1 as follows:

Element [1.0]: Fujisawa describes a "supply switching device" for a dual fuel "power generator." EX1005, ¶¶[0001], [0012].

Element [1.1]: Fujisawa describes a valve assembly comprising at least valve seats 54a and 54b (blue) which are selectively positioned in open and closed positions over valve bodies 55a and 55b (blue). The valve assembly is further

comprised of cam follower rods 57a and 57b (blue) which control the movement of the valve bodies 55a and 55b between open and closed positions as the valve bodies 55a and 55b are moved up and down. EX1005, ¶¶[0032]-[0033]. The cam follower rods 57a and 57b are moved up and down by an undulating lower cam surface 59a of cam body 59 (yellow) which is rotated over the cam follower rods 57a and 57b by rotary knob 60 (yellow).

【図５】



EX1004, FIG. 5 (annotated).

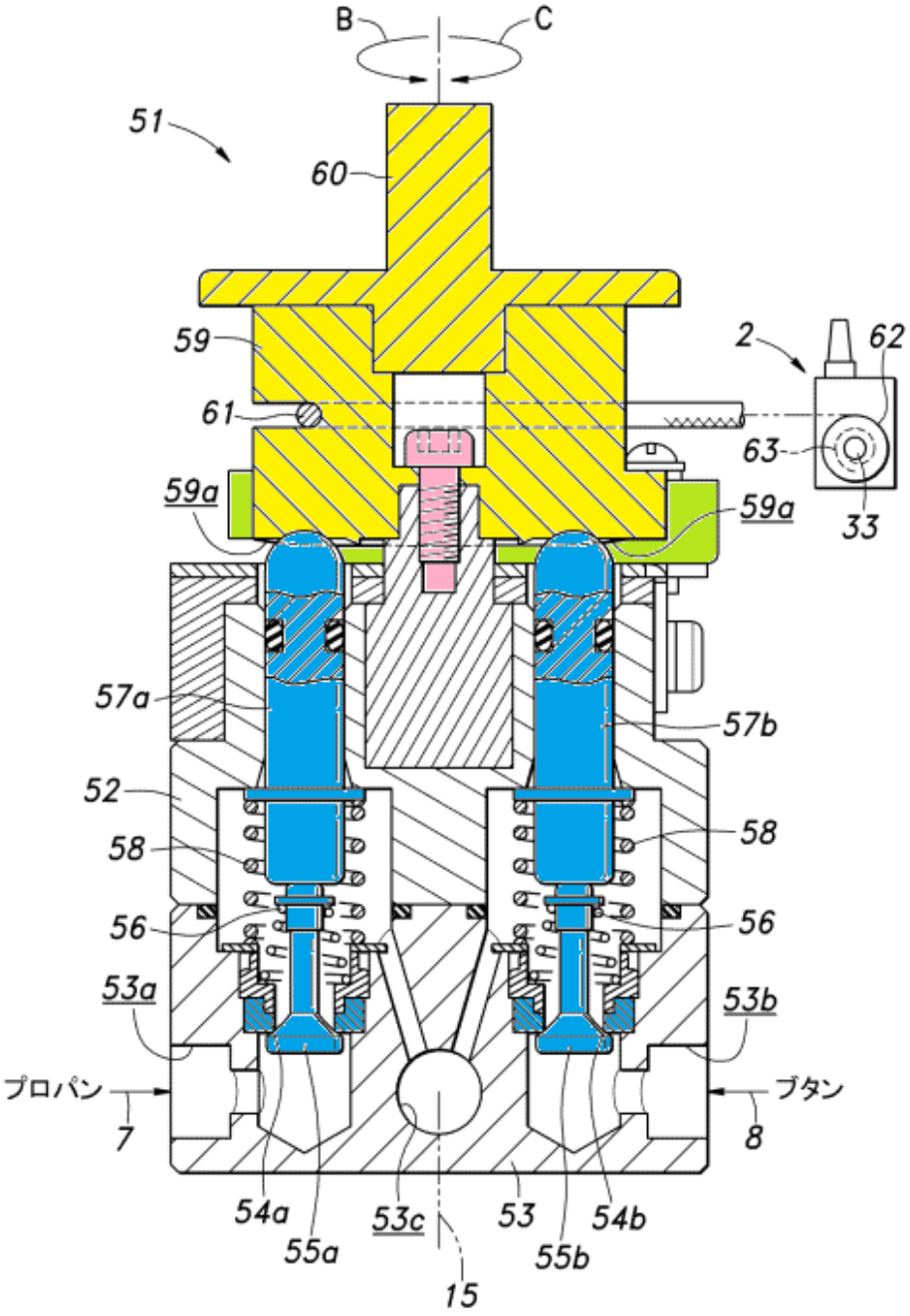
Fujisawa discloses that the valve assembly is fluidly connected to first fuel source 4 via pipe 7 and second fuel source 5 via pipe 8. EX1005, ¶¶[0013], [0031]. A user can operate the valve assembly to selectively control a first fuel flow and second fuel flow from the fuel sources. *Id.*, ¶¶[0037]-[0038]. The fuels flow to the engine of a dual fuel generator. *Id.*, ¶¶[0012], [0037]-[0038].

