provided with an air vent 42, through which an intake passage (not shown) on an intake upstream side of the mixing body 2 communicates with the float chamber 4. *Tsuda*, Col. 2, lns. 48-52. Vertically provided from the mixing body 2 into the float chamber 4 is a nozzle accommodating boss 41, into which a liquid fuel nozzle 5 is fitted. *Tsuda*, Col. 2, lns. 53-55. An upper end of the liquid fuel nozzle 5 projects into the venturi passage 3 and there is arranged below the liquid fuel nozzle 5 a jet 56 for metering the liquid fuel. *Tsuda*, Col. 2, lns. 40-41.55-58. An inner bottom portion of the float chamber 4 is provided with a liquid fuel inlet 13, through which the float chamber 4 communicates with the liquid fuel nozzle 5. *Tsuda*, Col. 2, lns. 58-60. Laterally arranged at a lower portion of the float chamber 4 is a liquid fuel valve 14 for opening or closing the inlet 13. *Tsuda*, Col. 2, lns. 61-62.

However, regarding the claimed liquid fuel cut-off incorporated into the carburetor to interrupt liquid fuel upon actuation of the switch from liquid fuel to gaseous fuel, there is no teaching in Tsuda and Poehlman that liquid fuel valve 14 interrupts liquid fuel *upon actuation of the switch from liquid fuel to gaseous fuel*, as called for in claim 1. Tsuda only discloses that a liquid fuel valve 14 operates for "opening or closing the [liquid fuel] inlet 13," *Tsuda*, Col. 2, lns. 61-62, with there being no teaching in Tsuda of the conditions under which liquid fuel valve 14 is operated (i.e., opened/closed) or specifically that it interrupts liquid fuel upon actuation of the switch from liquid fuel to gaseous fuel, as called for in claim 1. Poehlman only discloses that, when switching from liquid fuel to gaseous fuel, the operator moves the fuel selector switch 51 to the gaseous fuel position and that as a result, the liquid fuel control valve 43 is consequently deenergized and turns off the liquid fuel supply to the carburetor 15." *Poehlman,* Col. 6, lns. 21-38. However, liquid fuel control valve 43 is not a liquid fuel cut-off that is incorporated into the carburetor 15, as called for in claim 1, but instead is located *upstream* from carburetor 15 on supply line 19.

Were the teachings of Tsuda incorporated into Poehlman, the resulting arrangement may include a liquid fuel control valve 43 located upstream from carburetor 15 on liquid fuel supply line 19 and a liquid fuel cut-off or valve (i.e., liquid fuel valve 14 of Tsuda) in the carburetor, but there would still be no teaching provided of how the liquid fuel valve 14 is controlled. As best, the resulting combination would teach that liquid fuel control valve 43 is deenergized upon the operator moving the fuel selector switch 51 to the gaseous fuel position (i.e., switching from liquid fuel to gaseous fuel), but there would be simply no teaching regarding the controlling of liquid fuel valve 14 that would be incorporated into the carburetor 15. There is simply no teaching in Poehlman or Tsuda that the liquid fuel valve 14 would be controlled *to interrupt*

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liquid fuel upon actuation of the switch from liquid fuel to gaseous fuel, as called for in claim 1, as no control scheme for the liquid fuel valve 14 (i.e., of a valve incorporated into the carburetor 15) is set forth in either of the references.

In light of at least the above, the Examiner has failed to supporting a *prima facie* conclusion of obviousness, as with regard to rejections under 35 U.S.C. 103, "the examiner must provide evidence which as a whole shows that the legal determination sought to be proved (i.e., the reference teachings establish a *prima facie* case of obviousness) is more probable than not." The combination of Poehlman and Tsuda does not teach or suggest the claimed invention. Accordingly, the Examiner has not established a *prima facie* case of obviousness under 35 U.S.C. §103 with respect to claim 1.

Applicant therefore believes claim 1 to be patentably distinct from the combination of cited references and thus respectfully requests withdrawal of the rejection of claim 1 under 35 U.S.C. §103, along with the rejection of all claims depending therefrom.

Claim 35

The Examiner rejected claim 35 under 35 U.S.C. §103 as being unpatentable over Poehlman in view of Tsuda et al. In rejecting claim 35, the Examiner asserted that "Poehlman teaches a carburetor (15) having a fuel shutoff (via 51) comprising: a carburetor comprising: a float bowl (17), a throat (where throttle 107 resides), a fuel passage (19) extending from the float bowl to the throat; and a fuel shutoff coupled to the carburetor having a first end in the carburetor that actuates to close the fuel passage and a second end external to the carburetor to actuate the first end (Fig 1 shows valve 43 connected to two end of the fuel passage)." *Office Action*, supra at 4-5. Appellant respectfully disagrees with the rejection.

As indicated above, Poehlman discloses "a control apparatus 11 for selectively operating an internal combustion engine 13 on a first or gaseous fuel and on a second or liquid fuel. The engine includes a carburetor 15 incorporating a float bowl 17 which is connected through a supply line 19 with a source 21 of liquid fuel, such as, for instance, gasoline." *Poehlman*, col. 3, lns. 25-31. The engine 13 "includes control means 41 for selective change-over between use of liquid fuel and gaseous fuel. In this regard, the control means 41 includes a liquid fuel control valve 43." *Id.* at col. 3, lns. 63-65. The "control means 41 includes a vacuum control switch 47 which is subject to variation in the amount of vacuum, which is normally closed, and which opens in response to the presence at the vacuum switch 47 of an amount of vacuum above a predetermined amount." *Id.* at col. 4, lns. 10-15. The "control means 41 includes a primary or

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fuel selector switch 51." *Id.* at col. 4, lns. 16-17. Regarding fuel changeover, Poehlman further discloses that "[i]In operation, when switching from liquid fuel to gaseous fuel, the operator moves the fuel selector switch 51 to the gaseous fuel position" and that "[a]s a result, the liquid fuel control valve 43 is consequently deenergized and turns off the liquid fuel supply to the carburetor 15… [h]owever, the engine continues to run on the liquid fuel in the carburetor bowl 17." *Id.* at col. 6, lns. 21-38.

However, there is no teaching in Poehlman of a fuel shutoff coupled to the carburetor having a first end *in the carburetor* that actuates to close a fuel passage extending from the float bowl to the throat and a second end external to the carburetor to actuate the first end, as called for in claim 35. First, while the Examiner has identified fuel line 19 as the claimed fuel passage that extends from the float bowl to the throat, fuel line 19 does *not* extend from the float bowl 17 to the throat 107. FIG. 1 of Poehlman clearly shows that fuel line 19 connects a source 21 of liquid fuel to carburetor 15 – but there is no teaching or suggestion therein of fuel line 19 extending from the float bowl 17 to the throat 107. Second, while the Examiner has asserted that valve 43 is coupled to the carburetor 15 and has a first end in the carburetor 15 to close fuel passage 19, FIG. 1 of Poehlman clearly illustrates that valve 43 is not ***in*** the carburetor 15, nor does it actuate to close a fuel passage that extends from the float bowl to the throat in the carburetor. *See Poehlman,* at FIG. 1. Instead, valve 43 is located *upstream* from carburetor 15 (not in the carburetor) and only acts to cut-off liquid fuel flow to an input of the carburetor (not close a fuel passage extending from the float bowl 17 to the throat 107). While Applicant does not argue that valve 43 closes a fuel line 19 between the fuel source 21 and an input to the carburetor 15, this is not what is called for in claim 15 – as claim 15 explicitly calls for a fuel shutoff coupled to the carburetor having a first end *in the carburetor* that that actuates to close *a fuel passage extending from the float bowl to the throat*.

Similarly, Tsuda fails to teach or suggest a fuel shutoff coupled to the carburetor having a first end in the carburetor that actuates to close a fuel passage (extending from the float bowl to the throat) and a second end external to the carburetor to actuate the first end.

In light of at least the above, claim 35 is patentably distinct from that which is disclosed in Poehlman and Tsuda. Applicant therefore respectfully requests withdrawal of the rejection of claim 35, along with the rejection of all claim dependent therefrom.

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Claim 64

In rejecting claim 64, the Examiner asserted that "Poehlman teaches the liquid fuel cut-off is physically attached to an outer surface of the carburetor (Fig 1 shows the cut off 21 attached via tube 19 to the carburetor)." *Office Action*, supra at 5. Applicant respectfully disagrees with the rejection.

First, the "cut off 21" identified by the Examiner is a fuel source 21, and one skilled in the art would recognize that a fuel source is not a liquid fuel cut-off. For this reason alone, the rejection is deficient and cannot be sustained.

Second, there is no liquid fuel cut off in Poehlman that is *physically attached to an outer surface of the carburetor*. The liquid fuel control valve 43 in Poehlman identified as the claimed "liquid fuel cut off" is not physically attached to an outer surface of the carburetor 15, but instead is located *upstream* from carburetor 15 on fuel line 19. A fluid coupling of the liquid fuel control valve 43 to the carburetor 15 by the fuel line 19 would ***not*** be understood by one skilled in the art to be a *physical attachment* of the valve 43 to *an outer surface of the carburetor 15.*

In light of at least the above, claim 64 is patentably distinct from that which is disclosed in Poehlman and Tsuda. Applicant therefore respectfully requests withdrawal of the rejection of claim 64.

Claim 65

In rejecting claim 65, the Examiner asserted that "Poehlman teaches the fuel shutoff extends through an opening into the float bowl such that the first end actuates in the float bowl to close the fuel passage (via tube 19)." *Office Action*, supra at 5. Applicant respectfully disagrees with the rejection, and again believes that this is a gross misinterpretation of both the claim language and that which is disclosed in the cited reference.

