Trials@uspto.gov
571-272-7822

Paper 19
Date: March 3, 2026

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE OFFICE OF THE UNDER SECRETARY OF COMMERCE FOR INTELLECTUAL PROPERTY AND DIRECTOR OF THE UNITED STATES PATENT AND TRADEMARK OFFICE

NOTICE OF DECISIONS ON INSTITUTION

Before JOHN A. SQUIRES, *Under Secretary of Commerce for Intellectual Property and Director of the United States Patent and Trademark Office*.

NOTICE

Pursuant to 35 U.S.C. § 314(a), after review of discretionary considerations, institution of *inter partes* review is denied in the following proceedings:

IPR2026-00083 IPR2026-00085 IPR2026-00093
IPR2026-00084

Pursuant to 35 U.S.C. § 314(a), after review of discretionary considerations, the following proceedings will be reviewed for merits and non-discretionary considerations:

IPR2026-00094[1]

[1] Opinion forthcoming.

Pursuant to 35 U.S.C. § 314(a) and § 324(a), after review of the merits, the petitioner has shown a reasonable likelihood of prevailing with respect to at least one of the claims challenged in the petition, or that it is more likely than not that at least one of the claims challenged in the petition is unpatentable, as applicable, and no other non-discretionary considerations warrant denial of institution. Accordingly, institution of *inter partes* review or post-grant review is granted in the following proceedings:

IPR2025-01271	IPR2025-01531[2]	PGR2025-00086
IPR2025-01311	PGR2025-00085	

[2] Petitioner's motion for joinder is granted.

Champion - EX2137, Page 2 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

Doc Code: PA..
Document Description: Power of Attorney

PTO/AIA/82A (07-13)
Approved for use through 09/30/2025. OMB 0651-0035
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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TRANSMITTAL FOR POWER OF ATTORNEY TO ONE OR MORE REGISTERED PRACTITIONERS

NOTE: This form is to be submitted with the Power of Attorney by Applicant form (PTO/AIA/82B) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5, unless the application number and filing date are identified in the Power of Attorney by Applicant form. If neither form PTO/AIA/82A nor form PTO/AIA82B identifies the application to which the Power of Attorney is directed, the Power of Attorney will not be recognized in the application.

Application Number	14/925,441
Filing Date	October 28, 2015
First Named Inventor	Kendall J. Collie et al.
Title	BATTERYLESS DUAL FUEL ENGINE WITH LIQUID FUEL CUT-OFF
Art Unit	3747
Examiner Name	Long T. Tran
Attorney Docket Number	571498-9048011

SIGNATURE of Applicant or Patent Practitioner

Signature	/thomas a. miller/	Date (Optional)	
Name	Thomas A. Miller	Registration Number	36871
Title (if Applicant is a juristic entity)			
Applicant Name (if Applicant is a juristic entity)			

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. If more than one applicant, use multiple forms.

☑ *Total of 1 forms are submitted.

A Federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with an information collection subject to the requirements of the Paperwork Reduction Act of 1995, unless the information collection has a currently valid OMB Control Number. The OMB Control Number for this information collection is 0651-0035. Public burden for this form is estimated to average 30 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the information collection. Send comments regarding this burden estimate or any other aspect of this information collection, including suggestions for reducing this burden to the Chief Administrative Officer, United States Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450 or email InformationCollection@uspto.gov. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS.** If filing this completed form by mail, send to: **Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Doc Code: PA..
Document Description: Power of Attorney

PTO/AIA/82B (07-13)
Approved for use through 09/30/2025. OMB 0651-0035
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POWER OF ATTORNEY BY APPLICANT

I hereby revoke all previous powers of attorney given in the application identified in either the attached transmittal letter or the boxes below.

Application Number	Filing Date

(Note: The boxes above may be left blank if information is provided on form PTO/AIA/82A.)

☑ I hereby appoint the Patent Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above: 225753

OR

☐ I hereby appoint Practitioner(s) named in the attached list (form PTO/AIA/82C) as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the patent application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above. (Note: Complete form PTO/AIA/82C.)

Please recognize or change the correspondence address for the application identified in the attached transmittal letter or the boxes above to:

☑ The address associated with the above-mentioned Customer Number

OR

☐ The address associated with Customer Number:

OR

☐ Firm or Individual Name					
Address					
City		State		Zip	
Country					
Telephone		Email			

I am the Applicant (if the Applicant is a juristic entity, list the Applicant name in the box):

CHAMPION POWER EQUIPMENT, INC.

☐ Inventor or Joint Inventor (title not required below)
☐ Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)
☑ Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a juristic entity)
☐ Person Who Otherwise Shows Sufficient Proprietary Interest (e.g., a petition under 37 CFR 1.46(b)(2) was granted in the application or is concurrently being filed with this document) (provide signer's title if applicant is a juristic entity)

SIGNATURE of Applicant for Patent

The undersigned (whose title is supplied below) is authorized to act on behalf of the applicant (e.g., where the applicant is a juristic entity).

Signature	DocuSigned by: Dennis Trine 0DEDC9D1FD7743A...	Date (Optional)	2/27/2026
Name	Dennis Trine		
Title	CEO		

NOTE: Signature - This form must be signed by the applicant in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. If more than one applicant, use multiple forms.

☐ Total of forms are submitted.

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PTO/AIA/96 (11-23)
Approved for use through 05/31/2024. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

STATEMENT UNDER 37 CFR 3.73(c)

First Named Inventor/Patent Owner: Kendall J. Collie et al.

Application No./Patent No.: 14/925,441 Filed/Issue Date: October 28, 2015

Titled: BATTERYLESS DUAL FUEL ENGINE WITH LIQUID FUEL CUT-OFF

CHAMPION POWER EQUIPMENT, INC., a corporation

(Name of Assignee) (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that, for the patent application/patent identified above, it is (choose **one** of options 1, 2, 3 or 4 below):

1. ☑ The assignee of the entire right, title, and interest.

2. ☐ An assignee of less than the entire right, title, and interest (check applicable box):

   ☐ The extent (by percentage) of its ownership interest is _____%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.

   ☐ There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

3. ☐ The assignee of an undivided interest in the entirety (a complete assignment from one of the joint inventors was made). The other parties, including inventors, who together own the entire right, title, and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

4. ☐ The recipient, via a court proceeding or the like (*e.g.*, bankruptcy, probate), of an undivided interest in the entirety (a complete transfer of ownership interest was made). The certified document(s) showing the transfer is attached.

The interest identified in option 1, 2 or 3 above (not option 4) is evidenced by either (choose **one** of options A or B below):

A. ☐ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached*.

B. ☑ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: Kendall J. Collie, Mark J. Sarder, Aleko D. Sotiriades, James J. Dehn, Leigh Jenison, Hiroaki Sato To: CHAMPION ENGINE TECHNOLOGY, LLC

   The document was recorded in the United States Patent and Trademark Office at
   Reel 36904, Frame 0947, or for which a copy thereof is attached*.

2. From: CHAMPION ENGINE TECHNOLOGY, LLC To: CHAMPION POWER EQUIPMENT, INC.

   The document was recorded in the United States Patent and Trademark Office at
   Reel 47681, Frame 0698, or for which a copy thereof is attached*.

A Federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with an information collection subject to the requirements of the Paperwork Reduction Act of 1995, unless the information collection has a currently valid OMB Control Number. The OMB Control Number for this information collection is 0651-0031. Public burden for this form is estimated to average 12 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the information collection. Send comments regarding this burden estimate or any other aspect of this information collection, including suggestions for reducing this burden to the Chief Administrative Officer, United States Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450 or email InformationCollection@uspto.gov. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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PTO/AIA/96 (11-23)
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STATEMENT UNDER 37 CFR 3.73(c)

3. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached*.

4. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached*.

5. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached*.

6. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached*.

☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☑ *As required by 37 CFR 3.73(c)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/thomas a. miller/	3/2/2026
Signature	Date
Thomas A. Miller	36871
Printed or Typed Name	Title or Registration Number

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. The United States Patent and Trademark Office (USPTO) collects the information in this record under authority of 35 U.S.C. 2. The USPTO's system of records is used to manage all applicant and owner information including name, citizenship, residence, post office address, and other information with respect to inventors and their legal representatives pertaining to the applicant's/owner's activities in connection with the invention for which a patent is sought or has been granted. The applicable Privacy Act System of Records Notice for the information collected in this form is COMMERCE/PAT-TM-7 Patent Application Files, available in the Federal Register at 78 FR 19243 (March 29, 2013). https://www.govinfo.gov/content/pkg/FR-2013-03-29/pdf/2013-07341.pdf

Routine uses of the information in this record may include disclosure to:

1) law enforcement, in the event that the system of records indicates a violation or potential violation of law;

2) a federal, state, local, or international agency, in response to its request;

3) a contractor of the USPTO having need for the information in order to perform a contract;

4) the Department of Justice for determination of whether the Freedom of Information Act (FOIA) requires disclosure of the record;

5) a Member of Congress submitting a request involving an individual to whom the record pertains, when the individual has requested the Member's assistance with respect to the subject matter of the record;

6) a court, magistrate, or administrative tribunal, in the course of presenting evidence, including disclosures to opposing counsel in the course of settlement negotiations;

7) the Administrator, General Services Administration (GSA), or their designee, during an inspection of records conducted by GSA under authority of 44 U.S.C. 2904 and 2906, in accordance with the GSA regulations and any other relevant (i.e., GSA or Commerce) directive, where such disclosure shall not be used to make determinations about individuals;

8) another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c));

9) the Office of Personnel Management (OPM) for personnel research purposes; and

10) the Office of Management and Budget (OMB) for legislative coordination and clearance.

If you do not furnish the information requested on this form, the USPTO may not be able to process and/or examine your submission, which may result in termination of proceedings, abandonment of the application, and/or expiration of the patent.

UNITED STATES
PATENT AND TRADEMARK OFFICE

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ELECTRONIC ACKNOWLEDGEMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
14/925,441	**03/02/2026 05:20:14 PM Z ET**	**CET1090.042**

Title of Invention

BATTERYLESS DUAL FUEL ENGINE WITH LIQUID FUEL CUT-OFF

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	10697398
CONFIRMATION #	1059	FILED BY	LISA PETERSON
PATENT CENTER #	74684083	FILING DATE	10/28/2015
CUSTOMER #	26629	FIRST NAMED INVENTOR	Kendall J. Collie
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	Thomas Miller

Documents

TOTAL DOCUMENTS: 2

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
571498-9048011 POA.pdf	2	Power of Attorney	367 KB
571498-9048011 Statement 3_73.pdf	3	Assignee showing of ownership per 37 CFR 3.73	233 KB

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)
571498-9048011 POA.pdf	304A0794AF980CCB1ACD1380FDD02659927C37A4BFEF192B 2FA67A5E54FAE65224B23094154FAE8CEC219C417E28B978D 207B51DC597A7DF646E0D07DA119594
571498-9048011 Statement 3_73.pdf	15A7C5D1A00A5FD8CFA3D0752E2D0835C9BEC4BF6FBF2FA EEE281955E01D95AB79700EA8D565C6528959D822B1ED38D2

23A9E1742D352066E95C5683215EFE5C

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application

National Stage of an International Application under 35 U.S.C. 371

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.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
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Alexandria, Virginia 22313-1450
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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/925,441	06/30/2020	10697398	CET1090.042	1059

26629 7590 06/10/2020

ZIOLKOWSKI PATENT SOLUTIONS GROUP, SC (ZPS)
136 S WISCONSIN ST
PORT WASHINGTON, WI 53074

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

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

The Patent Term Adjustment is 147 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

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

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

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

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

Kendall J. Collie, Anaheim Hills, CA;
Champion Engine Technology, LLC, Sussex, WI;
Mark J. Sarder, Waukesha, WI;
Aleko D. Sotiriades, Cedarburg, WI;
James J. Dehn, Brookfield, WI;
Leigh Jenison, Hartland, WI;
Hiroaki Sato, Brookfield, WI;

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Customer No. 26629 Patent
Confirmation No. 1059 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	:	10/28/2015
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

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

Mailing

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

37 CFR 1.8(a) **37 CFR 1.10**

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

Transmission

■ transmitted by facsimile to Fax No.: 571-273-8300 addressed to **Examiner Long T. Tran** at the Patent and Trademark Office.

□ transmitted by EFS-WEB addressed to **Examiner Long T. Tran** at the Patent and Trademark Office.

Date: May 20, 2020 /Robyn L. Templin/
Signature

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

COMMENTS ON STATEMENT OF REASONS FOR ALLOWANCE

Dear Sir:

Responsive to the Notice of Allowability mailed March 6, 2020, Applicant submits the following remarks responsive to the Examiner's Statement of Reasons for Allowance.

REMARKS

In response to the Examiner's Reasons for Allowance, Applicant believes that a separate Statement of Reasons for Allowance is unnecessary in the present case as the file history sufficiently sets forth the patentable distinctions of claims 1-3 and 5-65.

The patentability of claims 1-3 and 5-65 lies in each claim as a whole. That is, a single particular element or feature of a claim does not define the claim's patentability, but rather, it is the combination of elements and the interconnection therebetween that define the invention. The claims cannot be considered to be limited in scope based on this brief statement by the Examiner. Applicant stands by its position previously set forth in the file history.

Applicant does not acquiesce to the accuracy of the Examiner's statements in the Reasons for Allowance, the Examiner's partial paraphrasing of the claim elements, or the Examiner's characterization of the prior art.

Entry of these remarks is appreciated and Applicant cordially invites the Examiner to respond, should the Examiner disagree.

Respectfully submitted,

/Timothy J. Ziolkowski/

Timothy J. Ziolkowski
Registration No. 38,368
Direct Dial 262-268-8181
tjz@zpspatents.com

Dated: May 20, 2020
Attorney Docket No.: CET1090.042

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

Champion - EX2137, Page 12 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

UNITED STATES
PATENT AND TRADEMARK OFFICE

P.O. Box 1450
Alexandria, VA 22313 - 1450
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ELECTRONIC PAYMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
14/925,441	05/20/2020 03:00:13 PM ET	CET1090.042

Title of Invention

BATTERYLESS DUAL FUEL ENGINE WITH LIQUID FUEL CUT-OFF

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	-
CONFIRMATION #	1059	FILED BY	Robyn Templin
PATENT CENTER #	60024819	AUTHORIZED BY	Timothy Ziolkowski
CUSTOMER #	26629	FILING DATE	10/28/2015
CORRESPONDENCE ADDRESS	-	FIRST NAMED INVENTOR	Kendall Collie

Payment Information

PAYMENT METHOD	PAYMENT TRANSACTION ID	PAYMENT AUTHORIZED BY
CARD / 4529	E20205JF01243271	Robyn Templin

FEE CODE	DESCRIPTION	ITEM PRICE($)	QUANTITY	ITEM TOTAL($)
2501	UTILITY ISSUE FEE	500.00	1	500.00
			TOTAL AMOUNT:	$500.00

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New Applications Under 35 U.S.C. 111

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National Stage of an International Application under 35 U.S.C. 371

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.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PART B - FEE(S) TRANSMITTAL

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

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

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

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

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

26629 7590 03/06/2020

ZIOLKOWSKI PATENT SOLUTIONS GROUP, SC (ZPS)
136 S WISCONSIN ST
PORT WASHINGTON, WI 53074

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

Certificate of Mailing or Transmission

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

Robyn L. Templin	(Typed or printed name)
/Robyn L. Templin/	(Signature)
May 20, 2020	(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/925,441	10/28/2015	Kendall J. Collie	CET1090.042	1059

TITLE OF INVENTION: BATTERYLESS DUAL FUEL ENGINE WITH LIQUID FUEL CUT-OFF

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$500	$0.00	$0.00	$500	06/08/2020

EXAMINER	ART UNIT	CLASS-SUBCLASS
TRAN, LONG T	3747	123-575000

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

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

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

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 Ziolkowski Patent Solutions Group, SC
2
3

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

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

(A) NAME OF ASSIGNEE: Champion Power Equipment, Inc.

(B) RESIDENCE: (CITY and STATE OR COUNTRY): Santa Fe Springs, CA

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

4a. Fees submitted: ☒ Issue Fee ☐ Publication Fee (if required) ☐ Advance Order - # of Copies _____

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

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

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

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

☐ Applicant certifying micro entity status. See 37 CFR 1.29

☐ Applicant asserting small entity status. See 37 CFR 1.27

☐ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

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

Authorized Signature /Timothy J. Ziolkowski/ Date May 20, 2020

Typed or printed name Timothy J. Ziolkowski Registration No. 38,368

Champion - EX2137, Page 15 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

UNITED STATES
PATENT AND TRADEMARK OFFICE

P.O. Box 1450
Alexandria, VA 22313 - 1450
www.uspto.gov

ELECTRONIC ACKNOWLEDGEMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
14/925,441	05/20/2020 03:00:13 PM ET	CET1090.042

Title of Invention

BATTERYLESS DUAL FUEL ENGINE WITH LIQUID FUEL CUT-OFF

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	-
CONFIRMATION #	1059	FILED BY	Robyn Templin
PATENT CENTER #	60024819	FILING DATE	10/28/2015
CUSTOMER #	26629	FIRST NAMED INVENTOR	Kendall Collie
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	Timothy Ziolkowski

Documents

TOTAL DOCUMENTS: 2

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
2020.05.20 Issue Fee.pdf	1	Issue Fee Payment (PTO-85B)	585 KB
2020.05.20 Comments on Reasons.pdf	2	Miscellaneous Incoming Letter	502 KB

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)
2020.05.20 Issue Fee.pdf	BCE83B4CDCB87C42F93A507ADDB9D17DD58D0B2B4313440E E0EAC508FF708D1634DBCBCF99DAF2BB67403EA559605396F DCF9EEE78F6DA183E9F9CC433D43444

2020.05.20 Comments on Reasons.pdf	6E77F866C0BF3B3D908A0F53F4D4B0EF38BC389839D56BE685E6F1C0F16F4F12F9ED30831CE39DA9906568348833C820944CEEB4EC9C2C184D3AD2858C4091D

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application

National Stage of an International Application under 35 U.S.C. 371

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.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

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

NOTICE OF ALLOWANCE AND FEE(S) DUE

26629 7590 03/06/2020

ZIOLKOWSKI PATENT SOLUTIONS GROUP, SC (ZPS)
136 S WISCONSIN ST
PORT WASHINGTON, WI 53074

EXAMINER	
TRAN, LONG T	
ART UNIT	**PAPER NUMBER**
3747	

DATE MAILED: 03/06/2020

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/925,441	10/28/2015	Kendall J. Collie	CET1090.042	1059

TITLE OF INVENTION: BATTERYLESS DUAL FUEL ENGINE WITH LIQUID FUEL CUT-OFF

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$500	$0.00	$0.00	$500	06/08/2020

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

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

HOW TO REPLY TO THIS NOTICE:

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

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

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

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

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

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

IMPORTANT REMINDER: Maintenance fees are due in utility patents issuing on applications filed on or after Dec. 12, 1980. It is patentee's responsibility to ensure timely payment of maintenance fees when due. More information is available at www.uspto.gov/PatentMaintenanceFees.

Champion - EX2137, Page 18 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

PART B - FEE(S) TRANSMITTAL

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

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

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

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

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

26629 7590 03/06/2020

ZIOLKOWSKI PATENT SOLUTIONS GROUP, SC (ZPS)
136 S WISCONSIN ST
PORT WASHINGTON, WI 53074

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

Certificate of Mailing or Transmission

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

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/925,441	10/28/2015	Kendall J. Collie	CET1090.042	1059

TITLE OF INVENTION: BATTERYLESS DUAL FUEL ENGINE WITH LIQUID FUEL CUT-OFF

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
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EXAMINER	ART UNIT	CLASS-SUBCLASS
TRAN, LONG T	3747	123-575000

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

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

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2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____
2 _____
3 _____

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

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

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

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

4a. Fees submitted: ❑ Issue Fee ❑ Publication Fee (if required) ❑ Advance Order - # of Copies _____

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

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

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

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

❑ Applicant certifying micro entity status. See 37 CFR 1.29

❑ Applicant asserting small entity status. See 37 CFR 1.27

❑ Applicant changing to regular undiscounted fee status.

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

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

Champion - EX2137, Page 19 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/925,441	10/28/2015	Kendall J. Collie	CET1090.042	1059

26629 7590 03/06/2020

ZIOLKOWSKI PATENT SOLUTIONS GROUP, SC (ZPS)
136 S WISCONSIN ST
PORT WASHINGTON, WI 53074

EXAMINER	
TRAN, LONG T	

ART UNIT	PAPER NUMBER
3747	

DATE MAILED: 03/06/2020

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

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

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

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

Champion - EX2137, Page 20 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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

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

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

Privacy Act Statement

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

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

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

Notice of Allowability	Application No. 14/925,441	Applicant(s) Collie et al.	
	Examiner LONG T TRAN	Art Unit 3747	AIA (FITF) Status Yes

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

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

1. ☑ This communication is responsive to 22 January 2020.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

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

3. ☑ The allowed claim(s) is/are 1-3 and 5-65 . As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information , please see **http://www.uspto.gov/patents/init_events/pph/index.jsp** or send an inquiry to **PPHfeedback@uspto.gov.**

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

   Certified copies:

   a) ☐ All b) ☐ Some *c) ☐ None of the:

   1. ☐ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____ .

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

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

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

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

Attachment(s)

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

/LONG T TRAN/
Primary Examiner, Art Unit 3747

DETAILED ACTION

Notice of Pre-AIA or AIA Status

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

Allowable Subject Matter

2. Claims 1 – 3, 5 – 65 are allowed.

3. The following is an examiner's statement of reasons for allowance: The prior art references fail to disclose or teach in combination 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. The closest prior art references, Poehlman (US 4,489,699) and Tsuda et al. (US 5,809,979), teach a similar engine but are deficient in having a liquid cut-off incorporated into the carburetor. It would not have been obvious to further modify the combination of Poehlman and Tsuda et al. to include the additional fuel cut-off.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably

accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

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

5. 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

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-20150122230-A1	05-2015	Sarder; Mark J.	F02D19/0613	123/525
*	B	US-20110253102-A1	10-2011	Watanabe; Tsuyoshi	F02D41/064	123/438
*	C	US-20100258099-A1	10-2010	Andersson; Martin N.	F02D31/006	123/676
*	D	US-20070137591-A1	06-2007	Sugimoto; Yasuhiro	F02B63/04	123/41.7
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*	F	US-20020134362-A1	09-2002	Deutsch, Robert W.	F02D19/0647	123/575
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*	H	US-5611312-A	03-1997	Swanson; Mark S.	F02M1/02	123/179.18
*	I	US-4489699-A	12-1984	Poehlman; Arthur G.	F02B69/04	123/525
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*	K	US-3783849-A	01-1974	Bramfitt; Thomas Hugh	F02M13/06	123/576
*	L	US-3718000-A	02-1973	Walker; Brooks	F02B11/02	60/285
*	M	US-3659574-A	05-1972	Reschke; Albert H.	F02M13/08	123/525

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

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

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

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

CLAIMS

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

CLAIM		DATE								
Final	Original	04/18/2017	08/02/2017	01/22/2018	06/11/2018	10/04/2018	02/19/2019	07/17/2019	03/02/2020	
1	1	÷	✓	✓	✓	✓	✓	✓	✓	
2	2	÷	✓	✓	✓	✓	✓	✓	✓	
3	3	÷	✓	✓	✓	✓	✓	✓	✓	
	4	÷	✓	✓	✓	✓	✓	-	-	
4	5	÷	✓	✓	✓	✓	✓	✓	=	
5	6	÷	✓	✓	✓	✓	✓	✓	=	
6	7	÷	✓	✓	✓	✓	✓	✓	=	
7	8	÷	✓	✓	✓	✓	✓	✓	=	
8	9	÷	✓	✓	✓	✓	✓	✓	=	
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24	20	÷	N	✓	✓	✓	✓	✓	=	
25	21	÷	N	✓	✓	✓	✓	✓	=	
26	22	÷	N	✓	✓	✓	✓	✓	=	
27	23	÷	N	✓	✓	✓	✓	✓	=	
28	24	÷	N	✓	✓	✓	✓	✓	=	
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30	26	÷	N	✓	✓	✓	✓	✓	=	
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45	37	÷	N	✓	✓	✓	✓	✓	=	
46	38	÷	N	✓	✓	✓	✓	✓	=	
47	39	÷	N	✓	✓	✓	✓	✓	=	
48	40	÷	N	✓	✓	✓	✓	✓	=	
49	41	÷	N	✓	✓	✓	✓	✓	=	
50	42	÷	N	✓	✓	✓	✓	✓	=	

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

CLAIM		DATE								
Final	Original	04/18/2017	08/02/2017	01/22/2018	06/11/2018	10/04/2018	02/19/2019	07/17/2019	03/02/2020	
51	43	÷	N	✓	✓	✓	✓	✓	=	
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64	55	÷	N	✓	✓	✓	✓	✓	=	
11	56	÷	✓	✓	✓	✓	✓	✓	=	
12	57	÷	✓	✓	✓	✓	✓	✓	=	
39	58	÷	N	✓	✓	✓	✓	✓	=	
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13	60	÷	✓	✓	✓	✓	✓	✓	=	
14	61	÷	✓	✓	✓	✓	✓	✓	=	
41	62	÷	N	✓	✓	✓	✓	✓	=	
42	63	÷	N	✓	✓	✓	✓	✓	=	
22	64						✓	✓	=	
56	65						✓	✓	=	

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
Updated text search	07/17/2019	LT

Champion - EX2137, Page 29 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	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	03/02/2020	LT

Champion - EX2137, Page 30 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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

CPC						
Symbol					**Type**	**Version**
F02M	/	17	/	38	F	2013-01-01
F02M	/	13	/	08	I	2013-01-01
F02D	/	19	/	0613	I	2013-01-01
F02M	/	43	/	00	I	2013-01-01
F02B	/	43	/	00	I	2013-01-01
F02M	/	17	/	10	I	2013-01-01
F02M	/	21	/	0212	I	2013-01-01
F02B	/	63	/	04	I	2013-01-01
F02D	/	41	/	062	A	2013-01-01
Y02T	/	10	/	32	A	2013-01-01
F02M	/	21	/	047	A	2013-01-01
Y02T	/	10	/	36	A	2013-01-01
F02D	/	41	/	0025	A	2013-01-01
F02M	/	19	/	08	A	2013-01-01
F02N	/	3	/	02	A	2013-01-01

CPC Combination Sets								
Symbol					**Type**	**Set**	**Ranking**	**Version**
	/		/					

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	64	
/LONG T TRAN/ Primary Examiner, Art Unit 3747	02 March 2020	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

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

INTERNATIONAL CLASSIFICATION				
CLAIMED				
F02M	/	17	/	38
F02M	/	13	/	08
F02B	/	43	/	00

NON-CLAIMED				
	/		/	

US ORIGINAL CLASSIFICATION	
CLASS	**SUBCLASS**

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

NONE (Assistant Examiner) (Date)	**Total Claims Allowed:** 64	
/LONG T TRAN/ Primary Examiner, Art Unit 3747 (Primary Examiner) 02 March 2020 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 1

Champion - EX2137, Page 32 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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

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

CLAIMS

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1	10	11	19	16	28	24	37	33	46	38	55	47	64	55
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3	3	12	57	21	18	30	26	39	58	48	40	57	48		
4	5	13	60	22	64	31	27	40	59	49	41	58	49		
5	6	14	61	23	19	32	28	41	62	50	42	59	50		
6	7	15	12	24	20	33	29	42	63	51	43	60	51		
7	8	16	13	25	21	34	30	43	35	52	44	61	52		
8	9	17	14	26	22	35	31	44	36	53	45	62	53		
9	10	18	15	27	23	36	32	45	37	54	46	63	54		

NONE (Assistant Examiner)	(Date)	**Total Claims Allowed:** 64	
/LONG T TRAN/ Primary Examiner, Art Unit 3747 (Primary Examiner)	02 March 2020 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 1

Customer No. 26629 Patent
Confirmation No. 1059 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

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

Mailing

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

37 CFR 1.8(a) **37 CFR 1.10**

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

Transmission

□ transmitted by facsimile to Fax No.: 571-273-8300 addressed to **Examiner Long T. Tran** at the Patent and Trademark Office.

■ transmitted by EFS-WEB addressed to **Examiner Long T. Tran** at the Patent and Trademark Office.

Date: January 22, 2020 /Robyn L. Templin/
Signature

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

APPEAL BRIEF PURSUANT TO 37 C.F.R §41.37

Dear Sir:

This Appeal Brief is being filed in furtherance of the Notice of Appeal filed on October 22, 2019.

1. REAL PARTY IN INTEREST

The real party in interest is Champion Power Equipment, Inc. by virtue of the Assignment recorded November 29, 2018, at reel 047681, frame 0698.

2. RELATED APPEALS AND INTERFERENCES

Appellant is unaware of any other appeals or interferences related to this Appeal. The undersigned is Appellant's legal representative in this Appeal. Champion Power Equipment, Inc., the Assignee of the above-referenced application, as evidenced by the documents mentioned above, will be directly affected by the Board's decision in the pending appeal.

3. SUMMARY OF CLAIMED SUBJECT MATTER

The following is a summary of the claimed subject matter of independent claims 1, 19, 35, and 48, as disclosed in the specification with supporting citations to reference numerals and page and line numbers in accordance with 37 C.F.R. §41.37(c)(1)(iii).

Claim 1 calls for a dual fuel engine (60) that includes an engine (60) operable on a gaseous fuel and a liquid fuel. *Specification*, ¶ [0031]; FIG. 1 and FIGS. 4A, 4B. A switch (86) is provided to change operation of the engine (60) between gaseous fuel and liquid fuel. *Specification*, ¶ [0056]; FIGS. 4A, 4B. A carburetor (62) is attached to an intake (90) of the engine (60) to mix air and fuel and connect to a gaseous fuel source (30) and a liquid fuel source (28), with a liquid fuel valve (54) positioned along a liquid fuel line (66) coupling the liquid fuel source (28) to the carburetor (62), a gaseous fuel valve (54) positioned along a gaseous fuel line (70) coupling the gaseous fuel source (30) to the carburetor (62), and a liquid fuel cut-off (72) incorporated into the carburetor (62) to interrupt liquid fuel upon actuation of the switch (86) from liquid fuel to gaseous fuel. *Specification*, ¶¶ [0048]-[0051], [0058], [0061]-[0063]; FIGS. 4A, 4B.

Claim 19 calls for a batteryless dual fuel generator (20) that includes a housing (21) containing a pull start engine (60) coupled to drive an alternator, the engine (60) operable on a gaseous fuel and a liquid fuel. *Specification*, ¶¶ [0031], [0032], [0052]; FIG. 1 and FIGS. 4A, 4B. The generator (20) also includes a carburetor (62) attached to an intake (90) of the engine (60), with the carburetor (62) including a throat (92) to mix

Champion - EX2137, Page 35 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

fuel with air, a float bowl (104), and a fuel passage (164) extending from the float bowl (104) to the throat (92) to provide liquid fuel. *Specification*, ¶¶ [0048], [0063], [0070]; FIGS. 4A, 4B and 6. A fuel shutoff (72) is attached to the carburetor (62) to close the fuel passage (164) upon selection of engine (60) operation to gaseous fuel. *Specification*, ¶¶ [0048]-[0051]; FIGS. 4A, 4B.

Claim 35 calls for a carburetor (62) having a fuel shutoff (72) that includes a carburetor (62) having a float bowl (104), a throat (92), and a fuel passage (164) extending from the float bowl (104) to the throat (92). *Specification*, ¶¶ [0048], [0063], [0070]; FIGS. 4A, 4B and 6. A fuel shutoff (72) is coupled to the carburetor (62) having a first end in the carburetor (62) that actuates to close the fuel passage (164) and a second end external to the carburetor (62) to actuate the first end, with the fuel shutoff (72) actuating free from linear motion. *Specification*, ¶¶ [0064]-[0074]; FIGS. 5 and 6.

Claim 48 calls for a method of assembling a dual fuel engine (60), with the method including providing an engine (60) operable on a gaseous fuel and a liquid fuel and attaching a carburetor (62) to an intake (90) of the engine (60), with the carburetor (62) including a throat (92) to mix gaseous fuel with air and liquid fuel with air, a float bowl (104), and a fuel passage (164) extending from the float bowl (104) to the throat (92) to provide liquid fuel. *Specification*, ¶¶ [0031], [0048], [0063], [0070]; FIGS. 4A, 4B and 6. The method also includes coupling a switch (86) to the engine (60) to change operation of the engine (60) between gaseous fuel and liquid fuel and attaching a liquid fuel cut-off (72) to the carburetor (62) to close the fuel passage (164) upon actuation of the switch (86) from liquid fuel to gaseous fuel. *Specification*, ¶¶ [0056], [0064], [0071]; FIGS. 4A, 4B, and 6.

4. ARGUMENTS

Rejection under 35 U.S.C. §103 over Sugimoto et al. 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. (US Pub. 2007/0137591) and further in view of Poehlman (USP 4,489,699).

Champion - EX2137, Page 36 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

Claim 19 calls for, in part, a batteryless dual fuel generator including a carburetor attached to an intake of an engine and comprising a throat to mix fuel with air, a float bowl, and a fuel passage extending from the float bowl to the throat, and including 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, a method of assembling a dual fuel engine including the 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 including 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.

Introduction

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." *Final Office Action*, July 22, 2019, p. 7. The Examiner admitted that "Sugimoto is silent as 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 extending from the float bowl to the throat to provide liquid fuel," *id.* at 8, and thus cited to Poehlman as teaching those elements. In particular, the Examiner asserted that Poehlman discloses "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 [extending from the float bowl to the throat of the carburetor] upon selection of engine operation to gaseous fuel." *Id.*

Appellant respectfully disagrees with the rejection and believes claims 19 and 48 to be patentably distinct from that which is disclosed in Sugimoto and Poehlman. As set forth in MPEP §2142, "[t]he examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness." MPEP §2142. "With regard to rejections under 35 U.S.C. 103, the examiner must provide evidence which as a whole shows that the

Champion - EX2137, Page 37 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

legal determination sought to be proved (i.e., the reference teachings establish a *prima facie* case of obviousness) is more probable than not." *Id.* (emphasis in original). As will be set forth in detail here below, the combination of Sugimoto and Poehlman 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(a) with respect to claims 19 and 48.

Cited Prior Art – Sugimoto & Poehlman

Sugimoto discloses an engine generator 1 that includes a combustion engine 30, a fuel supply system Fa for supplying a fuel gas to the engine 30, an electric generator 40 to be driven for operation by the engine 30, a power control unit 41 for controlling power generated by the generator 40, and an electronic control unit (ECU) 89 for controlling the engine 30 and the fuel supply system Fa. *Sugimoto*, ¶ [0042]. The fuel supply system Fa is provided with one or a plurality of fuel bottles 61, a fuel pressure regulator 62, a heating device 80, a fuel system selector valve 12, and a fuel cutoff valve 63. *Id.* at ¶ [0071]. The fuel cutoff valve 63 is a normally-open solenoid valve which closes when energized, with ECU 89 controlling the fuel cutoff valve 63 on the basis of the pressure of the first fuel gas. *Sugimoto*, ¶[0081]. The fuel system selector valve 12 connects either the first fuel system that supplies the first fuel gas to the engine 30 or the second fuel system that supplies the second gas to the engine 30 selectively to the fuel pressure regulator 62. *Id.* at ¶[0082]. The fuel system selector valve 12 can be set in a first position, where the knob of the fuel system selector valve 12 is at a first position marked with "Internal fuel" to connect the first fuel system to the engine 30 to supply the first fuel gas to the engine 30, in a second position, where the knob of the fuel system selector valve 12 is at a second position marked with "External fuel" to connect the second fuel system to the engine 30 to supply the second fuel gas to the engine 30, and in a cutoff position, where the knob of the fuel system selector valve 12 is at a cutoff position, where the knob of the fuel system selector valve 12 is at a neutral position marked with "Off" to stop supplying fuel gas to the engine 30 by disconnecting both the first and the second fuel system from the engine 30. *Id.* at ¶[0082]. The fuel system selector valve 12 is

Champion - EX2137, Page 38 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

changed from the first to the second position and from the second to the first position via the neutral position. *Id.* at ¶[0082].

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 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.

Failure of Sugimoto & Poehlman to teach Claims 19 and 48

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

Champion - EX2137, Page 39 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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, 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 (extending from the float bowl to the throat) 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 Poehlman discloses that "a float bowl 17 [of carburetor 15] is connected through a supply line 19 with a source 21 of liquid fuel." *Poehlman*, col. 3, lns. 28-30. FIG. 1 in Poehlman clearly shows this positioning of fuel line 19 - as fuel line 19 is shown therein as connecting liquid fuel source 21 to the float bowl 17 of the carburetor 15. There is simply no teaching or suggestion in Poehlman of fuel line 19 extending from the float bowl 17 to the throat 107, as asserted by the Examiner.

The clear advantage of the present invention over that of the cited references, and any combination of the cited references, is that the present invention is able to interrupt fuel flow between the float bowl and the throat thereby avoiding the need to use up the fuel in the float bowl, as is the case with the prior art. As previously explained, Poehlman requires that the engine has to nearly stall, or at least run less than optimally,

Champion - EX2137, Page 40 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

when it begins to run out of the liquid fuel in the fuel bowl enough that the vacuum drops enough to close the vacuum switch and energize the solenoid coils for the switch over. The present invention overcomes this drawback with an immediate switch over that is independent of the fuel in the fuel bowl because it cuts it off between the fuel bowl and the carburetor throat.

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, as called for in claims 19 and 48. Poehlman discloses "a liquid fuel control valve 43 which is incorporated in the liquid fuel supply line 19." *Poehlman*, col. 3, lns. 64-66. Accordingly, the liquid fuel control valve 43 is located upstream from the carburetor 15, *see id.* at FIG. 1, but it is not attached to the carburetor as called for in claims 19 and 48. For purposes of clarifying this clear distinction, Appellant notes that the Specification of the present application discloses an embodiment where "fuel shutoff 110 *couples to* carburetor 62 to regulate liquid fuel flow." *Specification*, ¶ [0071] (emphasis added). Since Poehlman's liquid fuel control valve 43 is located along the liquid fuel supply line 19 upstream from the carburetor 15, the Examiner's asserted "fuel shutoff (43)" is not attached to the carburetor, and thereby, cannot benefit from the aforementioned advantages of the present invention, but will result in some adverse operating characteristics when running down the fuel in the fuel bowl and lowering the operating vacuum of the engine in order to switch over.

Even *assuming* arguendo that the liquid fuel control valve 43 in Poehlman can be construed as being attached to the carburetor 15 (which it is not), the liquid fuel control valve 43 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 positioned to close a fuel passage that extends from the float bowl 17 to the throat 107 in the carburetor 15, as called for in claims 19 and 48.

Champion - EX2137, Page 41 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

Were the liquid fuel control valve 43 incorporated into the system of Sugimoto to modify the system thereof, the resulting system would only include an additional liquid fuel control valve 43 (in addition to fuel cutoff valve 63) that is positioned upstream from a carburetor included in the engine generator 1 of Sugimoto. However, neither the fuel control valve 43 and/or fuel cutoff valve 63 that would be included in the modified engine generator 1 of Sugimoto would be attach to the carburetor to close a fuel passage extending from the float bowl to the throat (within the carburetor) upon actuation of a switch from liquid fuel to gaseous fuel. Accordingly, the combination would fail to teach what is called for in claims 19 and 48.

In light of at least the above, the Examiner has not established a prima facie case of obviousness under 35 U.S.C. §103(a) with respect to claims 19 and 48. The combination of Sugimoto and Poehlman fails to teach the specifically claimed elements in claims 19 and 48 at least for the reason that the cited references do not teach a fuel shutoff attached to the carburetor to close a fuel passage that extends from a float bowl to a throat in the carburetor upon selection of engine operation to gaseous fuel. Sugimoto and Poehlman, and any resulting combination thereof, does not teach or suggest that which is called for in claims 19 and 48. Appellant therefore respectfully requests reversal of the rejection of claims 19 and 48 under 35 U.S.C. §103, along with the rejection of all claims depending therefrom.

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

Claim 1

The Examiner rejected claim 1 under 35 U.S.C. §103 as being unpatentable over Poehlman and in view of Tsuda et al. (USP 5,809,979).

Claim 1 calls for, in part, a dual fuel engine including a switch to change operation of an engine between gaseous fuel and liquid fuel, a carburetor attached to an intake of the engine, 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.

Champion - EX2137, Page 42 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

Introduction

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)," "a liquid fuel cut-off (41)," "a liquid fuel valve (43)," and "a gaseous fuel valve (45)." *Final 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.* (emphasis in original), 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.* (emphasis in original). The Examiner concluded that "it would have been obvious to one having ordinary skill in the art… 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." *Id.* at 4.

Appellant respectfully disagrees with the rejection and believes claim 1 to be patentably distinct from that which is disclosed in Poehlman and Tsuda. As set forth in MPEP §2142, "[t]he examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness." MPEP §2142. "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." *Id.* (emphasis in original). As will be set forth in detail here below, the combination of Poehlman and Tsuda does not teach or suggest the claimed invention, nor would one skilled in the art be motivated to combine the references in the manner done so by the Examiner. Accordingly, the Examiner has not established a *prima facie* case of obviousness under 35 U.S.C. §103(a) with respect to claim 1.

Cited Prior Art – Poehlman & Tsuda

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

Champion - EX2137, Page 43 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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. The "control means 41 includes a vacuum control switch 47" and "a primary or fuel selector switch 51." *Id.* at col. 4, lns. 10-17. 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. "

Tsuda discloses a carburetor 1 having a mixing body 2 in which a venturi passage 3 is provided. *Tsuda*, col. 2, lns. 40-41: FIG. 1. A float chamber 4 is arranged in the mixing body 2 and a liquid fuel nozzle 5 is communicated with the float chamber 4. *Id.* at col. 2, lns. 41-43. A liquid fuel nozzle outlet 6 is faced to the venturi passage 3. *Id.* at col. 2, lns. 43-44. An upper end of the liquid fuel nozzle 5 projects into the venturi passage 3. *Tsuda*, col. 2, lns. 55-56. An inner bottom portion of the float chamber 4 is provided with a liquid fuel inlet 13, with a liquid fuel valve 14 laterally arranged at a lower portion of the float chamber 4 for opening or closing the liquid fuel inlet 13 of the float chamber 4. *Id.* at col. 2, lns. 61-62.

Failure of Poehlman & Tsuda to teach Claim 1

The Examiner's proposed combination of Poehlman and Tsuda fails to teach that which is called for in claim 1.

Initially, Appellant believes that one skilled in the art would not have been motivated to combine Poehlman and Tsuda in the manner done so by the Examiner in

Champion - EX2137, Page 44 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

order to achieve the claimed invention. "[O]bviousness concerns whether a skilled artisan not only *could have made but would have been motivated to make* the combinations or modifications of prior art to arrive at the claimed invention." *Belden Inc. v. Berk-Tek LLC*, 805 F.3d 1064, 1073 (Fed. Cir. 2015) (citing *InTouch Technologies, Inc. v. VGO Communications, Inc.*, 751 F.3d 1327, 1352 (Fed. Cir. 2014) (emphasis in original)). The Examiner must make "an explanation-supported finding that the evidence affirmatively provided that the PHOSITA would have sought" the additional feature(s). *See In re Nuvasive*, 842 F.3d 1376, 1384 (Fed. Cir. 2016). Accordingly, to establish a prima facie case, the Examiner must not only show that the combination includes each and every element of the claimed invention, but also provide "a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985). In the present case, and as set forth in detail below, the Examiner has failed to provide an explanation-supported finding that a person having ordinary skill in the art would have been motivated to combine the references in the manner done so by the Examiner.

In combining the teachings of Tsuda with Poehlman, the Examiner admitted that "Poehlman is silent to the liquid fuel cut-off [41] is incorporated into the carburetor," but asserted that "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." *Final Office Action*, supra at 3-4.

However, with regard to the Examiner's reliance on a "rearrangement of parts" as a basis for the rejection, MPEP 2144.04 specifies that "[t]he mere fact that a worker in the art could rearrange the parts of the reference device to meet the terms of the claims [ ] is not by itself sufficient to support a finding of obviousness" and that "[t]he prior art must provide a motivation or reason for the worker in the art, without the benefit of appellant's specification, to make the necessary changes in the reference device." (citing *Ex parte Chicago Rawhide Mfg. Co.*, 223 USPQ 351, 353 (Bd. Pat. App. & Inter. 1984)). In the present case, the Examiner's suggestion to modify the system of Poehlman

Champion - EX2137, Page 45 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

to have the "liquid fuel cut-off 41" incorporated into the carburetor 15 is not a mere rearrangement of parts that would have been obvious to one skilled in the art based on a motivation or reason provided Tsuda, but instead the Examiner has improperly relied on the teaching of the present Specification as the basis for such rearrangement.

As set forth above, the system in Poehlman is directed to 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. *Poehlman*, Col. 3, lns. 25-27. A control means 41 is provided for a selective change-over between use of liquid fuel and gaseous fuel, with the control means 41 including a liquid fuel control valve 43 which is incorporated in a liquid fuel supply line 19 and a gaseous fuel control valve 45 which is incorporated in the gaseous fuel supply line 25. *Poehlman*, Col. 3, ln. 62 to Col. 4, ln. 6. The control means 41 also includes an electrical fuel selector switch 51 that energizes the liquid fuel control valve 43 when in a liquid fuel position and separately energizes the gaseous fuel control valve 45 when in a gaseous fuel position, as well as a vacuum control switch 47 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. *Poehlman*, Col. 4, lns. 10-15, 21-30 and Col. 5, lns. 1-6.