Under the proper construction of "valve assembly" (*supra* Section VII.C), cam follower rods 57a and 57b are valve handles that control the opening and closing of the valves.

Alternatively, under Patent Owner's apparent construction of "valve assembly" (*supra* Section VII.D), the cam body 59 and rotary knob 60 can also be a valve handle of the valve assembly. EX1005, ¶[0034].

Element [1.2]: Under Patent Owner's apparent construction of "selector switch," Fujisawa describes a selector switch comprising rotary knob 60 and cam body 59 (yellow). *Id.*

【図５】

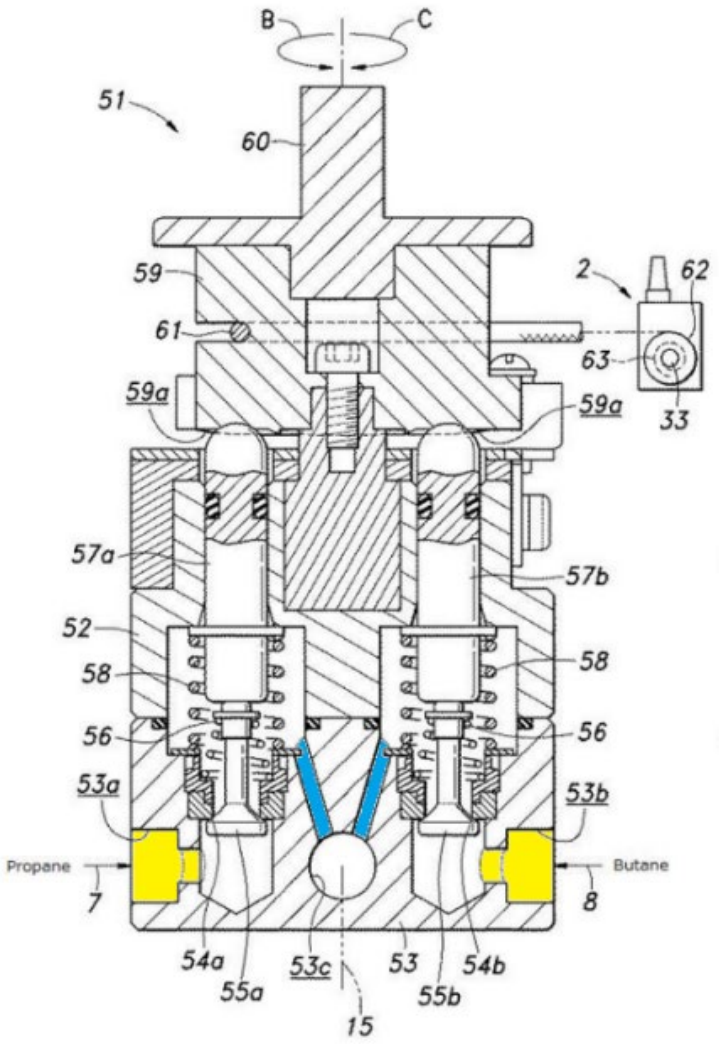


EX1004, FIG. 5 (annotated).

The selector switch is positioned on and "in contact with" at least cam follower rods 57a and 57b of the valve assembly. EX1005, ¶[0034]. Cam surface 59a is constructed to allow a user to manually select a fuel flow by controlling the position of cam follower rods 57a and 57b to open and close the valves. *Id.*, ¶[0035].

Element [1.3]: Fujisawa discloses two fuel inputs (yellow), with first fuel input 53a connected to first fuel source 4 and second fuel input 53b connected to second fuel source 5. Fujisawa discloses two fuel outputs (blue), with first fuel output supplying fuel from only fuel source 4 and second fuel output supplying fuel from only fuel source 5.

[FIG. 5]



Id., FIG. 5 (annotated).