First, there are no distinct "first" and "second" ends on liquid fuel control valve 43 that are separately identified/distinguished in Poehlman, as there is simply no structure provided for the valve 43.

Second, there is no fuel shutoff in Poehlman that specifically extends through an opening into the float bowl such that the first end actuates in the float bowl to close the fuel passage. The liquid fuel control valve 43 in Poehlman does not have a first end that actuates in the float bowl 17, but instead is located *upstream* from carburetor 15 on fuel line 19. A fluid coupling of the liquid fuel control valve 43 to the carburetor 15 by the fuel line 19 would ***not*** be understood by one skilled in the art to somehow teach or suggest that the valve 43 extends through an opening

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into the float bowl 17 such that a first end thereof actuates in the float bowl to close the fuel passage.

In light of at least the above, claim 65 is patentably distinct from that which is disclosed in Poehlman and Tsuda. Applicant therefore respectfully requests withdrawal of the rejection of claim 65.

Rejection under 35 U.S.C. §103 over Poehlman and Tsuda in view of Sugimoto

Claim 7

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

Claim 7 calls for wherein the liquid fuel cut-off is a solenoid valve that operates within the carburetor to control liquid fuel flow to the engine and is powered by the electrical power generator.

In rejecting claim 7, the Examiner did not address the limitations of the claim individually, but only generally addressed claims 7-10, 56-57, and 60-61 collectively, asserting that "[m]odified Poehlman teaches all of the claimed limitations except for a power generator" and then relying on Sugimoto for teaching a pull-start engine. *See Office Action*, supra at 7. As the Examiner has not provided any indication of what portion of Poehlman, Tsuda, and/or Sugimoto is thought to teach each claimed element or address those elements, the present rejection of claim 7 is, on its face, deficient according to MPEP §706, and should be reversed. ("The goal of examination is to clearly articulate any rejection early in the prosecution process so that the Appellant has the opportunity to provide evidence of patentability and otherwise reply completely at the earliest opportunity." *MPEP §706*).

Regardless of the above, none of Poehlman, Tsuda, and/or Sugimoto teaches or suggests a solenoid valve that operates within the carburetor to control liquid fuel flow to the engine and is powered by the electrical power generator, as called for in claim 7. Poehlman provides no teaching of a solenoid valve that operates within the carburetor, as there is no disclosure of a valve in the carburetor 15. Tsuda also provides no teaching of a solenoid valve that operates within the carburetor 1, as instead Tsuda at best provides a general teaching of a liquid fuel valve 14 arranged at a lower portion of the float chamber 4 for opening or closing a liquid fuel inlet 13. *Tsuda*, Col. 2, lns. 61-62. Sugimoto also provides no teaching of a solenoid valve that operates within the carburetor 18b, as there is no disclosure of a valve in the carburetor 18b.

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In light of at least the above, Applicant believes claim 7 be patentably distinct from that which is disclosed in the cited references. As such, Applicant respectfully requests withdrawal of the rejection of claim 7.

Rejection under 35 U.S.C. §103 over Sugimoto et al. and further in view of Poehlman

Claims 19 and 48

The Examiner rejected independent claims 19 and 48 together under 35 U.S.C §103 as being unpatentable over Sugimoto et al. and further in view of Poehlman. In rejecting claims 19 and 48, the Examiner asserted that "Sugimoto et al. teaches a batteryless dual fuel generator (paragraph 0086) comprising a housing (4) containing a pull start engine (46, 30) coupled to drive an alternator (40a), the engine operable on a gaseous fuel and a liquid fuel," *Office Action*, supra at 7, but admitted that Sugimoto is silent as to the claimed carburetor and fuel shutoff, and thus cited to Poehlman as teaching those elements. In particular, the Examiner asserted that Poehlman discloses "a fuel shutoff (43) attached to the carburetor to close the fuel passage [extending from the float bowl to the throat of the carburetor] upon selection of engine operation to gaseous fuel." *Id*. at 7-8. Applicant respectfully disagrees with the rejection.

Claim 19 calls for, in part, a carburetor attached to an intake of an engine comprising a throat to mix fuel with air, a float bowl, and a fuel passage extending from the float bowl to the throat; and a fuel shutoff attached to the carburetor to close the fuel passage upon selection of engine operation to gaseous fuel.

Claim 48 calls for, in part, the method steps of attaching a carburetor to an intake of the engine, the carburetor comprising a throat to mix gaseous fuel with air and liquid fuel with air, a float bowl, and a fuel passage extending from the float bowl to the throat; and attaching a liquid fuel cut-off to the carburetor to close the fuel passage upon actuation of the switch from liquid fuel to gaseous fuel.

As described above, Poehlman discloses an "engine [that] includes a carburetor 15 incorporating a float bowl 17 which is connected through a supply line 19 with a source 21 of liquid fuel, such as, for instance, gasoline." *Poehlman*, col. 3, lns. 27-31. The engine 13 "includes control means 41 for selective change-over between use of liquid fuel and gaseous fuel. In this regard, the control means 41 includes a liquid fuel control valve 43 which is incorporated in the liquid fuel supply line 19." *Id*. at col. 3, lns. 62-66.

Sugimoto discloses in "FIGS. 1 to 4, the fuel supply system Fa is provided with one or a plurality of fuel bottles 61, namely, first fuel sources, internal fuel sources or first fuel

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containers." *Sugimoto*, ¶ [0071]. "The fuel bottles 61 contain the fuel gas having comparatively high boiling point, such as liquefied butane gas." *Id*. at ¶ [0072]. "The external fuel system Fb includes the external fuel bottle 71, namely, a second fuel source or an external fuel source, a pipe A5 and a pressure reducing device 72." *Id*. at ¶ [0073]. "The second fuel gas is, for example, liquefied propane gas." *Id*. "The fuel pressure regulator 62 reduces the pressure of the fuel gas supplied from the two fuel bottles 61 and the external fuel bottle 71 and regulates the pressure of the fuel gas so that the fuel gas may be supplied to the carburetor 18b at fuel supply rate varying in proportion to load on the engine 30." *Id*. at ¶ [0071]. "The fuel bottle 61 supplies the first fuel gas in liquid phase to the fuel pressure regulator 62. The external fuel bottle 71 supplies the second fuel gas in gas phase to the fuel gas pressure regulator 62." *Id*. at ¶ [0078]. "The fuel pressure regulator 62 functions as a vaporizer for vaporizing the first fuel gas supplied thereto in liquid phase." *Id*.

Applicant believes that claim 19 is patentably distinct from the combination of Poehlman and Sugimoto at least for the reason that the combination of references fails to teach or suggest a carburetor attached to an intake of an engine comprising a throat to mix fuel with air, a float bowl, and a fuel passage extending from the float bowl to the throat; and a fuel shutoff attached to the carburetor to *close the fuel passage* upon selection of engine operation to gaseous fuel. That is, neither Poehlman nor Sugimoto teach or suggest a fuel shutoff attached to the carburetor *to close a fuel passage that extends from the float bowl to the throat*.

Similarly, Applicant believes that claim 48 is patentably distinct from the combination of Poehlman and Sugimoto at least for the reason that the combination of references fails to teach or suggest a method of assembling a dual fuel engine comprising attaching a carburetor to an intake of the engine, the carburetor comprising a throat to mix gaseous fuel with air and liquid fuel with air, a float bowl, and a fuel passage extending from the float bowl to the throat; and attaching a liquid fuel cut-off to the carburetor *to close the fuel passage upon actuation of the switch from liquid fuel to gaseous fuel*. That is, neither Poehlman nor Sugimoto discloses attaching a liquid fuel cut-off to the carburetor to close a fuel passage that extends from the float bowl to the throat.

First, the Examiner's assertion that fuel line 19 in Poehlman teaches a fuel passage extending from the float bowl to the throat in a carburetor is not supported by the disclosure of Poehlman. Fuel line 19 does *not* extend from the float bowl 17 to the throat 107 in Poehlman, as instead FIG. 1 of Poehlman clearly shows that fuel line 19 connects a source 21 of liquid fuel to carburetor 15 – but there is no teaching or suggestion therein of fuel line 19 extending from the float bowl 17 to the throat 107.

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Second, the liquid fuel control valve 43 in Poehlman referenced by the examiner as the claimed "liquid fuel cut-off" is not attached to the carburetor 15 and does not close a fuel passage in the carburetor *that extends from the float bowl to the throat*, as called for in claims 19 and 48. That is, the fuel control valve 43 is clearly not positioned relative to carburetor 15 so as to enable the valve 43 to close a fuel passage in the carburetor that extends from the float bowl 17 to the throat 107, as the valve 43 is instead is located along the liquid fuel supply line 19 *upstream from the carburetor 15*. The liquid fuel control valve 43 is **not** *in a fuel passage that extends from the float bowl 17 to the throat 107 in the carburetor 15 and/or operable to close a fuel passage that extends from the float bowl 17 to the throat 107 in the carburetor*, as called for in claims 19 and 48.

In light of at least the above, Applicant believes claims 19 and 48 to be patentably distinct from that which is disclosed in the cited references. As such, Applicant respectfully requests withdrawal of the rejection of claims 19 and 48 under 35 U.S.C. §103, and all claims depending therefrom.