In light of the teachings of Poehlman, it would *not* be an obvious "rearrangement of parts" to have what the Examiner identified as "liquid fuel cut-off 41" incorporated into the carburetor 15, as asserted by the Examiner. That is, the "liquid fuel cut-off 41" identified by the Examiner is in fact a control means 41 that includes liquid fuel control valve 43, gaseous fuel control valve 45, vacuum control switch 47, and a fuel selector switch 51. *See Poehlman,* Col. 3, lns. 62-66 and Col. 4, lns. 10-17. The Examiner is thus asserting that one skilled in the art would be motivated to incorporate the control means 41 of Poehlman - which includes liquid fuel control valve 43, gaseous fuel control valve 45, vacuum control switch 47, and fuel selector switch 51 - into the carburetor 15 based on the teaching of Tsuda of a liquid fuel valve 14 included in the carburetor 1 (FIG. 1), in order to achieve the present invention. No motivation for such a modification or "rearrangement of parts" is provided in Poehlman or Tsuda, and the rearrangement of parts, in fact, results in an arrangement not even called for in claim 1 – as claim 1 does

Champion - EX2137, Page 46 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

not call for a gaseous fuel control valve, control switch, or selector switch being incorporated into the carburetor, as would occur if the control means 41 were incorporated into the carburetor 15 in Poehlman..

In fact, logic would lead a skilled artisan to *not* incorporate elements such as a vacuum control switch 47 and/or fuel selector switch 51 (which are part of the control means 41 – i.e., the alleged "liquid fuel cut-off 41") into the carburetor 15. It is more likely than not that the Poehlman inventors intentionally placed the vacuum control switch 47 and/or fuel selector switch 51 at a distance from carburetor 15 to shield the switch contacts from the fuel that flows through carburetor 15. There is thus no motivation to incorporate the vacuum control switch 47 and/or fuel selector switch 51 into the carburetor 15. The Examiner has thus failed to provide any "motivation or reason for the worker in the art, without the benefit of appellant's specification, to make the necessary changes in the reference device," as is necessary as a basis for a rejection under a "rearrangement of parts" rationale per MPEP 2144.04.

In light of all the above, one skilled in the art would recognize that it would not be a mere "rearrangement of parts" to modify the system of Poehlman to incorporate the control means 41 into the carburetor 15, as alleged by the Examiner. Rather, such a proposed "rearrangement of parts" would be an entirely unnecessary modification to Poehlman for which – based solely on Poehlman and Tsuda – there would be no "motivation or reason for the worker in the art, without the hindsight benefit of appellant's specification, to make the necessary changes in the reference device," as required under MPEP 2144.04.

Even assuming *arguendo* that one would combine the teachings of Poehlman and Tsuda, the resulting combination would not teach what is called for in claim 1. That is, the resulting combination would not teach each of a liquid fuel valve positioned along a liquid fuel line coupling the liquid 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, as called for in claim 1. While the Examiner cited to Poehlman as disclosing a "liquid fuel cut-off (41)" and a "liquid fuel valve (43)," *see Final Office Action*, supra at 3, Poehlman does <u>not</u> disclose two separate liquid fuel

Champion - EX2137, Page 47 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

valves/cut-offs as asserted by the Examiner. The elements "41" and "43" identified by the Examiner are a control means 41 and liquid fuel control valve 43, with the control means 41 described as being "for selective change-over between use of liquid fuel and gaseous fuel" and including liquid fuel control valve 43, gaseous fuel control valve 45, vacuum control switch 47, and a fuel selector switch 51. *Poehlman,* Col. 3, lns. 62-66 and Col. 4, lns. 10-17.

To the extent control means 41 can be said to teach a "liquid fuel cut-off that interrupts liquid fuel" as called for in claim 1, it is the operation of liquid fuel control valve 43 (as part of control means 41) that interrupts liquid fuel. Thus, in the interpretation set forth by the Examiner, the Examiner is citing to liquid fuel control valve 43 as teaching two separate structures – i.e., as a separate liquid fuel control valve 43 that teaches the claimed "liquid fuel valve" and as a liquid fuel control valve that is part of control means 41 that teaches the claimed "liquid fuel cut-off." This is *not* what is called for in claim 1 – as claim 1 distinctly calls for a liquid fuel valve and a liquid fuel cut-off as two separate elements/structures. These elements should not be confused with one another, as the Examiner has attempted to do. Poehlman does not teach such an arrangement, as there are no components disclosed therein that separately define a liquid fuel valve and a liquid fuel cut-off. The Examiner has stretched the teachings of the prior art in an attempt to satisfy the elements called for in claim 1 by asserting that a single structure disclosed in Poehlman (i.e., liquid fuel control valve 43, alone or as part of control means 41) teaches two distinct claims elements. Such a categorization of the liquid fuel control valve 43 (and control means 41) distorts the teachings of Poehlman and ignores the requirement of MPEP §2143(A)(1) that the Examiner must articulate a finding that the prior art include *each element claimed*.

Tsuda fails to address the deficiencies of Poehlman with regard to the failure thereof to teach a liquid fuel valve and a separate liquid fuel cut-off, as the liquid fuel valve 14 in carburetor 1 provides no such teaching of separate valves/cut-offs. *See Tsuda*, FIG. 1. Accordingly, the combination of Poehlman and Tsuda would not teach what is called for in claim 1 regarding each of a liquid fuel valve and a liquid fuel cut-off.

Champion - EX2137, Page 48 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

In light of all 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." It would not be obvious to modify the system of Poehlman in the manner done so by the Examiner in order to achieve the claimed arrangement of claim 1, nor would any combination of Poehlman and Tsuda teach or suggest the claimed invention. Accordingly, the Examiner has not established a *prima facie* case of obviousness under 35 U.S.C. §103 for claim 1. Appellant thus respectfully requests reversal of the rejection of claim 1, 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.

Claim 35 calls for, in part, a carburetor having a fuel shutoff and comprising a carburetor having a float bowl, a throat, and a fuel passage extending from the float bowl to the throat, as well as 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, wherein the fuel shutoff actuates free from linear motion.

Introduction

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); and wherein the fuel shutoff actuates free from linear motion (it rotates)." *Final Office Action*, supra at 4-5.

Champion - EX2137, Page 49 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

Appellant respectfully disagrees with the rejection. As set forth in MPEP §2142, "[t]he examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness." *MPEP §2142*. "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." *Id.* (emphasis in original). The examiner has not provided a factual underpinning to meet the minimum standard to satisfy that initial burden. In fact, the examiner has not specified how Tsuda operates nor how it remedies the deficiencies of Poehlman. Accordingly, the Examiner has not established a *prima facie* case of obviousness under 35 U.S.C. §103(a) with respect to claim 35.

Nevertheless, as will be set forth in detail here below, the combination of Poehlman and Tsuda does not teach or suggest the claimed invention.

Failure of Poehlman & Tsuda to teach Claim 35

Appellant initially notes that, despite rejecting claim 35 under 35 U.S.C. §103 as being unpatentable over Poehlman in view of Tsuda et al., the Examiner has not cited or referred to Tsuda in any respect in issuing the rejection. The Examiner's basis for the rejection of claim 35 under 35 U.S.C. §103 as being unpatentable over Poehlman *in view of* Tsuda is thus unclear.

Regardless of the above, there is no teaching in Poehlman (alone or in combination with Tsuda) 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, wherein the fuel shutoff actuates free from linear motion as called for in claim 35.

First, and as set forth above with regard to claims 19 and 48, the fuel line 19 in Poehlman identified by the Examiner as the claimed fuel passage that extends from the float bowl 17 to the throat 107, does *not* extend from the float bowl to the throat. 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.

Champion - EX2137, Page 50 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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 and a second end external to the carburetor to actuate the first end, this assertion is not supported by that which is disclosed in Poehlman. FIG. 1 of Poehlman clearly illustrates that valve 43 does not have a first end ***in*** the carburetor 15, and there is no teaching in Poehlman of the valve having second end external that actuates the first end. Valve 43 is located entirely *upstream* from carburetor 15, such that there is no first end ***in*** the carburetor that would actuate to close a fuel passage that extends from the float bowl to the throat in the carburetor. *See Poehlman,* at FIG. 1. Additionally, there is no disclosure in Poehlman that liquid fuel valve includes any second end that actuates a first end, as instead liquid fuel valve 43 is only generally described as a valve that is selectively energized/deenergized to open and close the valve (i.e., a solenoid valve), *see Poehlman*, col. 4, lns. 21-24, without any additional structure being described therein.

Still further, there is no teaching in Poehlman that liquid fuel valve 43 "actuates free from linear motion," as specifically set forth in claim 35. While the Examiner has asserted that liquid fuel valve 43 "rotates" when opening/closing, *see Final Office Action*, supra at 5, the Examiner has provided no support for this conclusory statement, such that the rejection is deficient on its face ("[R]ejections on obviousness cannot be sustained with mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006).) In fact, Poehlman is completely silent regarding the manner in which liquid fuel valve 43 actuates – i.e., whether it is rotational or linear motion that opens/closes the valve. Accordingly, the Examiner has failed to meet the burden of factually supporting a *prima facie* conclusion of obviousness.

Tsuda fails to address the deficiencies of Poehlman with regard to teaching or suggesting 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, wherein the fuel shutoff actuates free from linear motion.

Champion - EX2137, Page 51 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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 for claim 35. Appellant thus respectfully requests reversal of the rejection of claim 35, along with the rejection of all claims depending therefrom

Claim 64

The Examiner rejected claim 64 under 35 U.S.C. §103 as being unpatentable over Poehlman in view of Tsuda et al.

Claim 64 calls for, wherein the liquid fuel cut-off is physically attached to an outer surface of the carburetor.

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)." *Final Office Action*, supra at 5. Appellant 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.*

Champion - EX2137, Page 52 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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

Claim 65

The Examiner rejected claim 65 under 35 U.S.C. §103 as being unpatentable over Poehlman in view of Tsuda et al.

Claim 65 calls for, the fuel shutoff extending through an opening into the float bowl such that the first end actuates in the float bowl to close the fuel passage

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)." *Final Office Action*, supra at 5. Appellant 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 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. Appellant therefore respectfully requests reversal of the rejection of claim 65.

Champion - EX2137, Page 53 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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

Claim 7

The Examiner rejected claim 7 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 Final 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 that is powered by an electrical power generator, as called for in claim 7.

Poehlman provides no teaching of a solenoid valve that is powered by an electrical power generator. Instead, Poehlman only discloses that primary switch member 57 is connected to a source 59 of direct current and movable between a first position energizing the liquid fuel terminal 55 (and liquid fuel control valve or solenoid 43) and a second position energizing the gaseous fuel terminal 53 (and gaseous fuel control valve or solenoid 45). *Poehlman*, Col. 5, lns. 1-6. This powering of liquid fuel terminal 55/liquid fuel solenoid 43 and gaseous fuel terminal 53/gaseous fuel solenoid 45 via DC power source 59 does not teach or suggest powering of the liquid fuel solenoid 43

Champion - EX2137, Page 54 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

and gaseous fuel solenoid 45 by an *electrical power generator* (in a pull-start engine), as called for in claim 7.

Tsuda also provides no teaching of a solenoid valve that is powered by an electrical power generator. That is, Tsuda is not disclosed as being a pull-start engine or including any electrical power generator that supplies electrical power, such as to power a liquid cut-off solenoid valve, as called for in claim 7.

Sugimoto also provides no teaching of a solenoid valve that is powered by an electrical power generator. Instead, to the extent that Sugimoto discloses an electrical power generator 40, the generator 40 is only disclosed as "being rotatively driven by the engine 30" and being associated with "a power control unit 41 for controlling the power generated by the generator 40," with "power thus generated [being] supplied to an electric device connected to the output receptacle 13." *Sugimoto*, ¶¶ [0065], [0068], and [0089]. There is no disclosure in Sugimoto that fuel cutoff valve or solenoid 63 is powered by the generator 40, as called for in claim 7.

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

Claim 8

The Examiner rejected claim 8 under 35 U.S.C. §103 as being unpatentable over Poehlman in view of Tsuda et al. and Sugimoto.

Claim 8 calls for wherein the switch selectively powers the solenoid valve by controlling electrical connection between the solenoid valve and the electrical power generator.

In rejecting claim 8, the Examiner did not address the limitations of the claim individually and thus, for similar reasons as set forth above for claim 7, the present rejection of claim 8 is, on its face, deficient according to MPEP §706, and should be reversed.

Regardless of the above, none of Poehlman, Tsuda, and/or Sugimoto teaches or suggests a switch that selectively powers a solenoid valve by controlling an electrical connection between the solenoid valve and the electrical power generator, as called for in

Champion - EX2137, Page 55 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

claim 8. Poehlman only discloses that primary switch member 57 is connected to a source 59 of direct current and movable between a first position energizing the liquid fuel terminal 55 (and liquid fuel control valve or solenoid 43) and a second position energizing the gaseous fuel terminal 53, *Poehlman*, Col. 5, lns. 1-6, but there is no teaching that switch member 57 selectively powers the liquid fuel solenoid 43 and gaseous fuel solenoid 45 by controlling an electrical connection between the solenoid valves and an electrical power generator, as called for in claim 8. Additionally, Tsuda provides no teaching of any electrical power generator (that could be connected to a solenoid valve), and there is no teaching in Sugimoto of generator 40 being selectively connected to fuel cutoff valve/solenoid 63 via a switch – as there is no disclosure in Sugimoto that generator provides power to the solenoid 63.

In light of at least the above, Appellant believes claim 8 be patentably distinct from that which is disclosed in the cited references. As such, Appellant respectfully requests reversal of the rejection of claim 8.

Claim 10

The Examiner rejected claim 10 under 35 U.S.C. §103 as being unpatentable over Poehlman in view of Tsuda et al. and Sugimoto.

Claim 10 calls for wherein a pull-starter drives the electrical power generator to power and close the solenoid valve while starting the engine on gaseous fuel.

Again, the Examiner did not address the limitations of claim 10 individually and thus, for similar reasons as set forth above for claims 7 and 8, the present rejection of claim 10 is, on its face, deficient according to MPEP §706, and should be reversed.

Regardless of the above, none of Poehlman, Tsuda, and/or Sugimoto teaches or suggests a pull-starter that drives the electrical power generator to power and close the solenoid valve while starting the engine on gaseous fuel, as called for in claim 10. The engines in Poehlman and Tsuda do not include a pull-starter, and thus necessarily there can be no disclosure therein of a pull-starter that drives the electrical power generator to power and close the solenoid valve while starting the engine on gaseous fuel. While Sugimoto discloses that the engine 30 is started by operating a recoil starter 46, see *Sugimoto*, ¶[0066], there is no teaching in Sugimoto that recoil starter 46 drives the

Champion - EX2137, Page 56 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

electrical power generator 40 to power and close the fuel cutoff valve/solenoid 63 while starting the engine on gaseous fuel, as called for in claim 10.

In light of at least the above, Appellant believes claim 10 be patentably distinct from that which is disclosed in the cited references. As such, Appellant respectfully requests reversal of the rejection of claim 10.

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

Claim 14

The Examiner rejected claim 14 under 35 U.S.C. §103 as being unpatentable over Poehlman and Tsuda et al., and further in view of Swanson.

Claim 14 calls for the liquid fuel cut-off (of claim 1) to comprise 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.

In rejecting claim 14, the Examiner admitted that Poehlman and Tsuda are silent to the elements of the liquid fuel cut-off called for in claim 14, but asserted that Swanson discloses "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." *Final Office Action*, supra at 9. Appellant respectfully disagrees with the rejection. Specifically, Appellant believes that the Examiner has mischaracterized that which is disclosed in Swanson in rejecting claim 14.

Swanson discloses, in relevant part, a small engine carburetor with manually controlled choke and throttle valves and associated idle ports and main metering nozzle supplied with fuel from a common metering chamber. *Swanson*, Abstract. The carburetor 50 includes a body 52 having a straight through central venturi passage 54 in which a throttle valve plate 56 (FIGS. 1 and 8) is operably disposed and mounted on a throttle shaft 58. *Swanson*, col. 9, lns. 1-4. The throttle valve is movable from its closed, normal (low) idle position as shown in FIGS. 1 and 8 to a wide open throttle position

Champion - EX2137, Page 57 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

(shown in FIG. 35) by rotating shaft 58 clockwise as shown in FIGS. 4 and 8 so that throttle plate 56 is disposed substantially parallel to the direction of flow of air through the venturi. *Id.* at col. 9, lns. 4-10. Carburetor 50 is also preferably provided with an accelerator pump and shut-off device 104 having a piston 106 carrying an O-ring 107, valve 108, spring 110, O-ring valve seat 112 and inlet passage 114 (FIG. 8), and an associated outlet passage 116 (FIG. 2), back check valve assembly 118 therein and downstream passage 120. *Id.* at col. 10, lns. 5-11. As the throttle shaft 58 is rotated to move throttle plate 56 from the normal idle position shown in FIGS. 1, 8 and 34 to the wide open throttle position shown in FIG. 35, a cam 122 on the throttle shaft advances the piston 106 and associated valve 108 so that the tip of valve 108 bears on O-ring seat 112, 114 to thereby shut-off flow of fuel from metering chamber 66. *Id.* at col. 10, lns. 17-22. When valve 108 is open, fuel normally flows from chamber 66 via inlet passage 114 through O-ring 112 into the chamber 126 defined between O-ring 112 and piston 106, and thence from chamber 126 through outlet passage 116, back check valve 118 and passage 120 to the idle well under the manually adjustable flow control of the idle adjustment needle valve assembly 102. *Id.* at col. 10, lns. 22-29.

However, there is no teaching in Swanson of a liquid fuel cut-off having a rotating shaft extending with a fuel seal around the shaft to seal an aperture in the carburetor and/or, 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.

First, the "fuel seal (112, 114)" identified by the Examiner as being positioned around the "rotating shaft (58)" is a distortion of what is disclosed in Swanson, as instead the O-ring valve seat 112 and inlet passage 114 are part of shut-off device 104 and are not positioned around the throttle shaft 58, as is clearly seen in FIG. 8 of Swanson. *See Swanson*, FIG. 8. Accordingly, there is no teaching in Swanson of any fuel seal positioned around a rotating shaft extending through an aperture in the carburetor, so as to seal the aperture.

Second, the "blocking member (56)" identified by the Examiner as being coupled to the rotating shaft 58 in the carburetor and that "rotates between a blocking and a non-

Champion - EX2137, Page 58 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

blocking position to selectively block a liquid fuel path to the engine" is a distortion of what is disclosed in Swanson, as the throttle valve plate 56 does **not** selectively block a liquid fuel path to the engine, as called for in claim 14. Instead, the throttle valve plate 56 is movable to control *a flow of air* through the venturi passage 54, as Swanson discloses that "[t]he throttle valve is movable from its closed, normal (low) idle position as shown in FIGS. 1 and 8 to a wide open throttle position (shown in FIG. 35) by rotating shaft 58 clockwise as shown in FIGS. 4 and 8 so that throttle plate 56 is disposed substantially parallel to the direction of flow of air through the venturi (arrow A in FIGS. 8 and 10)." *Swanson*, col. 9, lns. 4-10. The throttle valve plate thus does not block a liquid fuel path, as asserted by the Examiner.

In light of at least the above, Appellant believes claim 14 be patentably distinct from that which is disclosed in the cited references. As such, Appellant respectfully requests reversal of the rejection of claim 14.

Claims 15 and 55

The Examiner rejected claims 15 and 55 under 35 U.S.C. §103 as being unpatentable over Poehlman and Tsuda et al., and further in view of Swanson.

Claim 15 calls for 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, while claim 55 similarly calls for 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.

In rejecting claims 15 and 55, the Examiner admitted that Poehlman and Tsuda are silent to the elements called for in claims 15 and 55, but asserted that Swanson discloses "a lever (395) coupled to the shaft (58) 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." *Final Office Action*, supra at 10. Appellant respectfully disagrees with the rejection. Specifically,

Champion - EX2137, Page 59 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

Appellant believes that the Examiner has mischaracterized that which is disclosed in Swanson in rejecting claims 15 and 55.

Swanson discloses, in relevant part, a small engine carburetor with manually controlled choke and throttle valves and associated idle ports and main metering nozzle supplied with fuel from a common metering chamber. *Swanson*, Abstract. The carburetor 50 includes a body 52 and a control box housing 150. *Id.* at col. 9, ln. 1 and col. 11, lns. 22-23. The body 52 includes a straight through central venturi passage 54 in which a throttle valve plate 56 (FIGS. 1 and 8) is operably disposed and mounted on a throttle shaft 58. *Id.* at col. 9, lns. 1-4. A choke valve plate 60 mounted on a choke shaft 62 (FIGS. 8 and 10) is also disposed in the venturi passage upstream of the throttle valve. *Id.* at col. 9, lns. 10-12. Choke shaft 62 receives thereon a choke lever 400 (FIGS. 1, 4 and 33-35), which has a flatted oval mounting opening 402 which keys it non-rotatably on choke shaft 62 for rotation therewith, and has an opening 404 for connection thereto of the conventional manual throttle control linkage (not shown). *Id.* at col. 17, ln. 64 and col. 18, lns. 1-4. The control box housing 150 includes a shelf wall 394 that provides a platform on which an electrical switch mechanism 395 is removably mounted (FIGS. 1, 3 and 10). *Id.* at col. 16, lns. 26-28. The exteriorly protruding right-hand end of throttle shaft 58 is provided with associated conventional throttle stop and spring structure (FIGS. 1 and 8) adapted to cooperate in a conventional manner with a body stop boss 391 and throttle stop low idle adjustment screw 393, as well as a switch actuating cam 396. *Id.* at col. 16, lns. 28-33. A spring lever 397 on switch mechanism 395 is actuated by cam 396 at an appropriate point in throttle shaft rotation to thereby enable and disable appropriate downstream operational stages of the electronic circuitry of the automatic A/F control system incorporated in housing 150. *Id.* at col. 16, lns. 33-38.

However, there is no teaching in Swanson of 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 (claim 15) and/or of attaching a cable to the lever to actuate the shaft to the other of the first position and second position (to allow fuel flow into a fuel passage within the carburetor and to block fuel flow into the fuel passage) (claim 55). That is, the "cable (400)" identified by the Examiner as being coupled to the "lever

Champion - EX2137, Page 60 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

(395)" to pull against the "spring (397)" to "rotate the blocking member (56)" is a distortion of what is disclosed in Swanson, as element 400 is a choke lever 400 that in no way is *coupled to switch mechanism 395 to pull against spring lever 397* to rotate throttle valve plate 56. *See Swanson*, col. 17, ln. 67; FIG. 35. The operation/actuation of choke lever 400 in no way pulls against spring lever 397, as asserted by the Examiner, and thus Swanson does not teach that which is called for in claim 15. Similarly, the interaction/arrangement of choke lever 400, switch mechanism 395, and spring lever 397 described in Swanson in no way teaches a step of attaching choke lever 400 (allegedly the claimed "cable") to the switch mechanism 395 (allegedly the claimed "lever") to actuate the throttle shaft 58 to a first position or second position, and thus Swanson does not teach that which is called for in claim 55.

In light of at least the above, Appellant believes claims 15 and 55 to be patentably distinct from that which is disclosed in the cited references. As such, Appellant respectfully requests reversal of the rejection of claims 15 and 55.

Claims 50-54 and 58-59

The Examiner rejected claims 50-54 and 58-59 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). However, in rejecting claims 50-54 and 58-59, the Examiner did not address the limitations of the claims. That is, while the Examiner collectively addressed the rejection of claims 15, 44, 50-55, and 58-59 in the Final Office Action, *see Final Office Action*, supra at 10, the only elements discussed in the rejection correspond to claims 15 and 55 – and the Examiner made no reference to any of the elements of claims 50-54 and 58-59. Specifically, the Examiner provided no indication where any of Poehlman, Tsuda, and/or Swanson are thought to teach:

- 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

Champion - EX2137, Page 61 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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 (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 (claim 51);
- positioning at least one fuel seal on the shaft to seal between the shaft and plug (claim 52);
- 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 (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 (claim 54);
- wherein the carburetor cutoff solenoid is open to provide liquid fuel to the engine when the carburetor cutoff solenoid is powered (claim 58); and
- 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 (claim 59).

As the Examiner has not provided any indication of what portion of Poehlman, Tsuda, and/or Swanson thought to teach each claimed element or address those elements, the present rejection of claims 50-54 and 58-59 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*). Accordingly, Appellant respectfully requests reversal of the rejection of claims 50-54 and 58-59.

Champion - EX2137, Page 62 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

Rejection under 35 U.S.C. §103 over Sugimoto, Poehlman, Tsuda and Andersson

Claims 16 and 27

The Examiner rejected claim 16 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) and rejected claim 27 under 35 U.S.C. §103 as being unpatentable over Sugimoto, Poehlman, and Tsuda et al., and further in view of Andersson.

Each of claims 16 and 27 calls for the liquid fuel cut-off being magnetically actuated to selectively interrupt liquid fuel.

In rejecting claims 16 and 27, the Examiner admitted that Poehlman and Tsuda are silent to the element of the liquid fuel cut-off being magnetically actuated to selectively interrupt liquid fuel, as called for in claim 16, but asserted that "Andersson 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." *Final Office Action*, supra at 11. Appellant respectfully disagrees with the rejection. Specifically, Appellant believes that the Examiner has mischaracterized that which is disclosed in Andersson in rejecting claims 16 and 27.

Andersson discloses, in relevant part, an engine 10 that includes a carburetor 12 and a power generation unit (PGU) 14. *Andersson*, ¶ [0067]. The carburetor has an air bleed valve 18, an engine load sensor 20, a body 48 having an air and fuel mixing passage 49 extending therethrough, and a throttle valve 50 disposed in the mixing passage and carried by a valve rotating device such as a shaft 51 extending through the body and a lever 52 connected to the shaft. *Id. at* ¶¶ [0067] and [0107]. The carburetor also may include a float bowl 53 sealingly carried on the body by a fastener 54 (FIG. 4), a fuel inlet and passage 55, an inlet needle 56 in communication with the inlet passage, and a float 57 to urge the inlet needle closed. *Id. at* ¶ [0108]. The body may include a fuel nozzle 58 extending into the float bowl and including a nozzle passage 59 and a fuel restriction jet 60 to the limit mass flow rate of fuel into the nozzle at a pressure differential across the jet. *Id. at* ¶ [0108]. The carburetor body may include a pocket 61 to receive the solenoid valve 18. *Id. at* ¶ [0109]. An O-ring 71 may be disposed between the pocket and the body to seal the valve to the body. *Id. at* ¶ [0111]. The valve may

Champion - EX2137, Page 63 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

also include a stationary armature 72 that may be bobbin shaped and may have an outboard end 73 or disc, a rod 74, and an inboard end 76 or disc adjacent the valve plate. *Id. at* ¶ [0111]. The solenoid valve may additionally have a copper wire coil winding 77 disposed around the rod and winding leads 78 extending through the outboard disc. *Id. at* ¶ [0111]. The coil may be provided around the metallic armature bobbin 72 to induce magnetic flux in the housing to attract the valve plate to complete the established flux path upon coil energization. *Id. at* ¶ [0111]. Finally, a coiled compression spring 79 may circumscribe the rod and winding and may be disposed between the outboard disc and the valve plate to urge the valve plate to a normally closed position against the bottom of the pocket. *Id. at* ¶ [0112].

However, there is no teaching in Andersson of a liquid fuel cut-off being magnetically actuated to selectively interrupt liquid fuel. That is, the identification of elements 72 and 77 by the Examiner as magnetically actuating a liquid fuel cut-off is a distortion of what is disclosed in Andersson, as elements 72 and 77 are a stationary armature 72 and copper wire coil winding 77 that are part of an air bleed solenoid valve 18 that operates to control air flow through an air bleed path in the carburetor 12. *See Andersson*, ¶ [0111]. The controlling of a position of air bleed solenoid valve 18 by stationary armature 72 and copper wire coil winding 77 (by inducing magnetic flux) does **not** teach or suggest a liquid fuel cut-off being magnetically actuated to selectively interrupt liquid fuel, as called for in claims 16 and 27.

In light of at least the above, Appellant believes claims 16 and 27 to be patentably distinct from that which is disclosed in the cited references. As such, Appellant respectfully requests reversal of the rejection of claims 16 and 27.

Claims 17 and 28

The Examiner rejected claim 17 under 35 U.S.C. §103 as being unpatentable over Poehlman and Tsuda et al., and further in view of Andersson and rejected claim 28 under 35 U.S.C. §103 as being unpatentable over Sugimoto, Poehlman, and Tsuda et al., and further in view of Andersson.

Champion - EX2137, Page 64 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

Claims 17 and 28 call for 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.

In rejecting claims 17 and 28, the Examiner admitted that Poehlman and Tsuda are silent to the element of the spring and the actuating magnet, as called for in claim 17, but asserted that "Andersson teaches a spring (79) pushing the liquid fuel cut-off (18)" and "an actuating magnet (77 and 72) coupled to the carburetor (12) to selectively pull the liquid fuel cut-off against the spring." *Final Office Action*, supra at 11. Appellant respectfully disagrees with the rejection. Specifically, Appellant believes that the Examiner has mischaracterized that which is disclosed in Andersson in rejecting claims 17 and 28.

As set forth above with regard to claim 16, the elements 72 and 77 identified by the Examiner are a stationary armature 72 and copper wire coil winding 77 that are part of an air bleed solenoid valve 18 that operates to control air flow through an air bleed path in the carburetor 12. *See Andersson*, ¶ [0111]. The stationary armature 72 and copper wire coil winding 77 (along with spring 79) function to control the position of air bleed solenoid valve 18 s to control air flow through an air bleed path in the carburetor 12 – they do not "push[ ] the liquid fuel cut-off *to interrupt liquid fuel*" and/or "selectively pull the liquid fuel cut-off against the spring away from a position *interrupting liquid fuel*," as called for in claims 17 and 28.

In light of at least the above, Appellant believes claims 17 and 28 to be patentably distinct from that which is disclosed in the cited references. As such, Appellant respectfully requests reversal of the rejection of claims 17 and 28.

Claims 18 and 29

The Examiner rejected claim 18 under 35 U.S.C. §103 as being unpatentable over Poehlman and Tsuda et al., and further in view of Andersson and rejected claim 29 under 35 U.S.C. §103 as being unpatentable over Sugimoto, Poehlman, and Tsuda et al., and further in view of Andersson.

Claims 18 and 29 call for 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

Champion - EX2137, Page 65 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

to the carburetor and holding the spring against the plunger and a second section coupled to the first section and enclosing the actuating magnet.

In rejecting claims 18 and 29, the Examiner admitted that Poehlman and Tsuda are silent to the specific elements called for in claim 18, but asserted that Andersson teaches "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." *Final Office Action*, supra at 12. Appellant respectfully disagrees with the rejection. Specifically, Appellant believes that the Examiner has mischaracterized that which is disclosed in Andersson in rejecting claims 18 and 29.

First, the "first section (64)" identified by the Examiner as forming a part/section of a "housing (66) at least partially enclosing the liquid fuel cutoff" distorts what is disclosed in Andersson. The "first section (64)" in Andersson is in fact a valve seat 64 that forms part of a pocket 61 of the carburetor body 48, *see Andersson*, ¶ [0109], it is not part of the housing 66 that at least partially encloses the air bleed solenoid valve 18 (allegedly the claimed "liquid fuel cut-off"). Accordingly, the Examiner has not shown that Andersson discloses a housing that includes a first section enclosing a plunger of the liquid fuel cut-off to the carburetor and holding the spring against the plunger, as called for in claims 18 and 29.

Second, the "second section (74)" identified by the Examiner as forming another part/section of a "housing (66) at least partially enclosing the liquid fuel cutoff" distorts what is disclosed in Andersson. The "second section (74)" in Andersson is in fact a rod 74 that forms part of a stationary armature 72 of the air bleed solenoid valve 18, *see Andersson*, ¶ [0111], it is <u>not</u> part of the housing 66 that at least partially encloses the air bleed solenoid valve 18 (allegedly the claimed "liquid fuel cut-off") and with a second section "enclosing the actuating magnet" (i.e., stationary armature 72 and coil winding 77). Accordingly, the Examiner has not shown that Andersson discloses a housing that includes a second section coupled to the first section and <u>*enclosing*</u> the actuating magnet, as called for in claims 18 and 29.

Champion - EX2137, Page 66 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

In light of at least the above, Appellant believes claims 18 and 29 to be patentably distinct from that which is disclosed in the cited references. As such, Appellant respectfully requests reversal of the rejection of claims 18 and 29.

5. CONCLUSION

For at least the reasons set forth above, that which is called for in claims 1-3 and 5-65 is not taught or suggested in the art of record or a combination thereof. As such, Appellant believes that claims 1-3 and 5-65 are patentably distinct over the art of record.

Appellant appreciates the Board's consideration of these Remarks and respectfully requests timely issuance of a Notice of Allowance.

Respectfully submitted,

/Kevin R. Rosin/

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

Respectfully submitted,

/Timothy J. Ziolkowski/

Timothy J. Ziolkowski
Registration No. 38,368
Phone 262-268-8100 ext. 11
tjz@zpspatents.com

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

Champion - EX2137, Page 67 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

CLAIMS APPENDIX

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;

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

Champion - EX2137, Page 68 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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.

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:

Champion - EX2137, Page 69 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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

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:

Champion - EX2137, Page 70 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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:

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:

Champion - EX2137, Page 71 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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

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.

Champion - EX2137, Page 72 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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.

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

a carburetor comprising:

a float bowl,

a throat, and

Champion - EX2137, Page 73 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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

Champion - EX2137, Page 74 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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.

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.

Champion - EX2137, Page 75 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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

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.

Champion - EX2137, Page 76 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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.

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.

Champion - EX2137, Page 77 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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.

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.

Champion - EX2137, Page 78 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

EVIDENCE APPENDIX:

-- None --

Champion - EX2137, Page 79 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

RELATED PROCEEDINGS APPENDIX:

-- None --

Champion - EX2137, Page 80 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

PTO/AIA/22 (03-13)
Approved for use through 7/31/2016. OMB 0651-0031
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PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a)	Docket Number (Optional) CET1090.042
Application Number **14/925,441**	Filed **10/28/2015**
For **BATTERYLESS DUAL FUEL ENGINE WITH LIQUID FUEL CUT-OFF**	
Art Unit **3747**	Examiner **Long T. Tran**

This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above identified application.

The requested extension and fee are as follows (check time period desired and enter the appropriate fee below):

	Fee	Small Entity Fee	Micro Entity Fee	
[X] One month (37 CFR 1.17(a)(1))	$ 200	$ 100	$ 50	$ 100
[ ] Two months (37 CFR 1.17(a)(2))	$ 600	$ 300	$ 150	$
[ ] Three months (37 CFR 1.17(a)(3))	$ 1400	$ 700	$ 350	$
[ ] Four months (37 CFR 1.17(a)(4))	$ 2200	$ 1100	$ 550	$
[ ] Five months (37 CFR 1.17(a)(5))	$ 3000	$ 1500	$ 750	$

[X] Applicant asserts small entity status. See 37 CFR 1.27.

[ ] Applicant certifies micro entity status. See 37 CFR 1.29.
Form PTO/SB/15A or B or equivalent must either be enclosed or have been submitted previously.

[ ] A check in the amount of the fee is enclosed.

[ ] Payment by credit card. Form PTO-2038 is attached.

[ ] The Director has already been authorized to charge fees in this application to a Deposit Account.

[ ] The Director is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number __.

[X] Payment made via EFS-Web.

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

I am the

[ ] applicant.

[X] attorney or agent of record. Registration Number 55584.

[ ] attorney or agent acting under 37 CFR 1.34. Registration number _____.

/Kevin R. Rosin/ — Signature
January 22, 2020 — Date

Kevin R. Rosin — Typed or printed name
(262) 268-8100 — Telephone Number

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. Submit multiple forms if more than one signature is required, see below.*

[X] *Total of 1 forms are submitted.

This collection of information is required by 37 CFR 1.136(a). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 6 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450**.

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Electronic Patent Application Fee Transmittal

Application Number:	14925441
Filing Date:	28-Oct-2015
Title of Invention:	BATTERYLESS DUAL FUEL ENGINE WITH LIQUID FUEL CUT-OFF
First Named Inventor/Applicant Name:	Kendall J. Collie
Filer:	Kevin Roger Rosin./Robyn Templin
Attorney Docket Number:	CET1090.042

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension - 1 month with $0 paid	2251	1	100	100
Miscellaneous:				
			Total in USD ($)	**100**

Electronic Acknowledgement Receipt

EFS ID:	38364023
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
Receipt Date:	22-JAN-2020
Filing Date:	28-OCT-2015
Time Stamp:	12:46:02
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$100
RAM confirmation Number	E20201LC46223004
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The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Appeal Brief Filed	AppealBrief.pdf	660403 98e661251c7b8d3b83d062bac57ff8bad3bb8c28	no	47
Warnings:					
Information:					
2	Extension of Time	PetForExt.pdf	479482 b7cd63a93720b0418d486a382ccea05b2c7e2d31	no	1
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	30806 557b2796b60bbffb78e439a67c39c24a3baa8a57	no	2
Warnings:					
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		Total Files Size (in bytes):	1170691		

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New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

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.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/AIA/31 (03-14)
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NOTICE OF APPEAL FROM THE EXAMINER TO THE PATENT TRIAL AND APPEAL BOARD

Docket Number (Optional)
CET1090.042

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On October 22, 2019

Signature /Robyn L. Templin/

Typed or printed name Robyn L. Templin

In re Application of
Collie et al.

Application Number	Filed
14/925,441	10/28/2015

For BATTERYLESS DUAL FUEL ENGINE WITH LIQUID FUEL CUT-OFF

Art Unit	Examiner
3747	Long T. Tran

Applicant hereby **appeals** to the Patent Trial and Appeal Board from the last decision of the examiner.

The fee for this Notice of Appeal is (37 CFR 41.20(b)(1)) $ 800.00

[X] Applicant asserts small entity status. See 37 CFR 1.27. Therefore, the fee shown above is reduced by 50%, and the resulting fee is: $ 400.00

[ ] Applicant certifies micro entity status. See 37 CFR 1.29. Therefore, the fee shown above is reduced by 75%, and the resulting fee is: $
Form PTO/SB/15A or B or equivalent must either be enclosed or have been submitted previously.

[ ] A check in the amount of the fee is enclosed.

[ ] Payment by credit card. Form PTO-2038 is attached.

[ ] The Director is hereby authorized to charge any fees which may be required, or credit any overpayment To Deposit Account No. _____.

[X] Payment made via EFS-Web.

[ ] A petition for an extension of time under 37 CFR 1.136(a) (PTO/AIA/22 or equivalent) is enclosed.
For extensions of time in reexamination proceedings, see 37 CFR 1.550.

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I am the

[ ] applicant

[X] attorney or agent of record
Registration number 55584

[ ] attorney or agent acting under 37 CFR 1.34
Registration number _____.

Signature /Kevin R. Rosin/

Typed or printed name Kevin R. Rosin

Telephone number (262) 268-8100

Date October 22, 2019

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. Submit multiple forms if more than one signature is required, see below*.

[X] * Total of 1 forms are submitted.

This collection of information is required by 37 CFR 41.20(b)(1) and 41.31. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11, 1.14 and 41.6. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box `450, Alexandria, VA 22313-1450**.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Electronic Patent Application Fee Transmittal

Application Number:	14925441
Filing Date:	28-Oct-2015
Title of Invention:	BATTERYLESS DUAL FUEL ENGINE WITH LIQUID FUEL CUT-OFF
First Named Inventor/Applicant Name:	Kendall J. Collie
Filer:	Kevin Roger Rosin./Robyn Templin
Attorney Docket Number:	CET1090.042

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
NOTICE OF APPEAL	2401	1	400	400
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**400**

Electronic Acknowledgement Receipt

EFS ID:	37527472
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
Receipt Date:	22-OCT-2019
Filing Date:	28-OCT-2015
Time Stamp:	15:24:12
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$400
RAM confirmation Number	E20190LF24411393
Deposit Account	
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Notice of Appeal Filed	NoticeOfAppeal.pdf	114532 f12ee3bd4e860f594154a45bcff72b883359ab91	no	1
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30549 cd6a08570a1f24f9412f6df1b5ebbad8db4c859b	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	145081		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

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.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/925,441	10/28/2015	Kendall J. Collie	CET1090.042	1059

26629 7590 07/22/2019

ZIOLKOWSKI PATENT SOLUTIONS GROUP, SC (ZPS)
136 S WISCONSIN ST
PORT WASHINGTON, WI 53074

EXAMINER	
TRAN, LONG T	

ART UNIT	PAPER NUMBER
3747	

NOTIFICATION DATE	DELIVERY MODE
07/22/2019	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 (FITF) 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 28 May 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) 1-3 and 5-65 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) 1-3 and 5-65 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. The Amendment filed May 28, 2019 has been entered. No new matter has been added.

3. Claims 1 – 3, 5 – 65 remain pending in the application and have been fully considered.

Claim Rejections - 35 USC § 103

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

5. 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.

6. 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.

7. Claims 1, 3, 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); a liquid fuel valve (43) positioned along a liquid fuel line (19) coupling the liquid fuel source to the carburetor; a gaseous fuel valve (45) positioned along a gaseous fuel line (25) coupling the gaseous fuel source to the carburetor.

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).

8. 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.

9. 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.

10. 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.

11. 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.

12. 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.

13. 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.

14. 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

15. Applicant's arguments filed May 28, 2019 have been fully considered but they are not persuasive.

On Page 12 of the Remarks, the Applicant argues that the combination of Poehlman and Tsuda do not 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.

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).

On Page 14 of the Remarks, the Applicant argues that Poehlman does not teach the liquid and gaseous fuel valves interrupts the fuel. The Examiner

disagrees and maintains the rejection because Poehlman explicitly states that the valves 43 and 45 are moveable between open and closed positions, and control means 41 selectively switches between the two fuels (Col 3 lines 62 – 69).

The additional arguments in the Remarks pertain to the same concepts discussed above.

Conclusion

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

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

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

18. 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

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-20150122230-A1	05-2015	Sarder; Mark J.	F02D19/0647	123/525
*	B	US-20110253102-A1	10-2011	Watanabe; Tsuyoshi	F02D41/064	123/438
*	C	US-20100258099-A1	10-2010	Andersson; Martin N.	F02D31/006	123/676
*	D	US-20070137591-A1	06-2007	Sugimoto; Yasuhiro	F02B43/00	123/41.7
*	E	US-6591817-B2	07-2003	Deutsch; Robert W.	F02D19/0647	123/525
*	F	US-20020134362-A1	09-2002	Deutsch, Robert W.	F02D19/0647	123/575
*	G	US-5809979-A	09-1998	Tsuda; Hiroyuki	F02M13/08	123/525
*	H	US-5611312-A	03-1997	Swanson; Mark S.	F02M1/02	123/179.18
*	I	US-4489699-A	12-1984	Poehlman; Arthur G.	F02B69/04	123/525
*	J	US-4393848-A	07-1983	Poehlman; Arthur G.	F02B69/04	123/525
*	K	US-3783849-A	01-1974	Bramfitt; Thomas Hugh	F02M13/06	123/576
*	L	US-3718000-A	02-1973	Walker; Brooks	F02B11/02	60/285
*	M	US-3659574-A	05-1972	Reschke; Albert H.	F02M13/08	123/525

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

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

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

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

CLAIMS

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

CLAIM		DATE								
Final	Original	04/18/2017	08/02/2017	01/22/2018	06/11/2018	10/04/2018	02/19/2019	07/17/2019		
	1	÷	✓	✓	✓	✓	✓	✓		
	2	÷	✓	✓	✓	✓	✓	✓		
	3	÷	✓	✓	✓	✓	✓	✓		
	4	÷	✓	✓	✓	✓	✓	-		
	5	÷	✓	✓	✓	✓	✓	✓		
	6	÷	✓	✓	✓	✓	✓	✓		
	7	÷	✓	✓	✓	✓	✓	✓		
	8	÷	✓	✓	✓	✓	✓	✓		
	9	÷	✓	✓	✓	✓	✓	✓		
	10	÷	✓	✓	✓	✓	✓	✓		
	11	÷	✓	✓	✓	✓	✓	✓		
	12	÷	✓	✓	✓	✓	✓	✓		
	13	÷	✓	✓	✓	✓	✓	✓		
	14	÷	✓	✓	✓	✓	✓	✓		
	15	÷	✓	✓	✓	✓	✓	✓		
	16	÷	✓	✓	✓	✓	✓	✓		
	17	÷	✓	✓	✓	✓	✓	✓		
	18	÷	✓	✓	✓	✓	✓	✓		
	19	÷	N	✓	✓	✓	✓	✓		
	20	÷	N	✓	✓	✓	✓	✓		
	21	÷	N	✓	✓	✓	✓	✓		
	22	÷	N	✓	✓	✓	✓	✓		
	23	÷	N	✓	✓	✓	✓	✓		
	24	÷	N	✓	✓	✓	✓	✓		
	25	÷	N	✓	✓	✓	✓	✓		
	26	÷	N	✓	✓	✓	✓	✓		
	27	÷	N	✓	✓	✓	✓	✓		
	28	÷	N	✓	✓	✓	✓	✓		
	29	÷	N	✓	✓	✓	✓	✓		
	30	÷	N	✓	✓	✓	✓	✓		
	31	÷	N	✓	✓	✓	✓	✓		
	32	÷	N	✓	✓	✓	✓	✓		
	33	÷	N	✓	✓	✓	✓	✓		
	34	÷	N	✓	✓	✓	✓	✓		
	35	÷	N	✓	✓	✓	✓	✓		
	36	÷	N	✓	✓	✓	✓	✓		
	37	÷	N	✓	✓	✓	✓	✓		
	38	÷	N	✓	✓	✓	✓	✓		
	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.
	Examiner	**Art Unit**
	LONG T TRAN	3747

CLAIM		DATE								
Final	Original	04/18/2017	08/02/2017	01/22/2018	06/11/2018	10/04/2018	02/19/2019	07/17/2019		
	43	÷	N	✓	✓	✓	✓	✓		
	44	÷	N	✓	✓	✓	✓	✓		
	45	÷	N	✓	✓	✓	✓	✓		
	46	÷	N	✓	✓	✓	✓	✓		
	47	÷	N	✓	✓	✓	✓	✓		
	48	÷	N	✓	✓	✓	✓	✓		
	49	÷	N	✓	✓	✓	✓	✓		
	50	÷	N	✓	✓	✓	✓	✓		
	51	÷	N	✓	✓	✓	✓	✓		
	52	÷	N	✓	✓	✓	✓	✓		
	53	÷	N	✓	✓	✓	✓	✓		
	54	÷	N	✓	✓	✓	✓	✓		
	55	÷	N	✓	✓	✓	✓	✓		
	56	÷	✓	✓	✓	✓	✓	✓		
	57	÷	✓	✓	✓	✓	✓	✓		
	58	÷	N	✓	✓	✓	✓	✓		
	59	÷	N	✓	✓	✓	✓	✓		
	60	÷	✓	✓	✓	✓	✓	✓		
	61	÷	✓	✓	✓	✓	✓	✓		
	62	÷	N	✓	✓	✓	✓	✓		
	63	÷	N	✓	✓	✓	✓	✓		
	64						✓	✓		
	65						✓	✓		

Champion - EX2137, Page 111 of 585

Generac Power Systems, Inc. v. Champion Power Equip., Inc.