B. Claim 2

Fujisawa discloses two fuel outputs, with each output supplying fuel from a separate fuel source. *Supra* Section X.A, Element [1.3]. Fuel is supplied from only one fuel source through a single fuel output at a time, responsive to a rotation of fuel

knob 60 and a corresponding actuation of the valves. *Supra* Section X.A, Elements [1.1]-[1.2].

C. Claim 3

Fujisawa describes a valve assembly comprising first fuel valve 54a and 55a, and second fuel valve 54b and 55b. EX1005, ¶[0032]. The first fuel valve 54a has "open[] and clos[ed]" positions to control fuel flow from first fuel source 4 through inlet 53a. *Id.*, ¶¶[0031]-[0032]. The second fuel valve 54b also "opens and closes" to control fuel flow from the second fuel source 5 through inlet 53b. *Id.*

D. Claim 4

Fujisawa discloses that the first and second fuel valves are non-solenoid mechanical valves that mechanically open and close in response to rotation of cam body 59. Cam body 59 regulates the "protrusion position" of cam follower rods 57a and 57b, pushing the valve bodies up and down. EX1005, ¶¶[0035]-[0038].

E. Claim 5

Fujisawa describes that the user manually actuates the valves between open and closed positions by "grasp[ing] and turn[ing]" the selector switch. EX1005, ¶[0035].

XI. GROUND 4: UNDER THE PATENT OWNER'S APPARENT CONSTRUCTION, CLAIMS 1-5 AND 9 ARE UNPATENTABLE AS OBVIOUS OVER FUJISAWA IN VIEW OF DUROMAX

A. Motivation to Combine Fujisawa and DuroMax

Many prior art dual fuel engines use LPG and gasoline as fuel sources. *See, e.g.*, EX1012, 2:8-12, 2:124-147; EX1025, 1:6-20. Fujisawa describes a dual fuel generator that uses two LPG fuel sources, propane and butane. EX1005, ¶¶[0004]-[0006]. It would be obvious to a POSA to reconfigure the Fujisawa generator according to the principles of DuroMax to allow the generator of Fujisawa to function with gasoline instead of butane.

Specifically, DuroMax is a dual fuel generator that uses LPG (propane) and gasoline. A POSA would be motivated by DuroMax's teachings of a propane- and gasoline-powered generator to utilize gasoline in Fujisawa's valve assembly. Gasoline provides various advantages over butane fuel sources such as being more widely accessible in large quantities, having a higher energy density (thereby making it a more efficient fuel source), having better performance in cold weather, being cheaper, and being easier to store in large quantities. EX1003, ¶230. For at least these reasons, a POSA would have been motivated to substitute the butane fuel source disclosed in Fujisawa for a gasoline fuel source, as taught by DuroMax.

B. Reasonable Expectation of Success in Combining Fujisawa and DuroMax

A POSA would have had a reasonable expectation of success in combining the teachings of Fujisawa and DuroMax. Fujisawa discloses a generator with an engine that is designed to function with gaseous fuels. A POSA would have understood that engines configured to run on LPG fuel and gasoline fuel were well known (*see, e.g.*, EX1006) and that such engines could be readily implemented into the system of Fujisawa to allow the generator to run on LPG or gasoline fuel sources. EX1003, ¶231.

Specifically, a POSA would have understood that the Fujisawa fluid conduits and valves would function equivalently with gasoline and could be readily configured to selectively supply gasoline instead of butane. A POSA would have further understood since gasoline is not a "liquified gas" fuel source, gasoline would not ordinarily be delivered to a regulator before being delivered to other components of an engine. Thus, a POSA would have understood that it would have been reasonable to modify the fuel cock 51 such that the gasoline fuel does not flow into a common fuel pipe 15, but instead flows from the outlet pipe to a carburetor. EX1003, ¶¶233-234.

C. Claims 1-5

Claims 1-5 are taught by the combination of Fujisawa and DuroMax. *Supra* Sections X.A-E.

D. Claim 9

Claim 9 is taught by the combination of Fujisawa and DuroMax. As outlined above, Fujisawa discloses a fuel cock that is designed to function with liquified gaseous fuels in a liquified state. *Supra* Sections XI.A-B. A POSA would have been motivated by the teachings of DuroMax, which discloses a generator that runs on both LPG and gasoline fuels, to modify the generator of Fujisawa to run on both LPG and gasoline fuel, as taught by DuroMax. *Supra* Section XI.A. A POSA would have had a reasonable expectation of success in doing so, given that the Fujisawa fluid conduits and valves would function equivalently with gasoline and could be readily configured to selectively supply gasoline instead of butane. *Supra* Section XI.B.