Conclusion

Therefore, in light of at least the foregoing, Applicant respectfully believes that the present application is in condition for allowance. As a result, Applicant respectfully requests timely issuance of a Notice of Allowance for claims 1-3 and 5-65.

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

Respectfully submitted,

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General Authorization and Extension of Time

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

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In the Claims

1. (Currently Amended) A dual fuel engine comprising:

an engine operable on a gaseous fuel and a liquid fuel;

a switch to change operation of the engine between gaseous fuel and liquid fuel;

a carburetor attached to an intake of the engine to mix air and fuel and connect to a gaseous fuel source and a liquid fuel source;

a liquid fuel valve positioned along a liquid fuel line coupling the liquid fuel source to the carburetor;

a gaseous fuel valve positioned along a gaseous fuel line coupling the gaseous fuel source to the carburetor; and

a liquid fuel cut-off incorporated into the carburetor to interrupt liquid fuel upon actuation of the switch from liquid fuel to gaseous fuel.

2. (Original) The dual fuel engine of claim 1, wherein the engine is a pull start, batteryless engine.

3. (Original) The dual fuel engine of claim 1, wherein the gaseous fuel is LPG and the liquid fuel is gasoline.

4. (Canceled)

5. (Original) The dual fuel engine of claim 1, wherein the engine is a pull-start engine having an electrical power generator to supply electrical power.

6. (Original) The dual fuel engine of claim 5, wherein the switch is an electro-mechanical switch connecting one fuel source to the carburetor and connected to the electrical power generator; and

wherein the liquid fuel cut-off is a solenoid connected to open and close a fuel path to the pull-start engine in response to reception of electrical power from the switch.

7. (Previously Presented) The dual fuel engine of claim 5, wherein the liquid fuel cut-off is a solenoid valve that operates within the carburetor to control liquid fuel flow to the engine and is powered by the electrical power generator.

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8. (Original) The dual fuel engine of claim 7, wherein the switch selectively powers the solenoid valve by controlling electrical connection between the solenoid valve and the electrical power generator.

9. (Original) The dual fuel engine of claim 7, wherein the solenoid valve is normally open to provide liquid fuel to the engine when the solenoid valve is unpowered.

10. (Original) The dual fuel engine of claim 9, wherein a pull-starter drives the electrical power generator to power and close the solenoid valve while starting the engine on gaseous fuel.

11. (Original) The dual fuel engine of claim 7, wherein the electrical power generator comprises a magneto or an alternator coupled to a voltage regulator to provide a regulated voltage to the solenoid valve.

12. (Original) The dual fuel engine of claim 1, wherein the liquid fuel cut-off is manually actuated to interrupt liquid fuel.

13. (Original) The dual fuel engine of claim 1, wherein the liquid fuel cut-off actuates to interrupt liquid fuel free from linear motion.

14. (Original) The dual fuel engine of claim 1, wherein the liquid fuel cut-off comprises:

a rotating shaft extending through an aperture in the carburetor;

a fuel seal around the shaft to seal the aperture; and

a blocking member coupled to the shaft in the carburetor that rotates between a blocking and a non-blocking position to selectively block a liquid fuel path to the engine.

15. (Original) The dual fuel engine of claim 14 further comprising:

a lever coupled to the shaft outside the carburetor;

a spring coupled to the lever to hold the blocking member in either the blocking or non-blocking position; and

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a cable coupled to the lever to pull against the spring and rotate the blocking member to the other of the blocking or non-blocking positions.

16. (Original) The dual fuel engine of claim 1, wherein the liquid fuel cut-off is magnetically actuated to selectively interrupt liquid fuel.

17. (Original) The dual fuel engine of claim 1 further comprising:

a spring pushing the liquid fuel cut-off to interrupt liquid fuel; and

an actuating magnet coupled to the carburetor to selectively pull the liquid fuel cut-off against the spring away from a position interrupting liquid fuel.

18. (Original) The dual fuel engine of claim 17 further comprising a housing at least partially enclosing the liquid fuel cutoff, the housing including:

a first section enclosing a plunger of the liquid fuel cut-off to the carburetor and holding the spring against the plunger; and

a second section coupled to the first section and enclosing the actuating magnet.

19. (Previously Presented) A batteryless dual fuel generator comprising:

a housing containing a pull start engine coupled to drive an alternator, the engine operable on a gaseous fuel and a liquid fuel;

a carburetor attached to an intake of the engine comprising:

a throat to mix fuel with air,

a float bowl, and

a fuel passage extending from the float bowl to the throat to provide liquid fuel; and

a fuel shutoff attached to the carburetor to close the fuel passage upon selection of engine operation to gaseous fuel.

20. (Original) The batteryless dual fuel generator of claim 19, wherein the fuel shutoff actuates to close the fuel passage free from linear motion.

21. (Original) The batteryless dual fuel generator of claim 19, wherein the fuel shutoff comprises:

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a rotating shaft extending through an opening in the carburetor; and

a valve member coupled to the shaft in the carburetor that rotates to control fuel flow into the fuel passage.

22. (Original) The batteryless dual fuel generator of claim 21, wherein the valve member is positioned in the float bowl and the shaft extends substantially horizontal through the opening.

23. (Original) The batteryless dual fuel generator of claim 21, wherein the valve member has a flow passage that aligns with the fuel passage to control fuel flow into the fuel passage.

24. (Original) The batteryless dual fuel generator of claim 21 further comprising:

a compression spring on the shaft in the carburetor pushing the valve member to close the fuel passage; and

a plug in the opening surrounding the shaft to hold the compression spring against the valve member.

25. (Original) The batteryless dual fuel generator of claim 24 further comprising:

a lever coupled to the shaft outside the carburetor; and

a cable coupled to the lever to actuate the valve member to open and close the fuel passage.

26. (Original) The batteryless dual fuel generator of claim 24 further comprising one or more fuel seals within the plug to seal around the shaft.

27. (Original) The batteryless dual fuel generator of claim 19, wherein the fuel shutoff is magnetically actuated to selectively close the fuel passage, controlled by a manually actuated magnet coupled to the carburetor.

28. (Original) The batteryless dual fuel generator of claim 19 further comprising:

a spring pushing the fuel shutoff to close the fuel passage; and

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an actuating magnet coupled to the carburetor to selectively pull the fuel shutoff against the spring to open the fuel passage.

29. (Original) The batteryless dual fuel generator of claim 28 further comprising a housing at least partially enclosing the fuel shutoff, the housing including:

a first section enclosing a plunger of the fuel shutoff to the carburetor and holding the spring against the plunger; and

a second section coupled to the first section and enclosing the actuating magnet.

30. (Original) The batteryless dual fuel generator of claim 19, wherein the fuel shutoff is a carburetor cutoff solenoid; and

wherein the generator further comprises:

a charge winding to generate electrical power to operate the carburetor cutoff solenoid, and

a switch to selectively power the carburetor cutoff solenoid by controlling electrical connection between the carburetor cutoff solenoid and the charge winding.

31. (Original) The batteryless dual fuel generator of claim 30, wherein the carburetor cutoff solenoid is normally open to provide liquid fuel to the engine when the carburetor cutoff solenoid is unpowered.

32. (Original) The batteryless dual fuel generator of claim 31, wherein a pull-starter drives the engine operating the charge winding to power and close the carburetor cutoff solenoid while starting the engine on gaseous fuel.

33. (Original) The batteryless dual fuel generator of claim 30, wherein the switch is an electro-mechanical switch connected to the charge winding and connecting at least one fuel source to the carburetor to selectively control fuel flow from the at least one fuel source to the carburetor.

34. (Original) The batteryless dual fuel generator of claim 30, wherein the charge winding is coupled to a voltage regulator to provide a regulated voltage to the carburetor cutoff solenoid.

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35. (Previously Presented) A carburetor having a fuel shutoff comprising:

a carburetor comprising:

a float bowl,

a throat, and

a fuel passage extending from the float bowl to the throat; and

a fuel shutoff coupled to the carburetor having a first end in the carburetor that actuates to close the fuel passage and a second end external to the carburetor to actuate the first end; and

wherein the fuel shutoff actuates free from linear motion.

36. (Original) The carburetor having a fuel shutoff of claim 35, wherein the fuel shutoff is a manually actuated fuel shutoff.

37. (Original) The carburetor having a fuel shutoff of claim 35, wherein the fuel shutoff comprises a shaft extending into the carburetor through an aperture in the float bowl and coupled to a valve tip in the float bowl that rotates to open and close the fuel passage.

38. (Original) The carburetor having a fuel shutoff of claim 37, wherein the valve tip rotates parallel to an inlet of the fuel passage between a first position permitting fuel flow into the inlet and a second position blocking fuel flow into the inlet.

39. (Original) The carburetor having a fuel shutoff of claim 37, wherein the fuel passage has an inlet with a substantially flat perimeter edge and the valve tip maintains planar contact with the perimeter edge while rotating to open and close the fuel passage.

40. (Original) The carburetor having a fuel shutoff of claim 39, wherein the shaft is substantially horizontal and the inlet of the fuel passage faces substantially horizontal.

41. (Original) The carburetor having a fuel shutoff of claim 39 further comprising:

a plug in the aperture around the shaft; and

a compression spring around the shaft in the float bowl pushing against the plug to hold the valve tip against the perimeter edge of the inlet.

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42. (Original) The carburetor having a fuel shutoff of claim 41 further comprising a first fuel seal between the shaft and plug, the first fuel seal comprising a primary o-ring in an o-ring groove in the shaft.