IPR2025-01457

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
Updated text search	07/17/2019	LT

Champion - EX2137, Page 112 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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

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

Champion - EX2137, Page 113 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L2	1069	engine and ((dual double two second$4 plural$4 multi multiple bi pair supplement$4) near2 fuel) and ((switch$4 chang$4 transition$3 alternat44)) and (valve same (carburetor carburretor) same fuel) and solenoid	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/07/17 16:32

7/17/2019 4:33:14 PM
C:\Users\ltran2\Documents\EAST\Workspaces\14925441.wsp

Customer No. 26629 Patent
Confirmation No. 1059 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

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

Mailing

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

37 CFR 1.8(a) **37 CFR 1.10**

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□ transmitted by facsimile to Fax No.: 571-273-8300 addressed to **Examiner Long T. Tran** at the Patent and Trademark Office.

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Date: May 28, 2019 /Robyn L. Templin/
Signature

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

AMENDMENT/RESPONSE TO OFFICE ACTION
MAILED FEBRUARY 26, 2019

Dear Sir:

Responsive to the Office Action mailed February 26, 2019, please amend the Application as follows:

Electronic Acknowledgement Receipt

EFS ID:	36120812
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
Receipt Date:	28-MAY-2019
Filing Date:	28-OCT-2015
Time Stamp:	10:27:24
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		Response.pdf	226181 762d054b28db0c5da62cb11e928a41b401ff5526	yes	22

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Applicant Arguments/Remarks Made in an Amendment	12	22
	Claims	2	11
	Amendment/Req. Reconsideration-After Non-Final Reject	1	1
Warnings:			
Information:			
	Total Files Size (in bytes):	226181	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

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.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

REMARKS

Claims 1-65 are pending in the present application. In the Office Action mailed February 26, 2019, the Examiner rejected claims 1, 3, 4, 12, 13, 35, 36, 64, and 65 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.

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*, February 26, 2019, p. 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).

Without acquiescing to the rejection, Applicant has amended claim 1 to further clarify the scope of the invention. As amended, claim 1 now further calls for a liquid fuel valve positioned

Champion - EX2137, Page 118 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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

Applicant believes that the combination of Poehlman and Tsuda fail to disclose the combination of elements now called for in claim 1.

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 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

Champion - EX2137, Page 119 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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*

Champion - EX2137, Page 120 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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

Champion - EX2137, Page 121 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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.

Champion - EX2137, Page 122 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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

Champion - EX2137, Page 123 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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.

Champion - EX2137, Page 124 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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

Champion - EX2137, Page 125 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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.

Champion - EX2137, Page 126 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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,

/Kevin R. Rosin/

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

Dated: May 28, 2019
Attorney Docket No.: CET1090.042

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

Champion - EX2137, Page 127 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

General Authorization and Extension of Time

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

/Kevin R. Rosin/

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

Dated: May 28, 2019
Attorney Docket No.: CET1090.042

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

Champion - EX2137, Page 128 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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.

Champion - EX2137, Page 129 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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

Champion - EX2137, Page 130 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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:

Champion - EX2137, Page 131 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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

Champion - EX2137, Page 132 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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.

Champion - EX2137, Page 133 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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.

Champion - EX2137, Page 134 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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

Champion - EX2137, Page 135 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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.

Champion - EX2137, Page 136 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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.

Champion - EX2137, Page 137 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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.

Champion - EX2137, Page 138 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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ZIOLKOWSKI PATENT SOLUTIONS GROUP, SC (ZPS)
136 S WISCONSIN ST
PORT WASHINGTON, WI 53074

EXAMINER	
TRAN, LONG T	

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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):

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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: _____.

Champion - EX2137, Page 140 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-20150122230-A1	05-2015	Sarder; Mark J.	F02D19/0647	123/525
*	B	US-20110253102-A1	10-2011	Watanabe; Tsuyoshi	F02D41/064	123/438
*	C	US-20100258099-A1	10-2010	Andersson; Martin N.	F02D31/006	123/676
*	D	US-20070137591-A1	06-2007	Sugimoto; Yasuhiro	F02B43/00	123/41.7
*	E	US-6591817-B2	07-2003	Deutsch; Robert W.	F02D19/0647	123/525
*	F	US-20020134362-A1	09-2002	Deutsch, Robert W.	F02D19/0647	123/575
*	G	US-5809979-A	09-1998	Tsuda; Hiroyuki	F02M13/08	123/525
*	H	US-5611312-A	03-1997	Swanson; Mark S.	F02M1/02	123/179.18
*	I	US-4489699-A	12-1984	Poehlman; Arthur G.	F02B69/04	123/525
*	J	US-4393848-A	07-1983	Poehlman; Arthur G.	F02B69/04	123/525
*	K	US-3783849-A	01-1974	Bramfitt; Thomas Hugh	F02M13/06	123/179.16
*	L	US-3718000-A	02-1973	Walker; Brooks	F02B11/02	123/525
*	M	US-3659574-A	05-1972	Reschke; Albert H.	F02M13/08	123/525

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

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

Champion - EX2137, Page 157 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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

Champion - EX2137, Page 158 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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

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

CLAIMS

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

CLAIM		DATE								
Final	Original	04/18/2017	08/02/2017	01/22/2018	06/11/2018	10/04/2018	02/19/2019			
	1	÷	✓	✓	✓	✓	✓			
	2	÷	✓	✓	✓	✓	✓			
	3	÷	✓	✓	✓	✓	✓			
	4	÷	✓	✓	✓	✓	✓			
	5	÷	✓	✓	✓	✓	✓			
	6	÷	✓	✓	✓	✓	✓			
	7	÷	✓	✓	✓	✓	✓			
	8	÷	✓	✓	✓	✓	✓			
	9	÷	✓	✓	✓	✓	✓			
	10	÷	✓	✓	✓	✓	✓			
	11	÷	✓	✓	✓	✓	✓			
	12	÷	✓	✓	✓	✓	✓			
	13	÷	✓	✓	✓	✓	✓			
	14	÷	✓	✓	✓	✓	✓			
	15	÷	✓	✓	✓	✓	✓			
	16	÷	✓	✓	✓	✓	✓			
	17	÷	✓	✓	✓	✓	✓			
	18	÷	✓	✓	✓	✓	✓			
	19	÷	N	✓	✓	✓	✓			
	20	÷	N	✓	✓	✓	✓			
	21	÷	N	✓	✓	✓	✓			
	22	÷	N	✓	✓	✓	✓			
	23	÷	N	✓	✓	✓	✓			
	24	÷	N	✓	✓	✓	✓			
	25	÷	N	✓	✓	✓	✓			
	26	÷	N	✓	✓	✓	✓			
	27	÷	N	✓	✓	✓	✓			
	28	÷	N	✓	✓	✓	✓			
	29	÷	N	✓	✓	✓	✓			
	30	÷	N	✓	✓	✓	✓			
	31	÷	N	✓	✓	✓	✓			
	32	÷	N	✓	✓	✓	✓			
	33	÷	N	✓	✓	✓	✓			
	34	÷	N	✓	✓	✓	✓			
	35	÷	N	✓	✓	✓	✓			
	36	÷	N	✓	✓	✓	✓			
	37	÷	N	✓	✓	✓	✓			
	38	÷	N	✓	✓	✓	✓			
	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.
	Examiner	**Art Unit**
	LONG T TRAN	3747

CLAIM		DATE								
Final	Original	04/18/2017	08/02/2017	01/22/2018	06/11/2018	10/04/2018	02/19/2019			
	43	÷	N	✓	✓	✓	✓			
	44	÷	N	✓	✓	✓	✓			
	45	÷	N	✓	✓	✓	✓			
	46	÷	N	✓	✓	✓	✓			
	47	÷	N	✓	✓	✓	✓			
	48	÷	N	✓	✓	✓	✓			
	49	÷	N	✓	✓	✓	✓			
	50	÷	N	✓	✓	✓	✓			
	51	÷	N	✓	✓	✓	✓			
	52	÷	N	✓	✓	✓	✓			
	53	÷	N	✓	✓	✓	✓			
	54	÷	N	✓	✓	✓	✓			
	55	÷	N	✓	✓	✓	✓			
	56	÷	✓	✓	✓	✓	✓			
	57	÷	✓	✓	✓	✓	✓			
	58	÷	N	✓	✓	✓	✓			
	59	÷	N	✓	✓	✓	✓			
	60	÷	✓	✓	✓	✓	✓			
	61	÷	✓	✓	✓	✓	✓			
	62	÷	N	✓	✓	✓	✓			
	63	÷	N	✓	✓	✓	✓			
	64						✓			
	65						✓			

Champion - EX2137, Page 160 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

Customer No. 26629 Patent
Confirmation No. 1059 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

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

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37 CFR 1.8(a) **37 CFR 1.10**

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Date: January 11, 2019 /Robyn L. Templin/
Signature

Commissioner for Patents
P.O. Box 1450
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.

Champion - EX2137, Page 162 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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

Champion - EX2137, Page 163 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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:

Champion - EX2137, Page 164 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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

Champion - EX2137, Page 165 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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.

Champion - EX2137, Page 166 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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.

Champion - EX2137, Page 167 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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

Champion - EX2137, Page 168 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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.

Champion - EX2137, Page 169 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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.

Champion - EX2137, Page 170 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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.

Champion - EX2137, Page 171 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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
Receipt Date:	11-JAN-2019
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Time Stamp:	11:41:52
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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	Total Files Size (in bytes):	216584	

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New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

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.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

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*.

Champion - EX2137, Page 174 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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

Champion - EX2137, Page 175 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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

Champion - EX2137, Page 176 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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 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 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

Champion - EX2137, Page 177 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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.

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

Champion - EX2137, Page 178 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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.

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 Poehlman in view of Sugimoto. 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 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

Champion - EX2137, Page 179 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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 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

Champion - EX2137, Page 180 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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.

As previously set forth above with respect to claim 35, the liquid fuel control valve 43 in Poehlman referenced by the examiner as the claimed "liquid fuel cut-off" 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*, 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 1-65.

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,

/Kevin R. Rosin/

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

Dated: January 11, 2019
Attorney Docket No.: CET1090.042

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

Champion - EX2137, Page 181 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

General Authorization and Extension of Time

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

/Kevin R. Rosin/

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

Dated: January 11, 2019
Attorney Docket No.: CET1090.042

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

Champion - EX2137, Page 182 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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ZIOLKOWSKI PATENT SOLUTIONS GROUP, SC (ZPS)
136 S WISCONSIN ST
PORT WASHINGTON, WI 53074

EXAMINER
TRAN, LONG T

ART UNIT	PAPER NUMBER
3747	

NOTIFICATION DATE	DELIVERY MODE
10/11/2018	ELECTRONIC

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

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

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

info@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 (First Inventor to File) Status Yes

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

Period for Reply

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

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

Status

1)☒ Responsive to communication(s) filed on *14 September 2018*.

☐ 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) *1-63* 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) *1-63* 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: _____.

Champion - EX2137, Page 184 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on September 14, 2018 has been entered.

3. Claims 1 – 63 remain pending in the application and have been fully considered.

Claim Rejections - 35 USC § 103

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

5. 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.

6. 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.

7. Claims 1, 3 – 4, 12 – 13, 35 - 36 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).

8. 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.

9. 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.

10. 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.

11. 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.

12. 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.

13. 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.

14. 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

15. Applicant's arguments with respect to claims 1 – 63 have been considered but are moot because the arguments do not apply to any of the references being used in the current rejection.

Conclusion

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

17. 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 M-F, 7:30am - 5:00pm.

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

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-2015/0122230 A1	05-2015	Sarder; Mark J.	F02D19/0647	123/525
*	B	US-2011/0253102 A1	10-2011	Watanabe; Tsuyoshi	F02D41/064	123/438
*	C	US-2010/0258099 A1	10-2010	Andersson; Martin N.	F02D31/006	123/676
*	D	US-2007/0137591 A1	06-2007	Sugimoto; Yasuhiro	F02B43/00	123/41.7
*	E	US-6,591,817 B2	07-2003	Deutsch; Robert W.	F02D19/0647	123/525
*	F	US-2002/0134362 A1	09-2002	Deutsch, Robert W.	F02D19/0647	123/575
*	G	US-5,809,979 A	09-1998	Tsuda; Hiroyuki	F02M13/08	123/525
*	H	US-5,611,312 A	03-1997	Swanson; Mark S.	F02M1/02	123/179.18
*	I	US-4,489,699 A	12-1984	Poehlman; Arthur G.	F02B69/04	123/525
*	J	US-4,393,848 A	07-1983	Poehlman; Arthur G.	F02B69/04	123/525
*	K	US-3,783,849 A	01-1974	Bramfitt; Thomas Hugh	F02M13/06	123/179.16
*	L	US-3,718,000 A	02-1973	Walker; Brooks	F02B11/02	123/525
*	M	US-3,659,574 A	05-1972	Reschke; Albert H.	F02M13/08	123/525

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

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

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14925441	COLLIE ET AL.
	Examiner	**Art Unit**
	LONG T TRAN	3747

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

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

CLAIM		DATE								
Final	Original	04/18/2017	08/02/2017	01/22/2018	06/11/2018	10/04/2018				
	1	÷	✓	✓	✓	✓				
	2	÷	✓	✓	✓	✓				
	3	÷	✓	✓	✓	✓				
	4	÷	✓	✓	✓	✓				
	5	÷	✓	✓	✓	✓				
	6	÷	✓	✓	✓	✓				
	7	÷	✓	✓	✓	✓				
	8	÷	✓	✓	✓	✓				
	9	÷	✓	✓	✓	✓				
	10	÷	✓	✓	✓	✓				
	11	÷	✓	✓	✓	✓				
	12	÷	✓	✓	✓	✓				
	13	÷	✓	✓	✓	✓				
	14	÷	✓	✓	✓	✓				
	15	÷	✓	✓	✓	✓				
	16	÷	✓	✓	✓	✓				
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	18	÷	✓	✓	✓	✓				
	19	÷	N	✓	✓	✓				
	20	÷	N	✓	✓	✓				
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	22	÷	N	✓	✓	✓				
	23	÷	N	✓	✓	✓				
	24	÷	N	✓	✓	✓				
	25	÷	N	✓	✓	✓				
	26	÷	N	✓	✓	✓				
	27	÷	N	✓	✓	✓				
	28	÷	N	✓	✓	✓				
	29	÷	N	✓	✓	✓				
	30	÷	N	✓	✓	✓				
	31	÷	N	✓	✓	✓				
	32	÷	N	✓	✓	✓				
	33	÷	N	✓	✓	✓				
	34	÷	N	✓	✓	✓				
	35	÷	N	✓	✓	✓				
	36	÷	N	✓	✓	✓				

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14925441	COLLIE ET AL.
	Examiner	**Art Unit**
	LONG T TRAN	3747

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

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

CLAIM		DATE								
Final	Original	04/18/2017	08/02/2017	01/22/2018	06/11/2018	10/04/2018				
	37	÷	N	✓	✓	✓				
	38	÷	N	✓	✓	✓				
	39	÷	N	✓	✓	✓				
	40	÷	N	✓	✓	✓				
	41	÷	N	✓	✓	✓				
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	61	÷	✓	✓	✓	✓				
	62	÷	N	✓	✓	✓				
	63	÷	N	✓	✓	✓				

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14925441	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

Champion - EX2137, Page 203 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S46	463	engine and ((dual double two second$4 plural$4 multi multiple bi pair supplement$4) near2 fuel near20 (switch$4 chang$4 transition$3 alternat44)) and (valve same (carburetor carburretor) same fuel)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/10/04 10:00
S47	313	engine and ((dual double two second$4 plural$4 multi multiple bi pair supplement$4) near2 fuel near20 (switch$4 chang$4 transition$3 alternat44)) and (valve near20 (carburetor carburretor) near20 fuel)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/10/04 10:02
S48	72	engine and ((dual double two second$4 plural$4 multi multiple bi pair supplement$4) near2 fuel near20 (switch$4 chang$4 transition$3 alternat44)) and (valve near20 (carburetor carburretor) near20 fuel) same solenoid	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/10/04 10:59

10/4/2018 1:25:58 PM
C:\Users\ltran2\Documents\EAST\Workspaces\14925441.wsp

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 14/925,441	Filing Date 10/28/2015	☐ To be Mailed

ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT	09/14/2018	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 65	Minus	** 65	= 0	X $50 =	0
	Independent (37 CFR 1.16(h))	* 4	Minus	***4	= 0	X $230 =	0
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						TOTAL ADD'L FEE	0

AMENDMENT		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

LIE
TAMARA HARRELL

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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Request for Continued Examination (RCE) Transmittal

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

Application Number	14/925,441
Filing Date	10/28/2015
First Named Inventor	Collie et al.
Art Unit	3747
Examiner Name	Long T. Tran
Attorney Docket Number	CET1090.042

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. See Instruction Sheet for RCEs (not to be submitted to the USPTO) on page 2.

1. Submission required under 37 CFR 1.114 Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).
   a. ☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.
      i. ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____
      ii. ☐ Other _____
   b. ☒ Enclosed
      i. ☒ Amendment/Reply
      ii. ☐ Affidavit(s)/Declaration(s)
      iii. ☐ Information Disclosure Statement (IDS)
      iv. ☐ Other _____
2. Miscellaneous
   a. ☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of _____ months. (Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)
   b. ☐ Other _____
3. Fees The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.
   a. ☐ The Director is hereby authorized to charge the following fees, any underpayment of fees, or credit any overpayments, to Deposit Account No. _____.
      i. ☐ RCE fee required under 37 CFR 1.17(e)
      ii. ☐ Extension of time fee (37 CFR 1.136 and 1.17)
      iii. ☐ Other _____
   b. ☐ Check in the amount of $ _____ enclosed
   c. ☐ Payment by credit card (Form PTO-2038 enclosed)
   d. ☒ Payment by EFS-Web

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED			
Signature	/Kevin R. Rosin/	Date	September 14, 2018
Name (Print/Type)	Kevin R. Rosin	Registration No.	55584

CERTIFICATE OF MAILING OR TRANSMISSION

I hereby certify that this correspondence is being EFS-Web transmitted to the United States Patent and Trademark Office (USPTO), deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Mail Stop RCE, Commissioner For Patents, P.O. Box 1450, Alexandria, VA 22313-1450 or facsimile transmitted to the USPTO on the date shown below.

Signature	/Robyn L. Templin/		
Name (Print/Type)	Robyn L. Templin	Date	September 14, 2018

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Mail Stop RCE, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**
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Customer No. 26629 Patent
Confirmation No. 1059 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: September 14, 2018 /Robyn L. Templin/
Signature

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

AFTER-FINAL
AMENDMENT/RESPONSE TO FINAL OFFICE ACTION
MAILED JUNE 14, 2018

Dear Sir:

Responsive to the Final Office Action mailed June 14, 2018, please amend the Application as follows:

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; and

a liquid fuel cut-off ~~physically attached~~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. (Currently Amended) 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.

Champion - EX2137, Page 208 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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

Champion - EX2137, Page 209 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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:

Champion - EX2137, Page 210 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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

Champion - EX2137, Page 211 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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.

Champion - EX2137, Page 212 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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.

Champion - EX2137, Page 213 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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

Champion - EX2137, Page 214 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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.

Champion - EX2137, Page 215 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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.

Champion - EX2137, Page 216 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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.

Champion - EX2137, Page 217 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

REMARKS

Claims 1-65 are pending in the present application. In the Final Office Action mailed June 14, 2018, the Examiner rejected claims 1, 3, 4, 12, 13, 35, and 36 under 35 U.S.C. §102(a)(2) as being anticipated by Poehlman (USP 4,489,699). The Examiner next rejected claims 2, 5-10, 19, 20, 30-34, 48, 49, 56, 57, and 60-63 under 35 U.S.C. §103 as being unpatentable over Poehlman in view of Sugimoto et al. (US Pub. 2007/0137591). Claim 11 was rejected under 35 U.S.C. §103 as being unpatentable over Poehlman in view of 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 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 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. and Poehlman, 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. and Poehlman, and further in view of Andersson et al.

Without acquiescing to the rejections, Applicant has elected to amend independent claim 1 (and dependent claim 7) in order to further clarify the scope of the invention, with amendments and arguments presented here below for consideration along with an accompanying Request for Continued Examination (RCE).

Rejections under 35 U.S.C. §102 as being anticipated by Poehlman

Claim 1

The Examiner rejected independent claim 1 under 35 U.S.C. §102(a)(2) as being anticipated by Poehlman. Responsive to the rejection, Applicant has elected to amend claim 1 in the present response to further clarify the scope of the invention. Support for the amendment can be found in at least Paragraphs [0050]-[0051], [0064]-[0065] of the Specification and in FIGS. 4A-8. No new matter is added by way of the amendment.

Amended claim 1 calls for, in part, a liquid fuel cut-off *incorporated into* the carburetor to interrupt liquid fuel upon actuation of the switch from liquid fuel to gaseous fuel. Applicant believes that amended claim 1 is patentably distinct from Poehlman at least for the reason that Poehlman fails to teach or suggest such a liquid fuel cut-off that is incorporated into the carburetor to interrupt liquid fuel upon actuation of the switch from liquid fuel to gaseous fuel.

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

Champion - EX2137, Page 218 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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 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.

However, Poehlman does <u>not</u> teach or suggest a liquid fuel cut-off incorporated into the carburetor, as instead the liquid fuel control valve 43 in Poehlman is located along the liquid fuel supply line 19 upstream from the carburetor 15. *Poehlman*, col. 3, lns. 64-66; FIG. 1. Thus, the liquid fuel control valve 43 is in fact positioned off of and remote from the carburetor 15 and is <u>not</u> incorporated into the carburetor as called for in claim 1.

In light of at least the above, Applicant believes claim 1 to be patentably distinct from that which is disclosed in the cited reference. As such, Applicant respectfully requests withdrawal of the rejection of claim 1 under 35 U.S.C. §102, and the rejection of all claims depending therefrom.

<u>Claim 7</u>

The rejected claim 7 under 35 U.S.C. §102(a)(2) as being anticipated by Poehlman. Responsive to the rejection, Applicant has elected to amend claim 7 in the present response to

Champion - EX2137, Page 219 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

further clarify the scope of the invention. Support for the amendment can be found in at least Paragraph [0050] of the Specification.

As amended, claim 7 calls for the liquid fuel cut-off to be 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 indicated above with respect to claim 1, Poehlman does not teach or suggest a liquid fuel cut-off (that 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 incorporated into the carburetor. Instead, the liquid fuel control valve 43 in Poehlman is located along the liquid fuel supply line 19 *upstream from the carburetor 15*. *Poehlman*, col. 3, lns. 64-66; FIG. 1. Thus, the liquid fuel control valve 43 is in fact positioned off of and remote from the carburetor 15 and does not operate *within the carburetor* to control liquid fuel flow to the engine as called for in claim 7.

In light of at least the above, Applicant believes claim 7 to be patentably distinct from that which is disclosed in the cited reference. As such, Applicant respectfully requests withdrawal of the rejection of claim 7 under 35 U.S.C. §102

Claim 35

The Examiner rejected independent claim 35 under 35 U.S.C. §102(a)(2) as being anticipated by Poehlman.

Claim 35 calls for, in part, a carburetor comprising 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.

Applicant believes claim 35 is patentably distinct from Poehlman at least for the reason that Poehlman fails to teach or suggest a carburetor comprising 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. That is, Poehlman does not 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. While the Examiner has asserted that Poehlman discloses "fuel passage (19) to provide fuel from the float bowl to the throat" and "fuel shutoff (43) coupled to the carburetor having a first end in the carburetor that actuates to close the fuel passage," *Final Office Action*, June 14, 2018, p. 3-4, the fuel control valve 43 does not have a first end in the

Champion - EX2137, Page 220 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

carburetor that actuates to close the fuel passage as now called for in claim 35. Instead, the liquid fuel control valve 43 is located along the liquid fuel supply line 19 *upstream from the carburetor 15* – ***not*** *in a fuel passage* that extends from the float bowl to the throat in the carburetor 15. *See Poehlman,* at FIG. 1.

In light of at least the above, Applicant believes claim 35 to be patentably distinct from that which is disclosed in the cited reference. As such, Applicant respectfully requests withdrawal of the rejection of claim 35 under 35 U.S.C. §102, and the rejection of all claims depending therefrom.

Rejections under 35 U.S.C. §103 over Poehlman in view of Sugimoto

Claims 19 and 48

The Examiner rejected independent claims 19 and 48 together under 35 U.S.C §103 as being unpatentable over Poehlman in view of Sugimoto.

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 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

Champion - EX2137, Page 221 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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.

As previously set forth above with respect to claim 35, the liquid fuel control valve 43 in Poehlman referenced by the examiner as the claimed "liquid fuel cut-off" 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 to the throat in the carburetor 15*, 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.

Champion - EX2137, Page 222 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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 1-65.

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,

/Kevin R. Rosin/

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

Dated: September 14, 2018
Attorney Docket No.: CET1090.042

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

Champion - EX2137, Page 223 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

General Authorization and Extension of Time

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

/Kevin R. Rosin/

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Champion - EX2137, Page 224 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

Electronic Patent Application Fee Transmittal

Application Number:	14925441
Filing Date:	28-Oct-2015
Title of Invention:	BATTERYLESS DUAL FUEL ENGINE WITH LIQUID FUEL CUT-OFF
First Named Inventor/Applicant Name:	Kendall J. Collie
Filer:	Kevin Roger Rosin./Robyn Templin
Attorney Docket Number:	CET1090.042

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
RCE- 1ST REQUEST	2801	1	650	650
		Total in USD ($)		**650**

Electronic Acknowledgement Receipt

EFS ID:	33721289
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
Receipt Date:	14-SEP-2018
Filing Date:	28-OCT-2015
Time Stamp:	10:37:57
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$650
RAM confirmation Number	091418INTEFSW10424300
Deposit Account	
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Request for Continued Examination (RCE)	RCETransmittal.pdf	133870 2b6fc9755fb9ed5b7db5bfc025f7973ca6fffc7b	no	1
Warnings:					
This is not a USPTO supplied RCE SB30 form.					
Information:					
2		Response.pdf	201990 2a303167af70cdb1f85884294fbdf7911d62bf83	yes	18

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Amendment Submitted/Entered with Filing of CPA/RCE	1	1
	Claims	2	11
	Applicant Arguments/Remarks Made in an Amendment	12	18

Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	30609 ed3d49f267d23ee66163fdf59004219330c42e35	no	2
Warnings:					
Information:					
			Total Files Size (in bytes):	366469	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

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.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/925,441	10/28/2015	Kendall J. Collie	CET1090.042	1059

26629 7590 08/16/2018
ZIOLKOWSKI PATENT SOLUTIONS GROUP, SC (ZPS)
136 S WISCONSIN ST
PORT WASHINGTON, WI 53074

EXAMINER
TRAN, LONG T

ART UNIT	PAPER NUMBER
3747	

NOTIFICATION DATE	DELIVERY MODE
08/16/2018	ELECTRONIC

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

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

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

info@zpspatents.com
sml@zpspatents.com

Advisory Action Before the Filing of an Appeal Brief	**Application No.** 14/925,441	**Applicant(s)** COLLIE ET AL.	
	Examiner LONG T. TRAN	**Art Unit** 3747	**AIA (First Inventor to File) Status** Yes

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

THE REPLY FILED 03 August 2018 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

NO NOTICE OF APPEAL FILED

1. ☒ The reply was filed after a final rejection. No Notice of Appeal has been filed. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114 if this is a utility or plant application. Note that RCEs are not permitted in design applications. The reply must be filed within one of the following time periods:
   a) ☒ The period for reply expires *3* months from the mailing date of the final rejection.
   b) ☐ The period for reply expires on: (1) the mailing date of this Advisory Action; or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.
   c) ☐ A prior Advisory Action was mailed more than 3 months after the mailing date of the final rejection in response to a first after-final reply filed within 2 months of the mailing date of the final rejection. The current period for reply expires months from the mailing date of *the prior Advisory Action* or SIX MONTHS from the mailing date of the final rejection, whichever is earlier.
   Examiner Note: If box 1 is checked, check either box (a), (b) or (c). ONLY CHECK BOX (b) WHEN THIS ADVISORY ACTION IS THE FIRST RESPONSE TO APPLICANT'S FIRST AFTER-FINAL REPLY WHICH WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. ONLY CHECK BOX (c) IN THE LIMITED SITUATION SET FORTH UNDER BOX (c). See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) or (c) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

NOTICE OF APPEAL

2. ☐ The Notice of Appeal was filed on _____. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37 CFR 41.37(a).

AMENDMENTS

3. ☐ The proposed amendments filed after a final rejection, but prior to the date of filing a brief, will not be entered because
   a) ☐ They raise new issues that would require further consideration and/or search (see NOTE below);
   b) ☐ They raise the issue of new matter (see NOTE below);
   c) ☐ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
   d) ☐ They present additional claims without canceling a corresponding number of finally rejected claims.
   NOTE: _____. (See 37 CFR 1.116 and 41.33(a)).
4. ☐ The amendments are not in compliance with 37 CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).
5. ☐ Applicant's reply has overcome the following rejection(s): _____.
6. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
7. ☒ For purposes of appeal, the proposed amendment(s): (a) ☐ will not be entered, or (b) ☒ will be entered, and an explanation of how the new or amended claims would be rejected is provided below or appended.

AFFIDAVIT OR OTHER EVIDENCE

8. ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.
9. ☐ The affidavit or other evidence filed after final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).
10. ☐ The affidavit or other evidence filed after the date of filing the Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing of good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).
11. ☐ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

REQUEST FOR RECONSIDERATION/OTHER

12. ☒ The request for reconsideration has been considered but does NOT place the application in condition for allowance because: The liquid fuel cutoff is connected to the valves via wires, which in turn is connected to the carburetor. This network of wires is considered a physical attachment.
13. ☐ Note the attached Information *Disclosure Statement*(s). (PTO/SB/08) Paper No(s). _____
14. ☒ Other: PTO2323.

STATUS OF CLAIMS

15. The status of the claim(s) is (or will be) as follows:
    Claim(s) allowed: .
    Claim(s) objected to: .
    Claim(s) rejected: 1-63.
    Claim(s) withdrawn from consideration:

/LONG T TRAN/
Primary Examiner, Art Unit 3747

Champion - EX2137, Page 231 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

AFCP 2.0 Decision	Application No.	Applicant(s)
	14/925,441	COLLIE ET AL.
	Examiner	Art Unit
	LONG T. TRAN	3747

This is in response to the After Final Consideration Pilot request filed 03 August 2018.

1. **Improper Request** – The AFCP 2.0 request is improper for the following reason(s) and the after final amendment submitted with the request will be treated under pre-pilot procedure.

   ☐ An AFCP 2.0 request form PTO/SB/434 (or equivalent document) was not submitted.

   ☐ A non-broadening amendment to at least one independent claim was not submitted.

   ☐ A proper AFCP 2.0 request was submitted in response to the most recent final rejection.

   ☐ Other:

2. **Proper Request**

   A. After final amendment submitted with the request will not be treated under AFCP 2.0.
   The after final amendment cannot be reviewed and a search conducted within the guidelines of the pilot program.

   ☒ The after final amendment will be treated under pre-pilot procedure.

   B. Updated search and/or completed additional consideration.
   The examiner performed an updated search and/or completed additional consideration of the after final amendment within the time authorized for the pilot program. The result(s) of the updated search and/or completed additional consideration are:

   ☐ 1. All of the rejections in the most recent final Office action are overcome and a Notice of Allowance is issued herewith.

   ☐ 2. The after final amendment would not overcome all of the rejections in the most recent final Office action. See attached interview summary for further details.

   ☐ 3. The after final amendment was reviewed, and it raises a new issue(s). See attached interview summary for further details.

   ☐ 4. The after final amendment raises new issues, but would overcome all of the rejections in the most recent final Office action. A decision on determining allowability could not be made within the guidelines of the pilot. See attached interview summary for further details, including any newly discovered prior art.

   ☐ 5. Other:

   Examiner Note: Please attach an interview summary when necessary as described above.

Doc Code: A.NE.AFCP
Document Description: After Final Consideration Pilot Program Request

PTO/SB/434 (05-13)

CERTIFICATION AND REQUEST FOR CONSIDERATION UNDER THE AFTER FINAL CONSIDERATION PILOT PROGRAM 2.0

Practitioner Docket No.:	Application No.:	Filing Date:
CET1090.042	14/925,441	October 28, 2015
First Named Inventor:	**Title:**	
Kendall J. Collie	BATTERYLESS DUAL FUEL ENGINE WITH LIQUID FUEL CUT-OFF	

APPLICANT HEREBY CERTIFIES THE FOLLOWING AND REQUESTS CONSIDERATION UNDER THE AFTER FINAL CONSIDERATION PILOT PROGRAM 2.0 (AFCP 2.0) OF THE ACCOMPANYING RESPONSE UNDER 37 CFR 1.116.

1. The above-identified application is (i) an original utility, plant, or design nonprovisional application filed under 35 U.S.C. 111(a) [a continuing application (*e.g.*, a continuation or divisional application) is filed under 35 U.S.C. 111(a) and is eligible under (i)], or (ii) an international application that has entered the national stage in compliance with 35 U.S.C. 371(c).
2. The above-identified application contains an outstanding final rejection.
3. Submitted herewith is a response under 37 CFR 1.116 to the outstanding final rejection. The response includes an amendment to at least one independent claim, and the amendment does not broaden the scope of the independent claim in any aspect.
4. This certification and request for consideration under AFCP 2.0 is the only AFCP 2.0 certification and request filed in response to the outstanding final rejection.
5. Applicant is willing and available to participate in any interview requested by the examiner concerning the present response.
6. This certification and request is being filed electronically using the Office's electronic filing system (EFS-Web).
7. Any fees that would be necessary consistent with current practice concerning responses after final rejection under 37 CFR 1.116, *e.g.*, extension of time fees, are being concurrently filed herewith. [There is no additional fee required to request consideration under AFCP 2.0.]
8. By filing this certification and request, applicant acknowledges the following:
    - Reissue applications and reexamination proceedings are not eligible to participate in AFCP 2.0.
    - The examiner will verify that the AFCP 2.0 submission is compliant, *i.e.*, that the requirements of the program have been met (see items 1 to 7 above). For compliant submissions:
        - The examiner will review the response under 37 CFR 1.116 to determine if additional search and/or consideration (i) is necessitated by the amendment and (ii) could be completed within the time allotted under AFCP 2.0. If additional search and/or consideration is required but cannot be completed within the allotted time, the examiner will process the submission consistent with current practice concerning responses after final rejection under 37 CFR 1.116, *e.g.*, by mailing an advisory action.
        - If the examiner determines that the amendment does not necessitate additional search and/or consideration, or if the examiner determines that additional search and/or consideration is required and could be completed within the allotted time, then the examiner will consider whether the amendment places the application in condition for allowance (after completing the additional search and/or consideration, if required). If the examiner determines that the amendment does not place the application in condition for allowance, then the examiner will contact the applicant and request an interview.
            - The interview will be conducted by the examiner, and if the examiner does not have negotiation authority, a primary examiner and/or supervisory patent examiner will also participate.
            - If the applicant declines the interview, or if the interview cannot be scheduled within ten (10) calendar days from the date that the examiner first contacts the applicant, then the examiner will proceed consistent with current practice concerning responses after final rejection under 37 CFR 1.116.

Signature	Date
/Kevin R. Rosin/	August 3, 2018
Name (Print/Typed) Kevin R. Rosin	Practitioner Registration No. 55,584

***Note**: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. Submit multiple forms if more than one signature is required, see below*.*

☑ * Total of 1 forms are submitted.

Privacy Act Statement

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

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

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

REMARKS

Claims 1-63 are pending in the present application. In the Final Office Action mailed June 14, 2018, the Examiner rejected claims 1, 3, 4, 12, 13, 35, and 36 under 35 U.S.C. §102(a)(2) as being anticipated by Poehlman (USP 4,489,699). The Examiner next rejected claims 2, 5-10, 19, 20, 30-34, 48, 49, 56, 57, and 60-63 under 35 U.S.C. §103 as being unpatentable over Poehlman in view of Sugimoto et al. (US Pub. 2007/0137591 – hereinafter "Sugimoto"). Claim 11 was rejected under 35 U.S.C. §103 as being unpatentable over Poehlman in view of 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 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 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. and Poehlman, 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. and Poehlman, and further in view of Andersson et al.

Response under AFCP 2.0

Without acquiescing to the rejections, Applicant has elected to amend independent claims 1, 19, 35, and 48 in order to further clarify the scope of the invention, with amendments and arguments presented here below for consideration under the After Final Consideration Pilot 2.0.

Claim 1 has been amended herein to include a liquid fuel cut-off physically attached to the carburetor to interrupt liquid fuel upon actuation of the switch from liquid fuel to gaseous fuel. Support for the amendment can be found in at least Paragraph [0061] and in FIGS. 4A-6.

Claim 19 has been amended herein to include that the carburetor comprises a fuel passage extending from the float bowl to the throat. Support for the amendment can be found in at least Paragraphs [0070], [0077], [0088], [0092] of the Specification and FIGS. 6, 11. No new matter is added by way of the amendment.

Claim 35 has been amended herein to include that the carburetor comprises a fuel passage extending from the float bowl to the throat. Support for the amendment can be found in at least Paragraphs [0070], [0077], [0088], [0092] of the Specification and FIGS. 6, 11. No new matter is added by way of the amendment.

Claim 48 has been amended herein to include the method step of attaching a carburetor to an intake of the engine, the carburetor comprising a fuel passage extending from the float bowl to

Champion - EX2137, Page 235 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

the throat. Support for the amendment can be found in at least Paragraphs [0070], [0077], [0088], and [0092] of the Specification and FIGS. 6, 11. No new matter is added by way of the amendment.

Rejections under 35 U.S.C. §102 - Poehlman

Claim 1

The Examiner rejected independent claim 1 under 35 U.S.C. §102(a)(2) as being anticipated by Poehlman. While Applicant does not necessarily agree with the rejection, Applicant has elected to amend claim 1 in the present response – as indicated previously.

Amendment claim 1 includes a liquid fuel cut-off physically attached to the carburetor to interrupt liquid fuel upon actuation of the switch from liquid fuel to gaseous fuel.

Applicant believes that amended claim 1 is patentably distinct from Poehlman at least for the reason that Poehlman fails to teach or suggest a liquid fuel cut-off physically attached to the carburetor to interrupt liquid fuel upon actuation of the switch from liquid fuel to gaseous fuel. That is, Poehlman does not teach or suggest a liquid fuel cut-off physically attached to the carburetor, as instead the liquid fuel control valve 43 in Poehlman is incorporated along the liquid fuel supply line 19 upstream from the carburetor 15. *Poehlman*, col. 3, lns. 64-66; FIG. 1. Thus, the liquid fuel control valve 43 is in fact positioned off of and remote from the carburetor 15 and is not physically attached to the carburetor as called for in claim 1.

In light of at least the above, Applicant believes claim 1 to be patentably distinct from that which is disclosed in the cited reference. As such, Applicant respectfully requests withdrawal of the rejection of claim 1 under 35 U.S.C. §102, and all claims depending therefrom.

Claim 35

The Examiner rejected independent claim 35 under 35 U.S.C. §102(a)(2) as being anticipated by Poehlman. While Applicant does not necessarily agree with the rejection, Applicant has elected to amend claim 35 in the present response – as indicated previously.

Amended claim 35 includes a carburetor comprising 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.

Applicant believes amended claim 35 is patentably distinct from Poehlman at least for the reason that Poehlman fails to teach or suggest a carburetor comprising a fuel passage extending

Champion - EX2137, Page 236 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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. That is, Poehlman does not 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. While the Examiner has asserted that Poehlman discloses "fuel passage (19) to provide fuel from the float bowl to the throat" and "fuel shutoff (43) coupled to the carburetor having a first end in the carburetor that actuates to close the fuel passage," *Office Action*, June 14, 2018, p. 3-4, the fuel control valve 43 does not have a first end in the carburetor that actuates to close the fuel passage as now called for in claim 35. Instead, the liquid fuel control valve 43 is located along the liquid fuel supply line 19 *upstream from the carburetor 15 – not in a* fuel passage that extends from the float bowl to the throat in the carburetor 15. *See Poehlman,* at FIG. 1.

In light of at least the above, Applicant believes claim 35 to be patentably distinct from that which is disclosed in the cited reference. As such, Applicant respectfully requests withdrawal of the rejection of claim 35 under 35 U.S.C. §102, and all claims depending therefrom.

Rejections under 35 U.S.C. §103 – Poehlman in view of Sugimoto

Claims 19 and 48

The Examiner rejected independent claims 19 and 48 together under 35 U.S.C §103 as being unpatentable over Poelhman in view of Sugimoto. While Applicant does not necessarily agree with the rejection, Applicant has elected to amend claims 19 and 48 in the present response – as indicated previously.

Amended claim 19 includes 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.

Amended claim 48 includes 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.

Champion - EX2137, Page 237 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

Applicant believes that amendment 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.

Applicant believes that amended 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.

As previously set forth above with respect to claim 35, the liquid fuel control valve 43 in Poehlman referenced by the examiner as the claimed "liquid fuel cut-off" is located along the liquid fuel supply line 19 *upstream from the carburetor 15 – not in a* fuel passage that extends from the float bowl to the throat in the carburetor 15, as called for in amended 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.

Newly Presented Claims

In addition to the above amendments and remarks, Applicant has newly presented claims 64 and 65 in the present response. Support for new claim 64 can be found at least in Paragraphs [0061], [0065], [0066] and in FIGS. 4A-6. Support for new claim 65 can be found at least in Paragraphs [0065], [0072], [0078], [0091] and in FIGS. 7A, 8, 11, 12.

Claim 64 is believed to be patentably distinct over the applied prior art, as Poehlman cannot be said to teach or suggest a liquid fuel cut-off physically attached to an outer surface of the carburetor.

Champion - EX2137, Page 238 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

Claim 65 is believed to be patentably distinct over the applied prior art, as Poehlman cannot be said to teach or suggest a fuel shutoff that extends through an opening into the float bowl such that the first end actuates in the float bowl to close the fuel passage.

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 1-65.

A fee in the amount of $100 is concurrently being paid via EFS-Web for fees associated with entering the claims newly presented herein. Applicant hereby authorizes charging of Deposit Account No. 50-2623 for any additional fees associated with entering the aforementioned claims.

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

Respectfully submitted,

/Kevin R. Rosin/

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

Dated: August 3, 2018
Attorney Docket No.: CET1090.042

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

Champion - EX2137, Page 239 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

General Authorization and Extension of Time

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

/Kevin R. Rosin/

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

Dated: August 3, 2018
Attorney Docket No.: CET1090.042

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

Champion - EX2137, Page 240 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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; and

a liquid fuel cut-off physically attached to 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. (Original) The dual fuel engine of claim 5, wherein the liquid fuel cut-off is a solenoid valve powered by the electrical power generator.

Champion - EX2137, Page 241 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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

Champion - EX2137, Page 242 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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. (Currently Amended) 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~~to provide liquid fuel~~ 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:

Champion - EX2137, Page 243 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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

Champion - EX2137, Page 244 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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.

Champion - EX2137, Page 245 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

35. (Currently Amended) A carburetor having a fuel shutoff comprising:

a carburetor comprising:

a float bowl,

a throat, and

a fuel passage extending~~to provide fuel~~ 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

Champion - EX2137, Page 246 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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.