XII. GROUND 5: UNDER THE PATENT OWNER'S APPARENT CONSTRUCTION, CLAIMS 1-18 ARE UNPATENTABLE AS OBVIOUS OVER FUJISAWA AND DUROMAX IN VIEW OF NAKAFUSHI AND OLMR

A. Motivation to Combine Fujisawa, DuroMax, Nakafushi, and Olmr

Fujisawa discloses a dual fuel generator with two LPG fuels. A POSA would have been motivated to modify the dual fuel generator of Fujisawa according to the teachings of DuroMax to configure the generator to run on LPG and gasoline. *Supra*

Sections XI.A-B. A POSA would have understood that such modifications would have included adding the carburetor of DuroMax, through which the gasoline fuel would be routed prior to its delivery to the engine. EX1003, ¶237.

A POSA would have been motivated to implement the teachings of the control valve 23 of Nakafushi into the dual fuel generator of Fujisawa and DuroMax to solve the problems related to leftover fuel in the carburetor float bowl, such as unsteady engine operation, carbon monoxide poisoning, engine backfires, and engine afterfires, which are recognized by DuroMax and addressed by Nakafushi. *Supra* Section IX.A.

Fujisawa teaches that certain desirable device settings are dependent on fuel choice, such as the gas pressure for LPG fuels. EX1005, ¶[0007]. It is therefore beneficial to couple the adjustment of such settings to the fuel switching mechanism in a dual fuel generator to simplify operation of the generator. *Id.*, ¶[0010]. Similarly, Nakafushi discloses a system in which actuation of the control valve 23, for shutting off liquid fuel flow from the carburetor, is coupled to the fuel switching mechanism. A POSA would have therefore been motivated to couple the actuation of the control valve 23 to the fuel switching mechanism disclosed by Fujisawa.

Furthermore, a POSA would have been motivated to combine the teachings of Olmr's solenoid switch with Nakafushi's control valve 23. *Supra* Section IX.A.

B. Reasonable Expectation of Success in Combining Fujisawa, DuroMax, Nakafushi, and Olmr

A POSA would have a reasonable expectation of success in combining the generator of Fujisawa and DuroMax with the control valve 23 of Nakafushi because Fujisawa already teaches multiple methods of coupling Nakafushi's carburetor shutoff valve to the selector switch of Fujisawa. For example, Fujisawa discloses a wire and pulley system coupling the selector switch to a cam to control a coupled function. EX1005, ¶[0036]. A POSA would have understood that cam switches can be used to couple rotary motion to an electrical apparatus such as a solenoid. EX1003, ¶¶240-242. Fujisawa further discloses the use of a cam surface 59 to actuate depressible switches, such as cam follower rods 57a, 57b. Therefore, a POSA would have understood that various mechanisms, such as a wire and pulley system or such depressible switches could be used to couple rotary motion of the selector switch to a solenoid. *Id.* Indeed, the '667 Patent itself explains that the method for coupling the carburetor shutoff valve to the selection means is a simple matter of design choice. EX1001, 6:64-7:2.

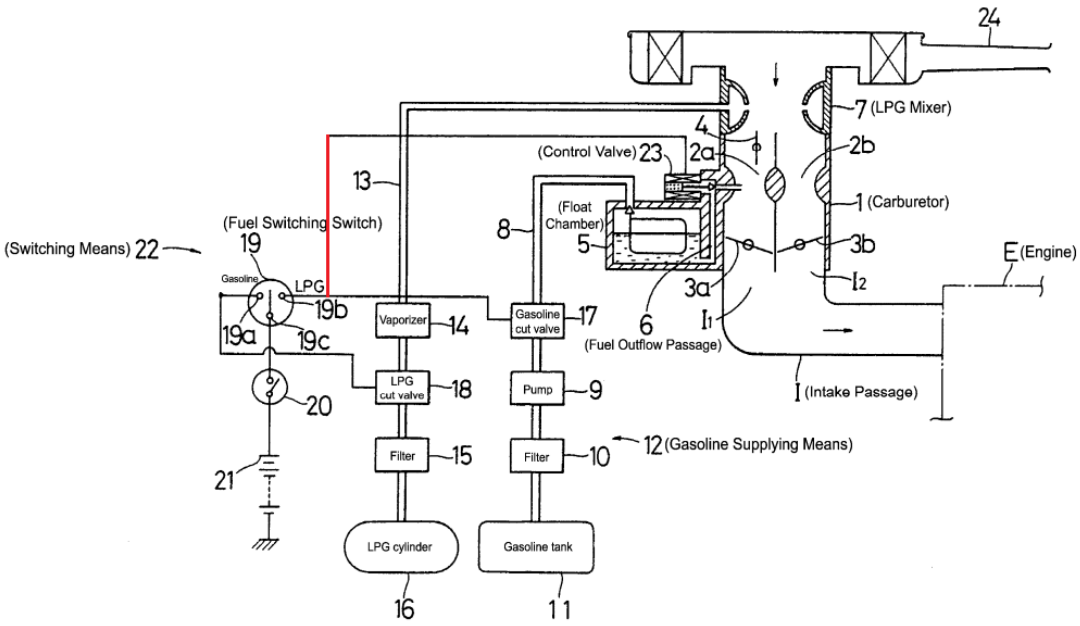
Furthermore, a POSA would have had a reasonable expectation of success in combining the teachings of Olmr's solenoid switch with Nakafushi's control valve 23. *Supra* Section IX.B.