43. (Original) The carburetor having a fuel shutoff of claim 42 further comprising:

a second fuel seal between the shaft and plug, the second fuel seal comprising a secondary o-ring in a counterbore in the plug; and

a support member mounted over the counterbore around the shaft to hold the secondary o-ring in the counterbore.

44. (Original) The carburetor having a fuel shutoff of claim 37 further comprising:

a lever coupled to the shaft outside of the carburetor;

a spring coupled to the lever to hold the fuel shutoff opening the fuel passage; and

a cable coupled to the lever to move the lever against the spring and rotate the fuel shutoff to close the fuel passage.

45. (Original) The carburetor having a fuel shutoff of claim 37, wherein the valve tip comprises thermoplastic.

46. (Original) The carburetor having a fuel shutoff of claim 37, wherein the valve tip comprises one of an oval and stadium shape.

47. (Original) The carburetor having a fuel shutoff of claim 37, wherein the valve tip has a cutout that aligns with the fuel passage to open the fuel passage.

48. (Previously Presented) A method of assembling a dual fuel engine comprising:

providing an engine operable on a gaseous fuel and a liquid fuel;

attaching a carburetor to an intake of the engine, the carburetor comprising:

a throat to mix gaseous fuel with air and liquid fuel with air,

a float bowl, and

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a fuel passage extending from the float bowl to the throat to provide liquid fuel;

coupling a switch to the engine to change operation of the engine between gaseous fuel and liquid fuel; and

attaching a liquid fuel cut-off to the carburetor to close the fuel passage upon actuation of the switch from liquid fuel to gaseous fuel.

49. (Original) The method of claim 48 further comprising coupling a manually operated control operatively to the liquid fuel cut-off.

50. (Original) The method of claim 48, wherein attaching the liquid fuel cut-off to the carburetor comprises:

providing a shaft having a valve tip located at an end of the shaft;

installing a compression spring on the shaft;

installing a plug on the shaft so that the compression spring is positioned between the plug and the valve tip; and

anchoring the plug in an aperture in the carburetor so that the compression spring holds the valve tip to an inlet of the fuel passage.

51. (Original) The method of claim 50, wherein providing the shaft having a valve tip located at an end of the shaft comprises pressing the valve tip onto the shaft.

52. (Original) The method of claim 50 further comprising positioning at least one fuel seal on the shaft to seal between the shaft and plug.

53. (Original) The method of claim 50, wherein the shaft rotates the valve tip between a first position allowing fuel flow into the fuel passage and a second position blocking fuel flow into the fuel passage.

54. (Original) The method of claim 53, wherein the valve tip comprises an oval or stadium shape with a cutout in the oval or stadium shape that aligns with the fuel passage when the valve tip is rotated to the first position such that fuel can pass through the cutout into the fuel passage.

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55. (Original) The method of claim 53 further comprising:

coupling a lever to the shaft;

attaching a control spring to the lever to actuate the shaft to one of the first position and second position; and

attaching a cable to the lever to actuate the shaft to the other of the first position and second position.

56. (Original) The dual fuel engine of claim 7, wherein the solenoid valve is open to provide liquid fuel to the engine when the solenoid valve is powered.

57. (Original) The dual fuel engine of claim 56, wherein a pull-starter drives the electrical power generator to power and open the solenoid valve while starting the engine on liquid fuel.

58. (Original) The batteryless dual fuel generator of claim 30, wherein the carburetor cutoff solenoid is open to provide liquid fuel to the engine when the carburetor cutoff solenoid is powered.

59. (Original) The batteryless dual fuel generator of claim 58, wherein a pull-starter drives the engine operating the charge winding to power and open the carburetor cutoff solenoid while starting the engine on liquid fuel.

60. (Original) The dual fuel engine of claim 7 further comprising a microcontroller to close the solenoid valve when the engine operates on gaseous fuel and open the solenoid valve to operate the engine on liquid fuel.

61. (Original) The dual fuel engine of claim 60, wherein the microcontroller closes the solenoid valve during engine shutdown from operation on liquid fuel.

62. (Original) The batteryless dual fuel generator of claim 30, wherein the switch is a microcontroller configured to close the carburetor cutoff solenoid when the engine operates on gaseous fuel and to open the carburetor cutoff solenoid to operate the engine on liquid fuel.

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63. (Original) The batteryless dual fuel generator of claim 62, wherein the microcontroller closes the carburetor cutoff solenoid during engine shutdown from operation on liquid fuel.

64. (Previously Presented) The dual fuel engine of claim 1, wherein the liquid fuel cut-off is physically attached to an outer surface of the carburetor.

65. (Previously Presented) The carburetor having a fuel shutoff of claim 35, wherein the fuel shutoff extends through an opening into the float bowl such that the first end actuates in the float bowl to close the fuel passage.

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14/925,441	10/28/2015	Kendall J. Collie	CET1090.042	1059

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EXAMINER
TRAN, LONG T

ART UNIT	PAPER NUMBER
3747	

NOTIFICATION DATE	DELIVERY MODE
02/26/2019	ELECTRONIC

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

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

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

info@zpspatents.com
sml@zpspatents.com

Office Action Summary	Application No. 14/925,441	Applicant(s) Collie et al.	
	Examiner LONG T TRAN	Art Unit 3747	AIA Status Yes

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

Period for Reply

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

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

Status

1)☑ Responsive to communication(s) filed on 11 January 2019.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☐ This action is **FINAL.** 2b) ☑ This action is non-final.

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

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5) ☑ Claim(s) 1-65 is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6) ☐ Claim(s) _____ is/are allowed.

7) ☑ Claim(s) 1-65 is/are rejected.

8) ☐ Claim(s) _____ is/are objected to.

9) ☐ Claim(s) _____ are subject to restriction and/or election requirement

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

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

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

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

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

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

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

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

Attachment(s)

1) ☑ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.

4) ☐ Other: _____.

DETAILED ACTION

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

2. Claims 1 - 65 remain pending in the application and have been fully considered.

Claim Rejections - 35 USC § 103

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

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

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

5. This application currently names joint inventors. In considering patentability of the claims the examiner presumes that the subject matter of the various claims was commonly owned as of the effective filing date of the claimed invention(s) absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and effective filing dates of each claim that was not commonly owned as of the effective filing date of the later invention in order for the examiner to

consider the applicability of 35 U.S.C. 102(b)(2)(C) for any potential 35 U.S.C. 102(a)(2) prior art against the later invention.

6. Claims 1, 3 – 4, 12 – 13, 35 – 36, 64 – 65 are rejected under 35 U.S.C. 103 as being unpatentable over Poehlman (US 4,489,699) and in view of Tsuda et al. (US 5,809,979).

Regarding Claim 1:

Poelhman teaches a dual fuel engine comprising: an engine (13) operable on a gaseous fuel and a liquid fuel (Col 3 lines 25 – 36 describes gasoline and natural gas); a switch (51) to change operation of the engine between gaseous fuel and liquid fuel; a carburetor (15) attached to an intake (105) of the engine to mix air and fuel and connect to a gaseous fuel source (27) and a liquid fuel source (21); and a liquid fuel cut-off (41).

Poelhman is silent to the liquid fuel cut-off is incorporated into the carburetor to interrupt liquid fuel upon actuation of the switch from liquid fuel to gaseous fuel.

However, Tsuda et al. teaches to the liquid fuel cut-off (14) is incorporated into the carburetor (1, valve 14 inserted into body 2 shown in Fig 1) to interrupt liquid fuel upon actuation of the switch from liquid fuel to gaseous fuel.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the valve into the carburetor as taught by Tsuda et al., since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japikse,* 86 USPQ 70. The

modification of Poelman would also further reduce the size of the engine for optimized maintenance and fuel efficiency.

Regarding Claim 3:

Poelhman teaches the gaseous fuel is LPG and the liquid fuel is gasoline (Col 3 lines 25 – 36).

Regarding Claim 4:

Poelhman teaches a liquid fuel valve (43) along a liquid fuel line (19) coupling the liquid fuel source to the carburetor; and a gaseous fuel valve (45) along a gaseous fuel line (25) coupling the gaseous fuel source to the carburetor.

Regarding Claim 12:

Poelhman teaches the liquid fuel cut-off is manually actuated to interrupt liquid fuel (via switch 51).

Regarding Claim 13:

Poelhman teaches the liquid fuel cut-off actuates to interrupt liquid fuel free from linear motion (via switch 51).

Regarding Claims 35 - 36:

Peolhman teaches a carburetor (15) having a fuel shutoff (via 51) comprising: a carburetor comprising: a float bowl (17), a throat (where throttle 107 resides), a fuel passage (19) to provide fuel from the float bowl to the throat; and a fuel shutoff (43) coupled to the carburetor having a first end in the carburetor that actuates to close the fuel passage and a second end external to the carburetor to actuate the first end (Fig 1 shows valve 43 connected to two

ends of the fuel passage); and wherein the fuel shutoff actuates free from linear motion (it rotates).

Regarding Claim 64:

Poelhman teaches the liquid fuel cut-off is physically attached to an outer surface of the carburetor (Fig 1 shows the cut off 21 attached via tube 19 to the carburetor).

Regarding Claim 65:

Poehlman teaches the fuel shutoff extends through an opening into the float bowl such that the first end actuates in the float bowl to close the fuel passage (via tube 19).

7. Claims 2, 5 – 10, 48 - 49, 56 - 57, 60 – 61 are rejected under 35 U.S.C. 103 as being unpatentable over Poelhman (US 4,489,699) and Tsuda et al. (US 5,809,979), and further in view of Sugimoto et al. (US 2007/0137591).