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. (Currently Amended) 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,

Champion - EX2137, Page 247 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

a float bowl, and

a fuel passage extending~~to provide liquid fuel~~ 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

Champion - EX2137, Page 248 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

the valve tip is rotated to the first position such that fuel can pass through the cutout into the fuel passage.

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.

Champion - EX2137, Page 249 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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.

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

65. (New) 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.

Champion - EX2137, Page 250 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

Customer No. 26629 Patent
Confirmation No. 1059 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

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

Mailing

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

37 CFR 1.8(a) **37 CFR 1.10**

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Date: August 3, 2018 /Robyn L. Templin/
Signature

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

AFTER-FINAL
AMENDMENT/RESPONSE TO FINAL OFFICE ACTION
MAILED JUNE 14, 2018

Dear Sir:

Responsive to the Final Office Action mailed June 14, 2018, please amend the Application as follows:

Electronic Patent Application Fee Transmittal

Application Number:	14925441
Filing Date:	28-Oct-2015
Title of Invention:	BATTERYLESS DUAL FUEL ENGINE WITH LIQUID FUEL CUT-OFF
First Named Inventor/Applicant Name:	Kendall J. Collie
Filer:	Stephanie Mueller Laundre/Robyn Templin
Attorney Docket Number:	CET1090.042

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
CLAIMS IN EXCESS OF 20	2202	2	50	100
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**100**

Electronic Acknowledgement Receipt

EFS ID:	33374430
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:	Stephanie Mueller Laundre/Robyn Templin
Filer Authorized By:	Stephanie Mueller Laundre
Attorney Docket Number:	CET1090.042
Receipt Date:	03-AUG-2018
Filing Date:	28-OCT-2015
Time Stamp:	17:47:16
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$100
RAM confirmation Number	080618INTEFSW17475400
Deposit Account	
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	After Final Consideration Program Request	AfterFinalConsiderationRequest.pdf	226536 831e07782dc42574af10e1aace3de4cd72862e38	no	2
Warnings:					
Information:					
2		Response.pdf	179384 605afa7bbdefb2ef2db3298f59e70dd02b178cec	yes	17

Multipart Description/PDF files in .zip description

Document Description	Start	End
Applicant Arguments/Remarks Made in an Amendment	12	17
Claims	2	11
Response After Final Action	1	1

Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	30525 805ca8a6c1ec8f5794bb6f52011b7f922c5873c8	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	436445		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

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.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 14/925,441	Filing Date 10/28/2015	☐ To be Mailed

ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT **08/03/2018**

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	* 65	Minus	** 63	= 2	X $50 =	100
Independent (37 CFR 1.16(h))	* 4	Minus	***4	= 0	X $230 =	0
☐ Application Size Fee (37 CFR 1.16(s))						
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
					TOTAL ADD'L FEE	**100**

AMENDMENT

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =	
☐ Application Size Fee (37 CFR 1.16(s))						
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
					TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

LIE
LASHAWN MORGAN

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/925,441	10/28/2015	Kendall J. Collie	CET1090.042	1059

26629 7590 06/14/2018

ZIOLKOWSKI PATENT SOLUTIONS GROUP, SC (ZPS)
136 S WISCONSIN ST
PORT WASHINGTON, WI 53074

EXAMINER
TRAN, LONG T

ART UNIT	PAPER NUMBER
3747	

NOTIFICATION DATE	DELIVERY MODE
06/14/2018	ELECTRONIC

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

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

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

info@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 (First Inventor to File) Status Yes

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

Period for Reply

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

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

Status

1)☒ Responsive to communication(s) filed on *24 April 2018*.

☐ 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) *1-63* 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) *1-63* 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 *see attached*.

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

4) ☐ Other: _____.

Champion - EX2137, Page 259 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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. The Amendment filed April 24, 2018 has been entered. No new matter has been added.

3. Claims 1 – 63 remain pending in the application and have been fully considered.

Claim Rejections - 35 USC § 102

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

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a)(2) the claimed invention was described in a patent issued under section 151, or in an application for patent published or deemed published under section 122(b), in which the patent or application, as the case may be, names another inventor and was effectively filed before the effective filing date of the claimed invention.

6. Claims 1, 3 – 4, 12 – 13, 35 - 36 are rejected under 35 U.S.C. 102(a)(2) as being anticipated by Poehlman (US 4,489,699).

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) attached to the carburetor to interrupt liquid fuel upon actuation of the switch from liquid fuel to gaseous fuel.

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).

Claim Rejections - 35 USC § 103

7. 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.

8. 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.

9. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103 are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.

3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. 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.

11. Claims 2, 5 – 10, 19 – 20, 30 - 34, 48 - 49, 56 - 57, 60 – 63 are rejected under 35 U.S.C. 103 as being unpatentable over Poelhman (US 4,489,699) in view of Sugimoto et al. (US 2007/0137591).

Regarding Claim 2:

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:

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:

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:

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.

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.

12. Claim 11 is rejected under 35 U.S.C. 103 as being unpatentable over Poelhman (US 4,489,699) in view of 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.

13. 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) 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.

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

Regarding Claim 16:

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:

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:

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.

15. 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) and Poelhman (US 4,489,699), 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.

16. Claims 27 - 29 are rejected under 35 U.S.C. 103 as being unpatentable over Sugimoto et al. (US 2007/0137591) and Poelhman (US 4,489,699), 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

17. Applicant's arguments filed April 24, 2018 have been fully considered but they are not persuasive.

On Page 13 of the Remarks, the Applicant argues that Poehlman does not teach a liquid fuel cut-off and a switch. The Examiner disagrees and maintains

the rejection based on a broad but reasonable interpretation of what each limitation entails. The control means 41 of Poehlman is clearly shown to have wirings connected to valve 43 in Figure 1, of which is attached to the carburetor via fuel line 19.

On Page 15 of the Remarks, the Applicant argues Poehlman does not disclose the supply line provide fuel from the float bowl to the throat as required in claim 35. The Examiner disagrees and maintains the rejection because fuel supply line 19 supplies fuel to bowl 17, and the fuel is then mixed with gas within the carburetor 15 and through the throttle 107, which is where the throat resides. The “throat” is defined by Applicant in the specification as a "mixing passage", see paragraph 0064 of the specification. Thus, fuel is supplied from the float bowl to the throat.

The remaining arguments in the Remarks are the same as the above limitations - the switch/fuel cut-off and float bowl fuel supply, and the above reasons are used to apply the same reasoning.

Conclusion

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

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

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

20. 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 M-F, 7:30am - 5:00pm.

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

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-2015/0122230 A1	05-2015	Sarder; Mark J.	F02D19/0647	123/525
*	B	US-2011/0253102 A1	10-2011	Watanabe; Tsuyoshi	F02D41/064	123/438
*	C	US-2010/0258099 A1	10-2010	Andersson; Martin N.	F02D31/006	123/676
*	D	US-2007/0137591 A1	06-2007	Sugimoto; Yasuhiro	F02B43/00	123/41.7
*	E	US-6,591,817 B2	07-2003	Deutsch; Robert W.	F02D19/0647	123/525
*	F	US-2002/0134362 A1	09-2002	Deutsch, Robert W.	F02D19/0647	123/575
*	G	US-5,611,312 A	03-1997	Swanson; Mark S.	F02M1/02	123/179.18
*	H	US-4,489,699 A	12-1984	Poehlman; Arthur G.	F02B69/04	123/525
*	I	US-3,783,849 A	01-1974	Bramfitt; Thomas Hugh	F02M13/06	123/179.16
*	J	US-3,718,000 A	02-1973	Walker; Brooks	F02B11/02	123/525
*	K	US-3,659,574 A	05-1972	Reschke; Albert H.	F02M13/08	123/525
*	L	US-3,412,258 A	11-1968	WILLIAM SATTER HARVEY	H02P9/42	290/40R
	M	US-				

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
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	W	
	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
	14925441	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

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

Champion - EX2137, Page 277 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L3	84	engine and ((dual double two second$4 plural$4 multi multiple bi pair supplement$4) near2 fuel same (switch$4 chang$3 changeover)) and (valve same (carburetor carburretor) same fuel) and generat$4 and (float same (mix$4 throat) same (carburetor carburretor))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/06/11 10:35
L4	296	engine and ((dual double two second$4 plural$4 multi multiple bi pair supplement$4) near2 fuel) and (valve same fuel) and generat$4 and (float same (mix$4 throat) same (carburetor carburretor))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/06/11 10:39

6/11/2018 10:44:28 AM
C:\Users\ltran2\Documents\EAST\Workspaces\14925441.wsp

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14925441	COLLIE ET AL.
	Examiner	**Art Unit**
	LONG T TRAN	3747

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

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

CLAIM		DATE								
Final	Original	04/18/2017	08/02/2017	01/22/2018	06/11/2018					
	1	÷	✓	✓	✓					
	2	÷	✓	✓	✓					
	3	÷	✓	✓	✓					
	4	÷	✓	✓	✓					
	5	÷	✓	✓	✓					
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	32	÷	N	✓	✓					
	33	÷	N	✓	✓					
	34	÷	N	✓	✓					
	35	÷	N	✓	✓					
	36	÷	N	✓	✓					

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	37	÷	N	✓	✓					
	38	÷	N	✓	✓					
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	42	÷	N	✓	✓					
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	62	÷	N	✓	✓					
	63	÷	N	✓	✓					

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	14925441
Filing Date	2015-10-28
First Named Inventor	Kendall J. Collie et al.
Art Unit	3747
Examiner Name	Long T. Tran
Attorney Docket Number	CET1090.042

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Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2]	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
/L.T.T/	1	2060477	CN	U	1990-08-15	Zhao Yunying		

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Examiner Name	Long T. Tran
Attorney Docket Number	CET1090.042

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EXAMINER SIGNATURE

Examiner Signature	/LONG T TRAN/	Date Considered	06/11/2018

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[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

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Attorney Docket Number	CET1090.042

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☒ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Stephanie M. Laundre/	Date (YYYY-MM-DD)	2018-02-21
Name/Print	Stephanie M. Laundre	Registration Number	65124

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

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5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

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Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

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First Named Inventor	Kendall J. Collie et al.
Art Unit	3747
Examiner Name	Long T. Tran
Attorney Docket Number	CET1090.042

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Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
/L.T.T/	1	3384059		1968-05-21	Kopa	
/L.T.T/	2	3888223		1975-06-10	Mondt	
/L.T.T/	3	4335697		1982-06-22	McLean	
/L.T.T/	4	4373493		1983-02-15	Welsh	
/L.T.T/	5	4463735		1984-08-07	Stoltman	
/L.T.T/	6	4480595		1984-11-06	Hobby et al.	
/L.T.T/	7	4628871		1986-12-16	Glass	
/L.T.T/	8	4708094		1987-11-24	Helmich et al.	

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/L.T.T/	9	4979480		1990-12-25	Daikoku et al.	
/L.T.T/	10	5092305		1992-03-03	King	
/L.T.T/	11	5228423		1993-07-20	Oikawa et al.	
/L.T.T/	12	9435273	B2	2016-09-06	Sarder et al.	

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/L.T.T/	1	20040139943	A1	2004-07-22	Kern et al.	
/L.T.T/	2	20070137591	A1	2007-06-21	Sugimoto et al.	
/L.T.T/	3	20110168133	A1	2011-07-14	Pursifull et al.	
/L.T.T/	4	20140202430	A1	2014-07-24	Monros	
/L.T.T/	5	20140238340	A1	2014-08-28	Dunn et al.	

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/L.T.T/		20140373531	A1	2014-12-25	Wong			

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/L.T.T/	1	Champion Power (2014, Dec. & Jan.) 100153 Manual, Retrieved from http://www.championpowerequipment.com/media/2400/100153_manual-english_12-4-14.pdf	

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A certification statement is not submitted herewith.

SIGNATURE

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Signature	/Kevin R. Rosin/	Date (YYYY-MM-DD)	2018-05-02
Name/Print	Kevin R. Rosin	Registration Number	55584

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

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/L.T.T/	1	1981121	CN	A	2007-06-13	Honda Motor Co., Ltd.		

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	14925441
Filing Date	2015-10-28
First Named Inventor	Kendall J. Collie et al.
Art Unit	3747
Examiner Name	Long T. Tran
Attorney Docket Number	CET1090.042

	1	

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Examiner Signature	/LONG T TRAN/	Date Considered	06/11/2018

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CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

X That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

X See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Kevin R. Rosin/	Date (YYYY-MM-DD)	2018-06-01
Name/Print	Kevin R. Rosin	Registration Number	55584

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EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	31	engine and ((dual double two second$4 plural$4 multi multiple bi) near2 fuel near20 (switch$4 chang$3)) and ((carburetor carburettor) same intake same valve) and (electric$4 near5 generat$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/02 09:08
L2	32878	((F02D19/0647 OR F02D19/0613 OR F02D29/06 OR F02D41/0025 OR F02D11/02 OR F02D19/0642 OR F02D35/0053 OR F02B63/04 OR F02B43/00 OR F02B63/044 OR F02M13/08 OR F02M19/08 OR F02M21/047 OR F02N3/02).CPC.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/02 09:10
S1	3	"14925441"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 09:15
S2	38	engine and ((dual double two second$4 plural$4 multi multiple bi) near2 fuel near20 (switch$4 chang$3)) and ((lpg propane ng "natural gas" hydrogen) near5 fuel) and gasoline and ((carburetor carburettor) same intake same (solenoid nea5 valve))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 09:34
S3	6	"14738060"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 09:38
S4	2	engine and ((dual double two second$4 plural$4 multi multiple bi) near2 fuel near20 (switch$4 chang$3)) and ((lpg propane ng "natural gas" hydrogen) near5 fuel) and gasoline and ((carburetor carburettor) same (solenoid near5 valve)) and ((carburetor carburettor) same intake) and (pull adj start$4) and ((carburettor carburetor) same shaft same lever same (spring coil))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 09:51
S5	2	engine and ((dual double two second$4 plural$4 multi multiple bi) near2 fuel near20 (switch$4 chang$3)) and ((lpg propane ng "natural gas" hydrogen) near5 fuel) and gasoline and ((carburetor carburettor) same (solenoid near5 valve))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT;	OR	ON	2017/08/01 09:54

		and ((carburetor carburettor) same intake) and (pull adj start$4) and ((carburettor carburetor) same shaft same (spring coil))	IBM_TDB			
S6	4	engine and ((dual double two second$4 plural$4 multi multiple bi) near2 fuel near20 (switch$4 chang$3)) and ((lpg propane ng "natural gas" hydrogen) near10 fuel) and gasoline and ((carburetor carburettor) same (solenoid near5 valve)) and ((carburetor carburettor) same intake) and ((carburettor carburetor) same shaft same (spring coil))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 09:55
S7	26	engine and ((dual double two second$4 plural$4 multi multiple bi) near2 fuel near20 (switch$4 chang$3)) and ((lpg propane ng "natural gas" hydrogen) near10 fuel) and gasoline and ((carburetor carburettor) same intake) and (generat$4 same electric$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 09:58
S8	2	engine and ((dual double two second$4 plural$4 multi multiple bi) near2 fuel same (switch$4 chang$3)) and ((lpg propane ng "natural gas" hydrogen) near10 fuel) and gasoline and ((carburetor carburettor)) and (generat$4 same electric$4) and (pull adj start$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 11:12
S9	2	engine and ((dual double two second$4 plural$4 multi multiple bi) near2 fuel same (switch$4 chang$3)) and ((lpg propane ng "natural gas" hydrogen)) and gasoline and ((carburetor carburettor)) and (generat$4 same electric$4) and (pull adj start$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 12:10
S10	7	engine and ((dual double two second$4 plural$4 multi multiple bi) near2 fuel same (switch$4 chang$3)) and ((carburetor carburettor)) and (generat$4 same electric$4) and (pull adj start$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 12:37
S11	15	engine and ((dual double two second$4 plural$4 multi multiple bi) near2 fuel same (switch$4 chang$3)) and ((carburetor carburettor)) and (generat$4 same electric$4) and ((pull adj start$4) or (recoil adj start$4))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 13:10
S12	3	engine and ((dual double two second$4 plural$4 multi multiple bi) near2 fuel same (switch$4 chang$3)) and ((carburetor carburettor) same shaft same lever same (coil bias$4 spring)) and (generat$4 same electric$4) and ((pull adj start$4) or (recoil adj start$4))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 13:14
S13	5	engine and ((dual double two second$4 plural$4 multi multiple bi) near2 fuel) and ((carburetor carburettor) same shaft same lever same (coil bias$4 spring)) and (generat$4 same electric$4) and ((pull adj	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	ON	2017/08/01 13:25

		start$4) or (recoil adj start$4))	DERWENT; IBM_TDB			
S14	2	engine and ((dual double two second$4 plural$4 multi multiple bi) near2 fuel) and ((carburetor carburettor) same rotat$4 near2 shaft) and ((carburetor carburettor) same lever same (coil bias$4 spring)) and (generat$4 near5 electric$4) and ((pull adj start$4) or (recoil adj start$4)) and ((ope cable cord) near20 lever)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 14:09
S15	2	engine and ((dual double two second$4 plural$4 multi multiple bi) near2 fuel) and (rotat$4 near2 shaft same lever) and ((carburetor carburettor) same lever same (coil bias$4 spring)) and (generat$4 near5 electric$4) and ((pull adj start$4) or (recoil adj start$4)) and ((ope cable cord) near20 lever)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 14:16
S16	2	engine and ((dual double two second$4 plural$4 multi multiple bi) near2 fuel) and (rotat$4 near2 shaft same lever) and ((carburetor carburettor) same lever same (coil bias$4 spring)) and (generat$4 near5 electric$4) and ((pull adj start$4) or (recoil adj start$4)) and ((rope cable cord) same lever)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 14:23
S17	34	engine and ((dual double two second$4 plural$4 multi multiple bi) near2 fuel) and (carburetor carburettor) and (generat$4 near5 electric$4) and ((pull adj start$4) or (recoil adj start$4))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 14:32
S18	5	engine and ((dual double two second$4 plural$4 multi multiple bi) near2 fuel) and (carburetor carburettor) same solenoid adj valve and (generat$4 near5 electric$4) and ((pull adj start$4) or (recoil adj start$4))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 14:32
S19	19	engine and ((dual double two second$4 plural$4 multi multiple bi) near2 fuel) and (carburetor carburettor) same valve and (generat$4 near5 electric$4) and ((pull adj start$4) or (recoil adj start$4))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 15:11
S20	10	S19 not battery	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 15:13
S21	7	engine and ((dual double two second$4 plural$4 multi multiple bi) near2 fuel near50 (switch$4 chang$4)) and (carburetor carburettor) same valve and (generat$4 near5 electric$4) and ((pull near2 start$4) or (recoil adj start$4))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 15:17

S22	2	engine same ((dual plural$4 multi multiple bi) near2 fuel) and (carburetor carburettor) same valve and (generat$4 near5 electric$4) and ((pull near2 start$4) or (recoil adj start$4)) and ((magneto or alternator) same solenoid near2 valve)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 15:40
S23	0	engine and (carburetor carburettor) same valve and (generat$4 near5 electric$4) and ((pull near2 start$4) or (recoil adj start$4)) and ((magneto or alternator) same solenoid near2 valve same (voltatage near5 regulat$4))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 15:45
S24	2	engine and (carburetor carburettor) same valve and (generat$4 near5 electric$4) and ((pull near2 start$4) or (recoil adj start$4)) and ((magneto or alternator) same solenoid near2 valve same (voltage near5 regulat$4))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 15:45
S25	7	engine and (carburetor carburettor) same valve and (generat$4 near5 electric$4) and ((magneto or alternator) same solenoid near2 valve same (voltage near5 regulat$4))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 15:46
S26	5	engine and (carburetor carburettor) same valve and (generat$4 near5 electric$4) and (magnetic$4 same solenoid near2 valve same (voltage near5 regulat$4))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 15:55
S27	87	engine and (carburetor carburettor) same valve and (generat$4 near5 electric$4) and (magnetic$4 same solenoid near2 valve)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 15:55
S28	47	engine and (carburetor carburettor) same valve and (generat$4 near5 electric$4) and (magnetic$4 same (spring coil) same solenoid near2 valve)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 15:56
S29	27	engine and (carburetor carburettor) same solenoid adj valve and (generat$4 near5 electric$4) and (magnetic$4 same (spring coil) same solenoid near2 valve)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 16:00
S30	0	engine and ((carburetor carburettor) near50 solenoid adj valve) and ((solenoid adj valve) same (rotat$4 near2 shaft) same seal$4 same (block$4 (valve near2 tip))) and ((carburetor carburretor) same	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	ON	2017/08/01 16:34

		lever same (spring coil bias$4) same (cable rope cord))	DERWENT; IBM_TDB			
S31	0	engine and ((carburetor carburettor) near50 solenoid adj valve) and ((solenoid adj valve) same (rotat$4 near2 shaft) same (o adj ring)) and ((lever valve) same (block$4 (valve near2 tip))) and ((carburetor carburretor) same lever same (spring coil bias$4) same (cable rope cord))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 16:36
S32	0	engine and ((carburetor carburettor) near50 solenoid adj valve) and (valve same (rotat$4 near2 shaft) same (o adj ring)) and ((lever valve) same (block$4 (valve near2 tip))) and ((carburetor carburretor) same lever same (spring coil bias$4)) and (cable rope cord)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 16:50
S33	0	engine and ((carburetor carburettor) near50 solenoid adj valve) and (valve same (rotat$4 near2 shaft) same (o adj ring)) and ((lever valve) same (block$4 (valve near2 tip))) and ((carburetor carburretor) same lever same (spring coil bias$4)) and (cable rope cord) near50 lever	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 16:50
S34	1	engine and ((carburetor carburettor) near50 solenoid adj valve) and (valve same (rotat$4 near2 shaft) same (o adj ring)) and ((lever valve) same (block$4 (valve near2 tip))) and ((carburetor carburretor) same lever)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 16:51
S35	0	engine and ((carburetor carburettor) near50 solenoid adj valve) and (solenoid adj valve same (rotat$4 near2 shaft) same (o adj ring)) and ((carburetor carburretor) same lever)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 16:54
S36	0	engine and ((carburetor carburettor) near50 solenoid adj valve) and (solenoid adj valve same (rotat$4 near2 shaft) same (o adj ring))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 16:55
S37	0	engine and ((carburetor carburettor) near50 solenoid adj valve) and ((carburettor carburetor) same (rotat$4 near2 shaft) same (o adj ring)) and ((lever valve) same (block$4 (valve near2 tip))) and ((carburetor carburretor) same lever)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 16:56
S38	0	engine and ((carburetor carburettor) near50 solenoid adj valve) and ((carburettor carburetor) same (rotat$4 near2 shaft) same (o adj ring)) and ((carburetor carburretor) same lever)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 16:57

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EXAMINER SIGNATURE

Examiner Signature		Date Considered	

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☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

☒ See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Kevin R. Rosin/	Date (YYYY-MM-DD)	2018-06-01
Name/Print	Kevin R. Rosin	Registration Number	55584

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

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

Customer No. 26629 Patent
Confirmation No. 1059 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

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

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37 CFR 1.8(a) **37 CFR 1.10**

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Signature

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INFORMATION DISCLOSURE STATEMENT
CERTIFICATION STATEMENT UNDER 37 CFR 1.704(D)(1)

Dear Sir:

Each item of information contained in this information disclosure statement was first cited in any communication from a patent office in a counterpart foreign or international application or from the Office, and this communication was not received by an individual designated under 37 CFR 1.56(c) more than thirty (30) days prior to the filing of this information disclosure statement.

Dated: June 1, 2018
Attorney Docket No.: CET1090.042

Respectfully submitted,

/Kevin R. Rosin/

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

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

Espacenet

Bibliographic data: CN1981121 (A) — 2007-06-13

Engine generator

Inventor(s): KATSUHIRO SUGIMOTO YASUHIRO KO [JP] ± (SUGIMOTO YASUHIRO,KOJIMA HIROAKI,TAKEMURA KAZUHITO,NAKAGAWA KATSUHIRO, ; SUGIMOTO YASUHIRO, ; KOJIMA HIROAKI, ; TAKEMURA KAZUHITO, ; NAKAGAWA KATSUHIRO)

Applicant(s): HONDA MOTOR CO LTD [JP] ± (HONDA MOTOR CO., LTD, ; HONDA GIKEN KOGYO K. K)

Classification: **- international:** ***F01P5/06; F02B63/04; F02M21/02; F02M21/06***
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Application number: CN2005822860 20050920

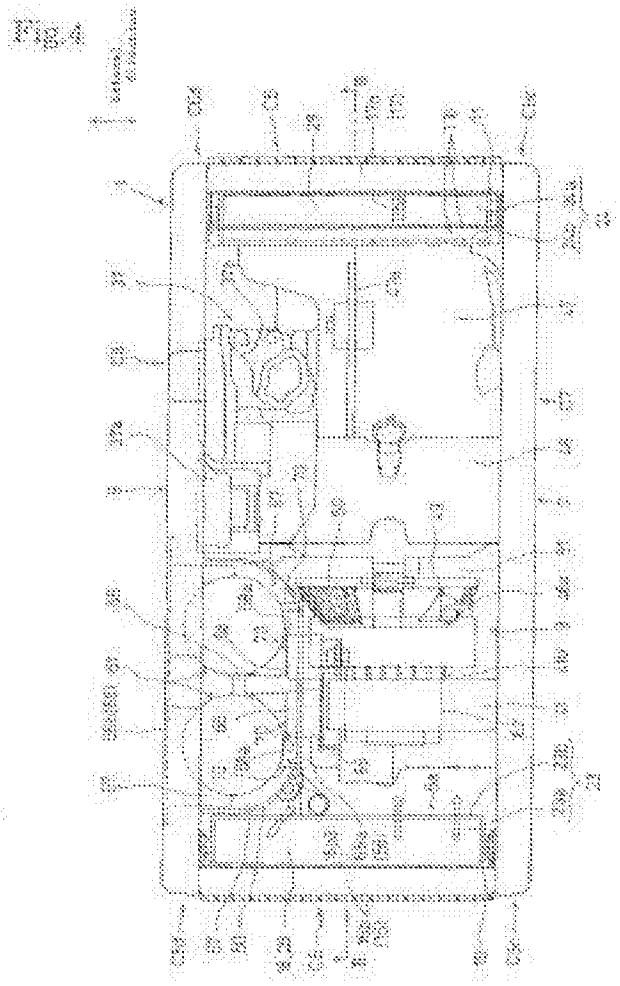
Priority number(s): JP20040285036 20040929

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Abstract of CN1981121 (A)

An engine generator (1), comprising an engine (30), a generator (40) driven by the engine (30), and a power control unit (41) controlling a power generated by the generator (40). A gas fuel stored, in a liquefied state, in cassette cylinders (61) stored in the case (C) of the engine generator (1) is supplied to the engine (30) through a fuel pressure regulator (62). The cassette cylinders (61) and the fuel pressure regulator (62) are disposed in proximity to the power control unit (41) so that the heat exchange thereof with the power control unit (41) with an inverter can be performed. As a result, heat can be mutually utilized between at least one of the cassette cylinders (61) as fuel containers and the fuel pressure regulator (62) and the power control unit (41) in the engine generator (1).

Fig.4



[19] 中华人民共和国国家知识产权局

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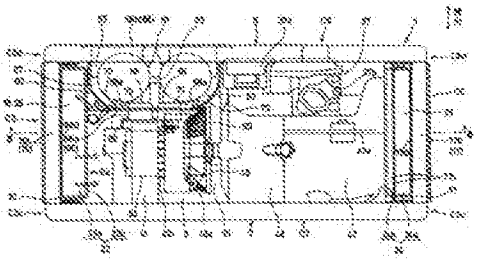
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[71] 申请人 本田技研工业株式会社
地址 日本东京
[72] 发明人 杉本康弘 小嶋洋明 竹村一仁 中川胜博
[74] 专利代理机构 北京三友知识产权代理有限公司
代理人 陈 坚
权利要求书 2 页 说明书 25 页 附图 10 页

[54] 发明名称

发动机发电机

[57] 摘要

本发明提供一种发动机发电机(1)，其具有：发动机(30)；发电机(40)，其由发动机(30)驱动；和电力控制单元(41)，其控制发电机(40)产生的电力。在容纳于发动机发电机(1)的箱体(C)内的盒式高压储气瓶(61)中，以液化状态储存有气体燃料，该气体燃料通过燃料压力调节器(62)而被供给发动机(30)。盒式高压储气瓶(61)和燃料压力调节器(62)接近电力控制单元(41)来进行配置，以便能够与具有变流器的电力控制单元(41)进行热交换。从而，在发动机发电机(1)中，在作为燃料容器的盒式高压储气瓶(61)和燃料压力调节器(62)中的至少一方与电力控制单元(41)之间，相互利用热量。



1．一种发动机发电机，该发动机发电机具有：燃料容器，其将气体燃料以液化状态储存；发动机，其被供给来自该燃料容器的气体燃料；燃料压力调节器，其调节从所述燃料容器供给到所述发动机的气体燃料的压力；发电机，其由所述发动机驱动；和电力控制单元，其控制所述发电机所产生的电力，所述发动机发电机的特征在于，

所述燃料容器和所述燃料压力调节器中的至少一方接近所述电力控制单元来进行配置，以便能够与所述电力控制单元进行热交换。

2．如权利要求 1 所述的发动机发电机，其特征在于，

所述发动机发电机具有容纳所述燃料容器的容纳室；所述燃料容器与所述容纳室的室壁通过由热的良导体构成的传热部件进行热连接；所述室壁接近所述电力控制单元来进行配置，以便能够与所述电力控制单元进行热交换。

3．如权利要求 2 所述的发动机发电机，其特征在于，

所述传热部件是以与所述燃料容器和所述容纳室的室壁相接触的方式介于所述传热部件与所述容纳室的室壁之间的多个柱状部件。

4．如权利要求 1 所述的发动机发电机，其特征在于，

所述燃料容器和所述燃料压力调节器中的至少一方与所述电力控制单元通过由热的良导体构成的传热部件进行热连接，或者直接进行热连接。

5．如权利要求 1 至 4 中任一项所述的发动机发电机，其特征在于，

所述电力控制单元具有变流器。

6．如权利要求 1 至 4 中任一项所述的发动机发电机，其特征在于，

所述发动机发电机具有箱体，所述箱体形成容纳所述燃料容器、所述发动机以及所述发电机的内部空间，

被导入所述内部空间的冷却风以顺次冷却所述燃料容器和所述电力控制单元后，冷却所述发电机和所述发动机的方式形成冷却风通路。

7．如权利要求 6 所述的发动机发电机，其特征在于，

相对于所述容纳室的室壁，在所述容纳室的相反侧，配置有所述燃料

Champion - EX2137, Page 308 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

压力调节器和所述电力控制单元，并且，所述电力控制单元位于所述燃料压力调节器的下侧。

8. 如权利要求 7 所述的发动机发电机，其特征在于，

所述箱体沿其一侧壁的上部具有空气导入口；所述燃料压力调节器设于所述空气导入口的下游。

Champion - EX2137, Page 309 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

发动机发电机

技术领域

本发明涉及一种发动机发电机，该发动机发电机具有发动机和由该发动机驱动的发电机，以液化状态储存在燃料容器中的气体燃料被供给所述发动机。

背景技术

发动机发电机被广泛用作室外的临时电源，或是紧急情况下的电源。而且，发动机发电机例如在用作休闲用品或防灾用品的情况下，大多使用以储存在小型燃料容器例如盒式高压储气瓶中的气体燃料来作为燃料的燃气发动机。

可是，气体燃料以液化状态储存在燃料容器中，当向燃气发动机供给时，是以气化的状态进行供给。因此，当燃气发动机运转从而开始向该发动机供给气体燃料时，在燃料容器中，由于为了维持液相和气相的平衡状态，伴随着气体压力的降低，液态的气体燃料气化，所以夺取了大量的气化热，使得燃料容器的温度降低。此外，即使在调节气体燃料压力的燃料压力调节器中，也会由于刚气化后的被冷却了的气体燃料的流入或气体燃料的减压而使其温度降低。

而且，当燃料容器等的温度过度降低时，由于气体燃料的气化变得不充分等而使压力降低，从而气体燃料的供给不能顺利进行。为了防止这样的状况，就要根据燃料容器的温度或气体压力来加热燃料容器，这已为大家所知（例如，参照专利文献1、2）。

另一方面，在发动机发电机中，对发电机所产生的电力进行控制的电力控制单元由于其动作引起的发热量很大，所以公知有各种用于冷却电力控制单元的结构。例如，在专利文献3中公开有这样的技术：发动机发电机具有隔音罩，该隔音罩中容纳有发动机、发电机和控制电路单元（相当

Champion - EX2137, Page 310 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

于电力控制单元），在该发动机发电机中，在收纳控制电路单元的箱体上设置散热翼片，该散热翼片面对着取入冷却风的进风口，并与形成有进风口的端壁抵接。

专利文献 1：日本国特开平 10-131810 号公报；

专利文献 2：日本国特许第 2671015 号公报；

专利文献 3：日本国实开昭 63-171632 号公报。

在通过加热器来对储存有气体燃料的燃料容器进行加热的情况下，存在要对加热器的设计方法或加热方法进行设计等的问题、以及结构和控制方法的复杂化所带来的问题。进一步讲，在通过冷却风来冷却电力控制单元的情况下，存在着电力控制单元及其周边部件的配置受到制约或结构复杂化所带来的问题。

发明内容

本发明是鉴于如上状况，着眼于伴随着发动机发电机的运转，以液化状态储存的气体燃料的燃料容器处于温度降低的倾向，而相反，电力控制单元却处于温度上升的倾向而完成的，本发明的主要目的在于，在发动机发电机中，在燃料容器和燃料压力调节器中的至少一方与电力控制单元之间，相互利用彼此的热。本发明的再一目的在于，能够高效地进行通过燃料容器对电力控制单元的冷却和通过电力控制单元对燃料容器的加热，以及增大燃料容器和电力控制单元的配置自由度。本发明的另一目的在于，进一步提高燃料容器和燃料压力调节器中的至少一方对电力控制单元的冷却效果、以及电力控制单元对燃料容器和燃料压力调节器中的至少一方的加热效果；提高冷却风对电力控制单元、发电机以及发动机的冷却效果；在对切换损失大且发热量大的变流器进行冷却的同时，利用电力控制单元的变流器的热量来高效地加热燃料容器和燃料压力调节器中的至少一方。

为达成上述目的，本发明的发动机发电机具有：燃料容器，其将气体燃料以液化状态储存；发动机，其被供给来自该燃料容器的气体燃料；燃料压力调节器，其调节从所述燃料容器供给到所述发动机的气体燃料的压力；发电机，其由所述发动机驱动；和电力控制单元，其控制所述发电机

Champion - EX2137, Page 311 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

所产生的电力，所述发动机发电机的特征在于，所述燃料容器和所述燃料压力调节器中的至少一方接近所述电力控制单元来进行配置，以便能够与所述电力控制单元进行热交换。

根据这样的结构，由于在发动机发电机的运转中，通过燃料的气化等而成为低温的燃料容器和燃料压力调节器中的至少一方接近配置在可与电力控制单元进行热交换的位置，所以，从电力控制单元的散热量增加，换言之，通过燃料容器和燃料压力调节器中的至少一方促进了电力控制单元的冷却，从而抑制了电力控制单元的温度上升。同时，燃料容器和燃料压力调节器中的至少一方被电力控制单元加热，从而抑制了其温度降低。

在本发明的发动机发电机中，也可采用这样的结构，即：所述发动机发电机具有容纳所述燃料容器的容纳室；所述燃料容器与所述容纳室的室壁通过由热的良导体构成的传热部件进行热连接；所述室壁接近所述电力控制单元来进行配置，以便能够与所述电力控制单元进行热交换。

根据这样的结构，由于燃料容器中的从电力控制单元的受热，以及电力控制单元的散热都通过燃料容器的能传递热量的室壁进行，所以，为了在燃料容器与电力控制单元之间进行热交换，燃料容器和电力控制单元的配置就很少受到制约。此外，通过加大室壁或使室壁接近电力控制单元等的室壁的形状或配置，能够增加燃料容器与电力控制单元之间的传热量，从而能够提高燃料容器和电力控制单元相互之间的热利用率。

优选所述电热部件是以与所述燃料容器和所述容纳室的室壁相接触的方式介于所述传热部件与所述容纳室的室壁之间的多个柱状部件。

在本发明的发动机发电机中，所述燃料容器和所述燃料压力调节器中的至少一方与所述电力控制单元通过由热的良导体构成的传热部件进行热连接，或者直接进行热连接。

根据这样的结构，燃料容器和燃料压力调节器中的至少一方与电力控制单元之间的传热通过传热部件利用热传导进行，因此，能够进一步提高相互之间的热的利用率。

所述电力控制单元可以具有变流器。

根据这样的结构，由于变流器的切换损失大，发热量大，所以，通过

Champion - EX2137, Page 312 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

其动作而成为高温的变流器被燃料容器和燃料压力调节器中的至少一方高效地冷却，从而抑制了其温度上升；燃料容器和燃料压力调节器中的至少一方被高温的变流器高效地加热，从而抑制了其温度降低。

优选所述发动机发电机具有箱体，所述箱体形成容纳所述燃料容器、所述发动机以及所述发电机的内部空间；被导入所述内部空间的冷却风以顺次冷却所述燃料容器和所述电力控制单元后，冷却所述发电机和所述发动机的方式形成冷却风通路。

根据这样的结构，被导入箱体内部空间的冷却风被燃料容器冷却而成为更低的温度，该成为低温的冷却风首先冷却电力控制单元，然后冷却发电机和发动机。此外，电力控制单元通过与燃料容器和燃料压力调节器中的至少一方进行热的相互利用，与不进行热的相互利用的情况相比，由于成为低温，所以比冷却电力控制单元后的冷却风的温度还低。

优选采用这样的结构：相对于所述容纳室的室壁，在所述容纳室的相反侧，配置有所述燃料压力调节器和所述电力控制单元，并且，所述电力控制单元位于所述燃料压力调节器的下侧。

此外，可以使所述箱体沿其一侧壁的上部具有空气导入口；所述燃料压力调节器设于所述空气导入口的下游。

发明效果

根据本发明，可以达到如下的效果。即，通过在燃料容器和燃料压力调节器中的至少一方与电力控制单元之间相互利用彼此的热，来抑制电力控制单元的温度上升，因此，能够使电力控制单元的散热结构小型化；此外，由于抑制燃料容器和燃料压力调节器中的至少一方的温度降低，所以，或者可以不需要加热装置来加热燃料容器或燃料压力调节器，或者可以使加热装置的加热量减少，从而能够利用较低温度的加热源等，增加了加热源的选择项，此外，在加热源是电加热器的情况下，能够使其消耗电力减少。

根据本发明的优选实施方式，除了上述效果，还可达成如下的效果。即，通过室壁使燃料容器和电力控制单元的热被相互利用，在此基础上，使燃料容器和电力控制单元的配置自由度变大，此外，可以提高燃料容器

Champion - EX2137, Page 313 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

和电力控制单元相互之间的热的利用率，从而能够进一步高效地进行燃料容器对电力控制单元的冷却，以及电力控制单元对燃料容器的加热。

在本发明的实施方式中，还可进一步达成如下的效果。即，由于可以进一步提高燃料容器和燃料压力调节器中的至少一方与电力控制单元的相互之间的热的利用率，所以能够进一步提高燃料容器和燃料压力调节器中的至少一方对电力控制单元的冷却效果，以及电力控制单元对燃料容器和燃料压力调节器中的至少一方的加热效果。

在本发明的实施方式中，还可进一步达成如下的效果。即，通过温度更低的冷却风能够更高效地冷却电力控制单元，同时，发电机和发动机也能够获得更高的冷却效果。

在本发明的实施方式中，还可进一步达成如下的效果。即，能够高效地冷却发热量大的变流器，并且，能够通过变流器高效地加热燃料容器和燃料压力调节器中的至少一方。

附图说明

图 1 表示本发明的第一实施方式，是应用了本发明的发动机发电机的结构示意图。

图 2 是图 1 的发动机发电机的立体图。

图 3 是在图 2 的发动机发电机中，拆下左盖后的左侧视图，对于前盖、后盖和上盖，是沿图 4 的III-III线的截面图。

图 4 是在图 2 的发动机发电机中，拆下上盖后的俯视图。

图 5 是图 2 的发动机发电机的主视图。

图 6 是图 2 的发动机发电机的燃料切换阀和加热装置中的电路图。

图 7 是表示图 2 的发动机发电机的燃料切换阀的操作位置、燃料供给装置和点火装置之间的关系的表格。

图 8 表示本发明的第二实施方式，是相当于图 3 的图。

图 9 是在本发明的第二实施方式中，相当于图 4 的图。

图 10 表示本发明的其它实施方式，是相当于图 3 的部分的图。

标号说明

Champion - EX2137, Page 314 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

1 … 发动机发电机

3 … 下盖

4 … 上盖

5 … 前盖

6 … 后盖

7 … 左盖

8 … 右盖

9 … 内部空间

12 … 燃料切换阀

16、17、90 … 把持部

18、19、92 … 导入口

20 … 排出口

23、24、91 … 凹部

28、29、93 … 把持用空间

30 … 发动机

40 … 发电机

41 … 电力控制单元

42 … 火花塞

44 … 点火线圈

45 … 冷却风扇

46 … 反冲起动器

47 … 护罩

48 … 风扇罩

49 … 起动器罩

50、51 … 流入口

60 … 容纳部

61 … 盒式高压储气瓶

62 … 燃料压力调节器

63 … 燃料截止阀

Champion - EX2137, Page 315 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

65 … 容纳室

66 … 室壁

68 … 安装传感器

70 … 传热部件

71 … 外部高压气瓶

73 … 燃料压力传感器

74 … 切断开关

75 … 主开关

80 … 加热装置

89 … ECU

C … 箱体

Fa … 燃料供给装置

具体实施方式

以下，参照图 1～图 10 说明本发明的实施方式。

图 1～图 7 表示第一实施方式。参照图 1，应用了本发明的便携式发动机发电机 1 可适当地与设置在该发动机发电机 1 外部的外部燃料系统 Fb 连接。

一并参照图 2、图 3，发动机发电机 1 具有：箱体 C，该箱体 C 大体为长方体的箱状；搬运用的一对把持部 16、17，该把持部 16、17 设置在箱体 C 上，供搬运发动机发电机 1 时把持；发动机 30，该发动机 30 由作为内燃机的燃气发动机构成；燃料供给装置 Fa，该燃料供给装置 Fa 将气体燃料供给到发动机 30；发电机 40，该发电机 40 是由发动机 30 驱动的工作机械；电力控制单元 41，该电力控制单元 41 对发电机 40 所产生的电力进行控制；电子控制单元 89（以下，称为 ECU 89），该 ECU 89 是控制发动机 30 和燃料供给装置 Fa 的控制装置。发动机 30、燃料供给装置 Fa、发电机 40、电力控制单元 41 以及 ECU 89 被箱体 C 包围，从而被容纳在由该箱体 C 形成的内部空间 9 中。由此，箱体 C 构成抑制发动机 30 的运转噪声泄漏到外部的隔音式的箱体 C。

Champion - EX2137, Page 316 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

并且，在说明书和权利要求书中，所谓对把持部 16、17 进行把持，包括用手握住把持部 16、17 的情况和将手按在把持部 16、17 上的情况。

参照图 2～图 5，箱体 C 具有：下盖 3 和上盖 4，该下盖 3 和上盖 4 在作为基准方向的上下方向上相对；前盖 5 和后盖 6，该前盖 5 和后盖 6 是在垂直于上下方向的第一方向上相对的一对侧部盖；左盖 7 和右盖 8，该左盖 7 和右盖 8 是在与上下方向和第一方向垂直的第二方向上或是横向上相对的一对侧部盖。这些盖 3～8 都是合成树脂制成的。

在本实施方式中，第一方向与前后方向一致，第一方向上的一个侧方或另一侧方是前方或后方；此外，第二方向与左右方向一致，第二方向上的一个侧方或另一侧方是左方或右方。

当从下方、上方、前方、后方、左方以及右方对箱体 C 进行观察时，此时的箱体 C 的下表面、上表面、前表面、后表面、左表面以及右表面分别是由上述盖 3～8 构成的箱体 C 中的箱体下部 C3、箱体上部 C4、箱体前部 C5、箱体后部 C6、箱体左部 C7 以及箱体右部 C8 的外表面。因此，下盖 3、上盖 4、前盖 5、后盖 6、左盖 7 和右盖 8 分别主要构成箱体下部 C3、箱体上部 C4、箱体前部 C5、箱体后部 C6、箱体左部 C7 以及箱体右部 C8。进而，前表面、后表面、左表面以及右表面是箱体 C 的四个侧面；箱体前部 C5、箱体后部 C6、箱体左部 C7 以及箱体右部 C8 是箱体 C 的四个箱体侧部。

前盖 5 和后盖 6 分别结合到一对作为加强部件的加强板 10、11 上，该加强板 10、11 由金属制成，且配置在内侧并与下盖 3 结合。然后，左盖 7 结合到各加强板 10、11 上；可开闭的右盖 8 在下端部 8b 被枢轴支撑在下盖 3 上，在上端部 8a 被卡止装置（未图示）卡止于上盖 4。此外，在各加强板 10、11 上，在比加强板 10、11 更位于内侧的前盖 5 或后盖 6 上形成一部分（例如凹部 23、24）贯通的孔（参照图 3）。此处，内侧和外侧的意思分别是指靠近内部空间 9 和靠近箱体 C 的外部。