C. Claims 1-5

Claims 1-5 are taught by the combination of Fujisawa, DuroMax, Nakafushi, and Olmr. *Supra* Sections X.A-E.

D. Claims 6-8

Nakafushi discloses a carburetor shutoff solenoid 23 and carburetor solenoid switch 19. To the extent it is not obvious that valve 23 is a solenoid valve, Olmr explicitly discloses that the carburetor shutoff valve is a solenoid valve. EX1010, 2:30-56; *see also id.*, 1:33-36, FIG. 2. A POSA would have understood that using the normally open solenoid of Olmr in place of the normally closed control valve of Nakafushi would involve connecting the solenoid downstream of contact point 19b instead of 19a, shown below. EX1003, ¶278.



EX1009, FIG. 1 (modified).

A POSA would have been motivated by the teachings of DuroMax, which teaches an LPG/gasoline generator with a carburetor, and the teachings of Nakafushi and Olmr, which disclose a normally open carburetor shutoff solenoid coupled to the switching means, to modify the generator of Fujisawa to include a carburetor with a carburetor shutoff solenoid coupled to the switching means of Fujisawa. A POSA would have been motivated to couple the solenoid circuitry to the selector switch of Fujisawa such that when the selector switch is in the first position (LPG), the selector switch actuates the carburetor solenoid switch and activates the carburetor solenoid to shut off fuel flow; and when the selector switch is in the second position (gasoline), the carburetor solenoid is in its normally open state. *Supra* Section XII.A. A POSA would have had a reasonable expectation of success, given that the selection mechanism of Fujisawa is configured to be coupled to other system adjustments. *Supra* Section XII.B.