Regarding Claim 2:

Modified Poelhman teaches all of the claimed limitation except for the engine is a pull start, batteryless engine.

However, Sugimoto et al. teach a similar dual fuel engine (paragraph 0086) comprising a pull start, batteryless engine (via 46) for the purpose of starting the engine.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the pull start function of Sugimoto et al. in order to start the engine for a portable generator system.

Regarding Claim 5:

Modified Poelhman teaches all of the claimed limitations except for the engine is a pull-start engine having an electrical power generator to supply electrical power.

However, Sugimoto et al. teaches the engine is a pull-start engine (via 46) having an electrical power generator (40) to supply electrical power for the purpose of starting the engine.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the pull start function of Sugimoto et al. in order to start the engine for a portable generator system.

Regarding Claim 6:

Modified Poelhman teaches the switch is an electro-mechanical switch (51 and via 59) connecting one fuel source to the carburetor; and wherein the liquid fuel cut-off is a solenoid (81, 83) connected to open and close a fuel path.

Poelhman is silent to a pull-start engine having an electrical power generator to supply electrical power.

However, Sugimoto et al. teaches the engine is a pull-start engine (via 46) having an electrical power generator (40) to supply electrical power for the purpose of starting the engine.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the pull start function of Sugimoto et al. in order to start the engine for a portable generator system.

Regarding Claims 7 – 10, 56 – 57, 60 – 61:

Modified Poelhman teaches all of the claimed limitations except for a power generator.

However, Sugimoto et al. teaches the engine is a pull-start engine (via 46) having an electrical power generator (40) to supply electrical power for the purpose of starting the engine.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the pull start function of Sugimoto et al. in order to start the engine for a portable generator system.

8. Claims 19 – 20, 30 - 34, 48 - 49, 62 – 63 are rejected under 35 U.S.C. 103 as being unpatentable over Sugimoto et al. (US 2007/0137591) and further in view of Poelhman (US 4,489,699).

Regarding Claim 19 - 20, 30 - 34, 48 - 49, 62 - 63:

Sugimoto et al. teaches a batteryless dual fuel generator (paragraph 0086) comprising a housing (4) containing a pull start engine (46, 30) coupled to drive an alternator (40a), the engine operable on a gaseous fuel and a liquid fuel (paragraphs 0085 - 0086 describes a first fuel in liquid phase to gas, and a second gas fuel).

Sugimoto et al. is silent to a carburetor attached to an intake of the engine comprising: a throat to mix fuel with air, a float bowl, and a fuel passage to provide liquid fuel from the float bowl to the throat; and a fuel shutoff attached to the carburetor to close the fuel passage upon selection of engine operation to gaseous fuel.

However, Poelhman teaches a carburetor (15) attached to an intake (105) of the engine comprising: a throat (where throttle 107 resides) to mix fuel with air, a float bowl (17), a fuel passage (19) to provide liquid fuel from the float bowl to the throat; and a fuel shutoff (43) attached to the carburetor to close the fuel passage upon selection of engine operation to gaseous fuel.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the carburetor of Poelhman in the generator of Poelhman in order to effectively, efficiently, and manually switch between the two fuel based on the user's preference.

9. Claim 11 is rejected under 35 U.S.C. 103 as being unpatentable over Poelhman (US 4,489,699), Tsuda et al. (US 5,809,979), Sugimoto et al. (US 2007/0137591), and further in view of Satter (US 3,412,258).

Regarding Claim 11:

Modified Poelhman teaches all of the claimed limitations except for the electrical power generator comprises a magneto or an alternator coupled to a voltage regulator to provide a regulated voltage to the solenoid valve.

However, Satter teaches a similar generator comprising a magneto or an alternator (12) coupled to a voltage regulator (via phase A line) to provide a regulated voltage to the solenoid valve (44) for the purpose of supplying power to the valve.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the alternator of Satter in the engine of modified Poelhman in order to control the voltage while actuating the valve.

10. Claims 14, 15, 44, 50 - 55, 58 - 59 are rejected under 35 U.S.C. 103 as being unpatentable over Poelhman (US 4,489,699), Tsuda et al. (US 5,809,979), and further in view of Swanson et al. (US 5,611,312).

Regarding Claim 14:

Poelhman is silent to the liquid fuel cut-off comprises: a rotating shaft extending through an aperture in the carburetor; a fuel seal around the shaft to seal the aperture; and a blocking member coupled to the shaft in the carburetor that rotates between a blocking and a non-blocking position to selectively block a liquid fuel path to the engine.

However, Swanson et al. teaches a liquid fuel cut-off (118) comprising a rotating shaft (58) extending through an aperture in the carburetor (50); a fuel seal (112, 114) around the shaft to seal the aperture; and a blocking member (56) coupled to the shaft in the carburetor that rotates between a blocking and a non-blocking position to selectively block a liquid fuel path to the engine for the purposes of preventing backflow.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the fuel cut-off of Swanson et al. in the engine of Poelhman in order to prevent fuel backflow and to control the flow of fuel through the carburetor.

Regarding Claim 15, 44, 50 - 595, 58 - 59:

Poelhman is silent to a lever coupled to the shaft outside the carburetor; a spring coupled to the lever to hold the blocking member in either the blocking or non-blocking position; and a cable coupled to the lever to pull against the spring and rotate the blocking member to the other of the blocking or non-blocking positions.

However, Swanson et al. teaches a lever (395) coupled to the shaft outside the carburetor; a spring (397) coupled to the lever to hold the blocking member in either the blocking or non-blocking position; and a cable (400) coupled to the lever to pull against the spring and rotate the blocking member to the other of the blocking or non-blocking positions for the purpose of creating a safety feature.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the fuel cut-off of Swanson et al. in the engine of Poelhman in order to prevent fuel backflow and to control the flow of fuel through the carburetor.

11. Claims 16 – 18 are rejected under 35 U.S.C. 103 as being unpatentable over Poelhman (US 4,489,699) and Tsuda et al. (US 5,809,979), and further in view of Andersson et al. (US 2010/0258099).

Regarding Claim 16:

Modified Poelhman is silent to the liquid fuel cut-off is magnetically actuated to selectively interrupt liquid fuel.

However, Andersson et al. teaches the liquid fuel cut-off is magnetically (via 77 and 72, paragraph 0111) actuated to selectively interrupt liquid fuel for the purpose of energizing the valve to open and close.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the magnet of Andersson et al. in the solenoid valve of Poelhman in order to minimize delay with the valve closure.

Regarding Claim 17:

Modified Poelhman is silent to a spring pushing the liquid fuel cut-off to interrupt liquid fuel; and an actuating magnet coupled to the carburetor to selectively pull the liquid fuel cut-off against the spring away from a position interrupting liquid fuel.

However, Andersson et al. teaches a spring (79) pushing the liquid fuel cut-off (18) to interrupt liquid fuel; and an actuating magnet (77 and 72) coupled to the carburetor (12) to selectively pull the liquid fuel cut-off against the spring away from a position interrupting liquid fuel for the purpose of energizing the valve to open and close.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the magnet of Andersson et al. in the solenoid valve of Poelhman in order to minimize delay with the valve closure.

Regarding Claim 18:

Modified Poelhman is silent to a housing (66) at least partially enclosing the liquid fuel cutoff, the housing including: a first section (64) enclosing a plunger (65) of the liquid fuel cut-off to the carburetor and holding the spring

against the plunger; and a second section (74) coupled to the first section and enclosing the actuating magnet for the purpose of energizing the valve to open and close.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the magnet of Andersson et al. in the solenoid valve of Poelhman in order to minimize delay with the valve closure.

12. Claims 21 - 26 , 37 - 43, 45 - 47 are rejected under 35 U.S.C. 103 as being unpatentable over Sugimoto et al. (US 2007/0137591), Poelhman (US 4,489,699) and Tsuda et al. (US 5,809,979), and further in view of Swanson et al. (US 5,611,312).

Regarding Claim 21 - 23, 37 - 43, 45 - 47:

Modified Sugimoto et al. is silent to a rotating shaft extending through an opening in the carburetor; and a valve member coupled to the shaft in the carburetor that rotates to control fuel flow into the fuel passage.

However, Swanson et al. teaches a rotating shaft (58) extending through an opening in the carburetor (50); and a valve member (395) coupled to the shaft in the carburetor that rotates to control fuel flow into the fuel passage.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the fuel cut-off of Swanson et al. in the engine of modified Sugimoto et al. in order to prevent fuel backflow and to control the flow of fuel through the carburetor.

Regarding Claim 24:

Modified Sugimoto et al. is silent to a compression spring on the shaft in the carburetor pushing the valve member to close the fuel passage; and a plug in the opening surrounding the shaft to hold the compression spring against the valve member.

However, Swanson et al. teaches a compression spring (82) on the shaft in the carburetor pushing the valve member to close the fuel passage; and a plug (368') in the opening surrounding the shaft to hold the compression spring against the valve member.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the fuel cut-off of Swanson et al. in the engine of modified Sugimoto et al. in order to prevent fuel backflow and to control the flow of fuel through the carburetor.

Regarding Claims 25 and 26:

Modified Sugimoto et al. is silent to a lever coupled to the shaft outside the carburetor; and a cable coupled to the lever to actuate the valve member to open and close the fuel passage.

However, Swanson et al. teaches a lever (395) coupled to the shaft outside the carburetor; and a cable (400) coupled to the lever to actuate the valve member to open and close the fuel passage.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the fuel cut-off of Swanson et al. in the engine of modified Sugimoto et al. in order to prevent fuel backflow and to control the flow of fuel through the carburetor.