参照图 3、图 5，在构成操作板部 5e 的前盖 5 上设置有：燃料切换阀 12；输出用插座 13，用于对电气的外部负载供给电流；外部燃料用连接器 14，用于与配置在发动机发电机 1 外部的外部高压储气瓶 71（参照图 1）

Champion - EX2137, Page 317 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

进行连接；以及指示灯 15a、15b、15c 等。

参照图 2～图 5，在前盖 5 的上部所包括的上端部 5a 上，在设有第一把持部 16 的同时，还设有一个导入口 18，该导入口 18 在发动机 30 运转过程中将外部空气作为冷却风导入到箱体 C 的内部空间 9。另一方面，隔着发动机发电机 1 和电力控制单元 41 而在前后方向上与前盖 5 相对的后盖 6 上形成有：排出口 20，用于将对电力控制单元 41、发电机 40 和发动机 30 进行冷却后的冷却风排出到外部；排气口 21，用于将发动机 30 的废气排出到外部。

当提起发动机发电机 1 进行搬运时搬运者的手所把持的部分，即第一、第二把持部 16、17，分别设置在箱体前部 C5 和箱体后部 C6 的上部 C5a、C6a 所包括的上端部。第一把持部 16 被设置为第一拐角部件，其设置在与上盖 4 大体相同的高度位置，并设置在上盖 4 的前方且前盖 5 的上方；第二把持部 17 被设置为第二拐角部件，其设置在与上盖 4 大体相同的高度位置，并设置在上盖 4 的后方且后盖 6 的上方。设置在箱体 C 的前上角部和后上角部的上述两拐角部件的整体是形成第一把持部 16 和第二把持部 17 的把持部形成部件。

第一、第二把持部 16、17 都是合成树脂制的相同的部件，分别具有上部 16a、17a 和下垂部 16b、17b，该上部 16a、17a 通过密封部件 22（参照图 3）与上盖 4 相抵，并构成箱体上部 C4 的前后方向上的两端部；该下垂部 16b、17b 从上部 16a、17a 以与前盖 5 和后盖 6 相对的方式向下方延伸。下垂部 16b、17b 向下方延伸，使得在发动机发电机 1 被提起时，能够用手从外侧部分 16b1、17b1 经由最下端 16b2、17b2 直到内侧部分 16b3、17b3 进行把持。而且，两最下端 16b2、17b2 分别位于与前盖 5 和后盖 6 的上端部 5a、6a 在该上端部 5a、6a 的横向全长中在上下方向上重叠的位置，在本实施方式中，位于与前盖 5 和后盖 6 的后述的凹部 23、24 在该凹部 23、24 的横向整体中在上下方向重叠的位置。

第一把持部 16 被设置为到达箱体前部 C5 的横向上的两端部 C5c、C5d，并在横向上的两端部通过焊接等与前盖 5 结合为一体。而且，第二把持部 17 被设置为到达箱体后部 C6 的横向上的两端部 C6c、C6d，并在

Champion - EX2137, Page 318 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

横向上的两端部通过焊接等与后盖 6 结合为一体。箱体前部 C5 的横向上的两端部 C5c、C5d 和箱体后部 C6 的横向上的两端部 C6c、C6d 分别是由左盖 7 和右盖 8 构成的部分，或者是在横向上与箱体左部 C7 和箱体右部 C8 相对应的部分。如图 4 所示，第一、第二把持部 16、17 整体在横向上的宽度（以下，将在横向上的宽度称为横宽）分别与前盖 5 的横宽和后盖 6 的横宽大体相等，此外，还与左盖 7 和左盖 7 在横向上的间隔大体相等。

第一把持部 16 与形成在前盖 5 的上端部 5a 上的凹部 23 一起形成导入口 18。凹部 23 位于比第一把持部 16 更靠近内部空间 9 的位置，并且进入内部空间 9 中。凹部 23 具有：倾斜部 23a，该倾斜部 23a 从操作板部 5e 起，越是向上方越是在前后方向上向内部空间 9 倾斜；里部 23b，该里部 23b 从倾斜部 23a 起大体与上下方向平行地向上方延伸。凹部 23 延伸成大体到达第一把持部 16 在横向上的两端部，并且该凹部 23 具有与第一把持部 16 的横宽相比，虽然稍小但大体相等的横宽。

而且，在最下端 16b2 与倾斜部 23a 之间形成导入口 18 的入口 18a（在图 3 中用双点划线表示），该入口 18a 朝前方并向斜下方敞开；在第一把持部 16 的上部 16a 与里部 23b 的上端部之间，形成导入口 18 的出口 18b（在图 3 中用双点划线表示）。此外，入口 18a 形成在第一把持部 16 的下方，导入口 18 被设置为大体到达箱体前部 C5 在横向上的两端部 C5c、C5d。导入口 18 的横宽大体与前盖 5 的横宽、以及左盖 7 和左盖 7 在左右方向上的间隔大体相等。从而，从入口 18a 流入的冷却风沿前后方向流向内部空间 9，然后沿下垂部 16b 的内侧部分 16b3 和里部 23b 偏向上方而流动，再通过上部 16a 在前后方向上向内部空间 9 偏转，然后从出口 18b 流出到内部空间 9 中。这样，第一把持部 16 和凹部 23 将导入口 18 形成为多处弯折的迷宫状的通路。

此外，在前盖 5 中，左右侧缘部 5c、5d 比操作板部 5e 向前方突出，第一把持部 16 比该左右侧缘部 5c、5d 还稍稍突出。而且，箱体前部 C5 的下部 C5b 位于比两侧缘部 5c、5d 更靠近内部空间 9 的位置。

在本实施方式中，加强板 10 的一部分被配置在导入口 18 中，从而构成冷却风的引导部 10a，以便使冷却风顺畅地流动并被导入内部空间 9。

Champion - EX2137, Page 319 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

导入口 18 构成第一把持用空间 28，该第一把持用空间 28 为了在搬运发动机发电机 1 时用手把持第一把持部 16 而被使用。而且，导入口 18 形成在第一把持部 16 的下方，进而，主要由里部 23b 形成的导入口 18 的下游部分 18c 成为进入内部空间 9 的空间。从而，该把持用空间 28 的一部分与箱体上部 C4 相比位于下方，并且是进入内部空间 9 的空间。

另一方面，第二把持部 17 与在后盖 6 的上端部 6a 形成的凹部 24 一起形成第二把持用空间 29，该第二把持用空间 29 为了在搬运发动机发电机 1 时用手把持第二把持部 17 而与第一把持用空间 28 一起被使用。凹部 24 位于比第二把持部 17 更靠近内部空间 9 的位置，并且进入内部空间 9，该凹部 24 具有：倾斜部 24a，该倾斜部 24a 从排出口 20 起，越是向上方越是在前后方向上向内部空间 9 倾斜；里部 24b，该里部 24b 从倾斜部 24a 起大体与上下方向平行地向上方延伸。凹部 24 延伸成大体到达第二把持部 17 在横向上的两端部，并且该凹部 24 具有与第二把持部 17 的横宽相比，虽然稍小但大体相等的横宽。

加强板 11 的一部分延伸到与上盖 4 接触的位置，从而构成封闭部 11b，该封闭部 11b 在前后方向上对第二把持用空间 29 在前后方向上靠近内部空间 9 的部分进行大体地封闭。因此，实质上，外部空气不会通过第二把持用空间 29 而作为冷却风导入到内部空间 9。

而且，第一把持部 16 和第二把持部 17 被配置成在箱体 C 中具有垂直于前后方向的作为对称面的平面；凹部 23 和凹部 24、以及第一把持用空间 28 和第二把持用空间 29 被配置成关于该对称面大体面对称。

参照图 1 和图 3，发动机 30 是单气缸、OHC（顶置凸轮轴）型的四冲程空冷发动机，该发动机 30 具有发动机主体 30a，该发动机主体 30a 包括：气缸 31，其与可以往复移动的活塞 35 配合；曲轴箱 32，其结合在气缸 31 的下端部；气缸盖 33，其与气缸 31 一体成形，从而与活塞 35 之间形成燃烧室；以及气缸盖罩 34，其结合在气缸盖 33 的上端部；发动机主体 30a 被固定在下盖 3 上。气缸 31 和曲轴箱 32 支撑曲轴 36，且该曲轴 36 可旋转并被配置成具有平行于前后方向的旋转中心线，该曲轴 36 在活塞 35 的驱动下旋转。

Champion - EX2137, Page 320 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

一并参照图 2 和图 4，发动机 30 具有进气装置 37，该进气装置 37 具有化油器 37b 和进气管 37c，该进气管 37c 与气缸盖 33 连接以便将进气导入到燃烧室。化油器 37b 是一个混合气形成装置，用于形成空气与气体燃料的混合气，所述空气来自空气滤清器 37a，该空气滤清器设有取入口 37a1，用于将从导入口 18 导入到内部空间 9 的冷却风的一部分取入；所述气体燃料是从燃料供给装置 Fa 或外部燃料系统 Fb 供给的。设置在化油器 37b 中的节气门 37b1 由步进电动机 37d 驱动，该步进电动机 37d 由具有微型计算机的 ECU 89 控制，该节气门 37b1 控制发动机 30 的输出，使得曲轴 36 以预先设定的旋转速度旋转。

发动机 30 具有排气装置 38，该排气装置 38 具有：排气管 38a，该排气管 38a 连接在气缸盖 33 上，以便来自燃烧室的废气流入管中；和消声器 38b，该消声器 38b 与排气管 38a 连接。

此外，混合气经过设置在气缸盖 33 上并由气门装置开闭的进气门 39a 而流入燃烧室，该混合气通过保持在支架 44（参照图 3）上的火花塞 42 来点火并燃烧，然后通过产生的燃烧压驱动活塞 35，从而使曲轴 36 被旋转驱动。燃烧气体作为废气，经过由气门装置开闭的排气门 39b 后，通过排气管 38a 流入消声器 38b，由消声器 38b 降低排气音量之后，经过与形成在后盖 6 上的排气口 21 相面对的排气尾管 38c 而排放到外部大气中。

参照图 1 和图 3，被发动机 30 旋转驱动的发电机 40 具有转子 40a 和定子，所述转子 40a 具有磁体，并且该转子 40a 被固定在作为发动机 30 的输出轴的曲轴 36 的轴端部；所述定子具有线圈，并且该定子被配置在转子 40a 的径向内侧并固定在曲轴箱 32 上。具有火花塞 42 的点火装置具有点火线圈 44（参照图 6），由发电机 40 产生的电力对电容器充电后，供给该点火线圈 44 的初级侧；响应于在曲轴 36 的特定的旋转位置产生的点火信号，使点火线圈 44 中产生的高电压施加给火花塞 42。

此外，被曲轴 36 旋转驱动的冷却风扇 45 结合在转子 40a 上而与转子 40a 一体旋转，从而在发动机 30 的运转中，经由导入口 18 将外部空气作为冷却风吸引到箱体 C 内。此外，发动机 30 通过作为起动装置的反冲起动器 46 的动作而被起动。反冲起动器 46 与冷却风扇 45 相连接，从而，

Champion - EX2137, Page 321 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

通过用与反冲起动器46的起动绳46a相连接的旋钮拉动起动绳46a的操作来驱动曲轴36旋转。

参照图2～图4，为了提高对运转噪声的隔音效果和冷却风的冷却效果，发动机主体30a和排气管38a被护罩47所覆盖，该护罩47在发动机主体30a和排气管38a之间形成冷却风的导风通路。合成树脂制的护罩47被固定在发动机主体30a上，同时，在与护罩47一体成形的托架47a中，被固定在上盖4上。此外，冷却风扇45被结合在护罩47前端部的合成树脂制的风扇罩48所覆盖；反冲起动器46被结合在风扇罩48前端部的起动器罩49所覆盖。冷却风扇45从形成在起动器罩49上的流入口50及形成在起动器罩49与风扇罩48之间的流入口51吸引内部空间9的空气，并将冷却风输送到护罩47内。

配置在冷却风扇45和反冲起动器46的前方以对发电机40产生的电力进行控制的电力控制单元41具有：变流器41a，用于控制该电力的电压和频率（参照图6）；以及散热翼片41b，其作为散热器，用于散发包括变流器41a在内的电气部件所产生的热量。

而且，在箱体C的内部空间9中，电力控制部件41、反冲起动器46、冷却风扇45、发电机40、发动机主体30a以及消声器38b以该顺序，作为整体向后方，也是在从导入口18朝向排出口20的冷却风的流动方向上，串连配置在曲轴36的旋转中心线上。

参照图1，燃料系统F向发动机30供给作为燃料的气体燃料，该燃料系统F具有：燃料供给装置Fa，其配置在箱体C或箱体C的内部空间9中，是发动机发电机1所具有的内部燃料系统；和外部燃料系统Fb，其配置在箱体C的外部。

参照图1～图4，燃料供给装置Fa具有盒式高压储气瓶61和燃料压力调节器62，所述盒式高压储气瓶61被配置在设于箱体C内的作为燃料容器设置部的容纳部60中，是单个或多个作为第一燃料源（或主体侧燃料源）的第一燃料容器。在本实施方式中，燃料压力调节器62对从两个盒式高压储气瓶61和后述的外部高压储气瓶71流出的气体燃料的压力进行减压，同时，调节气体燃料的压力，以便向化油器18b供给与发动机30

Champion - EX2137, Page 322 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

的负载相对应的燃料量。燃料供给装置 Fa 还具有：加热装置 80，用于对盒式高压储气瓶 61 和燃料压力调节器 62 进行加热；燃料切换阀 12，其作为燃料切换装置，设置在操作板部 5e 上；燃料配管组，其包括连接器 14，并且在箱体 C 的内部空间 9 中将盒式高压储气瓶 61、燃料压力调节器 62 以及化油器 18b 等相互连接；以及燃料截止阀 63，其使从燃料系统 F 向发动机 30 的气体燃料的供给停止。

在盒式高压储气瓶 61 中，以液化状态储存沸点较高的气体燃料，例如丁烷。此外，通过将盒式高压储气瓶 61 的燃料供给部插入在设于容纳部 60 的连接器 64（参照图 2）中，盒式高压储气瓶 61 就被可装拆地支撑在容纳部 60 中。

外部燃料系统 Fb 具有外部高压储气瓶 71、连接外部高压储气瓶 71 和连接器 14 的配管 A5、以及减压器 72，所述外部高压储气瓶 71 设置在发动机发电机 1 的外部，是作为第二燃料源（或者外部燃料源）的第二燃料容器。在比盒式高压储气瓶 61 具有更大燃料容量（即，所储存的燃料量多）的外部高压储气瓶 71 中，以液化状态储存有比第一气体燃料沸点更低的第二气体燃料，例如丙烷。该外部高压储气瓶 71 例如是家庭用丙烷高压气瓶。

容纳部 60 由形成容纳室 65 的室壁 66 构成，该容纳室 65 用于容纳两个盒式高压储气瓶 61。室壁 66 包括：第一侧壁 66a，其由热的良导体，例如铝等金属构成；第二侧壁 66b，其由右盖 8 的一部分构成；以及底壁 66c，容纳室 66 的上部在内部空间 9 敞开。两个盒式高压储气瓶 61 和容纳部 60 在沿前后方向与电力控制单元 41、燃料压力调节器 62 以及流入口 50、51 重叠的位置上，被设置得靠近右盖 8。配置在盒式高压储气瓶 61 与电力控制单元 41 及燃料压力调节器 62 之间的第一侧壁 66a 被设置成，其上部根据冷却风来讲位于导入口 18 的出口 18b 的下游，并且，位于在上下方向与出口 18b 重叠的位置。而且，第一侧壁 66a 的上端部位于内部空间 9 的大体最上部。此外，盒式高压储气瓶 61、第一侧壁 66a、燃料压力调节器 62 以及电力控制单元 41 位于在左右方向上与出口 18b 重叠的位置。

在第一、第二侧壁 66a、66b 上，为了防止或抑制由发动机 30 的运转

Champion - EX2137, Page 323 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

引起的振动传递到盒式高压储气瓶 61 上而导致盒式高压储气瓶 61 振动，设置由弹性材料构成的作为防振部件的支撑体 67，使其与盒式高压储气瓶 61 的外周面接触。

在容纳部 60 中设置有安装传感器 68，该安装传感器 68 用于检测盒式高压储气瓶 61 的有无或安装状态。安装传感器 68 被安装在设于容纳室 65 外部的安装部件 69 上，并贯通第一侧壁 66a 而位于容纳室 65 内。安装传感器 68 例如由具有接触片 68a 的微动开关构成，其通过使接触片 68a 接触盒式高压储气瓶 61 来检测盒式高压储气瓶 61 已被正确地安装。

各盒式高压储气瓶 61 接近电力控制单元 41 来进行配置，以便能够与电力控制单元 41 进行热交换。更具体地讲，盒式高压储气瓶 61 通过由热的良导体，例如铝等金属构成的传热部件 70 来与第一侧壁 66a 进行热连接。多个是柱状部件的传热部件 70 在其一端部接触盒式高压储气瓶 61，在另一端部接触第一侧壁 66a。而且，第一侧壁 66a 以邻接的状态与电力控制单元 41 接近配置，以便通过在内部空间 9 中的经由冷却风的热传导能够与电力控制单元 41 进行热交换。因此，各盒式高压储气瓶 61 被配置成经由用传热部件 70 热连接的第一侧壁 66a 能够进行与电力控制单元 41 的热交换。

以液化状态向燃料压力调节器 62 供给来自盒式高压储气瓶 61 的第一气体燃料，并且以气体状态向燃料压力调节器 62 供给来自外部高压储气瓶 71 的第二气体燃料，该燃料调压器 62 被配置在电力控制单元 41 和流入口 50、51 的正上方，并与两个盒式高压储气瓶 61、容纳部 60 的第一侧壁 66a、电力控制单元 41 以及流入口 50、51 在前后方向上重叠。而且，燃料压力调节器 62 以与电力控制单元 41 邻接的状态而接近配置，以便通过在内部空间 9 中的经由冷却风的热传导能够与电力控制单元 41 进行热交换。（在图 4 中，为了方便，燃料压力调节器 62 用双点划线表示。）进而，燃料压力调节器 62 具有使以液化状态流入的第一气体燃料气化的作为蒸发器的功能。

参照图 1，在燃料供给装置 Fa 中，由两个盒式高压储气瓶 61、连接两个盒式高压储气瓶 61 和燃料切换阀 12 的配管 A1、连接燃料切换阀 12 和燃料压力调节器 62 的配管 A2、燃料压力调节器 62、连接燃料压力调节

Champion - EX2137, Page 324 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

器 62 和化油器 18b 的配管 A3、以及设置在配管 A3 上的燃料截止阀 63 构成从盒式高压储气瓶 61 向发动机 30 供给第一气体燃料的第一燃料系统；此外，由连接连接器 14 和燃料切换阀 12 的配管 A4、连接燃料切换阀 12 和燃料压力调节器 62 的配管 A2、燃料压力调节器 62、连接燃料压力调节器 62 和化油器 18b 的配管 A3、以及燃料截止阀 63 构成从外部高压储气瓶 71 向发动机 30 供给第二气体燃料的第二燃料系统。

因此，箱体 C 内的配管 A1～A4 构成燃料配管组。此外，燃料压力调节器 62、配管 A3 以及燃料截止阀 63 在第一、第二燃料系统中是公共的公共燃料系统。

作为燃料切断装置的燃料截止阀 63，例如由在没有驱动电流被供给时为开阀状态的常开电磁阀构成，其根据第一气体燃料的压力由 ECU 89 进行开闭控制。更具体地讲，为了检测来自盒式高压储气瓶 61 的压力，在燃料压力调节器 62 上设置燃料压力传感器 73，该燃料压力传感器 73 用于检测从盒式高压储气瓶 61 到达燃料压力调节器 62 的第一气体燃料的压力。然后，当由燃料压力传感器 73 检测出压力超过上限压力 P1 的压力时，ECU 89 使燃料截止阀 63 闭阀以切断公共燃料系统。该上限压力 P1 是根据如下观点预先设定的，该观点是，在盒式高压储气瓶 61 处于过热状态时等，盒式高压储气瓶 61 内的第一燃料气体的压力成为过大的状态下，避免发动机 30 的运转，从而安全地使用发动机发电机 1。

燃料切换阀 12 将供给发动机 30 的气体燃料在通过第一燃料系统供给的第一气体燃料和通过第二燃料系统供给的第二气体燃料之间进行切换。燃料切换阀 12 可以在以下位置间进行操作：第一位置，燃料切换阀 12 在该位置将第一燃料系统与发动机 30 连接起来，以便将第一气体燃料供给发动机 30（在图 5 中，是“盒式”的位置，用单点划线表示。）；第二位置，燃料切换阀 12 在该位置将第二燃料系统与发动机 30 连接起来，以便将第二气体燃料供给发动机 30（在图 5 中，是“外部”的位置，用双点划线表示。）；停止位置，燃料切换阀 12 在该位置切断第一燃料系统和第二燃料系统与发动机 30，从而停止向发动机 30 供给气体燃料（在图 5 中，是“关断”的位置，用实线表示。），并且，第一位置与第二位置之间的切换总是

Champion - EX2137, Page 325 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

经过停止位置而进行。

一并参照图 6，此外，燃料切换阀 12 进行第一气体燃料与第二气体燃料间的燃料的切换，同时，还兼用作控制发动机 30 的运转和停止的发动机运转开关、和控制点火装置及加热装置 80 的动作和非动作的控制开关。因此，燃料切换阀 12 根据其操作位置对控制点火装置的动作和非动作的断流开关 74 进行开闭，并对控制加热装置 80 的动作和非动作的主开关 75 进行开闭。

加热装置 80 具有：电加热器 81a、81b，其作为加热源，对应每个盒式高压储气瓶 61 而设置在容纳部 60 中；电加热器 82，其作为加热源，设置在燃料压力调节器 62 中；温度传感器 83a、83b、84，其分别检测各盒式高压储气瓶 61 的温度和燃料压力调节器 62 的温度；温度传感器 85a、85b、86，其分别检测电加热器 81a、81b、82 的温度；继电器 87a、87b、88，其根据由温度传感器 83a、83b、84 和温度传感器 85a、85b、86 所检测出的温度，根据 ECU 89 的指令，开闭电加热器 81a、81b、82 的加热电路；指示灯 15a、15b（也参照图 5），其显示电加热器 81a、81b 的动作状态。

电加热器 81a、81b、82 分别加热两个盒式高压储气瓶 61 和燃料压力调节器 62，以促进液化状态的第一气体燃料的气化。由此，能够防止由第一气体燃料气化等引起的盒式高压储气瓶 61 和燃料压力调节器 62 的温度的过度降低，从而防止第一气体燃料的压力的过度降低，使得第一气体燃料稳定地供给发动机 30。

一并参照图 7，当燃料切换阀 12 位于第一位置或第二位置时，处于能够向发动机 30 供给第一气体燃料或第二气体燃料的状态，而且，从断流开关 74 断开时起，点火装置就处于可动作状态，发动机 30 处于可运转状态。（即，燃料切换阀 12 作为发动机运转开关，成为接通状态。）此外，当燃料切换阀 12 处于停止位置时，则停止向发动机 30 供给第一气体燃料或第二气体燃料，而且，从断流开关 74 闭合时起，点火装置就处于非动作状态，发动机 30 停止。（即，燃料切换阀 12 作为发动机运转开关，成为关断状态。）

另一方面，加热装置 80 只在燃料切换阀 12 位于第一位置时，由于主

Champion - EX2137, Page 326 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

开关 75 闭合而成为可动作状态，于是，通过对盒式高压储气瓶 61 和燃料压力调节器 62 进行加热的各电加热器 81a、81b、82，根据盒式高压储气瓶 61 和燃料压力调节器 62 的温度来进行加热控制。此外，当燃料切换阀 12 位于第二位置和停止位置时，由于第一气体燃料不供给发动机 30，所以，主开关 75 断开，从而加热装置 80 成为非动作状态，于是盒式高压储气瓶 61 和燃料压力调节器 62 的加热被停止。

下面，对如上构成的实施方式的作用和效果进行说明。

将燃料切换阀 12 从停止位置操作到第一位置，从而第一气体燃料处于可供给发动机 30 的状态，在该状态下，操作反冲起动机 46，从而发动机 30 起动，然后开始自力运转。然后，由发动机 30 驱动的发电机 40 所产生的电力被电力控制单元 41 控制，并被供给到插座 13 上所连接的电气设备。同时，由发动机 30 驱动的冷却风扇 45 通过流入口 50、51 吸引内部空间 9 的空气。通过该冷却风扇 45 的吸引作用，外气通过导入口 18 而被作为冷却风导入到内部空间 9。

来自导入口 18 的冷却风从内部空间 9 的最上部流入内部空间 9，其一部分通过热传导与第一侧壁 66a 和燃料压力调节器 62 进行了热交换后，流到下方以冷却电力控制 41b，进而，在与第一侧壁 66a 和燃料压力调节器 62 进行了热交换后，通过流入口 50、51 而被冷却风扇 45 吸引。然后，冷却风被冷却风扇 45 输送到护罩 47 内，在护罩 47 内对发动机主体 30a 和排气管 38a 进行了冷却后，冷却消声器 38b，并从排出口 20 被排放到外部。

当通过发动机 30 的运转，盒式高压储气瓶 61 的第一气体燃料的剩余量变得很少等，从而需要切换到外部高压储气瓶 71 的第二气体燃料时，将燃料切换阀 12 临时操作到停止位置，从而发动机 30 被停止。此时，通过断流开关 74 的动作能够使发动机 30 快速地停止。接着，将燃料切换阀 12 操作到第二位置。由此，第二气体燃料成为可供给发动机 30 的状态，然后通过反冲起动机 46 的操作使发动机 30 起动。

此处，在发动机发电机 1 的前盖 5 上形成有凹部 23，该凹部 23 位于比第一把持部 16 更靠近内部空间 9 的位置，第一把持部 16 和凹部 23 共同形成导入口 18，导入口 18 构成第一把持用空间 28，进而，在后盖 6 上

Champion - EX2137, Page 327 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

形成有凹部 24，该凹部 24 位于比第二把持部 17 更靠近内部空间 9 的位置，第二把持部 17 和凹部 24 共同构成第二把持用空间 29。

从而，由于冷却风的导入口 18 还兼用作把持用空间 28，所以第一把持用空间 28 被形成为形成内部空间 9 的前盖 5 本身，而且，由于形成第一、第二把持用空间 28、29 的一方的部分就是进入箱体 C 的内部空间 9 的凹部 23、24，所以，与将整个把持用空间形成在发动机发电机的箱体外部的情况相比，能够防止或抑制第一、第二把持部 16、17 从箱体 C 的前盖 5 和后盖 6 突出，从而第一、第二把持部 16、17 并不占用特别大的空间，因此能够使发动机发电机 1 小型化，使保管空间小。而且，由于第一、第二把持部 16、17 的存在不明显，所以第一、第二把持部 16、17 很少使发动机发电机 1 的美观受损，从而能够提高发动机发电机 1 的外观性。再者，由于冷却风的导入口 18 还兼用作第一把持用空间 28，所以不必分别设置导入口 18 和第一把持用空间 28，因此，与将把持用空间与导入口分开设置的情况相比，能够减少对箱体 C 的外观设计的制约。另外，由于第一、第二把持用空间 28、29 位于作为箱体侧部的前盖 5 和后盖 6 上，所以使发动机发电机的搬运变得容易。

此外，在发动机 30 的运转中，由于第一把持部 16 被通过导入口 18 的冷却风吹拂而冷却，所以在把持第一、第二把持部 16、17 以搬运运转中的发动机发电机 1 时，把持部不会被过分加热，从而在发动机发电机 1 的运转过程中也能够会把持部 16、17 进行把持。

第一、第二把持部 16、17 具有向下方延伸的下垂部 16b、17b，以便能够从外侧部分 16b1、17b1 经由最下端 16b2、17b2 直到内侧部分 16b3、17b3 进行握持，从而能够握住下垂部 16b、17b，因此，第一、第二把持部 16、17 的把持变得容易，从而发动机发电机 1 的搬运变得容易。

此外，通过利用具有下垂部 16b 的第一把持部 16 和凹部 23，使导入口 18 形成迷宫状的通路，因此不会因使导入口 18 成为迷宫状而使结构复杂化。而且，由于内部空间 9 通过迷宫状的导入口 18 连通到外部，所以能够能够大幅降低运转噪声的泄漏量。其结果是，不使成本增加就能够减轻通过导入口 18 泄漏到外部的运转噪声。

Champion - EX2137, Page 328 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

第一把持部 16 设置在箱体前部 C5 上；导入口 18 的入口 18a 形成在第一把持部 16 的下方；第一把持部 16 和导入口 18 被设置为到达箱体前部 C5 在横向上的两端部。从而，由于在横向上把持第一把持部 16 的位置的自由度增大，所以能够选择易于把持的位置，以使发动机发电机 1 的搬运变得容易。此外，不损害外观上的美观性就能够加大导入口 18 中的冷却风的吸气面积，而且，通过跨过横向宽范围而流入内部空间 9 的冷却风能够抑制空气在内部空间 9 中的滞留，因此能够提高发动机 30、发电机 40 和电力控制单元 41 的冷却效果。

通过使导入口 18 设置在前盖 5 的上部，当发动机刚停止后处于热浸（hot soak）时，发动机 30、发电机 40 和电力控制单元 41 周围的热气通过对流而上升到内部空间 9 的上部。因此，热气易于从导入口 18 流出，从而促进箱体 C 的内部空间 9 的自然换气，由此能够促进发动机刚停止后的发动机 30、发电机 40 和电力控制单元 41 的冷却。

在前盖 5 中，左右侧缘部 5c、5d 比操作板部 5e 向前方突出，第一把持部 16 比该左右侧缘部 5c、5d 还稍稍突出，而且，箱体前部 C5 的下部 C5b 位于比两侧缘部 5c、5d 更靠近内部空间 9 的位置。因此，发动机发电机 1 即使以前盖 5 接触墙壁等的外部部件的状态被放置时，也由于在左右侧缘部 5c、5d 之间，向下方敞开的空间和下垂部 16b、17b 比两侧缘 5c、5d 突出而在侧缘部 5c、5d 与上述外部部件之间形成间隙，所以能够将充分量的外部空气作为冷却风导入至导入口 18 中。

盒式高压储气瓶 61 和燃料压力调节器 62 被配置成接近电力控制单元 41，以便与电力控制单元 41 进行热交换。因此，在发动机发电机 1 的运转中，由于燃料的气化等而变成低温的盒式高压储气瓶 61 和燃料压力调节器 62 通过经由冷却风的热传递能够与电力控制单元 41 进行热交换。因此，从电力控制单元 41 的散热量增加，换言之，通过盒式高压储气瓶 61 和燃料压力调节器 62 来促进电力控制单元 41 的冷却，以抑制电力控制单元 41 的温度上升。同时，盒式高压储气瓶 61 和燃料压力调节器 62 被电力控制单元 41 加热，以抑制其温度降低。其结果是，在盒式高压储气瓶 61 及燃料压力调节器 62 与电力控制单元 41 之间，通过相互利用彼此的热量，能够

Champion - EX2137, Page 329 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

抑制电力控制单元 41 的温度上升，因此能够使作为电力控制单元 41 的散热结构的散热翼片 41b 小型化。此外，由于抑制了盒式高压储气瓶 61 和燃料压力调节器 62 的温度降低，所以能够使加热装置 80 的加热量减少，从而能够使作为加热源的电加热器 81a、81b、82 的消耗电力减少。

盒式高压储气瓶 61 与形成容纳室 65 的第一侧壁 66a 通过传热部件 70 热连接；第一侧壁 66a 接近电力控制单元 41 而配置，以便能够与电力控制单元 41 进行热交换，从而盒式高压储气瓶 61 中的从电力控制单元 41 的受热，以及电力控制单元 41 的散热都通过传递盒式高压储气瓶 61 的热量的第一侧壁 66a 进行。因此，由于在盒式高压储气瓶 61 与电力控制单元 41 之间进行热交换，所以能够减小对盒式高压储气瓶 61 和电力控制单元 41 的配置的制约。此外，通过加大第一侧壁 66a，或者使第一侧壁 66a 与电力控制单元 41 更加接近等的第一侧壁 66a 的形状或配置，能够使盒式高压储气瓶 61 与电力控制单元 41 之间的传热量增加，从而能够提高盒式高压储气瓶 61 与电力控制单元 41 之间的相互的热量的利用率。其结果是，能够在通过第一侧壁 66a 而相互利用盒式高压储气瓶 61 和电力控制单元 41 之间的热量的基础上，加大盒式高压储气瓶 61 和电力控制单元 41 的配置的自由度，此外能够提高盒式高压储气瓶 61 和电力控制单元 41 的相互的热量的利用率，从而能够更加高效地进行盒式高压储气瓶 61 对电力控制单元 41 的冷却，以及电力控制单元 41 对盒式高压储气瓶 61 的加热。

经过导入口 18 被导入内部空间 9 的冷却风的至少一部分通过第一侧壁 66a 依次冷却了盒式高压储气瓶 61、燃料压力调节器 62 以及电力控制单元 41 后，对发电机 40 和发动机 30 进行冷却，从而，被导入内部空间 9 的冷却风被盒式高压储气瓶 61 和燃料压力调节器 62 冷却为更低的温度，该成为低温的冷却风首先冷却电力控制单元 41，然后冷却发电机 40 和发动机 30。因此，能够更加有效地冷却电力控制单元 41，并且发电机 40 和发动机 30 也能够得到更高的冷却效果。

由于变流器 41a 的切换损失大，发热量大，所以，由于其动作而成为高温的变流器 41a 被盒式高压储气瓶 61 和燃料压力调节器 62 有效地冷却，从而抑制了变流器 41a 的升温；盒式高压储气瓶 61 和燃料压力调节器 62

Champion - EX2137, Page 330 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

被高温的变流器 41a 有效地加热，从而抑制了其温度降低。其结果是，发热量大的变流器 41a 被有效地冷却，且盒式高压储气瓶 61 和燃料压力调节器 62 被变流器 41a 有效地加热。

燃料压力调节器 62 在上下方向和左右方向上处于与导入口 18 重叠的位置，并且配置在电力控制单元 41 的正上方，从而，从导入口 18 流入内部空间 9 的冷却风由于燃料压力调节器 62 而朝向电力控制单元 41 偏转方向，因此，通过从导入口 18 刚流入内部空间 9 的冷却风，能够进一步促进电力控制单元 41 的冷却。

流入口 50、51 在前后方向上位于与第一侧壁 66a 和燃料压力调节器 62 重叠的位置，从而，通过与第一侧壁 66a 和燃料压力调节器 62 的热交换而被冷却了的冷却风从流入口 50、51 流入，因此，促进了发动机主体 30a 和消声器 38b 的冷却。

下面，参照图 8、图 9 对本发明的第二实施方式进行说明。该第二实施方式在第二把持部 17 形成冷却风的导入口这一点上与第一实施方式不同，其它基本具有相同的结构。因此，对相同部分的说明加以省略或简化，以不同点为中心进行说明。并且，对与第一实施方式的部件相同的部件或对应的部件，根据需要使用了相同的标号。

第二把持部 17 与凹部 24 共同形成作为第二导入口的导入口 19。在下垂部 17b 的最下端 17b2 与倾斜部 24a 之间，形成朝向后方并与后方平行敞开的导入口 19 的入口 19a；在第二把持部 17 的上部 17a 与里部 24b 的上端部之间形成导入口 19 的出口 19b。此外，入口 19a 形成在第二把持部 17 的下方，导入口 19 被设置为大体到达箱体后部 C6 在横向上的两端部 C6c、C6d。导入口 19 的横宽与作为第一导入口的导入口 18 的横宽相等，进而与后盖 6 的横宽大体相等。

因此，从入口 19a 流入的冷却风沿前后方向朝内部空间 9 流动后，沿下垂部 17b 的内侧部分 17b3 和里部 24b 偏向上方流动，进而，通过上部 17a 而沿前后方向朝内部空间 9 偏转方向后，从出口 19b 流出到内部空间 9 中。这样，第二把持部 17 与凹部 24 形成使第二导入口 19 在多个部位弯曲的迷宫状的通路。

Champion - EX2137, Page 331 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

此外，加强板 11 的一部分配置在导入口 19 中，从而构成冷却风的引导部 11a，以使冷却风顺畅地流动并被导入内部空间 9。

而且，导入口 19 构成第二把持用空间 29，该第二把持用空间 29 在搬运发动机发电机 1 时，为了用手把持第二把持部 17 而被使用。导入口 19 形成在第二把持部 17 的下方，并且，主要由里部 24b 形成的导入口 19 的下游部分 19c 进一步成为进入内部空间 9 的空间，因此，第二把持用空间 29 的一部分是比箱体上部 C4 位于下方，并且进入内部空间 9 的空间。

根据该第二实施方式，除了能够达到与第一实施方式相同的效果外，还能够达到如下的作用和效果。

即，第一、第二把持部 16、17 分别设置于在箱体 C 中隔着发电机 40 和发动机 30 而相对的前盖 5 和后盖 6 上，第一、第二把持部 16、17 与前盖 5 的凹部 23 及后盖 6 的凹部 24 共同分别形成一对导入口 18、19，从而，冷却风从两侧夹持发动机 30 和发电机 40 而流入内部空间 9 内，因此，与只有一个导入口的情况相比，由于刚流入内部空间 9 后的较低温度的冷却风流过发动机 30 和发电机 40 的周围，所以能够促进发动机 30 和发电机 40 的冷却。此外，在发动机刚停止后处于热浸时等，由于发动机 30、发电机 40 以及电力控制单元 41 周围的热气通过对流而上升到内部空间 9 的上部，所以，易于从分别位于箱体前部 C5 和箱体后部 C6 的上部 C5a、C6a 的两导入口 18、19 流出到外部，而且，与导入口只有一个的情况相比，更易于流出，从而能够进一步促进箱体 C 的内部空间 9 的自然换气。其结果是，通过来自一对导入口 18、19 的冷却风，能够提高发动机 30、发电机 40 以及电力控制单元 41 的冷却效果，而且能够促进发动机刚停止后的发动机 30、发电机 40 和电力控制单元 41 的冷却。

两导入口 18、19 在电力控制单元 41、发电机 40、发动机主体 30a 和消声器 38b 串行排列的方向上相对设置，从而，来自靠近电力控制单元 41 的导入口 18 的冷却风，与第一实施方式相同，顺次冷却电力控制单元 41、发电机 40、发动机主体 30a 和消声器 38b；另一方面，来自靠近发动机 30 的导入口 19 的冷却风的大部分流过护罩 47 的周围而从流入口 50、51 被冷却风扇 45 吸引后，被输送到护罩 47 内，以顺次冷却发电机 40、发动机

Champion - EX2137, Page 332 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

主体 30a 和消声器 38b。其结果是，由于发电机 40 和发动机 30 通过几乎没有被电力控制单元 41 加热的冷却风来进行冷却，所以能够提高发电机 40、发动机主体 30a 和消声器 38b 的冷却效果。

以下，针对变更上述实施方式的一部分结构后的实施方式，对其变更后的结构进行说明。

第一把持用空间 28 并不是如上述实施方式那样，基本上只由导入口 18 构成，如图 10 所示，也可以由内部空间 9 的一部分和第一导入口 92 来构成第一把持用空间 93。更具体地讲，第一把持部 90 与前盖 5 的凹部 91 共同形成第一导入口 92，同时，与构成前盖 5 或箱体 C 的其它盖 4 等同样地，也形成内部空间 9。即，作为用手把持的部分的下垂部 90b 的内侧部分 90b1 形成内部空间 9。此时，由第二把持部和后盖形成的第二把持用空间既可以与第一实施方式同样地被封闭，也可以与第一把持用空间 93 同样地，由内部空间 9 的一部分、和由第二把持部及后盖的凹部共同形成的第二导入口来构成。此外，在图 10 中，如双点划线例示的那样，也可以不在前盖 5 和后盖上分别形成用于形成第一导入口和第二导入口的凹部。

如果这样，由于冷却风的导入口 92 兼用作第一把持用空间 93，所以，第一把持用空间 93 被形成为形成内部空间 9 的前盖 5 本身，进而，将箱体 C 的内部空间 9 作为第一把持用空间 93 的一部分来利用，因此，与将把持用空间的整体形成在箱体 C 的外部的情况相比，能够防止或抑制第一把持部 90 从箱体 C 的前盖 5 突出。其结果是，以发动机发电机 1 的小型化和保管空间的缩小这点为首，在减少对箱体 C 的外观设计的制约等方面上，也与第一实施方式起到同样的效果。

在上述实施方式中，箱体 C 主要由 6 个盖构成，但也可以由 6 个以外的数量的盖构成。

第一、第二把持部 16、17 和导入口 18、19、92 也可以在箱体前部 C5 或箱体后部 C6 中设置在上端部以外的上部、下部、或设置在上下方向的上部与下部的中间部，此外也可以设置在箱体上部 C4 中。导入口 18、19、92 也可以以形成第一、第二把持用空间 28、29、93 为前提，沿横向被分割为多个。

Champion - EX2137, Page 333 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

在上述实施方式中，第一、第二把持部由把持部形成部件的整体构成，但各把持部也可以将构成箱体 C 的箱体结构部件，例如前盖 5、后盖 6 或上盖 4 作为把持部形成部件，来一体地成型为把持部形成部件，并由其一部分构成，或者由与上述箱体结构部件不同的其它部件来构成，并一体地结合在该箱体结构部件上。第一、第二把持部也可以是能用手按住的形状。

盒式高压储气瓶 61、室壁 66 或燃料压力调节器 62 中的至少一个也可以通过由热的良导体构成的传热部件，或者直接地热连接到电力控制单元 41 的散热翼片 41b 上。从而，由于盒式高压储气瓶 61 和燃料压力调节器 62 中的至少一方与电力控制单元 41 之间的传热是通过传热部件利用热传导而进行，所以能够进一步提高相互的热量利用率。其结果是，由于盒式高压储气瓶 61 和燃料压力调节器 62 中的至少一方与电力控制单元 41 之间的相互的热量利用率进一步提高，所以，由盒式高压储气瓶 61 和燃料压力调节器 62 中的至少一方对电力控制单元 41 的冷却效果、以及由电力控制单元 41 对盒式高压储气瓶 61 和燃料压力调节器 62 中的至少一方的加热效果进一步提高。

盒式高压储气瓶 61 和燃料压力调节器 62 中的任何一个也可以对应电力控制单元 41 以能够与电力控制单元 41 进行热交换的方式进行配置。

用于配置盒式高压储气瓶 61 的燃料配置部也可以不必由容纳部 60 构成，因此，在与电力控制单元 41 之间也可以不设置室壁 66。

第一气体燃料也可以以气化状态供给燃料压力调节器 62。第 2 气体燃料也可以是丙烷以外的气体燃料，例如也可以是城市煤气，此外，第二燃料源也可以是供给第二气体燃料的管道。

加热装置 80 的加热源也可以是电加热器以外的热源，例如，也可以利用发动机废气的热等，发动机的余热。此外，由于在盒式高压储气瓶 61 及燃料压力调节器 62 与电力控制单元 41 之间相互利用彼此的热，所以通过电力控制单元 41 的热量抑制盒式高压储气瓶 61 和燃料压力调节器 62 的降温，因此能够利用较低温度的加热源等，从而增加了加热源的选择项，甚至不需要对盒式高压储气瓶 61 或燃料压力调节器 62 加热的加热装置。

Champion - EX2137, Page 334 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