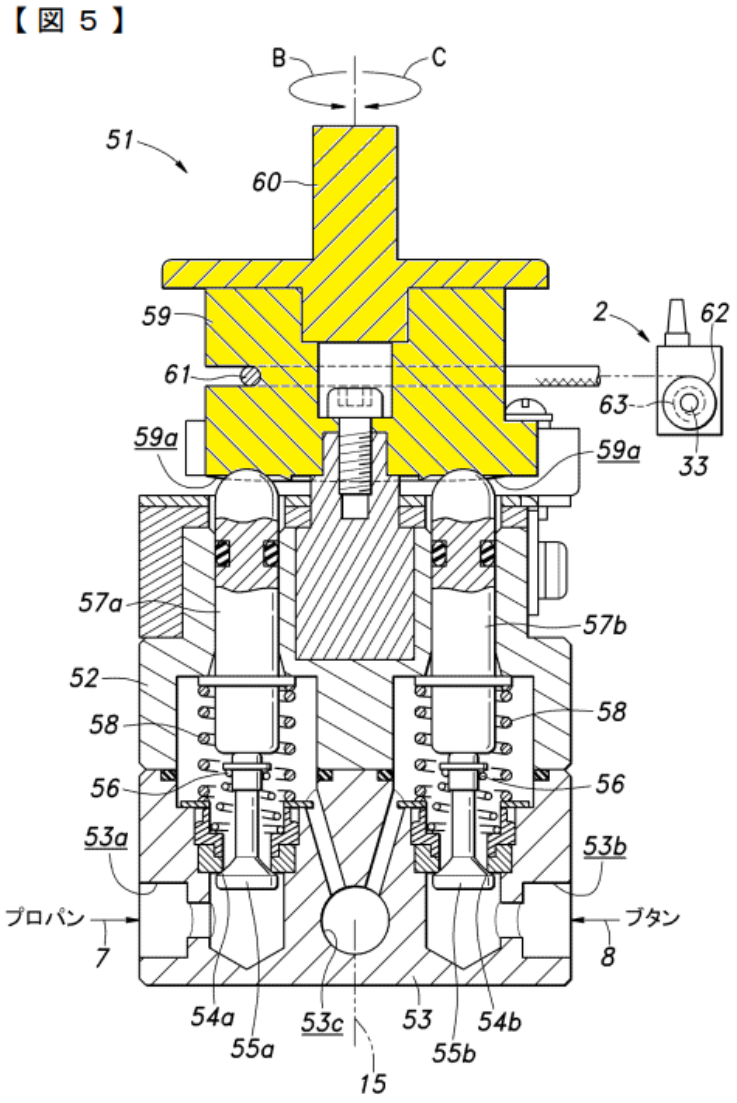
E. Claim 9

Claim 9 is taught by the combination of Fujisawa, DuroMax, Nakafushi, and Olmr. *Supra* Section XI.D.

F. Claim 10

Elements [10.0], [10.5]: Elements [10.0] and [10.5] are taught by the combination of Fujisawa, DuroMax, Nakafushi, and Olmr. *Supra* Section X.A, Elements [1.0]-[1.1].

Element [10.1]: Fujisawa describes a selector switch comprising rotary knob 60 and cam body 59. *Supra* Section X.A, [Element 1.2]. The selector switch has a first fuel mode in which it is rotated in direction B and a second fuel mode in which it is rotated in direction C. EX1005, ¶[0035].



EX1004, FIG. 5 (annotated).

Element [10.2]: Nakafushi discloses a fuel solenoid valve 23. To the extent it is not obvious that valve 23 is a solenoid valve, Olmr explicitly discloses that the carburetor shutoff valve is a solenoid valve. Olmr discloses that the solenoid valve has open and closed positions. EX1010, 3:47-55. A POSA would have been motivated by the teachings of DuroMax, which teaches an LPG/gasoline generator

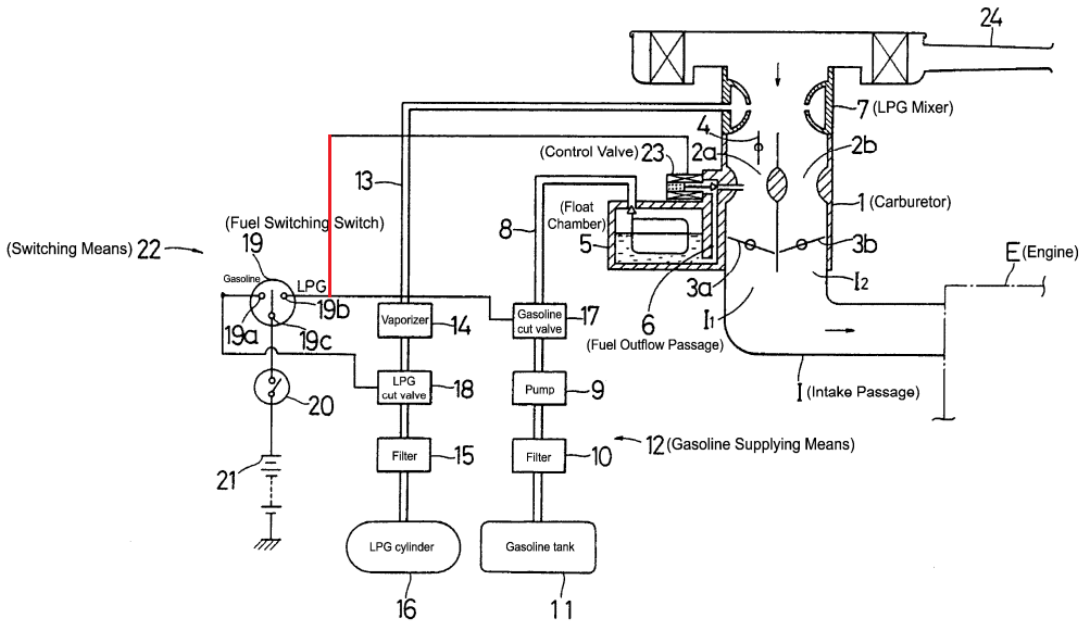
with a carburetor, and the teachings of Nakafushi and Olmr, which disclose a carburetor shutoff solenoid coupled to the switching means, to modify the generator of Fujisawa to include a carburetor with a carburetor shutoff solenoid. A POSA would have a reasonable expectation of success, given that the selection mechanism of Fujisawa is configured to be coupled to other system adjustments. *Supra* Sections XII.A-B.