13. Claims 27 - 29 are rejected under 35 U.S.C. 103 as being unpatentable over Sugimoto et al. (US 2007/0137591) Poelhman (US 4,489,699), and Tsuda et al. (US 5,809,979), and further in view of Andersson et al. (US 2010/0258099).

Regarding Claims 27 - 29:

Modified Sugimoto et al. is silent to the fuel shutoff is magnetically actuated to selectively close the fuel passage, controlled by a manually actuated magnet coupled to the carburetor.

However, Andersson et al. teaches a spring (79) pushing the liquid fuel cut-off (18) to interrupt liquid fuel; and an actuating magnet (77 and 72) coupled to the carburetor (12) to selectively pull the liquid fuel cut-off against the spring away from a position interrupting liquid fuel for the purpose of energizing the valve to open and close.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the magnet of Andersson et al. in the solenoid valve of modified Sugimoto et al. in order to minimize delay with the valve closure.

Response to Arguments

14. Applicant's arguments filed January 11, 2019 have been fully considered but they are not persuasive.

Per the Applicant's request on Page 12 of the Remarks, Claims 64 and 65 have been addressed and a new Non-Final Office Action is issued herewith.

On Page 13 of the Remarks, the Applicant argues that the combination of Poehlman and Tsuda do not the teach the liquid cut off incorporated into the carburetor. The Examiner disagrees and maintains the rejection because Poehlman teaches the main structure and function of a liquid valve controlling fuel attached to a carburetor, and Tsuda merely teaches the bodily incorporation of such a valve into a carburetor. The motivation as discussed in the above rejection would give one of ordinary skill in the art to make such a modification to Poelhman.

The ensuing arguments are centered around the same principle, and the Examiner maintains the rejection.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to LONG T TRAN whose telephone number is (571)270-1899. The examiner can normally be reached on Mon - Fri 9:00 - 5:00.

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

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

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

/LONG T TRAN/
Primary Examiner, Art Unit 3747

Notice of References Cited	Application/Control No. 14/925,441	Applicant(s)/Patent Under Reexamination Collie et al.	
	Examiner LONG T TRAN	Art Unit 3747	Page 1 of 1

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*	B	US-20110253102-A1	10-2011	Watanabe; Tsuyoshi	F02D41/064	123/438
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	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
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	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14/925,441	Collie et al.
	Examiner	Art Unit
	LONG T TRAN	3747

CPC - Searched*		
Symbol	Date	Examiner
F02D19/0647; F02D19/0613; F02D29/06; F02D41/0025; F02D11/02; F02D19/0642; F02D35/0053; F02B63/04; F02B43/00; F02B63/044; F02M13/08; F02M19/08; F02M21/047; F02N3/02	8/2/2017	LT

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner
Inventor search	8/2/2017	LT
PLUS search	8/2/2017	LT
Forward and backward citation	8/2/2017	LT
Text search	8/2/2017	LT
Updated text search	1/22/2018	LT
Updated text search	6/11/2018	LT
Updated text search	10/4/2018	LT

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
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✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

CLAIMS

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	04/18/2017	08/02/2017	01/22/2018	06/11/2018	10/04/2018	02/19/2019			
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	2	÷	✓	✓	✓	✓	✓			
	3	÷	✓	✓	✓	✓	✓			
	4	÷	✓	✓	✓	✓	✓			
	5	÷	✓	✓	✓	✓	✓			
	6	÷	✓	✓	✓	✓	✓			
	7	÷	✓	✓	✓	✓	✓			
	8	÷	✓	✓	✓	✓	✓			
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	39	÷	N	✓	✓	✓	✓			
	40	÷	N	✓	✓	✓	✓			
	41	÷	N	✓	✓	✓	✓			
	42	÷	N	✓	✓	✓	✓			

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14/925,441	Collie et al.
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CLAIM		DATE								
Final	Original	04/18/2017	08/02/2017	01/22/2018	06/11/2018	10/04/2018	02/19/2019			
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	62	÷	N	✓	✓	✓	✓			
	63	÷	N	✓	✓	✓	✓			
	64						✓			
	65						✓			

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Customer No. 26629
Confirmation No. 1059

Patent
Attorney Docket No. CET1090.042

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of	:	Collie et al.
Serial No.	:	14/925,441
Filed	:	October 28, 2015
For	:	BATTERYLESS DUAL FUEL ENGINE WITH LIQUID FUEL CUT-OFF
Group Art No.	:	3747
Examiner	:	Long T. Tran

CERTIFICATION UNDER 37 CFR 1.8(a) and 1.10

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Date: January 11, 2019

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Alexandria, VA 22313-1450

RESPONSE TO OFFICE ACTION MAILED OCTOBER 11, 2018

Dear Sir:

Responsive to the Office Action mailed October 11, 2018, please consider the following Remarks:

In the Claims

1. (Previously Presented) A dual fuel engine comprising:

an engine operable on a gaseous fuel and a liquid fuel;

a switch to change operation of the engine between gaseous fuel and liquid fuel;

a carburetor attached to an intake of the engine to mix air and fuel and connect to a gaseous fuel source and a liquid fuel source; and

a liquid fuel cut-off incorporated into the carburetor to interrupt liquid fuel upon actuation of the switch from liquid fuel to gaseous fuel.

2. (Original) The dual fuel engine of claim 1, wherein the engine is a pull start, batteryless engine.

3. (Original) The dual fuel engine of claim 1, wherein the gaseous fuel is LPG and the liquid fuel is gasoline.

4. (Original) The dual fuel engine of claim 1 further comprising:

a liquid fuel valve along a liquid fuel line coupling the liquid fuel source to the carburetor; and

a gaseous fuel valve along a gaseous fuel line coupling the gaseous fuel source to the carburetor.

5. (Original) The dual fuel engine of claim 1, wherein the engine is a pull-start engine having an electrical power generator to supply electrical power.

6. (Original) The dual fuel engine of claim 5, wherein the switch is an electro-mechanical switch connecting one fuel source to the carburetor and connected to the electrical power generator; and

wherein the liquid fuel cut-off is a solenoid connected to open and close a fuel path to the pull-start engine in response to reception of electrical power from the switch.

7. (Previously Presented) The dual fuel engine of claim 5, wherein the liquid fuel cut-off is a solenoid valve that operates within the carburetor to control liquid fuel flow to the engine and is powered by the electrical power generator.

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8. (Original) The dual fuel engine of claim 7, wherein the switch selectively powers the solenoid valve by controlling electrical connection between the solenoid valve and the electrical power generator.

9. (Original) The dual fuel engine of claim 7, wherein the solenoid valve is normally open to provide liquid fuel to the engine when the solenoid valve is unpowered.

10. (Original) The dual fuel engine of claim 9, wherein a pull-starter drives the electrical power generator to power and close the solenoid valve while starting the engine on gaseous fuel.

11. (Original) The dual fuel engine of claim 7, wherein the electrical power generator comprises a magneto or an alternator coupled to a voltage regulator to provide a regulated voltage to the solenoid valve.

12. (Original) The dual fuel engine of claim 1, wherein the liquid fuel cut-off is manually actuated to interrupt liquid fuel.

13. (Original) The dual fuel engine of claim 1, wherein the liquid fuel cut-off actuates to interrupt liquid fuel free from linear motion.

14. (Original) The dual fuel engine of claim 1, wherein the liquid fuel cut-off comprises:

a rotating shaft extending through an aperture in the carburetor;

a fuel seal around the shaft to seal the aperture; and

a blocking member coupled to the shaft in the carburetor that rotates between a blocking and a non-blocking position to selectively block a liquid fuel path to the engine.

15. (Original) The dual fuel engine of claim 14 further comprising:

a lever coupled to the shaft outside the carburetor;

a spring coupled to the lever to hold the blocking member in either the blocking or non-blocking position; and

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a cable coupled to the lever to pull against the spring and rotate the blocking member to the other of the blocking or non-blocking positions.

16. (Original) The dual fuel engine of claim 1, wherein the liquid fuel cut-off is magnetically actuated to selectively interrupt liquid fuel.

17. (Original) The dual fuel engine of claim 1 further comprising:

a spring pushing the liquid fuel cut-off to interrupt liquid fuel; and

an actuating magnet coupled to the carburetor to selectively pull the liquid fuel cut-off against the spring away from a position interrupting liquid fuel.

18. (Original) The dual fuel engine of claim 17 further comprising a housing at least partially enclosing the liquid fuel cutoff, the housing including:

a first section enclosing a plunger of the liquid fuel cut-off to the carburetor and holding the spring against the plunger; and

a second section coupled to the first section and enclosing the actuating magnet.

19. (Previously Presented) A batteryless dual fuel generator comprising:

a housing containing a pull start engine coupled to drive an alternator, the engine operable on a gaseous fuel and a liquid fuel;

a carburetor attached to an intake of the engine comprising:

a throat to mix fuel with air,

a float bowl, and

a fuel passage extending from the float bowl to the throat to provide liquid fuel; and

a fuel shutoff attached to the carburetor to close the fuel passage upon selection of engine operation to gaseous fuel.

20. (Original) The batteryless dual fuel generator of claim 19, wherein the fuel shutoff actuates to close the fuel passage free from linear motion.

21. (Original) The batteryless dual fuel generator of claim 19, wherein the fuel shutoff comprises:

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a rotating shaft extending through an opening in the carburetor; and

a valve member coupled to the shaft in the carburetor that rotates to control fuel flow into the fuel passage.