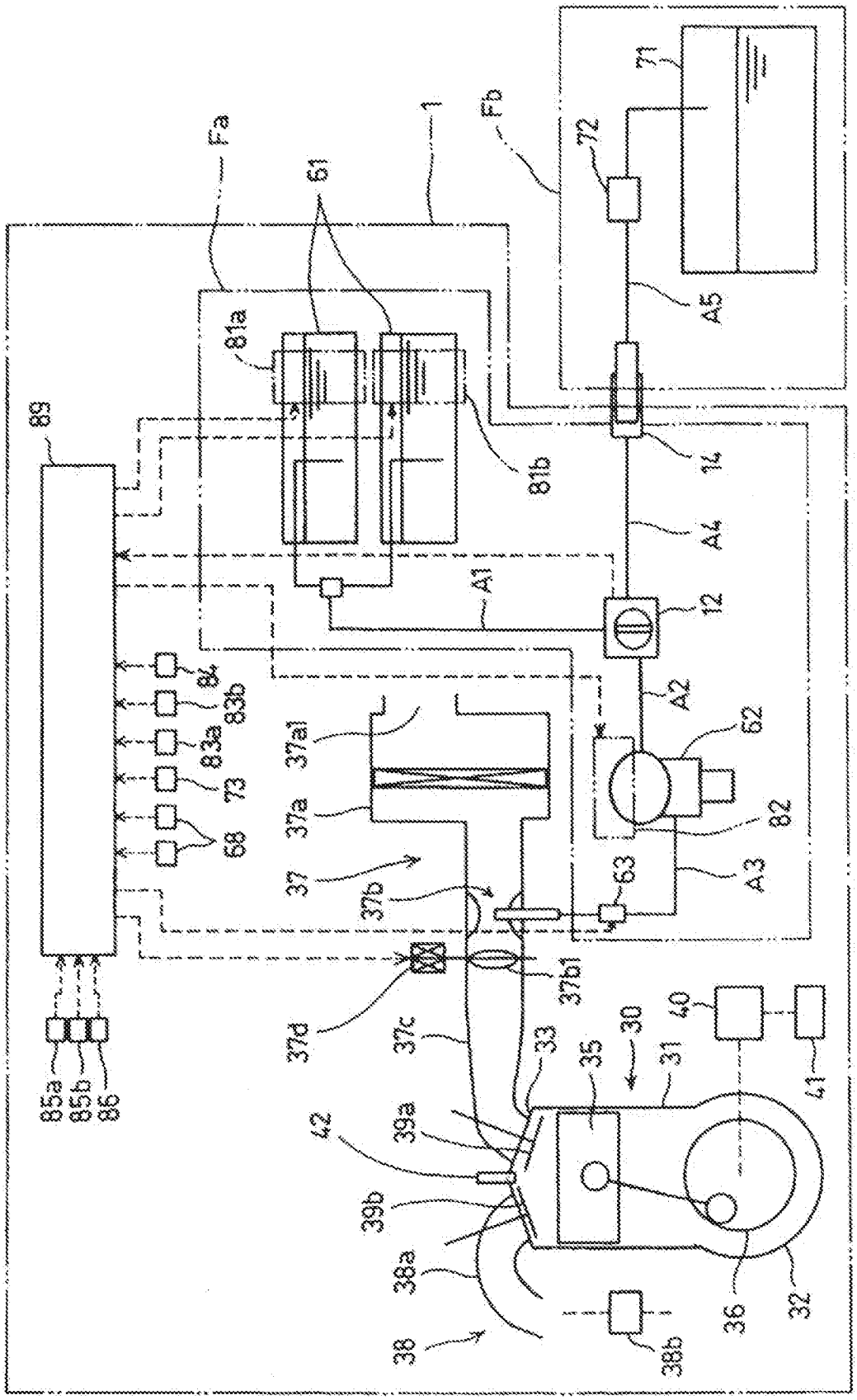

Fa
61
1
Fb
71
72
A5
81a
81b
89
14
A4
A1
12
84
83b
83a
73
68
37a1
37a
37
37b
A2
62
82
63
A3
37b1
37d
37c
33
35
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41
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39a
39b
38a
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38b
85a
85b
86

图 1

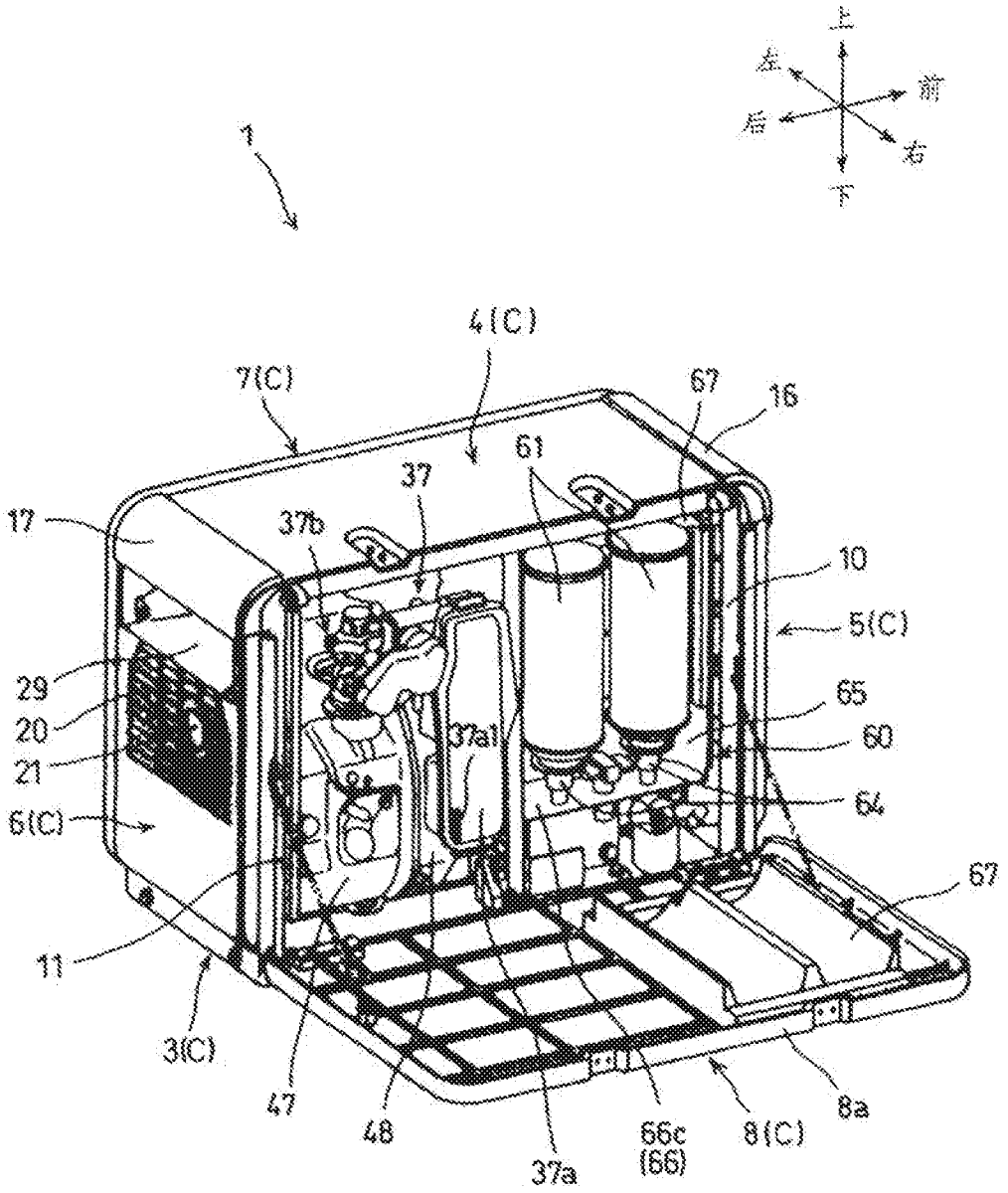


图 2

Champion - EX2137, Page 336 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

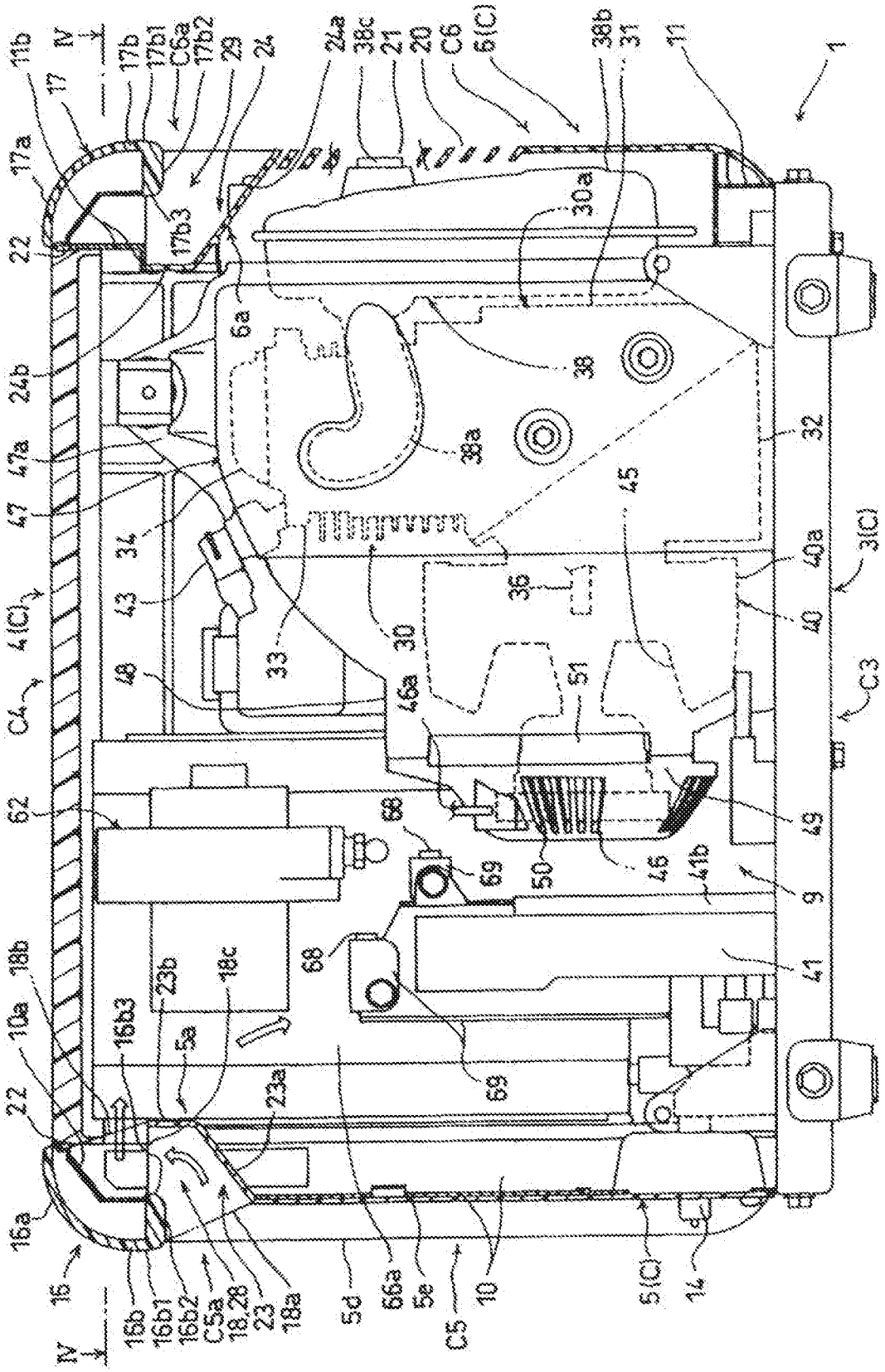


图 3

Champion - EX2137, Page 337 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

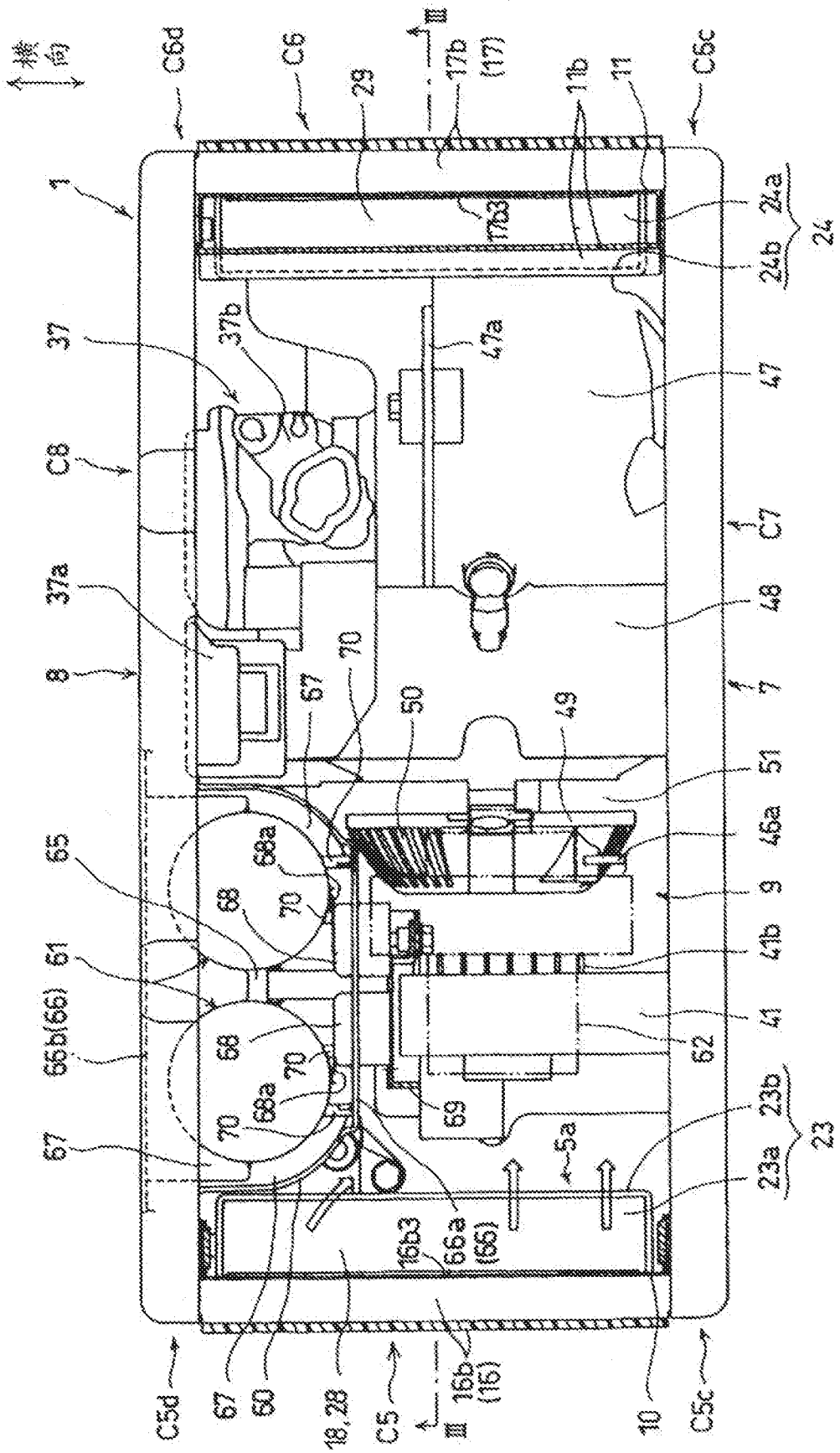


图 4

Champion - EX2137, Page 338 of 585
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IPR2025-01457

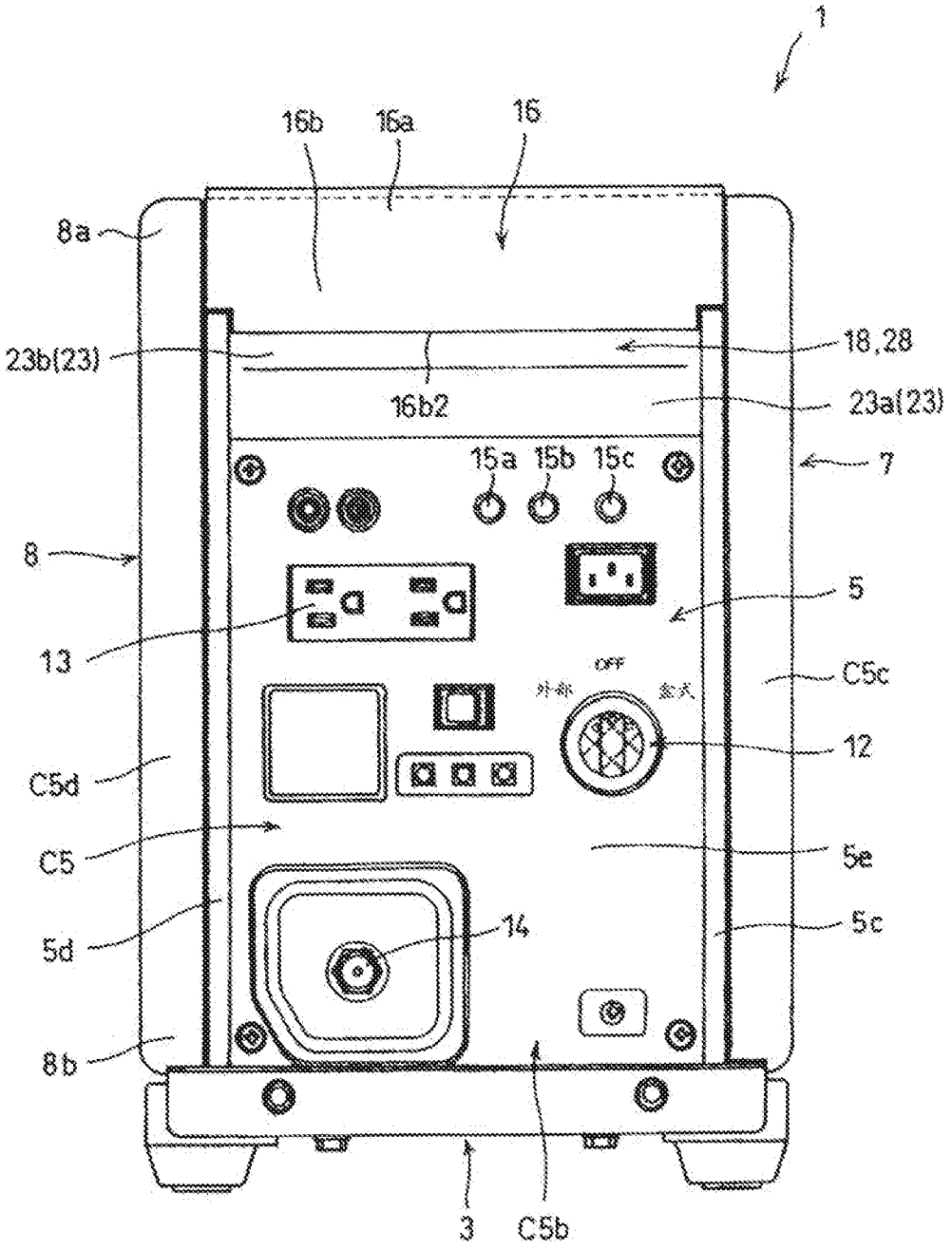


图 5

Champion - EX2137, Page 339 of 585
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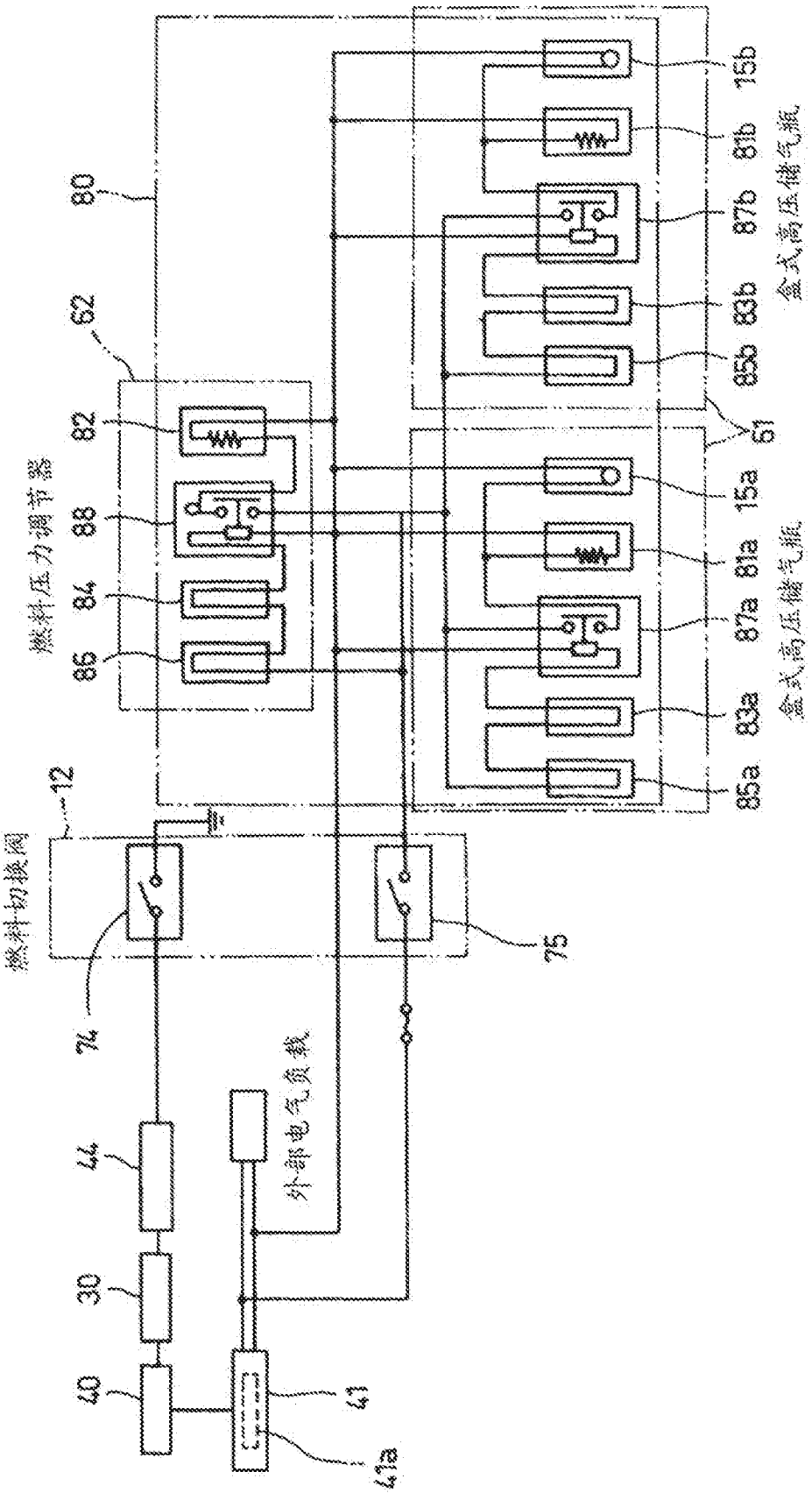


图 6

Champion - EX2137, Page 340 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

	燃料切换阀		
	第1位置	停止位置	第2位置
向发动机的气体燃料供给状态	盒式高压储气瓶的气体燃料（丁烷）的供给	供给停止	外部气体容器的气体燃料（丙烷）的供给
点火装置的动作状态	动作（断流开关断开）	非动作（断流开关接通）	动作（断流开关断开）
加热装置的动作状态	动作（加热器的主开关接通）	非动作（加热器的主开关断开）	非动作（加热器的主开关断开）

图 7

Champion - EX2137, Page 341 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

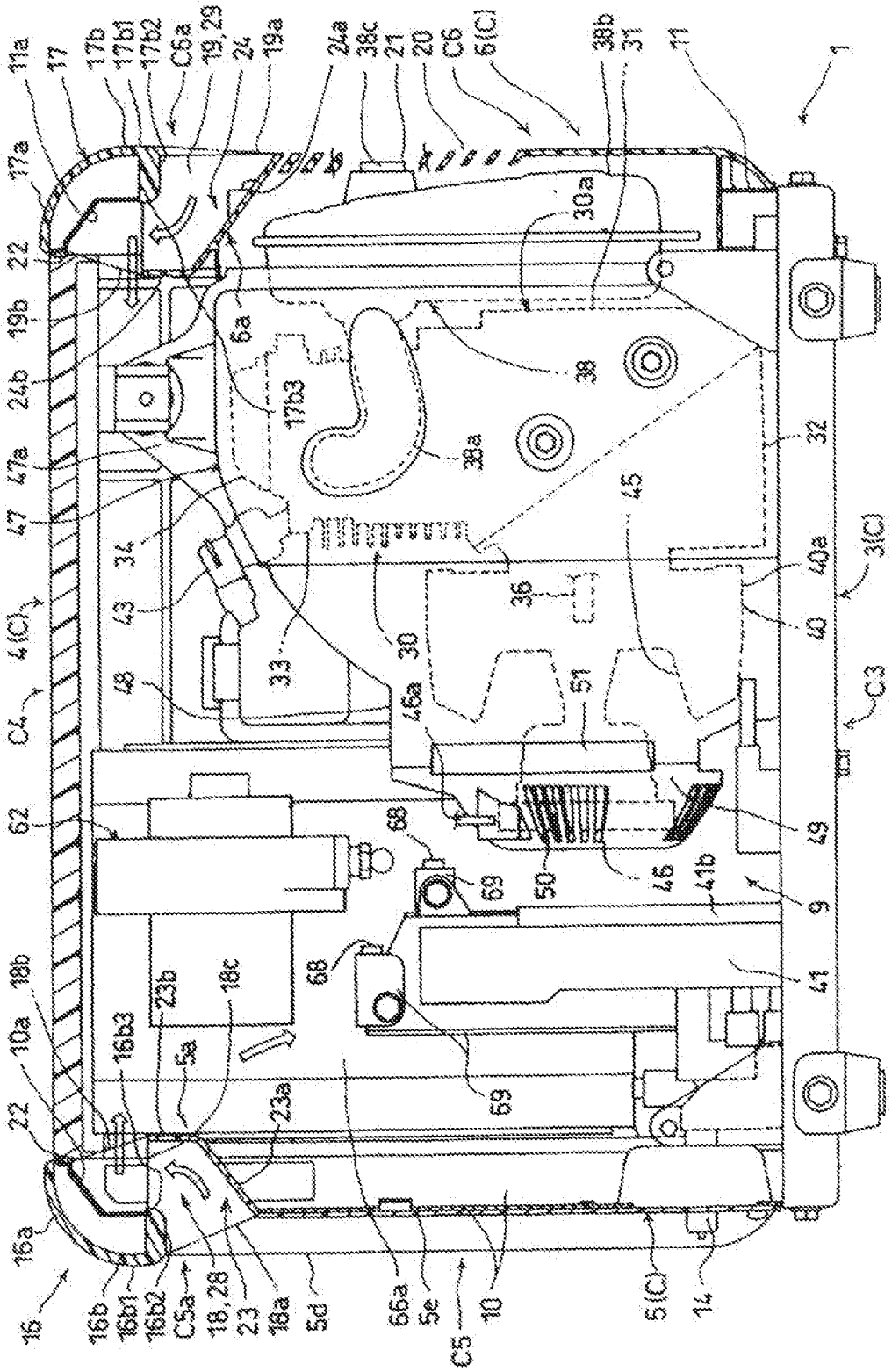


图 8

Champion - EX2137, Page 342 of 585
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IPR2025-01457

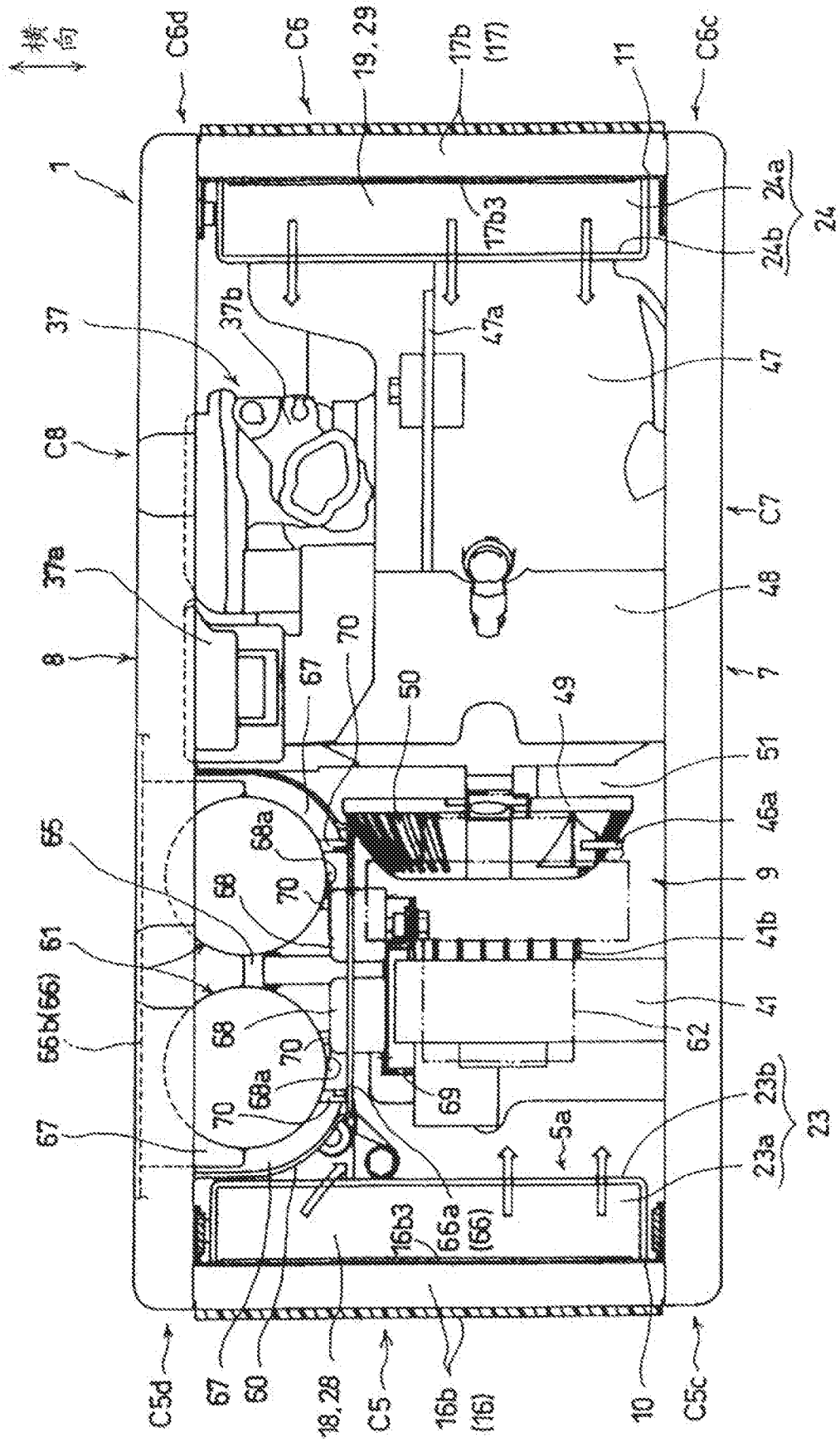


图 9

Champion - EX2137, Page 343 of 585
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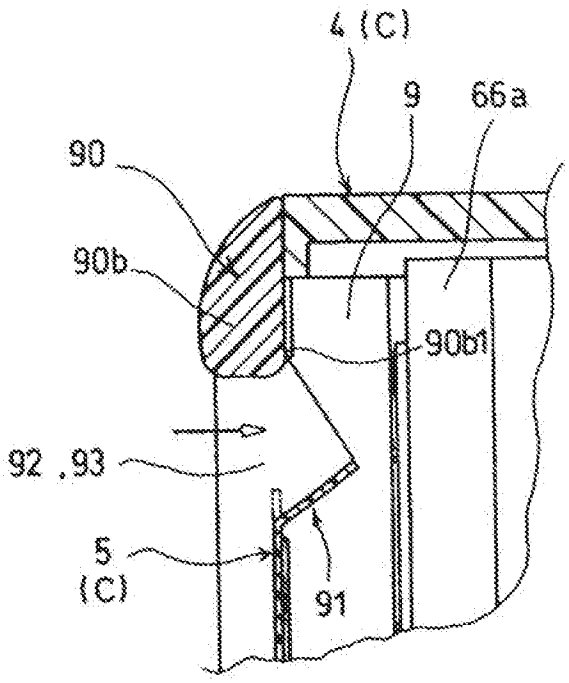


图 10

Champion - EX2137, Page 344 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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EFS ID:	32782831
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
Receipt Date:	01-JUN-2018
Filing Date:	28-OCT-2015
Time Stamp:	14:47:10
Application Type:	Utility under 35 USC 111(a)

Payment information:

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File Listing:

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Application Number	14925441
Filing Date	2015-10-28
First Named Inventor	Kendall J. Collie et al.
Art Unit	3747
Examiner Name	Long T. Tran
Attorney Docket Number	CET1090.042

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	3	4335697		1982-06-22	McLean	
	4	4373493		1983-02-15	Welsh	
	5	4463735		1984-08-07	Stoltman	
	6	4480595		1984-11-06	Hobby et al.	
	7	4628871		1986-12-16	Glass	
	8	4708094		1987-11-24	Helmich et al.	

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	Application Number	14925441
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	Art Unit	3747
	Examiner Name	Long T. Tran
	Attorney Docket Number	CET1090.042

	9	4979480		1990-12-25	Daikoku et al.	
	10	5092305		1992-03-03	King	
	11	5228423		1993-07-20	Oikawa et al.	
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	3	20110168133	A1	2011-07-14	Pursifull et al.	
	4	20140202430	A1	2014-07-24	Monros	
	5	20140238340	A1	2014-08-28	Dunn et al.	

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	Application Number	14925441
	Filing Date	2015-10-28
	First Named Inventor	Kendall J. Collie et al.
	Art Unit	3747
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	6	20140373531	A1	2014-12-25	Wong			

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	1	Champion Power (2014, Dec. & Jan.) 100153 Manual, Retrieved from http://www.championpowerequipment.com/media/2400/100153_manual-english_12-4-14.pdf	

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Art Unit	3747
Examiner Name	Long T. Tran
Attorney Docket Number	CET1090.042

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☒ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

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A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Kevin R. Rosin/	Date (YYYY-MM-DD)	2018-05-02
Name/Print	Kevin R. Rosin	Registration Number	55584

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7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

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

Electronic Patent Application Fee Transmittal

Application Number:	14925441
Filing Date:	28-Oct-2015
Title of Invention:	BATTERYLESS DUAL FUEL ENGINE WITH LIQUID FUEL CUT-OFF
First Named Inventor/Applicant Name:	Kendall J. Collie
Filer:	Kevin Roger Rosin./Robyn Templin
Attorney Docket Number:	CET1090.042

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
SUBMISSION- INFORMATION DISCLOSURE STMT	2806	1	120	120
		Total in USD ($)		**120**

Electronic Acknowledgement Receipt

EFS ID:	32507816
Application Number:	14925441
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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
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Receipt Date:	02-MAY-2018
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Payment information:

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Payment was successfully received in RAM	$120
RAM confirmation Number	050218INTEFSW10334400
Deposit Account	
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The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	SuppIDS.pdf	1034749 3c1abadce376311943f171c3eb9939f1951c30ea	no	5
Warnings:					
Information:					
2	Non Patent Literature	NPL1-Champion_Power_100153_Manual.pdf	2038378 537ac7b4c52337a9af172a3be37d2ec418e30f14	no	34
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	30696 1dc314556402217ed236355701e30896eaec568d	no	2
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If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

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.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Customer No. 26629 Patent
Confirmation No. 1059 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

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

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37 CFR 1.8(a) **37 CFR 1.10**

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□ transmitted by facsimile to Fax No.: 571-273-8300 addressed to **Examiner Long T. Tran** at the Patent and Trademark Office.

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Date: April 24, 2018 /Robyn L. Templin/
Signature

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

AMENDMENT/RESPONSE TO OFFICE ACTION
MAILED JANUARY 26, 2018

Dear Sir:

Responsive to the Office Action mailed January 26, 2018, please amend the Application as follows and consider the following remarks:

In the Claims

1. (Original) 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 attached to 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. (Original) The dual fuel engine of claim 5, wherein the liquid fuel cut-off is a solenoid valve powered by the electrical power generator.

Champion - EX2137, Page 357 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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

Champion - EX2137, Page 358 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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. (Currently Amended) 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 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.

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:

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

Champion - EX2137, Page 359 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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

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

Champion - EX2137, Page 360 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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.

35. (Currently Amended) A carburetor having a fuel shutoff comprising:

Champion - EX2137, Page 361 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

a carburetor comprising:

a float bowl,

a throat, and

a fuel passage to provide fuel 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.

Champion - EX2137, Page 362 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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. (Currently Amended) 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

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

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

Champion - EX2137, Page 363 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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.

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

coupling a lever to the shaft;

Champion - EX2137, Page 364 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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.

Champion - EX2137, Page 365 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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.

Champion - EX2137, Page 366 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

REMARKS

Claims 1-63 are pending in the present application. In the Office Action mailed January 26, 2018, the Examiner rejected claims 1, 3, 4, 12, 13, 35, and 36 under 35 U.S.C. §102(a)(2) as being anticipated by Poehlman (USP 4,489,699). The Examiner next rejected claims 2, 5-10, 19, 20, 30-34, 48, 49, 56, 57, and 60-63 under 35 U.S.C. §103 as being unpatentable over Poehlman in view of Sugimoto et al. (US Pub. 2007/0137591 – hereinafter "Sugimoto"). Claim 11 was rejected under 35 U.S.C. §103 as being unpatentable over Poehlman in view of 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 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 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. and Poehlman, 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. and Poehlman, and further in view of Andersson et al.

Rejection under 35 U.S.C. §102(a)(2) as being anticipated by Poehlman

Claim 1

The Examiner rejected independent claim 1 under 35 U.S.C. §102(a)(2) as being anticipated by Poehlman. In rejecting claim 1, the Examiner stated that:

> 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) attached to the carburetor to interrupt liquid fuel upon actuation of the switch from liquid fuel to gaseous fuel.

Office Action, 01/26/2018, p. 2-3. 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

Champion - EX2137, Page 367 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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:

> In operation, when switching from liquid fuel to gaseous fuel, the operator moves the fuel selector switch 51 to the gaseous fuel position. As a result, the liquid fuel control valve 43 is consequently deenergized and turns off the liquid fuel supply to the carburetor 15. However, the engine continues to run on the liquid fuel in the carburetor bowl 17. 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. The 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. The first solenoid coil 81 acts to displace the first switch member 65 to the terminal 63, thereby 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.

Claim 1 calls for, in part, 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 attached to the carburetor to interrupt liquid fuel upon actuation of the switch from liquid fuel to gaseous fuel.

Contrary to the Examiner's assertion, Poehlman does not disclose that control means 41 is a "liquid fuel cut-off (41) attached to the carburetor to interrupt liquid fuel upon actuation of the switch from liquid fuel to gaseous fuel." *See Office Action*, p. 3. Claim 1 calls for a liquid fuel cut-off in addition to a switch to change operation of the engine between gaseous fuel and liquid fuel. While the Examiner referred to control means 41 as "liquid fuel cut-off (41)," the Examiner also referred to the fuel selector switch 51 as "a switch (51) to change operation of the engine between gaseous fuel and liquid fuel." *Id.* However, Poehlman discloses that control means 41 includes fuel selector switch 51 (*Poehlman*, col. 4, lns. 16-17), and shows fuel selector switch 51 as part of a control means 41 schematic in FIG. 1. Thus, the Examiner's reference to the control means 41 schematic fails to separately identify both the liquid fuel cut-off and the switch of claim 1.

Notwithstanding the aforementioned deficiencies in the rejection, Poehlman also does <u>not</u> disclose a liquid fuel cut-off attached to the carburetor to interrupt liquid fuel upon actuation of the switch from liquid fuel to gaseous fuel, as called for in claim 1. While the Examiner stated that Poehlman discloses "a liquid fuel cut-off (41) attached to the carburetor," (*Office Action*, p. 3.),

Champion - EX2137, Page 368 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

Poehlman discloses that liquid fuel control valve 43 is incorporated along the liquid fuel supply line 19 upstream from the carburetor 15. *Poehlman*, col. 3, lns. 64-66; FIG. 1. Thus, the liquid fuel control valve 43 is coupled to the liquid fuel supply line 19 rather than the carburetor 15. The liquid fuel cut-off of claim 1, on the other hand, is shown by FIG. 4A physically attached/coupled to the carburetor 62. That is, the Specification states that the "[l]iquid fuel cut-off 72 couples to carburetor 62 to regulate liquid fuel flow through the carburetor as described with respect to FIG. 4A." *Specification*, ¶ [0061]. (emphasis added). FIGS. 4A-4B are schematic diagrams of a fuel system for the dual fuel engine 60 that specifically show the liquid fuel cut-off 72 physically attached to the carburetor 62. FIGS. 5-6 also clearly show liquid fuel cut-off 72 physically attached to the carburetor 62. While Applicant is aware that it is improper to import claim limitations from the Specification, Applicant notes that the Examiner must give claims their broadest reasonable interpretation in light of the Specification. *See MPEP §2111*. As Applicant's Specification clearly sets forth in Paragraph [0061] and FIGS. 4A-6 what is meant by the "liquid fuel cut-off attached to the carburetor" in claim 1, the Examiner must consider the teachings of the Specification when interpreting the claims. As the liquid fuel control valve 43 of Poehlman is not disclosed as being physically attached to the carburetor 15, Applicant believes that Poehlman cannot be shown to teach or suggest each and every limitation of claim 1.

Accordingly, Applicant believes the subject matter of claim 1 is patentably distinct from the art of record. Applicant respectfully requests the withdrawal of the rejection of claim 1 under 35 U.S.C. §102(a)(2), as well as all claims depending therefrom.

Claim 35

The Examiner rejected independent claim 35 under 35 U.S.C. §102(a)(2) as being anticipated by Poehlman. In rejecting claim 35, the Examiner stated that:

> 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).

Office Action, p. 4. Applicant respectfully disagrees with the rejection.

Poehlman discloses an "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. 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

Champion - EX2137, Page 369 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

includes a liquid fuel control valve 43 which is incorporated in the liquid fuel supply line 19." *Id.* at col. 3, lns. 62-66. Regarding fuel changeover, Poehlman further discloses:

> In operation, when switching from liquid fuel to gaseous fuel, the operator moves the fuel selector switch 51 to the gaseous fuel position. As a result, the liquid fuel control valve 43 is consequently deenergized and turns off the liquid fuel supply to the carburetor 15. However, the engine continues to run on the liquid fuel in the carburetor bowl 17.

Id. at col. 6, lns. 21-27.

Claim 35 calls for, in part, a carburetor having a float bowl, a throat, and a fuel passage to provide fuel 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.

Contrary to the Examiner's assertion, Poehlman does not disclose that supply line 19 provides fuel from a float bowl 17 to a throat of the carburetor 15. Instead, Poehlman discloses that 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. 27-31. While the Examiner stated that the throat is located at throttle 107 of the carburetor 15 (*Office Action*, p. 4), FIG. 1 clearly shows that supply line 19 does not provide a fuel path from the float bowl 17 to the throttle 107. *Poehlman*, FIG. 1. Since the supply line 19 is located upstream from the carburetor 15, the supply line 19 is not "a fuel passage (19) to provide fuel from the float bowl to the throat" as relied upon by the Examiner. *Office Action*, p. 4. Accordingly, the Examiner has not shown that Poehlman discloses a fuel passage to provide fuel from the float bowl to the throat that is closed by a fuel shutoff, as called for in claim 35.

In addition, Poehlman does not disclose the Examiner's asserted "fuel shutoff (43) coupled to the carburetor having a first end in the carburetor that actuates to close the fuel passage." *Quoting Office Action*, p. 4. Poehlman discloses "a liquid fuel control valve 43 which is incorporated in the liquid fuel supply line 19." *Poehlman*, col. 3, lns. 64-66. Accordingly, the liquid fuel control valve 43 is located upstream from the carburetor 15. *See Id.* at FIG. 1. In contrast, the Specification discloses an embodiment where "fuel shutoff 110 couples to carburetor 62 to regulate liquid fuel flow downstream of float bowl 104." *Specification*, ¶ [0071]. Since Poehlman's liquid fuel control valve 43 is located along the liquid fuel supply line 19 upstream from the carburetor 15, the Examiner's asserted "fuel shutoff (43)" (*Office Action*, p. 4) does not have a first end in the carburetor.

Champion - EX2137, Page 370 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

Thus, Poehlman does not teach or suggest a carburetor having a float bowl, a throat, and a fuel passage to provide fuel 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, as called for in claim 35. Accordingly, Applicant believes claim 35 is patentably distinct from Poehlman and respectfully requests withdrawal of the rejection of claim 35, and the claims depending therefrom.

Rejections under 35 U.S.C. §103 as being unpatentable over Poehlman in view of Sugimoto

Claims 19 and 48

The Examiner rejected independent claims 19 and 48 together under 35 U.S.C. §103 as being unpatentable over Poehlman in view of Sugimoto. According to the Examiner:

> 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).
>
> ...
>
> 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 *[sic]* in order to effectively, efficiently, and manually switch between the two fuel *[sic]* based on the user's preference.

Office Action, p. 7-8. Applicant respectfully disagrees with the rejection of claims 19 and 48.

Poehlman discloses an "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. 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 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

Champion - EX2137, Page 371 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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.*

Claim 19 calls for a batteryless dual fuel generator including 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 having 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.

Claim 48 calls for a method of assembling a dual fuel engine including providing an engine operable on a gaseous fuel and a liquid fuel; attaching a carburetor to an intake of the engine, the carburetor having a throat to mix gaseous fuel with air and liquid fuel with air, a float bowl, and a fuel passage to provide liquid fuel from the float bowl to the throat; 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.

Contrary to the Examiner's assertion, Poehlman does <u>not</u> disclose a carburetor "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." *Quoting Office Action*, p. 8. As argued extensively above with respect to claim 35, Poehlman discloses that supply line 19 is connected upstream from the carburetor 15 to a source 21 of liquid fuel. *Poehlman*, col. 3, lns. 27-31; FIG. 1. As such, supply line 19 does <u>not</u> provide a fuel path from the float bowl 17 to the throat of the carburetor 15. *See Id.* In addition, Poehlman does not disclose the Examiner's asserted "fuel shutoff (43) attached to the carburetor to close the fuel passage." *Office Action*, p. 8. As stated above with respect to claim 35, Poehlman's FIG. 1 shows that liquid fuel control valve 43 is located upstream from the carburetor 15 along the liquid fuel supply line 19, and therefore is not coupled to the carburetor. In addition, the Examiner admitted that Sugimoto is silent as to the carburetor with a fuel shutoff or a liquid fuel cut-off attached to the carburetor in the manner called for respectively by claims 19 and 48. *Office Action*, p. 7-8.