Element [10.3]: Nakafushi discloses a solenoid switch 19 that controls a solenoid valve 23. Switch 19 has a closed position in which it is switched to contact point 19b to close the LPG circuit, and an open position in which it disconnected from contact point 19b. EX1009, ¶[0014]. To the extent it is not obvious that valve 23 is a solenoid valve, Olmr explicitly discloses that the carburetor shutoff valve is a solenoid valve. EX1010, 2:30-56. A POSA would have been motivated by the teachings of DuroMax, which teaches an LPG/gasoline generator with a carburetor, and the teachings of Nakafushi and Olmr, which disclose a carburetor shutoff solenoid coupled to the switching means, to modify the generator of Fujisawa to include a carburetor with a solenoid switch. A POSA would have a reasonable expectation of success, given that the selection mechanism of Fujisawa is configured to be coupled to other system adjustments. *Supra* Sections XII.A-B.

Element [10.4]: Nakafushi describes a fuel switching means with a first fuel mode in which switch 19 connects to contact point 19b and a second fuel mode in

which switch 19 instead connects to contact point 19a. EX1009, ¶¶[0013]-[0014]. Nakafushi discloses that in the first fuel mode, the solenoid is "turned OFF by not receiving a cut signal to ***close*** the fuel outflow passage." *Id.,* ¶[0014] (emphasis added). In the second fuel mode, the solenoid is "turned ON upon receiving a cut signal to ***open*** the fuel outflow passage." *Id.* (emphasis added).

To the extent Nakafushi does not explicitly disclose an open/closed solenoid, Olmr discloses that the carburetor solenoid is normally open when the circuit is open (i.e., when no electricity is flowing) and closes when the circuit is closed. EX1010, 3:47-55. A POSA would have understood that using the normally open solenoid of Olmr in place of the normally closed control valve of Nakafushi would involve connecting the solenoid downstream of contact point 19b instead of 19a, shown below. EX1003, ¶257.



EX1009, FIG. 1 (modified).

A POSA would have been motivated by the teachings of DuroMax, which teaches an LPG/gasoline generator with a carburetor, and the teachings of Nakafushi and Olmr, which disclose a normally open carburetor shutoff solenoid coupled to the switching means, to modify the generator of Fujisawa to include a carburetor with a carburetor shutoff solenoid coupled to the switching means of Fujisawa. A POSA would have been motivated to couple the solenoid circuitry to the selector switch of Fujisawa such that they are closed in the first fuel mode and open in the second fuel mode so that liquid fuel is blocked in the first fuel mode. A POSA would have a reasonable expectation of success, given that the selection mechanism of

Fujisawa is configured to be coupled to other system adjustments. *Supra* Sections XII.A-B.

Element [10.6]: Fujisawa describes that rotating the selector switch in direction B to first fuel mode enables a selection of the first fuel flow. Rotating the selector switch in direction C to second fuel mode enables a selection of the second fuel flow. EX1005, ¶¶[0035]-[0038].

G. Claim 11

Fujisawa discloses a wire wrapped around the selector switch, coupling the selector switch to a separate cam 33. A POSA would have been motivated by the teachings of DuroMax, which teaches an LPG/gasoline generator with a carburetor, and the teachings of Nakafushi and Olmr, which disclose a carburetor shutoff solenoid coupled to the switching means, to modify the generator of Fujisawa to include a carburetor with a carburetor shutoff solenoid coupled to the selector switch of Fujisawa via the cam 33. A POSA would be motivated to couple cam 33 to trigger the solenoid circuit of Nakafushi using a cam switch to convert rotation of cam 33 into an electrical signal. Alternatively, a POSA would be motivated to configure cam surface 59 to depress a depressible solenoid switch in a similar manner to the way in which the cam surface 59 depresses the depressible cam follower rods 57a, 57b. EX1003, ¶261. A POSA would have a reasonable expectation of success, given that the selection mechanism of Fujisawa is configured to be coupled to other system

adjustments. *Supra* Sections XII.A-B. Triggering the solenoid switch would cause the solenoid switch and fuel solenoid to operate in closed positions. *Supra* Section XII.F, Element [10.4].

H. Claim 12

Claim 12 is taught by the combination of by the combination of Fujisawa, DuroMax, Nakafushi, and Olmr. *Supra* Section X.A, Elements [1.1]-[1.2].