22. (Original) The batteryless dual fuel generator of claim 21, wherein the valve member is positioned in the float bowl and the shaft extends substantially horizontal through the opening.

23. (Original) The batteryless dual fuel generator of claim 21, wherein the valve member has a flow passage that aligns with the fuel passage to control fuel flow into the fuel passage.

24. (Original) The batteryless dual fuel generator of claim 21 further comprising:

a compression spring on the shaft in the carburetor pushing the valve member to close the fuel passage; and

a plug in the opening surrounding the shaft to hold the compression spring against the valve member.

25. (Original) The batteryless dual fuel generator of claim 24 further comprising:

a lever coupled to the shaft outside the carburetor; and

a cable coupled to the lever to actuate the valve member to open and close the fuel passage.

26. (Original) The batteryless dual fuel generator of claim 24 further comprising one or more fuel seals within the plug to seal around the shaft.

27. (Original) The batteryless dual fuel generator of claim 19, wherein the fuel shutoff is magnetically actuated to selectively close the fuel passage, controlled by a manually actuated magnet coupled to the carburetor.

28. (Original) The batteryless dual fuel generator of claim 19 further comprising:

a spring pushing the fuel shutoff to close the fuel passage; and

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an actuating magnet coupled to the carburetor to selectively pull the fuel shutoff against the spring to open the fuel passage.

29. (Original) The batteryless dual fuel generator of claim 28 further comprising a housing at least partially enclosing the fuel shutoff, the housing including:

a first section enclosing a plunger of the fuel shutoff to the carburetor and holding the spring against the plunger; and

a second section coupled to the first section and enclosing the actuating magnet.

30. (Original) The batteryless dual fuel generator of claim 19, wherein the fuel shutoff is a carburetor cutoff solenoid; and

wherein the generator further comprises:

a charge winding to generate electrical power to operate the carburetor cutoff solenoid, and

a switch to selectively power the carburetor cutoff solenoid by controlling electrical connection between the carburetor cutoff solenoid and the charge winding.

31. (Original) The batteryless dual fuel generator of claim 30, wherein the carburetor cutoff solenoid is normally open to provide liquid fuel to the engine when the carburetor cutoff solenoid is unpowered.

32. (Original) The batteryless dual fuel generator of claim 31, wherein a pull-starter drives the engine operating the charge winding to power and close the carburetor cutoff solenoid while starting the engine on gaseous fuel.

33. (Original) The batteryless dual fuel generator of claim 30, wherein the switch is an electro-mechanical switch connected to the charge winding and connecting at least one fuel source to the carburetor to selectively control fuel flow from the at least one fuel source to the carburetor.

34. (Original) The batteryless dual fuel generator of claim 30, wherein the charge winding is coupled to a voltage regulator to provide a regulated voltage to the carburetor cutoff solenoid.

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35. (Previously Presented) A carburetor having a fuel shutoff comprising:

a carburetor comprising:

a float bowl,

a throat, and

a fuel passage extending from the float bowl to the throat; and

a fuel shutoff coupled to the carburetor having a first end in the carburetor that actuates to close the fuel passage and a second end external to the carburetor to actuate the first end; and

wherein the fuel shutoff actuates free from linear motion.

36. (Original) The carburetor having a fuel shutoff of claim 35, wherein the fuel shutoff is a manually actuated fuel shutoff.

37. (Original) The carburetor having a fuel shutoff of claim 35, wherein the fuel shutoff comprises a shaft extending into the carburetor through an aperture in the float bowl and coupled to a valve tip in the float bowl that rotates to open and close the fuel passage.

38. (Original) The carburetor having a fuel shutoff of claim 37, wherein the valve tip rotates parallel to an inlet of the fuel passage between a first position permitting fuel flow into the inlet and a second position blocking fuel flow into the inlet.

39. (Original) The carburetor having a fuel shutoff of claim 37, wherein the fuel passage has an inlet with a substantially flat perimeter edge and the valve tip maintains planar contact with the perimeter edge while rotating to open and close the fuel passage.

40. (Original) The carburetor having a fuel shutoff of claim 39, wherein the shaft is substantially horizontal and the inlet of the fuel passage faces substantially horizontal.

41. (Original) The carburetor having a fuel shutoff of claim 39 further comprising:

a plug in the aperture around the shaft; and

a compression spring around the shaft in the float bowl pushing against the plug to hold the valve tip against the perimeter edge of the inlet.

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42. (Original) The carburetor having a fuel shutoff of claim 41 further comprising a first fuel seal between the shaft and plug, the first fuel seal comprising a primary o-ring in an o-ring groove in the shaft.

43. (Original) The carburetor having a fuel shutoff of claim 42 further comprising:

a second fuel seal between the shaft and plug, the second fuel seal comprising a secondary o-ring in a counterbore in the plug; and

a support member mounted over the counterbore around the shaft to hold the secondary o-ring in the counterbore.

44. (Original) The carburetor having a fuel shutoff of claim 37 further comprising:

a lever coupled to the shaft outside of the carburetor;

a spring coupled to the lever to hold the fuel shutoff opening the fuel passage; and

a cable coupled to the lever to move the lever against the spring and rotate the fuel shutoff to close the fuel passage.

45. (Original) The carburetor having a fuel shutoff of claim 37, wherein the valve tip comprises thermoplastic.

46. (Original) The carburetor having a fuel shutoff of claim 37, wherein the valve tip comprises one of an oval and stadium shape.

47. (Original) The carburetor having a fuel shutoff of claim 37, wherein the valve tip has a cutout that aligns with the fuel passage to open the fuel passage.

48. (Previously Presented) A method of assembling a dual fuel engine comprising:

providing an engine operable on a gaseous fuel and a liquid fuel;

attaching a carburetor to an intake of the engine, the carburetor comprising:

a throat to mix gaseous fuel with air and liquid fuel with air,

a float bowl, and

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a fuel passage extending from the float bowl to the throat to provide liquid fuel;

coupling a switch to the engine to change operation of the engine between gaseous fuel and liquid fuel; and

attaching a liquid fuel cut-off to the carburetor to close the fuel passage upon actuation of the switch from liquid fuel to gaseous fuel.

49. (Original) The method of claim 48 further comprising coupling a manually operated control operatively to the liquid fuel cut-off.

50. (Original) The method of claim 48, wherein attaching the liquid fuel cut-off to the carburetor comprises:

providing a shaft having a valve tip located at an end of the shaft;

installing a compression spring on the shaft;

installing a plug on the shaft so that the compression spring is positioned between the plug and the valve tip; and

anchoring the plug in an aperture in the carburetor so that the compression spring holds the valve tip to an inlet of the fuel passage.

51. (Original) The method of claim 50, wherein providing the shaft having a valve tip located at an end of the shaft comprises pressing the valve tip onto the shaft.

52. (Original) The method of claim 50 further comprising positioning at least one fuel seal on the shaft to seal between the shaft and plug.

53. (Original) The method of claim 50, wherein the shaft rotates the valve tip between a first position allowing fuel flow into the fuel passage and a second position blocking fuel flow into the fuel passage.

54. (Original) The method of claim 53, wherein the valve tip comprises an oval or stadium shape with a cutout in the oval or stadium shape that aligns with the fuel passage when the valve tip is rotated to the first position such that fuel can pass through the cutout into the fuel passage.

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55. (Original) The method of claim 53 further comprising:

coupling a lever to the shaft;

attaching a control spring to the lever to actuate the shaft to one of the first position and second position; and

attaching a cable to the lever to actuate the shaft to the other of the first position and second position.

56. (Original) The dual fuel engine of claim 7, wherein the solenoid valve is open to provide liquid fuel to the engine when the solenoid valve is powered.

57. (Original) The dual fuel engine of claim 56, wherein a pull-starter drives the electrical power generator to power and open the solenoid valve while starting the engine on liquid fuel.

58. (Original) The batteryless dual fuel generator of claim 30, wherein the carburetor cutoff solenoid is open to provide liquid fuel to the engine when the carburetor cutoff solenoid is powered.

59. (Original) The batteryless dual fuel generator of claim 58, wherein a pull-starter drives the engine operating the charge winding to power and open the carburetor cutoff solenoid while starting the engine on liquid fuel.

60. (Original) The dual fuel engine of claim 7 further comprising a microcontroller to close the solenoid valve when the engine operates on gaseous fuel and open the solenoid valve to operate the engine on liquid fuel.

61. (Original) The dual fuel engine of claim 60, wherein the microcontroller closes the solenoid valve during engine shutdown from operation on liquid fuel.

62. (Original) The batteryless dual fuel generator of claim 30, wherein the switch is a microcontroller configured to close the carburetor cutoff solenoid when the engine operates on gaseous fuel and to open the carburetor cutoff solenoid to operate the engine on liquid fuel.

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63. (Original) The batteryless dual fuel generator of claim 62, wherein the microcontroller closes the carburetor cutoff solenoid during engine shutdown from operation on liquid fuel.

64. (Previously Presented) The dual fuel engine of claim 1, wherein the liquid fuel cut-off is physically attached to an outer surface of the carburetor.

65. (Previously Presented) The carburetor having a fuel shutoff of claim 35, wherein the fuel shutoff extends through an opening into the float bowl such that the first end actuates in the float bowl to close the fuel passage.