Champion - EX2137, Page 372 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

As such, the Examiner has not shown that the combination of Sugimoto and Poehlman discloses a carburetor attached to an intake of an engine having 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, as called for in claim 19. For similar reasons the Examiner has not shown that the combination of Sugimoto and Poehlman discloses attaching a carburetor to an intake of an engine, the carburetor having a fuel passage to provide liquid fuel from a float bowl to a throat; and attaching a liquid fuel cut-off to the carburetor to close the fuel passage, as called for in claim 48.

In addition, Sugimoto does not disclose the Examiner's asserted "engine operable on a gaseous fuel and a liquid fuel." *Quoting Office Action*, p. 7. While the Examiner stated that "paragraphs 0085-0086 describes a first fuel in liquid phase to gas, and a second gas fuel" (*Office Action*, p. 7), Sugimoto actually discloses "[t]he external fuel bottle 71 supplies the second fuel gas in gas phase to the fuel gas pressure regulator 62" and "[t]he fuel pressure regulator 62 functions as a vaporizer for vaporizing the first fuel gas supplied thereto in liquid phase." Sugimoto, ¶ [0078]. Since the first fuel gas is vaporized by the fuel pressure regulator 62, the first fuel gas and the second fuel gas are provided in a gaseous form to the carburetor 18b. *See Id.* at ¶ [0071]. As such, the Examiner has not shown that Sugimoto discloses an engine operable on a gaseous fuel and a liquid fuel, as called for in claims 19 and 48. In addition, the Examiner has not shown that Sugimoto discloses a pull start engine operable on a gaseous fuel and a liquid fuel, as called for in claim 19. The Examiner also has not shown that Sugimoto discloses coupling a switch to the engine to change operation of the engine between gaseous fuel and liquid fuel, as called for in claim 48. *See Office Action*, p. 7-8.

Accordingly, Applicant believes claims 19 and 48 to be patentably distinct over a combination of Sugimoto and Poehlman, and thus Applicant requests withdrawal of the rejection of claims 19 and 48, and of 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 1-63.

Champion - EX2137, Page 373 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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

Respectfully submitted,

/Kevin R. Rosin/

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

Dated: April 24, 2018
Attorney Docket No.: CET1090.042

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

Champion - EX2137, Page 374 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

General Authorization and Extension of Time

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

/Kevin R. Rosin/

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

Dated: April 24, 2018
Attorney Docket No.: CET1090.042

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

Champion - EX2137, Page 375 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

Electronic Acknowledgement Receipt

EFS ID:	32431558
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
Receipt Date:	24-APR-2018
Filing Date:	28-OCT-2015
Time Stamp:	16:32:25
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		Response.pdf	196258 8c42f61cecf3377ae0a576b1bdc63be92fa6d4f2	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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New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

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.

New International Application Filed with the USPTO as a Receiving Office

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PTO/SB/06 (09-11)
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 14/925,441	Filing Date 10/28/2015	☐ To be Mailed

ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

	(Column 1)	(Column 2)		
FOR	NUMBER FILED	NUMBER EXTRA	RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED – PART II

		(Column 1)		(Column 2)	(Column 3)		
	04/24/2018	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
AMENDMENT	Total (37 CFR 1.16(i))	* 63	Minus	** 63	= 0	X $50 =	0
	Independent (37 CFR 1.16(h))	* 4	Minus	***4	= 0	X $230 =	0
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						TOTAL ADD'L FEE	**0**

		(Column 1)		(Column 2)	(Column 3)		
		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
AMENDMENT	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
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** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
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NICHELE PETERSON

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**
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(Not for submission under 37 CFR 1.99)

Application Number	14925441
Filing Date	2015-10-28
First Named Inventor	Kendall J. Collie et al.
Art Unit	3747
Examiner Name	Long T. Tran
Attorney Docket Number	CET1090.042

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	1	2060477	CN	U	1990-08-15	Zhao Yunying		

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14925441
	Filing Date	2015-10-28
	First Named Inventor	Kendall J. Collie et al.
	Art Unit	3747
	Examiner Name	Long T. Tran
	Attorney Docket Number	CET1090.042

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	14925441
Filing Date	2015-10-28
First Named Inventor	Kendall J. Collie et al.
Art Unit	3747
Examiner Name	Long T. Tran
Attorney Docket Number	CET1090.042

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☒ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Stephanie M. Laundre/	Date (YYYY-MM-DD)	2018-02-21
Name/Print	Stephanie M. Laundre	Registration Number	65124

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

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5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

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Bibliographic data: CN2060477 (U) — 1990-08-15

CARBURETTOR

Inventor(s): YUNYING ZHAO [CN] ± (ZHAO YUNYING)

Applicant(s): ZHAO YUNYING [CN] ± (ZHAO YUNYING)

Classification: **- international:** ***F02M3/05;*** (IPC1-7): F02M3/05
- cooperative:

Application number: CN1989217629U 19890927

Priority number(s): CN1989217629U 19890927

Abstract of CN2060477 (U)

The utility model relates to a carburetor used for a combustion engine. The carburetor used for a combustion engine is characterized in that a fuel oil switch is arranged at a fuel inlet of a carburetor, and a restoring spring is arranged on a valve core of the fuel oil switch. A torsional handle of the valve core is connected with an operation draw rod. When an automobile is put into gear to slide down a slope, the fuel oil switch is closed by a driver through the operation draw rod, and the purpose of oil saving is achieved. When the operation draw rod is released, the fuel oil switch is automatically restored. The structure of the carburetor used for a combustion engine is simple. The current carburetor is convenient to modify. The carburetor used for a combustion engine is particularly suitable for a vehicle which often runs in a mountain area.

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(12)实用新型专利申请说明书

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(71)申请人 赵云英
地址 河北省安国县南各庄乡邓各庄村 071202
(72)设计人 赵云英

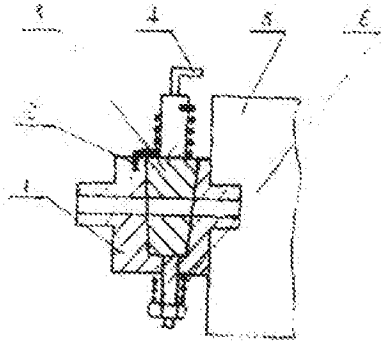
(74)专利代理机构 河北省专利事务所
代理人 朱振荣

说明书页数: 2　　附图页数: 2

(54)实用新型名称 一种汽化器

(57)摘要

供摩托发动机使用的汽化器，其特征是汽化器的燃料入口处设有一磁铁开关或开关的两态上设有复位弹簧，两态把与操作拉杆连接。当汽车下坡连续行时，司机经拉杆关闭磁铁开关，达到节油目的，停放拉杆，磁铁开关自动复位。本实用新型结构简单，对现行汽化器改造方便，特别适用于经常在山区行驶的车辆。



(56)第1402号

权 利 要 求 书

1、一种摩旋发动机使用的汽化器，其特征在于所述的汽化器摩油入口处，有一摩油开关。

2、根据权利要求1所述的汽化器，其特征在于摩油开关由阀体1、复位弹簧2、阀芯3、摇把4和拉紧弹簧6组成。

3、根据权利要求1或2所述的汽化器，其特征在于所述阀体1与汽化器外壳5，可以设计为一体或分离式。

Champion - EX2137, Page 385 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

说　　明　　书

一种汽化器

本实用新型属于一种供燃烧发动机使用的汽化器。

现有汽车发动机使用的汽化器，燃油入口都没有燃油开关，按操作规程规定，汽车下坡时，不得空挡滑行，以保证汽车发动机带动压气机工作，使制车有足够气压，而汽车下坡挂挡滑行时，发动机处于被驱动状态，发动机不需要汽化器供给可燃混合汽，现有技术决定了只要发动机工作，燃油泵就通过汽化器向发动机供给可燃混合汽，这样大量的燃油被浪费掉。

本实用新型的目的是，当汽车下坡挂挡滑行时，关闭汽化器燃油入口，使发动机在不烧燃油的情况下，带动机油泵、压汽机工作，达到下坡节油的目的。

以下结合附图对本实用新型进行详细描述。

附图1为汽车发动系统示意图、

附图2为本实用新型燃油开关结构示意图、

参看附图1，发动机工作时，带动机油泵、燃油泵和压气机工作，机油泵向发动机供给润滑机油，燃油泵通过汽化器向发动机供给可燃混合汽，压气机供制车足够的气压，所以现有技术的缺点是，只要发动机工作，燃油泵就会通过汽化器向发动机供给可燃混合气、

当汽车下坡时，汽车可挂挡滑行，由于发动机处于被驱动状态，不需要汽化器供给可燃混合气，司机可通过拉杆关闭汽化器燃油入口开关，使燃油不能进入汽化器，同时关闭点火开关，发动机在不

Champion - EX2137, Page 386 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

烧燃油的情况下，带动机油泵、压气机工作，这样即保证了重油机的润滑和制车气压，又达到节省燃油的目的，下坡终止，打开点火开关和汽化器燃油入口开关，汽车恢复正常运行。

参看图2，汽化器燃油进口、油阀体1、复位弹簧2、阀芯3、扣把4及拉簧弹簧6组成了燃油开关，阀体1与汽化器外壳5可是分离式，也可制成一体，需要关闭燃油进口时，司机通过拉杆拨动扣把4，使阀芯3上的孔与阀体1上的孔错开，使汽化器进口断开，释放拉杆阀芯3在复位弹簧2作用下复位，打开汽化器进油口，拉簧弹簧6将阀芯3与阀体1紧密接触，以防接触面漏油，

本实用新型结构简单，对经常行驶在山区的车辆，节油效果更显著，实现了车辆下坡连续安全滑行，可广泛用于各种汽油车和燃油车。

Champion - EX2137, Page 387 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

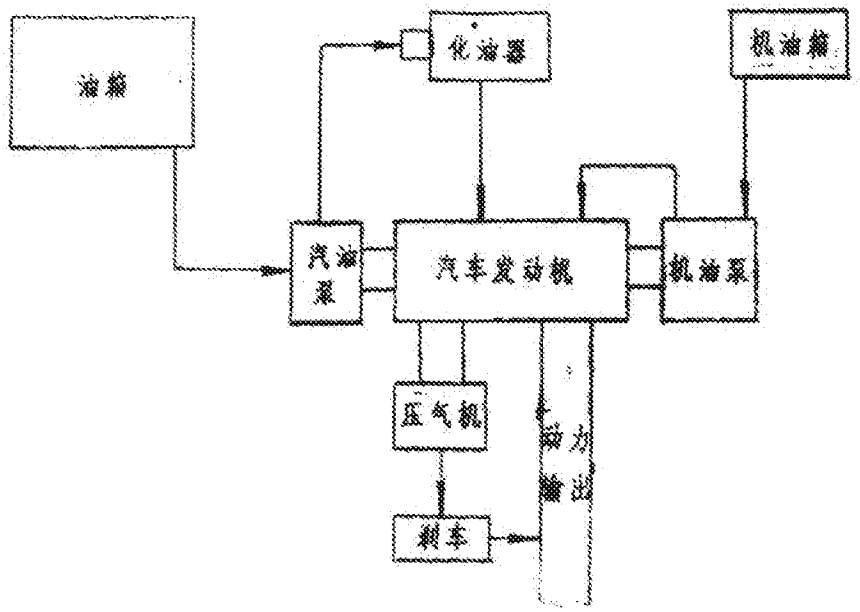


图1

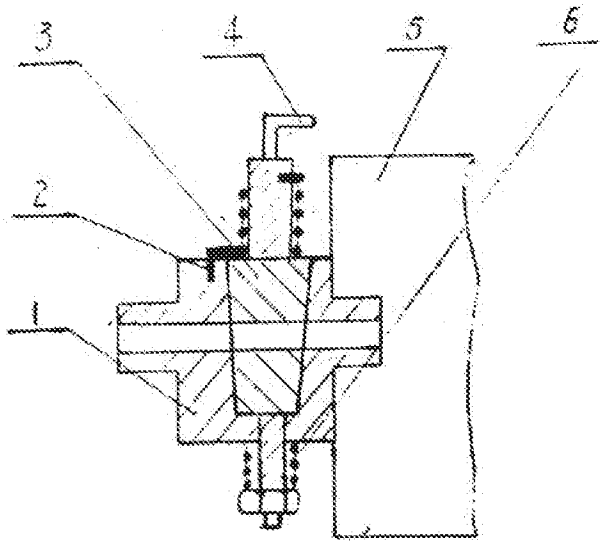


图2

Electronic Acknowledgement Receipt

EFS ID:	31847017
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:	Stephanie Mueller Laundre/Robyn Templin
Filer Authorized By:	Stephanie Mueller Laundre
Attorney Docket Number:	CET1090.042
Receipt Date:	21-FEB-2018
Filing Date:	28-OCT-2015
Time Stamp:	14:11:35
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	SuppIDS.pdf	1034617 3995c11e2a395a77e327afaefa82792f2e54e8b6	no	4

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2	Foreign Reference	FPD1-CN2060477U.pdf	451233 2141ee71ce889dab107045535acd687116525e46	no	7
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This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

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.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/925,441	10/28/2015	Kendall J. Collie	CET1090.042	1059

26629 7590 01/26/2018

ZIOLKOWSKI PATENT SOLUTIONS GROUP, SC (ZPS)
136 S WISCONSIN ST
PORT WASHINGTON, WI 53074

EXAMINER
TRAN, LONG T

ART UNIT	PAPER NUMBER
3747	

NOTIFICATION DATE	DELIVERY MODE
01/26/2018	ELECTRONIC

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

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

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

info@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 (First Inventor to File) Status Yes

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

Period for Reply

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

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

Status

1)☒ Responsive to communication(s) filed on *6 November 2017*.

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

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

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

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

Disposition of Claims*

5)☒ Claim(s) *1-63* 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) *1-63* 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 *28 October 2015* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

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

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

Priority under 35 U.S.C. § 119

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

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

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

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

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

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

Attachment(s)

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

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: _____.

Champion - EX2137, Page 393 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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. A Petition Decision was entered on December 5, 2017. Claims 19 - 55, 58 - 59, and 62 - 63 have been granted a rejoinder and are now fully considered.

3. The previous Office Action is now withdrawn.

4. Claims 1 - 63 remain pending in the application and have been fully considered.

Claim Rejections - 35 USC § 102

5. 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.

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a)(2) the claimed invention was described in a patent issued under section 151, or in an application for patent published or deemed published under section 122(b), in which the patent or application, as the case may be, names another inventor and was effectively filed before the effective filing date of the claimed invention.

7. Claims 1, 3 – 4, 12 – 13, 35 - 36 are rejected under 35 U.S.C. 102(a)(2) as being anticipated by Poehlman (US 4,489,699).

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) attached to the carburetor to interrupt liquid fuel upon actuation of the switch from liquid fuel to gaseous fuel.

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).

Claim Rejections - 35 USC § 103

8. 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.

9. 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.

10. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103 are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.

3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

11. 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.

12. Claims 2, 5 – 10, 19 – 20, 30 - 34, 48 - 49, 56 - 57, 60 – 63 are rejected under 35 U.S.C. 103 as being unpatentable over Poelhman (US 4,489,699) in view of Sugimoto et al. (US 2007/0137591).

Regarding Claim 2:

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:

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:

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:

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.

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, 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.

13. Claim 11 is rejected under 35 U.S.C. 103 as being unpatentable over Poelhman (US 4,489,699) in view of 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.

14. 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) 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.

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

Regarding Claim 16:

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:

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:

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.

16. 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) and Poelhman (US 4,489,699), 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.

17. Claims 27 - 29 are rejected under 35 U.S.C. 103 as being unpatentable over Sugimoto et al. (US 2007/0137591) and Poelhman (US 4,489,699), 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.

Conclusion

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

19. 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 M-F, 7:30am - 5:00pm.

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/
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

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-2015/0122230 A1	05-2015	Sarder; Mark J.	F02D19/0647	123/525
*	B	US-2011/0253102 A1	10-2011	Watanabe; Tsuyoshi	F02D41/064	123/438
*	C	US-2010/0258099 A1	10-2010	Andersson; Martin N.	F02D31/006	123/676
*	D	US-2007/0137591 A1	06-2007	Sugimoto; Yasuhiro	F02B43/00	123/41.7
*	E	US-6,591,817 B2	07-2003	Deutsch; Robert W.	F02D19/0647	123/525
*	F	US-2002/0134362 A1	09-2002	Deutsch, Robert W.	F02D19/0647	123/575
*	G	US-5,611,312 A	03-1997	Swanson; Mark S.	F02M1/02	123/179.18
*	H	US-4,489,699 A	12-1984	Poehlman; Arthur G.	F02B69/04	123/525
*	I	US-3,783,849 A	01-1974	Bramfitt; Thomas Hugh	F02M13/06	123/179.16
*	J	US-3,718,000 A	02-1973	Walker; Brooks	F02B11/02	123/525
*	K	US-3,659,574 A	05-1972	Reschke; Albert H.	F02M13/08	123/525
*	L	US-3,412,258 A	11-1968	WILLIAM SATTER HARVEY	H02P9/42	290/40R
	M	US-				

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	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
	14925441	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

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

Champion - EX2137, Page 410 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14925441	COLLIE ET AL.
	Examiner	**Art Unit**
	LONG T TRAN	3747

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

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

CLAIM		DATE								
Final	Original	04/18/2017	08/02/2017	01/22/2018						
	1	÷	✓	✓						
	2	÷	✓	✓						
	3	÷	✓	✓						
	4	÷	✓	✓						
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	7	÷	✓	✓						
	8	÷	✓	✓						
	9	÷	✓	✓						
	10	÷	✓	✓						
	11	÷	✓	✓						
	12	÷	✓	✓						
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	32	÷	N	✓						
	33	÷	N	✓						
	34	÷	N	✓						
	35	÷	N	✓						
	36	÷	N	✓						

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14925441	COLLIE ET AL.
	Examiner	**Art Unit**
	LONG T TRAN	3747

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

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

CLAIM		DATE								
Final	Original	04/18/2017	08/02/2017	01/22/2018						
	37	÷	N	✓						
	38	÷	N	✓						
	39	÷	N	✓						
	40	÷	N	✓						
	41	÷	N	✓						
	42	÷	N	✓						
	43	÷	N	✓						
	44	÷	N	✓						
	45	÷	N	✓						
	46	÷	N	✓						
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	57	÷	✓	✓						
	58	÷	N	✓						
	59	÷	N	✓						
	60	÷	✓	✓						
	61	÷	✓	✓						
	62	÷	N	✓						
	63	÷	N	✓						

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	1481	engine and ((dual double two second$4 plural$4 multi multiple bi pair supplement$4) near2 fuel same (switch$4 chang$3)) and (valve same (carburetor carburretor) same fuel)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/01/22 12:53
L2	519	engine and ((dual double two second$4 plural$4 multi multiple bi pair supplement$4) near2 fuel same (switch$4 chang$3)) and (valve same (carburetor carburretor) same fuel) and generat$4	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/01/22 12:54

1/ 22/ 2018 1:00:21 PM
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/925,441	10/28/2015	Kendall J. Collie	CET1090.042	1059

26629 7590 12/05/2017
ZIOLKOWSKI PATENT SOLUTIONS GROUP, SC (ZPS)
136 S WISCONSIN ST
PORT WASHINGTON, WI 53074

EXAMINER	
TRAN, LONG T	

ART UNIT	PAPER NUMBER
3747	

NOTIFICATION DATE	DELIVERY MODE
12/05/2017	ELECTRONIC

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

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

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

info@zpspatents.com
sml@zpspatents.com

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ZIOLKOWSKI PATENT SOLUTIONS GROUP, SC (ZPS)
136 S WISCONSIN ST
PORT WASHINGTON WI 53074

In re Application of: Collie et al.	:	
Appl. No.: 14/925,441	:	DECISION ON PETITION TO
Filed: October 28, 2015	:	REVIEW RESTRICITON
Attorney Docket No.: CET1090.042	:	REQUIREMENT UNDER
For: BATTERYLESS DUAL FUEL ENGINE WITH LIQUID FUEL CUT-OFF	:	37 CFR 1.144

This is a decision on the petition filed on November 6, 2017 in which petitioner requests reconsideration and withdrawal of restriction requirement mailed in the April 21, 2017 Office action. Petitioner requests rejoinder of claims 19-55, 58-59 and 62-63. The petition is being considered pursuant to 37 CFR 1.181 and CFR 1.144 and no fee is required for the petition.

The petition is **granted**.

After consulting with the Examiner, the requested relief is granted. The restriction requirement mailed on April 21, 2017 is hereby withdrawn. Petitioner's amendment filed on November 6, 2017 has been entered into the application. The examiner will issue an Office Action to rejoin and treat withdrawn claims 19-55, 58-59 and 62-63 on their merits.

The application is being forwarded to the examiner via the Supervisory Patent Examiner of Art Unit 3747 for preparation of an Office Action consistent with this decision in due course.

Any inquiry regarding this decision should be directed to Julie Brocketti, Quality Assurance Specialist, at (571) 272-0206.

PETITION GRANTED.

Cheryl Tyler, Director
Technology Center 3700

Customer No. 26629 Patent
Confirmation No. 1059 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

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

Mailing

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

37 CFR 1.8(a) **37 CFR 1.10**

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

Transmission

□ transmitted by facsimile to Fax No.: 571-273-8300 addressed to **Examiner Long T. Tran** at the Patent and Trademark Office.

■ transmitted by EFS-WEB addressed to **Examiner Long T. Tran** at the Patent and Trademark Office.

Date: November 6, 2017 /Robyn L. Templin/
Signature

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

RESPONSE TO OFFICE ACTION
MAILED AUGUST 7, 2017

Dear Sir:

Responsive to the Office Action mailed August 7, 2017, please consider the following remarks:

Electronic Acknowledgement Receipt

EFS ID:	30862885
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:	Timothy J. Ziolkowski/Robyn Templin
Filer Authorized By:	Timothy J. Ziolkowski
Attorney Docket Number:	CET1090.042
Receipt Date:	06-NOV-2017
Filing Date:	28-OCT-2015
Time Stamp:	14:05:18
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		Response.pdf	169034 75865ac726109290b262721ee3b4f93cd03ab2aa	yes	16

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Applicant Arguments/Remarks Made in an Amendment	12	16
	Claims	2	11
	Amendment/Req. Reconsideration-After Non-Final Reject	1	1
Warnings:			
Information:			
	Total Files Size (in bytes):	169034	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

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.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

REMARKS

Claims 1-63 are pending in the present application. In the Office Action mailed August 7, 2017, the Examiner rejected claims 1, 3, 4, 12, and 13 under 35 U.S.C. §102(a)(2) as being anticipated by Poehlman (USP 4,489,699). The Examiner next rejected claims 2, 5-10, 56, 57, 60, and 61 under 35 U.S.C. §103 as being unpatentable over Poehlman in view of Sugimoto et al. (US Pub. 2007/0137591). Claim 11 was rejected under 35 U.S.C. §103 as being unpatentable over Poehlman in view of Sugimoto et al. and further in view of Satter (USP 3,412,258). Claims 14 and 15 were rejected under 35 U.S.C. §103 as being unpatentable over Poehlman 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 in view of Andersson et al. (US Pub. 2010/0258099).

Claims 19-55, 58, 59, 62, and 63 have been withdrawn from consideration by the Examiner.

Election/Restriction

In the Office Action mailed August 7, 2017, the Examiner made final the Requirement for Restriction of Inventions I, II, III, and IV. The Examiner withdrew claims 19-55, 58-59, 62-63 from consideration as being drawn to a non-elected invention but did not provide any further support for the restriction. *See Office Action*, 08/07/2017, p. 2.

Applicant respectfully requests reconsideration of the Restriction. As set forth in detail in the Request for Supervisory Review of the Restriction Requirement, filed concurrently herewith, the Examiner has not met the burdens set forth by MPEP § 806.05(j) to show that alleged Inventions I-IV, as claimed, are distinct. Therefore, Applicant respectfully requests reconsideration and withdrawal of the restriction of Inventions I, II, III, and IV, and requests rejoinder of all claims.

Rejection under 35 U.S.C. §102(a)(2) as being anticipated by Poehlman

Claim 1

The Examiner rejected independent claim 1 under 35 U.S.C. §102(a)(2) as being anticipated by Poehlman. In rejecting claim 1, the Examiner stated that:

> 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);

Champion - EX2137, Page 419 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

> and a liquid fuel cut-off (41) attached to the carburetor to interrupt liquid fuel upon actuation of the switch from liquid fuel to gaseous fuel.

Office Action, 08/07/2017, p. 2-3. 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:

> In operation, when switching from liquid fuel to gaseous fuel, the operator moves the fuel selector switch 51 to the gaseous fuel position. As a result, the liquid fuel control valve 43 is consequently deenergized and turns off the liquid fuel supply to the carburetor 15. However, the engine continues to run on the liquid fuel in the carburetor bowl 17. 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. The 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. The first solenoid coil 81 acts to displace the first switch member 65 to the terminal 63, thereby 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.

Claim 1 calls for, in part, 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 attached to the carburetor to interrupt liquid fuel upon actuation of the switch from liquid fuel to gaseous fuel.

Contrary to the Examiner's assertion, Poehlman does not disclose that control means 41 is a "liquid fuel cut-off (41) attached to the carburetor to interrupt liquid fuel upon actuation of the switch from liquid fuel to gaseous fuel." *See Office Action*, p. 2-3. Claim 1 calls for a liquid fuel cut-off in addition to a switch to change operation of the engine between gaseous fuel and

Champion - EX2137, Page 420 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

liquid fuel. While the Examiner referred to control means 41 as "liquid fuel cut-off (41)," the examiner also referred to the fuel selector switch 51 as "a switch (51) to change operation of the engine between gaseous fuel and liquid fuel." *Id.* However, Poehlman discloses that control means 41 includes fuel selector switch 51 (*Poehlman*, col. 4, lns. 16-17), and shows fuel selector switch 51 as part of a control means 41 schematic in FIG. 1. The Examiner's reference to the control means 41 schematic fails to identify both the liquid fuel cut-off and the switch of claim 1.

Notwithstanding the aforementioned deficiencies in the rejection, Poehlman also does not disclose a liquid fuel cut-off attached to the carburetor to interrupt liquid fuel upon actuation of the switch from liquid fuel to gaseous fuel, as called for in claim 1. For instance, the present Application describes one embodiment where a "[l]iquid fuel cut-off 72 couples to carburetor 62 to control liquid fuel flow downstream of float bowl 104 in the carburetor." *Specification*, ¶ [0064]. In contrast, Poehlman discloses liquid fuel control valve 43 coupled to a liquid fuel supply line 19 upstream of a fuel bowl 17. *Poehlman*, FIG. 1. Since the liquid fuel control valve 43 is located upstream of the fuel bowl 17, the engine 13 would continue to run on liquid fuel from the fuel bowl 17 after closure of the liquid fuel control valve 43. As such, the liquid fuel control valve 43 has not been shown to interrupt liquid fuel to the engine 13 upon actuation of the fuel selector switch 51 from liquid fuel to gaseous fuel.

Further, the liquid fuel control valve 43 does not interrupt liquid fuel upon actuation of the fuel selector switch 51 in part because fuel changeover occurs when the vacuum switch 47 is actuated. That is, when the operator moves the fuel selector switch 51 to the gaseous fuel position, the liquid fuel control valve 43 turns off but the engine 13 continues to run on the liquid fuel in the carburetor bowl 17. *Id.* at col. 6, lns. 21-27. Once the engine 13 begins to run out of the liquid fuel in the carburetor bowl 17, vacuum conditions drop to an amount less than a predetermined level thereby closing vacuum switch 47, which then causes the gaseous fuel control valve 45 to open. *Id.* at col. 6, lns. 27-36. Accordingly, Poehlman relies upon vacuum switch 47 to effectuate fuel changeover when the fuel bowl 17 empties, rather than the liquid fuel control valve 43 interrupting liquid fuel to the engine 13 upon actuation of the fuel selector switch 51.

Since Poehlman's engine 13 relies upon vacuum conditions to effectuate fuel changeover, the liquid fuel control valve 43 is located upstream from the carburetor 15 and does not function to trap fuel in the fuel bowl 17 for startup or fuel changeover. That is, the present Application describes one embodiment where "[l]iquid fuel cut-off 72 also traps fuel in float bowl 104 to eliminate delay in filling the bowl when starting the engine on liquid fuel, and can stop liquid fuel

Champion - EX2137, Page 421 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

flow to the engine immediately after ignition shutdown." *Specification*, ¶ [0064]. In contrast, Poehlman's liquid fuel control valve 43 has not been shown to eliminate delay in filling the fuel bowl 17 when starting the engine 13 on liquid fuel, or stop liquid fuel flow to the engine 13 immediately after ignition shutdown. Since the liquid fuel control valve 43 is not coupled to trap fuel in the fuel bowl 17, the Examiner has not shown that the liquid fuel control valve 43 can interrupt liquid fuel from the float bowl 17 upon actuation of the fuel selector switch 51. Accordingly, the Examiner has not shown that Poehlman discloses a liquid fuel cut-off attached to the carburetor to interrupt liquid fuel upon actuation of the switch from liquid fuel to gaseous fuel, as called for in claim 1.

Accordingly, Poehlman does not teach or suggest each and every element of claim 1. The subject matter of claim 1 is patentably distinct from the art of record. Applicant respectfully requests the withdrawal of the rejection of claim 1 under 35 U.S.C. §102(a)(2), as well as all claims depending therefrom.

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 1-63.

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,

/Timothy J. Ziolkowski/

Timothy J. Ziolkowski
Registration No. 38,368
Direct Dial 262-268-8181
tjz@zpspatents.com

Dated: November 6, 2017
Attorney Docket No.: CET1090.042

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

Champion - EX2137, Page 422 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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.

/Timothy J. Ziolkowski/

Timothy J. Ziolkowski
Registration No. 38,368
Direct Dial 262-268-8181
tjz@zpspatents.com

Dated: November 6, 2017
Attorney Docket No.: CET1090.042

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

Champion - EX2137, Page 423 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

In the Claims

1. (Original) 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 attached to 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. (Original) The dual fuel engine of claim 5, wherein the liquid fuel cut-off is a solenoid valve powered by the electrical power generator.

Champion - EX2137, Page 424 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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

Champion - EX2137, Page 425 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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. (Withdrawn) 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,

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.

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

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

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

Champion - EX2137, Page 426 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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

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

27. (Withdrawn) 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. (Withdrawn) The batteryless dual fuel generator of claim 19 further comprising:

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

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

Champion - EX2137, Page 427 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

29. (Withdrawn) 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. (Withdrawn) 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. (Withdrawn) 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. (Withdrawn) 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. (Withdrawn) 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. (Withdrawn) 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.

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

Champion - EX2137, Page 428 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

a carburetor comprising:

a float bowl,

a throat,

a fuel passage to provide fuel 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. (Withdrawn) The carburetor having a fuel shutoff of claim 35, wherein the fuel shutoff is a manually actuated fuel shutoff.

37. (Withdrawn) 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. (Withdrawn) 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. (Withdrawn) 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. (Withdrawn) 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. (Withdrawn) 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.

Champion - EX2137, Page 429 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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

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

47. (Withdrawn) 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. (Withdrawn) 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,

Champion - EX2137, Page 430 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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

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

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

53. (Withdrawn) 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. (Withdrawn) 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.

Champion - EX2137, Page 431 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

55. (Withdrawn) 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. (Withdrawn) 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. (Withdrawn) 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. (Withdrawn) 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.

Champion - EX2137, Page 432 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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

Champion - EX2137, Page 433 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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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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PETITION UNDER 37 C.F.R. §1.181 SEEKING SUPERVISORY REVIEW OF RESTRICTION REQUIREMENT

Dear Madam:

Responsive to the Office Action mailed August 7, 2017, Applicant requests supervisory review and consideration of the Restriction Requirement issued April 21, 2017, based on the following remarks in support of rejoinder of withdrawn claims 19-55, 58-59, 62-63.

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REMARKS

In the Restriction Requirement issued April 21, 2017 (hereinafter, "Restriction Requirement"), the Examiner imposed a restriction of claims 1-63. The Examiner has identified four 'inventions' in the pending claims. The Examiner's classification of the 'inventions' include Group I consisting of claims 1-18, 56-57, and 60-61 drawn to a dual fuel engine and classified by the Examiner in class F02D 19/06, Group II consisting of claims 19-34, 58-59, and 62-63 drawn to a generator and classified by the Examiner in class F02B 63/04, Group III consisting of claims 35-47 drawn to a carburetor and classified by the Examiner in class F02M 17/20, and Group IV consisting of claims 48-55 drawn to a process of making an engine and classified by the Examiner in class B23P 19/042.

In response to the Restriction Requirement, Applicant filed a timely Election and Response on June 21, 2017, in which alleged Invention I was elected with traverse, corresponding to claims 1-18, 56-57, and 60-61. In the Office Action mailed August 7, 2017 (hereinafter, "Office Action"), the Examiner made the restriction of claims 19-55, 58-59, 62-63 final and withdrew the claims from further consideration as being drawn to a non-elected invention. In the Office Action, the Examiner did not provide any further support for the restriction. *See Office Action*, 08/07/2017, p. 2.

For the reasons set forth below and in Applicant's June 21, 2017 Response to the Restriction Requirement, Applicant believes that the Examiner has improperly restricted claims 1-63 of the pending application, and, therefore, requests rejoinder of all claims, of each Invention.

Restriction of Groups I, II, III, and IV

The Examiner asserted in the Restriction Requirement that alleged "Inventions I, II, III and IV are directed to related internal combustion engines," but that the "inventions are distinct, each from the other," and issued a restriction under MPEP § 806.05(j). *Restriction Requirement*, p. 2. MPEP § 806.05(j)states that "[t]o support a requirement for restriction between two or more related product inventions, or between two or more related process inventions, both two-way distinctness and reasons for insisting on restriction are necessary." *Id.* at § 806.05(j). Related product or process inventions are only distinct if "(A) the inventions *as claimed* do not overlap in scope, i.e., are mutually exclusive; (B) the inventions *as claimed* are not obvious variants; and (C) the inventions *as claimed* are either not capable of use together or can have a materially different design, mode of operation, function, or effect." *Id.* (emphasis in original). "The burden is on the examiner to provide an example to support the determination that the inventions are distinct." *Id.*

PAGE 2/4 * RCVD AT 11/6/2017 1:03:00 PM [Eastern Standard Time] * SVR:W-PTOFAX-001/1 * DNIS:2738300 * CSID:2622688185 * DURATION (mm-ss):00-52

Champion - EX2137, Page 435 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

In this case, the Examiner has failed to meet the burden set forth by MPEP § 806.05(j)(A)-(C). That is, in order to show that alleged Inventions I-IV are distinct as claimed, the Examiner must prove that each alleged invention is (A) mutually exclusive; (B) not obvious variants, **and** (C) "not capable of use together or can have a materially different design, mode of operation, function, or effect." *See Id.* at § 806.05(j)(A)-(C). The Examiner did not prove each of (A)-(C), but instead merely made conclusory statements that "[i]n the instant case, the inventions as claimed have a materially different design, mode of operation, function, or effect. Furthermore, the inventions as claimed do not encompass overlapping subject matter and there is nothing of record to show them to be obvious variants." *Restriction Requirement*, p. 2-3. The Examiner did not cite to any claim elements to support that conclusion. Further, the Examiner did not provide an example to support the determination that alleged Inventions I-IV are distinct, as required by MPEP § 806.05(j).

Notwithstanding the aforementioned deficiency of the restriction, alleged Inventions I, II, III, and IV, as claimed in independent claims 1, 19, 35, and 48 are not distinct for at least the reason that they overlap in scope. *See* MPEP § 806.05(j)(A). Each of claims 1, 19, 35 and 48 directed to alleged Inventions I, II, III, and IV, respectively, include a carburetor and either a fuel shutoff or a fuel cut-off attached to the carburetor. In addition, each of claims 19, 35, and 48 directed to alleged Inventions II, III, and IV include that the carburetor has a float bowl, a throat, and a fuel passage to provide fuel from the float bowl to the throat. Claims 19, 35, and 48 also include that the fuel shutoff or fuel cut-off attaches to the carburetor to close the fuel passage. In comparison, claim 6 of alleged Invention I includes a fuel path to the engine that is opened and closed by the fuel cut-off. As such, all of alleged Inventions I, II, III, and IV include a carburetor and a fuel shutoff/cut-off that attaches to the carburetor to close a fuel passage/path.

In addition, alleged Inventions I, II, and IV, as claimed in independent claims 1, 19, and 48, respectively, are not distinct since they overlap in scope regarding the carburetor attached to an intake of an engine. Each of claims 1, 19, and 48 include an engine operable on a gaseous fuel and a liquid fuel. Also, claims 1, 30, and 48 directed to alleged Inventions I, II, and IV, respectively, all include a switch to change operation of the engine between gaseous fuel and liquid fuel. Furthermore, claim 1 (alleged Invention I) includes the liquid fuel cut-off attached to the carburetor to interrupt liquid fuel upon actuation of the switch from liquid fuel to gaseous fuel. Claim 19 (alleged Invention II) includes the fuel shutoff attached to the carburetor to close the fuel passage upon selection of engine operation to gaseous fuel. Claim 48 (alleged Invention IV) includes 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. Therefore, each of alleged Invention I, II,

PAGE 3/4 * RCVD AT 11/6/2017 1:03:00 PM [Eastern Standard Time] * SVR:W-PTOFAX-001/1 * DNIS:2738300 * CSID:2622688185 * DURATION (mm-ss):00-52

Champion - EX2137, Page 436 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

and IV as claimed in independent claims 1, 19, and 48, respectively, include that the fuel shutoff/cut-off attaches to the carburetor to interrupt liquid fuel or close a liquid fuel passage upon selection of engine operation to gaseous fuel.

All of alleged Inventions I, II, III, and IV as claimed in claims 15, 25, 44, 55, respectively, also include a cable actuated fuel shutoff/cut-off. Initially, each of claims 14, 21, 37, and 53 directed to alleged Inventions I, II, III, and IV, respectively, include a rotating shaft extending through an aperture or opening in the carburetor, and either a blocking member or a valve member couples to the shaft in the carburetor that rotates to selectively control fuel flow through a fuel passage/path within the carburetor. Furthermore, each of alleged Inventions I, II, III, IV (via claims 14, 26, 42, 52, respectively) includes a fuel seal around the shaft for the aperture or opening in the carburetor. Each of alleged Inventions I, II, III, IV (via claims 15, 25, 44, 55, respectively) includes a lever coupled to the shaft, and a cable couples to the lever to actuate the blocking/valve member. Therefore, as claimed, alleged Invention I, II, III, and IV overlap in scope and cannot be said to be mutually exclusive under MPEP § 806.05(j).

In light of the above, alleged Invention I, II, III, and IV as claimed in claims 1-18, 56-57, 60-61; claims 19-34, 58-59, 62-63; claims 35-47; and claims 48-55; respectively, are not distinct. The Examiner has not met the burdens set forth by MPEP § 806.05(j) to show that alleged Inventions I-IV, as claimed, are distinct, as the Examiner has not shown that the alleged inventions are mutually exclusive, not obvious variants, **and** not capable of use together / have a materially different design, mode of operation, function, or effect. On the contrary, alleged Inventions I-IV, as called for in the claims, are related under the present disclosure and overlap in scope. Accordingly, Applicant respectfully requests that the restriction between alleged Inventions I, II, III, and IV be withdrawn.

Conclusion

For all these reasons, Applicant respectfully requests rejoinder of all claims, of each group. The Examiner is invited to call the undersigned to discuss this Election or any other matters regarding this application to further prosecution.

Dated: November 6, 2017
Attorney Docket No.: CET1090.042

Respectfully submitted,

/Timothy J. Ziolkowski/

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

Timothy J. Ziolkowski
Registration No. 38,368
Direct Dial 262-268-8181
tjz@zpspatents.com

PAGE 4/4 * RCVD AT 11/6/2017 1:03:00 PM [Eastern Standard Time] * SVR:W-PTOFAX-001/1 * DNIS:2738300 * CSID:2622688185 * DURATION (mm-ss):00-52

Champion - EX2137, Page 437 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 14/925,441	Filing Date 10/28/2015	☐ To be Mailed

ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT **11/06/2017**

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	* 63	Minus	** 63	= 0	X $0 =	0
Independent (37 CFR 1.16(h))	* 4	Minus	***4	= 0	X $0 =	0
☐ Application Size Fee (37 CFR 1.16(s))						
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
					TOTAL ADD'L FEE	0

AMENDMENT

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =	
☐ Application Size Fee (37 CFR 1.16(s))						
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
					TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

LIE
LINDA HUMES

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**
If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/925,441	10/28/2015	Kendall J. Collie	CET1090.042	1059

26629 7590 08/07/2017

ZIOLKOWSKI PATENT SOLUTIONS GROUP, SC (ZPS)
136 S WISCONSIN ST
PORT WASHINGTON, WI 53074

EXAMINER
TRAN, LONG T

ART UNIT	PAPER NUMBER
3747	

NOTIFICATION DATE	DELIVERY MODE
08/07/2017	ELECTRONIC

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

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

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

info@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 (First Inventor to File) Status Yes

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

Period for Reply

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

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

Status

1)☒ Responsive to communication(s) filed on *21 June 2017*.

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

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

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

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

Disposition of Claims*

5)☒ Claim(s) *1-18,56,57,60 and 61* is/are pending in the application.

5a) Of the above claim(s) *19-55,58-59,62-63* is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *1-18,56-57,60-61* 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 *28 October 2015* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

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

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

Priority under 35 U.S.C. § 119

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

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

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

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

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

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

Attachment(s)

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

2) ☒ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date *10/28/15*.

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

4) ☐ Other: _____.

Champion - EX2137, Page 440 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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. Applicant elected group I, Claims 1 - 18, 56 – 57, and 60 – 61, with traverse on June 21, 2017. The remaining claims have been withdrawn from consideration.

Claim Rejections - 35 USC § 102

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 the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a)(2) the claimed invention was described in a patent issued under section 151, or in an application for patent published or deemed published under section 122(b), in which the patent or application, as the case may be, names another inventor and was effectively filed before the effective filing date of the claimed invention.

5. Claims 1, 3 – 4, 12 – 13 are rejected under 35 U.S.C. 102(a)(2) as being anticipated by Poehlman (US 4,489,699).

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) attached to the carburetor to interrupt liquid fuel upon actuation of the switch from liquid fuel to gaseous fuel.

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:

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

Claim Rejections - 35 USC § 103

6. 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.

7. 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.

8. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103 are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.

3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. 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.

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

Regarding Claim 2:

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:

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:

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:

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.

11. Claim 11 is rejected under 35 U.S.C. 103 as being unpatentable over Poelhman (US 4,489,699) in view of 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.

12. Claims 14 and 15 are rejected under 35 U.S.C. 103 as being unpatentable over Poelhman (US 4,489,699) 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 sea (112, 114)l 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:

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.

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

Regarding Claim 16:

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:

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:

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.

Conclusion

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

15. 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 M-F, 7:30am - 5:00pm.