I. Claim 13

Claim 13 is taught by the combination of by the combination of Fujisawa, DuroMax, Nakafushi, and Olmr. *Supra* Section X.A, Element [1.3].

J. Claim 14

Claim 14 is taught by the combination of by the combination of Fujisawa, DuroMax, Nakafushi, and Olmr. *Supra* Section X.B.

K. Claim 15

Claim 15 is taught by the combination of Fujisawa, DuroMax, Nakafushi, and Olmr. *Supra* Section X.C.

L. Claim 16

Claim 16 is taught by the combination of Fujisawa, DuroMax, Nakafushi, and Olmr. *Supra* Section XI.D.

M. Claim 17

Nakafushi and Olmr both teach that a fuel solenoid that shuts off fuel flow through the carburetor. *Supra* Section XII.F, Elements [10.2]-[10.3].

N. Claim 18

Fujisawa describes that rotating the selector switch in direction B to first fuel mode enables a selection of the first fuel source. Rotating the selector switch in direction C to second fuel mode enables a selection of the second fuel source. EX1005, ¶¶[0035]-[0038].

XIII. OBJECTIVE INDICIA OF NONOBVIOUSNESS

The PTAB typically rejects arguments against institution based on objective indicia, allowing Petitioners a fair opportunity to address any secondary indicia evidence on reply. *Sega of Am., Inc. v. Uniloc USA, Inc.*, IPR2014-01453, Paper 11 at 20 (P.T.A.B. Mar. 10, 2015).

XIV. MANDATORY NOTICES UNDER 37 C.F.R. §42.8

A. Real Party-in-Interest

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

B. Related Matters

The ’667 Patent, along with the ’101 Patent, the ’896 Patent, and other non-family member patents, is asserted in *Champion Power Equipment v. Generac*

Power Systems Inc. in the United States District Court for the Eastern District of Wisconsin, Civil Action No. 2:24-cv-1281.

The ’667 Patent, along with the ’101 Patent, the ’390 Patent, the ’896 Patent, and other non-family member patents, is the subject of a declaratory judgment action in *Harbor Freight Tools USA, Inc. v. Champion Power Equipment, Inc.* in the United States District Court for the Central District of California, Civil Action No. 2:24-cv-8722.

The ’667 Patent, along with the ’101 Patent, the ’390 Patent, the ’896 Patent, and other non-family member patents, was asserted in *Champion Power Equipment Inc. v. Harbor Freight Tools USA Inc.* in the United States District Court for the Eastern District of Wisconsin, Civil Action No. 2:24-cv-1302. This case was dismissed on April 29, 2025, in favor of the earlier-filed action cited above.

The ’667 Patent, along with the ’101 Patent, the ’390 Patent, the ’896 Patent, and other non-family member patents, is asserted in *Champion Power Equipment, Inc. v. Firman Power Equipment Inc.* in the United States District Court of Arizona, Civil Action No. 2:23-cv-02371.

The ’667 Patent, along with the ’101 Patent, the ’896 Patent, and other non-family member patents, is asserted in *Champion Power Equipment Inc. v. Westinghouse Elec. Corp. et al.* in the United States District Court of Nevada, Civil Action No. 2:25-cv-00844.

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XV. CONCLUSION

For the reasons above, Petitioners ask that the PTAB order an *inter partes* review trial for Claims 1-18, and the Director cancel these claims as unpatentable.

Respectfully submitted,

Date: June 17, 2025

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CERTIFICATE OF WORD COUNT

Pursuant to 37 C.F.R. §42.24, the undersigned attorney for the Petitioner, Generac Power Systems, Inc., declares that the argument section of this Petition has 13,377 words, according to the word count tool in Microsoft Word™.

/Thomas J. Leach/

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Generac Power Systems, Inc.	§	Petition for Inter Partes Review
Petitioners	§	U.S. Patent No. 11,306,667
	§	
	§	
	§	

CERTIFICATE OF SERVICE

The undersigned certifies, in accordance with 37 C.F.R. §§42.105 and 42.6, that service was made on the Patent Owner as detailed below.

Date of service	June 17, 2025
Manner of service	PRIORITY MAIL EXPRESS
Documents served	Petition for *Inter Partes* Review, including Exhibit List; Exhibits EX1001 through EX1051
Persons served	USPTO's Patent Center via FedEx Overnight: 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: HB-Champion@huschblackwell.com jmf@zpatents.com jennifer.hoekel@huschblackwell.com karen.luong@huschblackwell.com

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