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Electronic Acknowledgement Receipt

EFS ID:	34828561
Application Number:	14925441
International Application Number:	
Confirmation Number:	1059
Title of Invention:	BATTERYLESS DUAL FUEL ENGINE WITH LIQUID FUEL CUT-OFF
First Named Inventor/Applicant Name:	Kendall J. Collie
Customer Number:	26629
Filer:	Kevin Roger Rosin./Robyn Templin
Filer Authorized By:	Kevin Roger Rosin.
Attorney Docket Number:	CET1090.042
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Application Type:	Utility under 35 USC 111(a)

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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		Response.pdf	216584 9cff4e869cffb995cea979d8f8f7235288357423	yes	20

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Amendment/Req. Reconsideration-After Non-Final Reject	1	1
	Claims	2	11
	Applicant Arguments/Remarks Made in an Amendment	12	20
Warnings:			
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If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

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REMARKS

Claims 1-65 are pending in the present application. In the Office Action mailed October 11, 2018, the Examiner rejected claims 1, 3, 4, 12, 13, 35, and 36 under 35 U.S.C. §103 as being unpatentable over Poehlman (USP 4,489,699) and in view of Tsuda et al. (USP 5,809,979). The Examiner next rejected claims 2, 5-10, 48, 49, 56, 57, 60, and 61 under 35 U.S.C. §103 as being unpatentable over Poehlman and Tsuda et al., and further in view of Sugimoto et al. (US Pub. 2007/0137591). Claims 19, 20, 30-34, 48, 49, 62, and 63 were rejected under 35 U.S.C. §103 as being unpatentable over Sugimoto et al. and further in view of Poehlman. Claim 11 was rejected under 35 U.S.C. §103 as being unpatentable over Poehlman, Tsuda et al., and Sugimoto et al. and further in view of Satter (USP 3,412,258). Claims 14, 15, 44, 50-55, 58, and 59 were rejected under 35 U.S.C. §103 as being unpatentable over Poehlman and Tsuda et al., and further in view of Swanson et al. (USP 5,611,312). Claims 16-18 were rejected under 35 U.S.C. §103 as being unpatentable over Poehlman and Tsuda et al., and further in view of Andersson et al. (US Pub. 2010/0258099). Claims 21-26, 37-43, and 45-47 were rejected under 35 U.S.C. §103 as being unpatentable over Sugimoto et al., Poehlman, and Tsuda et al., and further in view of Swanson et al. Claims 27-29 were rejected under 35 U.S.C. §103 as being unpatentable over Sugimoto et al., Poehlman, and Tsuda et al., and further in view of Andersson et al.

Status of Claims 64 and 65 and Claims 48 and 49

In the Office Action mailed October 11, 2018, the Examiner has failed to indicate the status of claims 64 and 65 that are currently pending. Claims 64 and 65 were newly presented in the after-final response filed August 3, 2018. The Advisory Action mailed August 16, 2018, checked Box #7(b) indicating that the proposed amendments – including claims 64 and 65 – "will be entered." Accordingly, Applicant believes claims 64 and 65 to be currently pending and requests that the Examiner indicate the status of those claims in a next *Non-Final Office Action*, so that Applicant has proper opportunity to respond to any potential newly issued rejection.

Regarding claims 48 and 49, the Examiner indicates that the claims are rejected under 35 U.S.C. §103 as being unpatentable over Poehlman and Tsuda et al., and further in view of Sugimoto et al. *See Office Action*, October 11, 2018, p. 5. However, the Examiner has failed to set forth a substantive rejection of claims 48 and 49 over these references, leaving Applicant guessing as to the basis for the rejection. For this additional reason, Applicant requests that the Examiner clarify the status of those claims in a next *Non-Final Office Action*.

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Rejection under 35 U.S.C. §103 as being unpatentable over Poehlman and Tsuda et al.

Claim 1

The Examiner rejected claim 1 under 35 U.S.C. §103 as being unpatentable over Poehlman (USP 4,489,699) and in view of Tsuda et al. (USP 5,809,979). In rejecting claim 1, the Examiner asserted that Poehlman discloses a dual fuel engine that includes "an engine (13)," "a switch (51) to change operation of the engine between gaseous fuel and liquid fuel," "a carburetor (15)," and "a liquid fuel cut-off (41)." *Office Action*, supra at 3. The Examiner admitted that "Poehlman is silent to the liquid fuel cut-off is incorporated into the carburetor to interrupt liquid fuel upon actuation of the switch from liquid fuel to gaseous fuel," *id*., and thus relied on Tsuda as teaching this limitation – stating that "Tsuda et al. teaches to the liquid fuel cut-off (14) is incorporated into the carburetor to interrupt liquid fuel upon actuation of the switch from liquid fuel to gaseous fuel." *Id*. at 5 (emphasis in original). Applicant respectfully disagrees with the rejection.

Poehlman shows in FIG. 1 a "control apparatus 11 for selectively operating an internal combustion engine 13 on a first or gaseous fuel and on a second or liquid fuel. The engine includes a carburetor 15 incorporating a float bowl 17 which is connected through a supply line 19 with a source 21 of liquid fuel, such as, for instance, gasoline." *Poehlman*, col. 3, lns. 25-31. The engine 13 "includes control means 41 for selective change-over between use of liquid fuel and gaseous fuel. In this regard, the control means 41 includes a liquid fuel control valve 43." *Id*. at col. 3, lns. 63-65. The "control means 41 includes a vacuum control switch 47 which is subject to variation in the amount of vacuum, which is normally closed, and which opens in response to the presence at the vacuum switch 47 of an amount of vacuum above a predetermined amount." *Id*. at col. 4, lns. 10-15. The "control means 41 includes a primary or fuel selector switch 51." *Id*. at col. 4, lns. 16-17. Regarding fuel changeover, Poehlman further discloses that "[i]In operation, when switching from liquid fuel to gaseous fuel, the operator moves the fuel selector switch 51 to the gaseous fuel position" and that "[a]s a result, the liquid fuel control valve 43 is consequently deenergized and turns off the liquid fuel supply to the carburetor 15… [h]owever, the engine continues to run on the liquid fuel in the carburetor bowl 17." *Id*. at col. 6, lns. 21-38. "The inlet manifold vacuum remains above the predetermined level of the vacuum switch 47 at idle or normal road speeds until the engine begins to run out of the liquid fuel in the fuel bowl 17" and "[t]he vacuum then drops to an amount less than or below the predetermined level thereby closing the vacuum switch 47 which energizes the solenoid coils 81 and 83." *Id*. at col. 6, lns. 21-38. "The first solenoid coil 81 acts to displace the first switch member 65 to the terminal 63, thereby

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energizing the gaseous fuel control valve 45 to the open position, and thereby also energizing the spark advance means 31 and the inlet air heating means 33." *Id.* at col. 6, lns. 21-38.

Tsuda discloses a carburetor 1 having a mixing body 2 in which a venturi passage 3 is provided. *Tsuda*, Col. 2, lns. 40-41. A float chamber 4 is arranged in the mixing body 2 and a liquid fuel nozzle 5 is communicated with the float chamber 4. *Tsuda*, Col. 2, lns. 41-43. A liquid fuel nozzle outlet 6 is faced to the venturi passage 3. *Tsuda*, Col. 2, lns. 43-44. Arranged below the mixing body 2 is the float chamber 4 accommodating a float 36 therein. *Tsuda*, Col. 2, lns. 45-46. A needle valve 37 mounted on the float 36 is adjusted to open or close a port 40 for supplying a liquid fuel to the float chamber 4. *Tsuda*, Col. 2, lns. 46-48. The mixing body 2 is provided with an air vent 42, through which an intake passage (not shown) on an intake upstream side of the mixing body 2 communicates with the float chamber 4. *Tsuda*, Col. 2, lns. 48-52. Vertically provided from the mixing body 2 into the float chamber 4 is a nozzle accommodating boss 41, into which a liquid fuel nozzle 5 is fitted. *Tsuda*, Col. 2, lns. 53-55. An upper end of the liquid fuel nozzle 5 projects into the venturi passage 3 and there is arranged below the liquid fuel nozzle 5 a jet 56 for metering the liquid fuel. *Tsuda*, Col. 2, lns. 40-41.55-58 An inner bottom portion of the float chamber 4 is provided with a liquid fuel inlet 13, through which the float chamber 4 communicates with the liquid fuel nozzle 5. *Tsuda*, Col. 2, lns. 58-60. Laterally arranged at a lower portion of the float chamber 4 is a liquid fuel valve 14 for opening or closing the inlet 13. *Tsuda*, Col. 2, lns. 61-62.

However, regarding the claimed liquid fuel cut-off incorporated into the carburetor to interrupt liquid fuel upon actuation of the switch from liquid fuel to gaseous fuel, there is no teaching in Tsuda (alone or in combination with Poehlman) that liquid fuel valve 14 interrupts liquid fuel *upon actuation of the switch from liquid fuel to gaseous fuel*, as called for in claim 1. Instead, Tsuda only discloses that a liquid fuel valve 14 operates for "opening or closing the [liquid fuel] inlet 13." *Tsuda*, Col. 2, lns. 61-62. There is simply no teaching provided in Tsuda of the conditions under which liquid fuel valve 14 is operated (i.e., opened/closed) or specifically that it interrupts liquid fuel upon actuation of the switch from liquid fuel to gaseous fuel, as called for in claim 1.

In light of at least the above, claim 1 is patentably distinct from that which is disclosed in Poehlman and Tsuda. Applicant therefore respectfully requests withdrawal of the rejection of claim 1, along with the rejection of all claim dependent therefrom

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