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/
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

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-2015/0122230 A1	05-2015	Sarder; Mark J.	F02D19/0647	123/525
*	B	US-2011/0253102 A1	10-2011	Watanabe; Tsuyoshi	F02D41/064	123/438
*	C	US-2010/0258099 A1	10-2010	Andersson; Martin N.	F02D31/006	123/676
*	D	US-2007/0137591 A1	06-2007	Sugimoto; Yasuhiro	F02B43/00	123/41.7
*	E	US-6,591,817 B2	07-2003	Deutsch; Robert W.	F02D19/0647	123/525
*	F	US-2002/0134362 A1	09-2002	Deutsch, Robert W.	F02D19/0647	123/575
*	G	US-5,611,312 A	03-1997	Swanson; Mark S.	F02M1/02	123/179.18
*	H	US-4,489,699 A	12-1984	Poehlman; Arthur G.	F02B69/04	123/525
*	I	US-3,783,849 A	01-1974	Bramfitt; Thomas Hugh	F02M13/06	123/179.16
*	J	US-3,718,000 A	02-1973	Walker; Brooks	F02B11/02	123/525
*	K	US-3,659,574 A	05-1972	Reschke; Albert H.	F02M13/08	123/525
*	L	US-3,412,258 A	11-1968	WILLIAM SATTER HARVEY	H02P9/42	290/40R
	M	US-				

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
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NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
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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
	14925441	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

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

Champion - EX2137, Page 453 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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BIB DATA SHEET

CONFIRMATION NO. 1059

SERIAL NUMBER	FILING or 371(c) DATE RULE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
14/925,441	10/28/2015	123	3747	CET1090.042

APPLICANTS

Champion Engine Technology, LLC, Sussex, WI;

INVENTORS

Kendall J. Collie, Anaheim Hills, CA;
Mark J. Sarder, Waukesha, WI;
Aleko D. Sotiriades, Cedarburg, WI;
James J. Dehn, Brookfield, WI;
Leigh Jenison, Hartland, WI;
Hiroaki Sato, Brookfield, WI;

**** CONTINUING DATA ***************************

This application is a CIP of 14/738,060 06/12/2015

**** FOREIGN APPLICATIONS ***************************

**** IF REQUIRED, FOREIGN FILING LICENSE GRANTED **** ** SMALL ENTITY **
11/06/2015

Foreign Priority claimed ☐ Yes ☑ No 35 USC 119(a-d) conditions met ☐ Yes ☑ No Verified and Acknowledged /LONG T TRAN/ Examiner's Signature	☐ Met after Allowance LT Initials	STATE OR COUNTRY	SHEETS DRAWINGS	TOTAL CLAIMS	INDEPENDENT CLAIMS
		CA	12	63	4

ADDRESS

ZIOLKOWSKI PATENT SOLUTIONS GROUP, SC (ZPS)
136 S WISCONSIN ST
PORT WASHINGTON, WI 53074
UNITED STATES

TITLE

BATTERYLESS DUAL FUEL ENGINE WITH LIQUID FUEL CUT-OFF

FILING FEE RECEIVED		
2660	FEES: Authority has been given in Paper No._____ to charge/credit DEPOSIT ACCOUNT No._____ for following:	☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	31	engine and ((dual double two second$4 plural$4 multi multiple bi) near2 fuel near20 (switch$4 chang$3)) and ((carburetor carburettor) same intake same valve) and (electric$4 near5 generat$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/02 09:08
L2	32878	((F02D19/0647 OR F02D19/0613 OR F02D29/06 OR F02D41/0025 OR F02D11/02 OR F02D19/0642 OR F02D35/0053 OR F02B63/04 OR F02B43/00 OR F02B63/044 OR F02M13/08 OR F02M19/08 OR F02M21/047 OR F02N3/02).CPC.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/02 09:10
L3	7	engine and ((dual double two second$4 plural$4 multi multiple bi) near2 fuel near20 (switch$4 chang$3)) and ((carburetor carburettor) same intake same valve) and (solenoid near2 valve) and (valve same (rotat$4 near2 shaft) same (carburetor carburretor))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/02 09:22
L4	2	engine and ((dual double two second$4 plural$4 multi multiple bi) near2 fuel near20 (switch$4 chang$3)) and ((carburetor carburettor) same intake same valve) and (solenoid near2 valve) and (valve same (rotat$4 near2 shaft) same (carburetor carburretor)) and (o adj ring)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/02 09:33
L5	12	engine and ((dual double two second$4 plural$4 multi multiple bi) near2 fuel same (switch$4 chang$3)) and (valve same (rotat$4 near2 shaft) same (carburetor carburretor)) and (o adj ring)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/02 09:35
S1	3	"14925441"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 09:15
S2	38	engine and ((dual double two second$4 plural$4 multi multiple bi) near2 fuel near20 (switch$4 chang$3)) and ((lpg propane ng "natural gas" hydrogen) near5 fuel) and gasoline and ((carburetor carburettor) same intake same (solenoid nea5 valve))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 09:34

S3	6	"14738060"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 09:38
S4	2	engine and ((dual double two second$4 plural$4 multi multiple bi) near2 fuel near20 (switch$4 chang$3)) and ((lpg propane ng "natural gas" hydrogen) near5 fuel) and gasoline and ((carburetor carburettor) same (solenoid near5 valve)) and ((carburetor carburettor) same intake) and (pull adj start$4) and ((carburettor carburetor) same shaft same lever same (spring coil))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 09:51
S5	2	engine and ((dual double two second$4 plural$4 multi multiple bi) near2 fuel near20 (switch$4 chang$3)) and ((lpg propane ng "natural gas" hydrogen) near5 fuel) and gasoline and ((carburetor carburettor) same (solenoid near5 valve)) and ((carburetor carburettor) same intake) and (pull adj start$4) and ((carburettor carburetor) same shaft same (spring coil))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 09:54
S6	4	engine and ((dual double two second$4 plural$4 multi multiple bi) near2 fuel near20 (switch$4 chang$3)) and ((lpg propane ng "natural gas" hydrogen) near10 fuel) and gasoline and ((carburetor carburettor) same (solenoid near5 valve)) and ((carburetor carburettor) same intake) and ((carburettor carburetor) same shaft same (spring coil))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 09:55
S7	26	engine and ((dual double two second$4 plural$4 multi multiple bi) near2 fuel near20 (switch$4 chang$3)) and ((lpg propane ng "natural gas" hydrogen) near10 fuel) and gasoline and ((carburetor carburettor) same intake) and (generat$4 same electric$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 09:58
S8	2	engine and ((dual double two second$4 plural$4 multi multiple bi) near2 fuel same (switch$4 chang$3)) and ((lpg propane ng "natural gas" hydrogen) near10 fuel) and gasoline and ((carburetor carburettor)) and (generat$4 same electric$4) and (pull adj start$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 11:12
S9	2	engine and ((dual double two second$4 plural$4 multi multiple bi) near2 fuel same (switch$4 chang$3)) and ((lpg propane ng "natural gas" hydrogen)) and gasoline and ((carburetor carburettor)) and (generat$4 same electric$4) and (pull adj start$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 12:10
S10	7	engine and ((dual double two second$4 plural$4 multi multiple bi) near2 fuel same (switch$4 chang$3)) and ((carburetor carburettor)) and (generat$4	US-PGPUB; USPAT; USOCR; FPRS; EPO;	OR	ON	2017/08/01 12:37

		same electric$4) and (pull adj start$4)	JPO; DERWENT; IBM_TDB			
S11	15	engine and ((dual double two second$4 plural$4 multi multiple bi) near2 fuel same (switch$4 chang$3)) and ((carburetor carburettor)) and (generat$4 same electric$4) and ((pull adj start$4) or (recoil adj start$4))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 13:10
S12	3	engine and ((dual double two second$4 plural$4 multi multiple bi) near2 fuel same (switch$4 chang$3)) and ((carburetor carburettor) same shaft same lever same (coil bias$4 spring)) and (generat$4 same electric$4) and ((pull adj start$4) or (recoil adj start$4))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 13:14
S13	5	engine and ((dual double two second$4 plural$4 multi multiple bi) near2 fuel) and ((carburetor carburettor) same shaft same lever same (coil bias$4 spring)) and (generat$4 same electric$4) and ((pull adj start$4) or (recoil adj start$4))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 13:25
S14	2	engine and ((dual double two second$4 plural$4 multi multiple bi) near2 fuel) and ((carburetor carburettor) same rotat$4 near2 shaft) and ((carburetor carburettor) same lever same (coil bias$4 spring)) and (generat$4 near5 electric$4) and ((pull adj start$4) or (recoil adj start$4)) and ((ope cable cord) near20 lever)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 14:09
S15	2	engine and ((dual double two second$4 plural$4 multi multiple bi) near2 fuel) and (rotat$4 near2 shaft same lever) and ((carburetor carburettor) same lever same (coil bias$4 spring)) and (generat$4 near5 electric$4) and ((pull adj start$4) or (recoil adj start$4)) and ((ope cable cord) near20 lever)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 14:16
S16	2	engine and ((dual double two second$4 plural$4 multi multiple bi) near2 fuel) and (rotat$4 near2 shaft same lever) and ((carburetor carburettor) same lever same (coil bias$4 spring)) and (generat$4 near5 electric$4) and ((pull adj start$4) or (recoil adj start$4)) and ((rope cable cord) same lever)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 14:23
S17	34	engine and ((dual double two second$4 plural$4 multi multiple bi) near2 fuel) and (carburetor carburettor) and (generat$4 near5 electric$4) and ((pull adj start$4) or (recoil adj start$4))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 14:32
S18	5	engine and ((dual double two second$4 plural$4 multi multiple bi) near2 fuel) and (carburetor carburettor) same solenoid adj valve and (generat$4 near5 electric$4) and ((pull adj start$4) or (recoil adj start$4))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT;	OR	ON	2017/08/01 14:32

			IBM_TDB			
S19	19	engine and ((dual double two second$4 plural$4 multi multiple bi) near2 fuel) and (carburetor carburettor) same valve and (generat$4 near5 electric$4) and ((pull adj start$4) or (recoil adj start$4))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 15:11
S20	10	S19 not battery	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 15:13
S21	7	engine and ((dual double two second$4 plural$4 multi multiple bi) near2 fuel near50 (switch$4 chang$4)) and (carburetor carburettor) same valve and (generat$4 near5 electric$4) and ((pull near2 start$4) or (recoil adj start$4))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 15:17
S22	2	engine same ((dual plural$4 multi multiple bi) near2 fuel) and (carburetor carburettor) same valve and (generat$4 near5 electric$4) and ((pull near2 start$4) or (recoil adj start$4)) and ((magneto or alternator) same solenoid near2 valve)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 15:40
S23	0	engine and (carburetor carburettor) same valve and (generat$4 near5 electric$4) and ((pull near2 start$4) or (recoil adj start$4)) and ((magneto or alternator) same solenoid near2 valve same (voltatage near5 regulat$4))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 15:45
S24	2	engine and (carburetor carburettor) same valve and (generat$4 near5 electric$4) and ((pull near2 start$4) or (recoil adj start$4)) and ((magneto or alternator) same solenoid near2 valve same (voltage near5 regulat$4))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 15:45
S25	7	engine and (carburetor carburettor) same valve and (generat$4 near5 electric$4) and ((magneto or alternator) same solenoid near2 valve same (voltage near5 regulat$4))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 15:46
S26	5	engine and (carburetor carburettor) same valve and (generat$4 near5 electric$4) and (magnetic$4 same solenoid near2 valve same (voltage near5 regulat$4))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 15:55
S27	87	engine and (carburetor carburettor) same valve and (generat$4 near5 electric$4) and (magnetic$4 same solenoid near2 valve)	US-PGPUB; USPAT; USOCR; FPRS; EPO;	OR	ON	2017/08/01 15:55

			JPO; DERWENT; IBM_TDB			
S28	47	engine and (carburetor carburettor) same valve and (generat$4 near5 electric$4) and (magnetic$4 same (spring coil) same solenoid near2 valve)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 15:56
S29	27	engine and (carburetor carburettor) same solenoid adj valve and (generat$4 near5 electric$4) and (magnetic$4 same (spring coil) same solenoid near2 valve)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 16:00
S30	0	engine and ((carburetor carburettor) near50 solenoid adj valve) and ((solenoid adj valve) same (rotat$4 near2 shaft) same seal$4 same (block$4 (valve near2 tip))) and ((carburetor carburretor) same lever same (spring coil bias$4) same (cable rope cord))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 16:34
S31	0	engine and ((carburetor carburettor) near50 solenoid adj valve) and ((solenoid adj valve) same (rotat$4 near2 shaft) same (o adj ring)) and ((lever valve) same (block$4 (valve near2 tip))) and ((carburetor carburretor) same lever same (spring coil bias$4) same (cable rope cord))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 16:36
S32	0	engine and ((carburetor carburettor) near50 solenoid adj valve) and (valve same (rotat$4 near2 shaft) same (o adj ring)) and ((lever valve) same (block$4 (valve near2 tip))) and ((carburetor carburretor) same lever same (spring coil bias$4)) and (cable rope cord)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 16:50
S33	0	engine and ((carburetor carburettor) near50 solenoid adj valve) and (valve same (rotat$4 near2 shaft) same (o adj ring)) and ((lever valve) same (block$4 (valve near2 tip))) and ((carburetor carburretor) same lever same (spring coil bias$4)) and (cable rope cord) near50 lever	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 16:50
S34	1	engine and ((carburetor carburettor) near50 solenoid adj valve) and (valve same (rotat$4 near2 shaft) same (o adj ring)) and ((lever valve) same (block$4 (valve near2 tip))) and ((carburetor carburretor) same lever)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 16:51
S35	0	engine and ((carburetor carburettor) near50 solenoid adj valve) and (solenoid adj valve same (rotat$4 near2 shaft) same (o adj ring)) and ((carburetor carburretor) same lever)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 16:54

S36	0	engine and ((carburetor carburettor) near50 solenoid adj valve) and (solenoid adj valve same (rotat$4 near2 shaft) same (o adj ring))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 16:55
S37	0	engine and ((carburetor carburettor) near50 solenoid adj valve) and ((carburettor carburetor) same (rotat$4 near2 shaft) same (o adj ring)) and ((lever valve) same (block$4 (valve near2 tip))) and ((carburetor carburretor) same lever)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 16:56
S38	0	engine and ((carburetor carburettor) near50 solenoid adj valve) and ((carburettor carburetor) same (rotat$4 near2 shaft) same (o adj ring)) and ((carburetor carburretor) same lever)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/01 16:57

8/ 2/ 2017 9:52:31 AM
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Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	
Filing Date	
First Named Inventor	Kendall J. Collie et al.
Art Unit	
Examiner Name	
Attorney Docket Number	CET1090.042

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
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/L.T.T/	2	4372276		1983-02-08	Bernhardsson et al.	
/L.T.T/	3	4450821		1984-05-29	Venning et al.	
/L.T.T/	4	4489699		1984-12-25	Poehlman	
/L.T.T/	5	4502453		1985-03-05	Kabasin et al.	
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ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /L.T.T/

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(Not for submission under 37 CFR 1.99)

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First Named Inventor	Kendall J. Collie et al.
Art Unit	
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Attorney Docket Number	CET1090.042

/L.T.T/	9	5287839		1994-02-22	Kondou et al.	
/L.T.T/	10	5320078		1994-06-14	Lorraine	
/L.T.T/	11	5379740		1995-01-10	Moore et al.	
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/L.T.T/	18	6213083	B1	2001-04-10	Winberg	
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	Application Number	
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	First Named Inventor	Kendall J. Collie et al.
	Art Unit	
	Examiner Name	
	Attorney Docket Number	CET1090.042

/L.T.T/	20	6276345	B1	2001-08-21	Nelson et al.	
/L.T.T/	21	6401685	B1	2002-06-11	Warner	
/L.T.T/	22	6453877	B1	2002-09-24	Lucier et al.	
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/L.T.T/	24	7905469	B2	2011-03-15	Nickels et al.	
/L.T.T/	25	8342158	B2	2013-01-01	Ulrey et al.	
/L.T.T/	26	8590510	B2	2013-11-26	Surnilla et al.	
/L.T.T/	27	5161496		1992-11-10	Matsushima et al.	
/L.T.T/	28	5325835		1994-07-05	Kimata et al.	

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/L.T.T/	1	20130047964	A1	2013-02-28	Kim	
/L.T.T/	2	20130220274	A1	2013-08-29	Deshpande et al.	

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/L.T.T/	1	Honda EU20i LPG, March 20, 2012, https://www.youtube.com/watch?v=yBpq33aJmR0	☐
/L.T.T/	2	JOHNSON et al., "Electronic Direct Fuel Injection (EDFI) for Small Two-Stroke Engines," SAE Technical Paper 1999-01-3312, Proceedings of the 1999 SAE Small Engine Technology Conference, Madison, WI, September 28-30, 1999, pp. 1-15	☐

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EXAMINER SIGNATURE

Examiner Signature	/LONG T TRAN/	Date Considered	08/02/2017

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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	Art Unit	
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	Attorney Docket Number	CET1090.042

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

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Art Unit	
Examiner Name	
Attorney Docket Number	CET1090.042

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

☐ See attached certification statement.

☐ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☐ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Timothy J. Ziolkowski/	Date (YYYY-MM-DD)	2015-10-28
Name/Print	Timothy J. Ziolkowski	Registration Number	38368

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Champion - EX2137, Page 466 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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Privacy Act Statement

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

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7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

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

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ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /L.T.T./

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14925441	COLLIE ET AL.
	Examiner	**Art Unit**
	LONG T TRAN	3747

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

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

CLAIM		DATE								
Final	Original	04/18/2017	08/02/2017							
	1	÷	✓							
	2	÷	✓							
	3	÷	✓							
	4	÷	✓							
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	34	÷	N							
	35	÷	N							
	36	÷	N							

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CLAIM		DATE								
Final	Original	04/18/2017	08/02/2017							
	37	÷	N							
	38	÷	N							
	39	÷	N							
	40	÷	N							
	41	÷	N							
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	55	÷	N							
	56	÷	✓							
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	59	÷	N							
	60	÷	✓							
	61	÷	✓							
	62	÷	N							
	63	÷	N							

PLUS Search Results for S/N 14925441, Searched Tue Aug 01 13:20:31 EDT 2017

The Patent Linguistics Utility System (PLUS) is a USPTO automated search system for U.S. Patents from 1971 to the present PLUS is a query-by-example search system which produces a list of patents that are most closely related linguistically to the application searched. This search was prepared by the staff of the Scientific and Technical Information Center, SIRA.

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4340013 99
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4425898 98
4444169 98
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4483307 98
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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

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

Mailing

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37 CFR 1.8(a) □ with sufficient postage as first class mail

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□ transmitted by facsimile to Fax No.: 571-273-8300 addressed to **Examiner Lon T Tran** at the Patent and Trademark Office.

■ transmitted by EFS-WEB addressed to **Examiner Long T Tran** at the Patent and Trademark Office.

Date: June 21, 2017

/Robyn L. Templin/
Signature

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

RESPONSE TO APRIL 21, 2017 RESTRICTION REQUIREMENT

Dear Sir:

Responsive to the Restriction Requirement mailed April 21, 2017, please enter the following election with traverse and consider the following comments in support of rejoinder.

Electronic Acknowledgement Receipt

EFS ID:	29561766
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
Receipt Date:	21-JUN-2017
Filing Date:	28-OCT-2015
Time Stamp:	12:22:27
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		Response.pdf	159521 edc7886f728dbc74f7e8da506aa3fd8d1055df58	yes	13

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Applicant Arguments/Remarks Made in an Amendment	11	13
	Claims	2	10
	Response to Election / Restriction Filed	1	1
Warnings:			
Information:			
	Total Files Size (in bytes):	159521	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

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.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

ELECTION

Applicant elects, with traverse, what the Examiner has characterized as "Invention I", deemed drawn to a dual fuel engine, and corresponding to claims 1-18, 56-57, and 60-61.

REMARKS

The Examiner has identified four 'inventions' in the pending claims. The Examiner's classification of the 'inventions' include Group I consisting of claims 1-18, 56-57, and 60-61 drawn to a dual fuel engine and classified by the Examiner in class F02D 19/06, Group II consisting of claims 19-34, 58-59, and 62-63 drawn to a generator and classified by the Examiner in class F02B 63/04, Group III consisting of claims 35-47 drawn to a carburetor and classified by the Examiner in class F02M 17/20, and Group IV consisting of claims 48-55 drawn to a process of making an engine and classified by the Examiner in class B23P 19/042. *Restriction Requirement*, 4/21/17, p. 2

Restriction of Groups I, II, III, and IV

The Examiner asserted in the Restriction Requirement that alleged "Inventions I, II, III and IV are directed to related internal combustion engines," but that the "inventions are distinct, each from the other," and issued a restriction under MPEP § 806.05(j). *Restriction Requirement*, p. 2. MPEP § 806.05(j)states that "[t]o support a requirement for restriction between two or more related product inventions, or between two or more related process inventions, both two-way distinctness and reasons for insisting on restriction are necessary." *Id.* at § 806.05(j). Related product or process inventions are only distinct if "(A) the inventions *as claimed* do not overlap in scope, i.e., are mutually exclusive; (B) the inventions *as claimed* are not obvious variants; and (C) the inventions *as claimed* are either not capable of use together or can have a materially different design, mode of operation, function, or effect." *Id.* (emphasis in original). "The burden is on the examiner to provide an example to support the determination that the inventions are distinct." *Id.*

In this case, the Examiner has failed to meet the burden set forth by MPEP § 806.05(j)(A)-(C). That is, in order to show that alleged Inventions I-IV are distinct as claimed, the Examiner must prove that each alleged invention is (A) mutually exclusive; (B) not obvious variants, **and** (C) "not capable of use together or can have a materially different design, mode of operation, function, or effect." *See Id.* at § 806.05(j)(A)-(C). The Examiner did not prove each of (A)-(C), but instead merely made conclusory statements that "[i]n the instant case, the inventions as claimed have a materially different design, mode of operation, function, or effect.

Champion - EX2137, Page 474 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

Furthermore, the inventions as claimed do not encompass overlapping subject matter and there is nothing of record to show them to be obvious variants." *Restriction Requirement*, p. 2-3. The Examiner did not cite to any claim elements to support that conclusion. Further, the Examiner did not provide an example to support the determination that alleged Inventions I-IV are distinct, as required by MPEP § 806.05(j).

However, regardless of the deficiency of the restriction, alleged Inventions I, II, III, and IV, as claimed in independent claims 1, 19, 35, and 48 are not distinct for at least the reason that they overlap in scope. *See* MPEP § 806.05(j)(A). Each of claims 1, 19, 35 and 48 directed to alleged Inventions I, II, III, and IV, respectively, include a carburetor and either a fuel shutoff or a fuel cut-off attached to the carburetor. In addition, each of claims 19, 35, and 48 directed to alleged Inventions II, III, and IV include that the carburetor has a float bowl, a throat, and a fuel passage to provide fuel from the float bowl to the throat. Claims 19, 35, and 48 also include that the fuel shutoff or fuel cut-off attaches to the carburetor to close the fuel passage. In comparison, claim 6 of alleged Invention I includes a fuel path to the engine that is opened and closed by the fuel cut-off. As such, all of alleged Inventions I, II, III, and IV include a carburetor and a fuel shutoff/cut-off that attaches to the carburetor to close a fuel passage/path.

In addition, alleged Inventions I, II, and IV, as claimed in independent claims 1, 19, and 48, respectively, are not distinct since they overlap in scope regarding the carburetor attached to an intake of an engine. Each of claims 1, 19, and 48 include an engine operable on a gaseous fuel and a liquid fuel. Also, claims 1, 30, and 48 directed to alleged Inventions I, II, and IV, respectively, all include a switch to change operation of the engine between gaseous fuel and liquid fuel. Furthermore, claim 1 (alleged Invention I) includes the liquid fuel cut-off attached to the carburetor to interrupt liquid fuel upon actuation of the switch from liquid fuel to gaseous fuel. Claim 19 (alleged Invention II) includes the fuel shutoff attached to the carburetor to close the fuel passage upon selection of engine operation to gaseous fuel. Claim 48 (alleged Invention IV) includes 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. Therefore, each of alleged Invention I, II, and IV as claimed in independent claims 1, 19, and 48, respectively, include that the fuel shutoff/cut-off attaches to the carburetor to interrupt liquid fuel or close a liquid fuel passage upon selection of engine operation to gaseous fuel.

All of alleged Inventions I, II, III, and IV as claimed in claims 15, 25, 44, 55, respectively, also include a cable actuated fuel shutoff/cut-off. Initially, each of claims 14, 21, 37, and 53 directed to alleged Inventions I, II, III, and IV, respectively, include a rotating shaft extending through an aperture or opening in the carburetor, and either a blocking member or a

Champion - EX2137, Page 475 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

valve member couples to the shaft in the carburetor that rotates to selectively control fuel flow through a fuel passage/path within the carburetor. Furthermore, each of alleged Inventions I, II, III, IV (via claims 14, 26, 42, 52, respectively) includes a fuel seal around the shaft for the aperture or opening in the carburetor. Each of alleged Inventions I, II, III, IV (via claims 15, 25, 44, 55, respectively) includes a lever coupled to the shaft, and a cable couples to the lever to actuate the blocking/valve member. Therefore, as claimed, alleged Invention I, II, III, and IV overlap in scope and cannot be said to be mutually exclusive under MPEP § 806.05(j).

In light of the above, alleged Invention I, II, III, and IV as claimed in claims 1-18, 56-57, 60-61; claims 19-34, 58-59, 62-63; claims 35-47; and claims 48-55; respectively, are not distinct. The Examiner has not met the burdens set forth by MPEP § 806.05(j) to show that alleged Inventions I-IV, as claimed, are distinct, as the Examiner has not shown that the alleged inventions are mutually exclusive, not obvious variants, **and** not capable of use together / have a materially different design, mode of operation, function, or effect. On the contrary, alleged Inventions I-IV, as called for in the claims, are related under the present disclosure and overlap in scope. Accordingly, Applicant respectfully requests that the restriction between alleged Inventions I, II, III, and IV be withdrawn.

Conclusion

For all these reasons, Applicant respectfully requests rejoinder of all claims, of each group. The Examiner is invited to call the undersigned to discuss this Election or any other matters regarding this application to further prosecution.

Respectfully submitted,

/Kevin R. Rosin/

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

Dated: June 21, 2017
Attorney Docket No.: CET1090.042

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

Champion - EX2137, Page 476 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

IN THE CLAIMS:

1. (Original) 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 attached to 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. (Original) The dual fuel engine of claim 5, wherein the liquid fuel cut-off is a solenoid valve powered by the electrical power generator.

Champion - EX2137, Page 477 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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

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.

Champion - EX2137, Page 478 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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. (Withdrawn) 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,

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.

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

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

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.

Champion - EX2137, Page 479 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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

27. (Withdrawn) 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. (Withdrawn) The batteryless dual fuel generator of claim 19 further comprising:

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

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

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

Champion - EX2137, Page 480 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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. (Withdrawn) 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. (Withdrawn) 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. (Withdrawn) 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. (Withdrawn) 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. (Withdrawn) 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.

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

a carburetor comprising:

a float bowl,

a throat,

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

Champion - EX2137, Page 481 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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

37. (Withdrawn) 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. (Withdrawn) 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. (Withdrawn) 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. (Withdrawn) 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. (Withdrawn) 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.

42. (Withdrawn) 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.

Champion - EX2137, Page 482 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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

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

47. (Withdrawn) 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. (Withdrawn) 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,

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

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.

Champion - EX2137, Page 483 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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

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

53. (Withdrawn) 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. (Withdrawn) 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.

55. (Withdrawn) 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.

Champion - EX2137, Page 484 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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. (Withdrawn) 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. (Withdrawn) 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. (Withdrawn) 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.

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

Champion - EX2137, Page 485 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 14/925,441	Filing Date 10/28/2015	☐ To be Mailed

ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

	(Column 1)	(Column 2)		
FOR	NUMBER FILED	NUMBER EXTRA	RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED – PART II

		(Column 1)		(Column 2)	(Column 3)		
	06/21/2017	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
AMENDMENT	Total (37 CFR 1.16(i))	* 63	Minus	** 63	= 0	X $40 =	0
	Independent (37 CFR 1.16(h))	* 4	Minus	***4	= 0	X $210 =	0
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						TOTAL ADD'L FEE	0

		(Column 1)		(Column 2)	(Column 3)		
		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
AMENDMENT	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

LIE
CURTIS NELLOMS JR

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/925,441	10/28/2015	Kendall J. Collie	CET1090.042	1059

26629 7590 04/21/2017

ZIOLKOWSKI PATENT SOLUTIONS GROUP, SC (ZPS)
136 S WISCONSIN ST
PORT WASHINGTON, WI 53074

EXAMINER
TRAN, LONG T

ART UNIT	PAPER NUMBER
3747	

NOTIFICATION DATE	DELIVERY MODE
04/21/2017	ELECTRONIC

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

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

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

info@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 (First Inventor to File) Status Yes

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

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 2 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 *28 October 2015*.

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

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

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

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

Disposition of Claims*

5)☒ Claim(s) *1-63* 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) _____ is/are rejected.

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

9)☐ Claim(s) *1-63* 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: _____.

Champion - EX2137, Page 488 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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.

Election/Restrictions

2. Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1 – 18, 56 – 57, 60 - 61, drawn to a Dual Fuel engine, classified in F02D 19/06.

II. Claims 19 – 34, 58 – 59, 62 - 63, drawn to a Generator, classified in F02B 63/04.

III. Claims 35 – 47, drawn to a Carburetor, classified in F02M 17/20.

IV. Claims 48 – 55, drawn to a process of making an engine, classified in B23P 19/042.

3. The inventions are distinct, each from the other because of the following reasons:

Inventions I, II, III and IV are directed to related internal combustion engines. The related inventions are distinct if: (1) the inventions as claimed are either not capable of use together or can have a materially different design, mode of operation, function, or effect; (2) the inventions do not overlap in scope, i.e., are mutually exclusive; and (3) the inventions as claimed are not obvious variants. See MPEP § 806.05(j). In the instant case, the inventions as claimed have a materially different design, mode of operation, function, or effect. Furthermore, the inventions as claimed do not encompass

overlapping subject matter and there is nothing of record to show them to be obvious variants.

4. Restriction for examination purposes as indicated is proper because all the inventions listed in this action are independent or distinct for the reasons given above and there would be a serious search and/or examination burden if restriction were not required because one or more of the following reasons apply:

Each of the inventions as listed are patentable distinct in scope and would require a serious burden of search on the Examiner since each related search field comprise of vastly different engine designs that do not overlap in the invention's scope. In addition, the distinct inventions that are different in scope present embodiments that do not overlap in scope that would allow for a reasonable search.

5. **Applicant is advised that the reply to this requirement to be complete must include (i) an election of a invention to be examined** even though the requirement may be traversed (37 CFR 1.143) **and (ii) identification of the claims encompassing the elected invention**.

The election of an invention may be made with or without traverse. To reserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse. Traversal must be presented at the time of election in order to be considered timely. Failure to timely traverse the requirement will result in the loss of right to petition under 37 CFR 1.144. If claims are added after

the election, applicant must indicate which of these claims are readable upon the elected invention.

Should applicant traverse on the ground that the inventions are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the inventions to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103 or pre-AIA 35 U.S.C. 103(a) of the other invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be corrected in compliance with 37 CFR 1.48(a) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. A request to correct inventorship under 37 CFR 1.48(a) must be accompanied by an application data sheet in accordance with 37 CFR 1.76 that identifies each inventor by his or her legal name and by the processing fee required under 37 CFR 1.17(i).

6. 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 M-F, 7:30am - 5:00pm.

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/
Examiner, Art Unit 3747

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14925441	COLLIE ET AL.
	Examiner	**Art Unit**
	LONG T TRAN	3747

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

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

CLAIM		DATE								
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Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14925441	COLLIE ET AL.
	Examiner	Art Unit
	LONG T TRAN	3747

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

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

CLAIM		DATE								
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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
14/925,441	10/28/2015	Kendall J. Collie	CET1090.042

CONFIRMATION NO. 1059

PUBLICATION NOTICE

26629
ZIOLKOWSKI PATENT SOLUTIONS GROUP, SC (ZPS)
136 S WISCONSIN ST
PORT WASHINGTON, WI 53074

OC000000087914290

Title:BATTERYLESS DUAL FUEL ENGINE WITH LIQUID FUEL CUT-OFF

Publication No.US-2016-0363099-A1
Publication Date:12/15/2016

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

The publication may be accessed through the USPTO's publically available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently http://www.uspto.gov/patft/.

The publication process established by the Office does not provide for mailing a copy of the publication to applicant. A copy of the publication may be obtained from the Office upon payment of the appropriate fee set forth in 37 CFR 1.19(a)(1). Orders for copies of patent application publications are handled by the USPTO's Office of Public Records. The Office of Public Records can be reached by telephone at (571) 272-3150 or (800) 972-6382, by facsimile at (571) 273-3250, by mail addressed to the United States Patent and Trademark Office, Office of Public Records, Alexandria, VA 22313-1450 or via the Internet.

In addition, information on the status of the application, including the mailing date of Office actions and the dates of receipt of correspondence filed in the Office, may also be accessed via the Internet through the Patent Electronic Business Center at www.uspto.gov using the public side of the Patent Application Information and Retrieval (PAIR) system. The direct link to access this status information is currently http://pair.uspto.gov/. Prior to publication, such status information is confidential and may only be obtained by applicant using the private side of PAIR.

Further assistance in electronically accessing the publication, or about PAIR, is available by calling the Patent Electronic Business Center at 1-866-217-9197.

Office of Data Managment, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
14/925,441	10/28/2015	3747	2660	CET1090.042	63	4

CONFIRMATION NO. 1059

FILING RECEIPT

26629
ZIOLKOWSKI PATENT SOLUTIONS GROUP, SC (ZPS)
136 S WISCONSIN ST
PORT WASHINGTON, WI 53074

OC000000078549464

Date Mailed: 11/10/2015

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

Kendall J. Collie, Anaheim Hills, CA;
Mark J. Sarder, Waukesha, WI;
Aleko D. Sotiriades, Cedarburg, WI;
James J. Dehn, Brookfield, WI;
Leigh Jenison, Hartland, WI;
Hiroaki Sato, Brookfield, WI;

Applicant(s)

Champion Engine Technology, LLC, Sussex, WI;

Power of Attorney: The patent practitioners associated with Customer Number 26629

Domestic Priority data as claimed by applicant

This application is a CIP of 14/738,060 06/12/2015

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access - A proper **Authorization to Permit Access to Application by Participating Offices** (PTO/SB/39 or its equivalent) has been received by the USPTO.

If Required, Foreign Filing License Granted: 11/06/2015
The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 14/925,441**

Champion - EX2137, Page 496 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

Projected Publication Date: 12/15/2016

Non-Publication Request: No

Early Publication Request: No
**** SMALL ENTITY ****
Title

BATTERYLESS DUAL FUEL ENGINE WITH LIQUID FUEL CUT-OFF

Preliminary Class

123

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

Champion - EX2137, Page 497 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

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PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 14/925,441

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY FEE($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	70		N/A	
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	300		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	360		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	63 minus 20 =	* 43	x 40 =	1720	OR		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	4 minus 3 =	* 1	x 210 =	210			
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			0.00			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				0.00			
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	2660		TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
AMENDMENT A	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE($)	ADDITIONAL FEE($)		RATE($)	ADDITIONAL FEE($)
AMENDMENT B	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.

Doc Code: PA..
Document Description: Power of Attorney

PTO/AIA/82B (07-13)
Approved for use through 11/30/2014. OMB 0651-0051
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POWER OF ATTORNEY BY APPLICANT

I hereby revoke all previous powers of attorney given in the application identified in either the attached transmittal letter or the boxes below.

Application Number	Filing Date

(Note: The boxes above may be left blank if information is provided on form PTO/AIA/82A.)

☑ I hereby appoint the Patent Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above: 26629

OR

☐ I hereby appoint Practitioner(s) named in the attached list (form PTO/AIA/82C) as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the patent application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above. (Note: Complete form PTO/AIA/82C.)

Please recognize or change the correspondence address for the application identified in the attached transmittal letter or the boxes above to:

☑ The address associated with the above-mentioned Customer Number

OR

☐ The address associated with Customer Number:

OR

Firm or Individual Name					
Address					
City		State		Zip	
Country					
Telephone		Email			

I am the Applicant (if the Applicant is a juristic entity, list the Applicant name in the box):

☐ Inventor or Joint Inventor (title not required below)

☐ Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)

☑ Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a juristic entity)

☐ Person Who Otherwise Shows Sufficient Proprietary Interest (e.g., a petition under 37 CFR 1.46(b)(2) was granted in the application or is concurrently being filed with this document) (provide signer's title if applicant is a juristic entity)

SIGNATURE of Applicant for Patent

The undersigned (whose title is supplied below) is authorized to act on behalf of the applicant (e.g., where the applicant is a juristic entity).

Signature		Date (Optional)	
Name	Mark J. Sarder		
Title	Vice President of Engineering, Champion Engine Technology, LLC		

NOTE: Signature - This form must be signed by the applicant in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. If more than one applicant, use multiple forms.

☑ Total of 1 forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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Doc Code: PA..
Document Description: Power of Attorney

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TRANSMITTAL FOR POWER OF ATTORNEY TO ONE OR MORE REGISTERED PRACTITIONERS

NOTE: This form is to be submitted with the Power of Attorney by Applicant form (PTO/AIA/82B) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5, unless the application number and filing date are identified in the Power of Attorney by Applicant form. If neither form PTO/AIA/82A nor form PTO/AIA82B identifies the application to which the Power of Attorney is directed, the Power of Attorney will not be recognized in the application.

Application Number	
Filing Date	
First Named Inventor	Kendall J. Collie
Title	BATTERYLESS DUAL FUEL ENGINE WITH LIQUID FUEL CUT-OFF
Art Unit	
Examiner Name	
Attorney Docket Number	CET1090.042

SIGNATURE of Applicant or Patent Practitioner

Signature	/Timothy J. Ziolkowski/	Date (Optional)	
Name	Timothy J. Ziolkowski	Registration Number	38368
Title (if Applicant is a juristic entity)	Patent Practitioner		
Applicant Name (if Applicant is a juristic entity)	Champion Engine Technology, LLC		

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. If more than one applicant, use multiple forms.

☑ *Total of 1 forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	
Filing Date	
First Named Inventor	Kendall J. Collie et al.
Art Unit	
Examiner Name	
Attorney Docket Number	CET1090.042

U.S.PATENTS						Remove
Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	2722208		1955-11-01	Conroy, Jr. et al.	
	2	4372276		1983-02-08	Bernhardsson et al.	
	3	4450821		1984-05-29	Venning et al.	
	4	4489699		1984-12-25	Poehlman	
	5	4502453		1985-03-05	Kabasin et al.	
	6	4619240		1986-10-28	Bedford et al.	
	7	4895124		1990-01-23	Bartholomew	
	8	5171487		1992-12-15	Hudz	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	
	First Named Inventor	Kendall J. Collie et al.
	Art Unit	
	Examiner Name	
	Attorney Docket Number	CET1090.042

	9	5287839		1994-02-22	Kondou et al.	
	10	5320078		1994-06-14	Lorraine	
	11	5379740		1995-01-10	Moore et al.	
	12	5419291		1995-05-30	Kimata et al.	
	13	5438968		1995-08-08	Johnson et al.	
	14	5450832		1995-09-19	Graf	
	15	5673670		1997-10-07	Powell et al.	
	16	5816224		1998-10-06	Welsh et al.	
	17	6082323		2000-07-04	Winberg	
	18	6213083	B1	2001-04-10	Winberg	
	19	6223730	B1	2001-05-01	Hasegawa et al.	

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	Application Number	
	Filing Date	
	First Named Inventor	Kendall J. Collie et al.
	Art Unit	
	Examiner Name	
	Attorney Docket Number	CET1090.042

	20	6276345	B1	2001-08-21	Nelson et al.	
	21	6401685	B1	2002-06-11	Warner	
	22	6453877	B1	2002-09-24	Lucier et al.	
	23	6914342	B1	2005-07-05	French	
	24	7905469	B2	2011-03-15	Nickels et al.	
	25	8342158	B2	2013-01-01	Ulrey et al.	
	26	8590510	B2	2013-11-26	Surnilla et al.	
	27	5161496		1992-11-10	Matsushima et al.	
	28	5325835		1994-07-05	Kimata et al.	

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U.S.PATENT APPLICATION PUBLICATIONS Remove

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	
	First Named Inventor	Kendall J. Collie et al.
	Art Unit	
	Examiner Name	
	Attorney Docket Number	CET1090.042

	1	20130047964	A1	2013-02-28	Kim	
	2	20130220274	A1	2013-08-29	Deshpande et al.	

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	1							☐

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NON-PATENT LITERATURE DOCUMENTS Remove

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1	Honda EU20i LPG, March 20, 2012, https://www.youtube.com/watch?v=yBpq33aJmR0	☐
	2	JOHNSON et al., "Electronic Direct Fuel Injection (EDFI) for Small Two-Stroke Engines," SAE Technical Paper 1999-01-3312, Proceedings of the 1999 SAE Small Engine Technology Conference, Madison, WI, September 28-30, 1999, pp. 1-15	☐

If you wish to add additional non-patent literature document citation information please click the Add button Add

EXAMINER SIGNATURE

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	
	First Named Inventor	Kendall J. Collie et al.
	Art Unit	
	Examiner Name	
	Attorney Docket Number	CET1090.042

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	
	First Named Inventor	Kendall J. Collie et al.
	Art Unit	
	Examiner Name	
	Attorney Docket Number	CET1090.042

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

☐ See attached certification statement.

☐ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☐ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Timothy J. Ziolkowski/	Date (YYYY-MM-DD)	2015-10-28
Name/Print	Timothy J. Ziolkowski	Registration Number	38368

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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

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

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these record s.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

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

Electronic Patent Application Fee Transmittal

Application Number:	
Filing Date:	
Title of Invention:	BATTERYLESS DUAL FUEL ENGINE WITH LIQUID FUEL CUT-OFF
First Named Inventor/Applicant Name:	Kendall J. Collie
Filer:	Timothy J. Ziolkowski/Robyn Templin
Attorney Docket Number:	CET1090.042

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Utility filing Fee (Electronic filing)	4011	1	70	70
Utility Search Fee	2111	1	300	300
Utility Examination Fee	2311	1	360	360
Pages:				
Claims:				
Claims in excess of 20	2202	43	40	1720
Independent Claims in Excess of 3	2201	1	210	210
Miscellaneous-Filing:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**2660**

Electronic Acknowledgement Receipt

EFS ID:	23919568
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:	Timothy J. Ziolkowski/Robyn Templin
Filer Authorized By:	Timothy J. Ziolkowski
Attorney Docket Number:	CET1090.042
Receipt Date:	28-OCT-2015
Filing Date:	
Time Stamp:	16:10:03
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$2660
RAM confirmation Number	2969
Deposit Account	
Authorized User	

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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Application Data Sheet	App-ADS.pdf	1561237 e60d5343aa35f3039516ebedd009643804f323de	no	8
Warnings:					
Information:					
2		App-Body.pdf	236188 9aa031b1499b5f235121ebeddc3dd3d6766e5900	yes	46

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Specification	1	35
	Claims	36	45
	Abstract	46	46

Warnings:					
Information:					
3	Oath or Declaration filed	App-Dec.pdf	2256665 2ad2ba6fb76fcbff5c6000e98a3240793c0c2d3f	no	6
Warnings:					
Information:					
4	Drawings-only black and white line drawings	App-Drawings.pdf	2825649 e781c2aa1a9855ad1bdf2c6a38adebc068221fa3	no	12
Warnings:					
Information:					
5	Power of Attorney	POATransmittal.pdf	156828 a3a8961512291df821d8581c83e00232c8a638d4	no	1
Warnings:					
Information:					
6	Power of Attorney	GeneralPOA.pdf	447239 8aa334f1e7e18cac4035637c5269e9c4f8	no	1

Warnings:					
Information:					
7	Information Disclosure Statement (IDS) Form (SB08)	IDS.pdf	613256 871a36359c120ffc49878d9374f914f529cc49f2	no	7
Warnings:					
Information:					
8	Non Patent Literature	NPL1-HONDA_EU20i_LPG.pdf	15304933 ab3bddf9b920528fa110a17a5b7c5436961daabe	no	3
Warnings:					
Information:					
9	Non Patent Literature	NPL2-Johnson-Electronic_Direct_Fuel_Injection.pdf	414792 fb1a5b3aa5b1053ee0c5f24678e329b555464f3b	no	17
Warnings:					
Information:					
10	Fee Worksheet (SB06)	fee-info.pdf	38632 60875fcfbb7ac28413b604c7633870b0532918d7	no	2
Warnings:					
Information:					
			Total Files Size (in bytes):	23855419	

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New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

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.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	CET1090.042
	Application Number	
Title of Invention	BATTERYLESS DUAL FUEL ENGINE WITH LIQUID FUEL CUT-OFF	

The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.
This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.

Secrecy Order 37 CFR 5.2

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

Inventor Information:

Inventor 1 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Kendall	J.	Collie	

Residence Information (Select One) ◉ US Residency ○ Non US Residency ○ Active US Military Service

City	Anaheim Hills	State/Province	CA	Country of Residence i	US

Mailing Address of Inventor:

Address 1	751 S Weir Canyon Rd, Suite 157 PMB 391		
Address 2			
City	Anaheim Hills	State/Province	CA
Postal Code	92809	Country i	US

Inventor 2 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Mark	J.	Sarder	

Residence Information (Select One) ◉ US Residency ○ Non US Residency ○ Active US Military Service

City	Waukesha	State/Province	WI	Country of Residence i	US

Mailing Address of Inventor:

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

Inventor 3 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Aleko	D.	Sotiriades	

Residence Information (Select One) ◉ US Residency ○ Non US Residency ○ Active US Military Service

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	CET1090.042
	Application Number	
Title of Invention	BATTERYLESS DUAL FUEL ENGINE WITH LIQUID FUEL CUT-OFF	

City	Cedarburg	State/Province	WI	Country of Residence i	US

Mailing Address of Inventor:

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

Inventor 4 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	James	J.	Dehn	

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

City	Brookfield	State/Province	WI	Country of Residence i	US

Mailing Address of Inventor:

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

Inventor 5 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Leigh		Jenison	

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

City	Hartland	State/Province	WI	Country of Residence i	US

Mailing Address of Inventor:

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

Inventor 6 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Hiroaki		Sato	

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

City	Brookfield	State/Province	WI	Country of Residence i	US

Champion - EX2137, Page 515 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	CET1090.042
	Application Number	
Title of Invention	BATTERYLESS DUAL FUEL ENGINE WITH LIQUID FUEL CUT-OFF	

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

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

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below. For further information see 37 CFR 1.33(a).

☐ **An Address is being provided for the correspondence Information of this application.**

Customer Number	26629		
Email Address		Add Email	Remove Email

Application Information:

Title of the Invention	BATTERYLESS DUAL FUEL ENGINE WITH LIQUID FUEL CUT-OFF		
Attorney Docket Number	CET1090.042	Small Entity Status Claimed	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)		Suggested Figure for Publication (if any)	

Filing By Reference :

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

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

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

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	CET1090.042
	Application Number	
Title of Invention	BATTERYLESS DUAL FUEL ENGINE WITH LIQUID FUEL CUT-OFF	

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32).
Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	◉ Customer Number	○ US Patent Practitioner	○ Limited Recognition (37 CFR 11.9)
Customer Number	26629		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, or 365(c) or indicate National Stage entry from a PCT application. Providing this information in the application data sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.
When referring to the current application, please leave the application number blank.

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
	Continuation in part of	14738060	2015-06-12
Prior Application Status			Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button. Add

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55(d). When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX) [i] the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(h)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

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Application Number	Country [i]	Filing Date (YYYY-MM-DD)	Access Code [i] (if applicable)

Additional Foreign Priority Data may be generated within this form by selecting the **Add** button. Add

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	CET1090.042
	Application Number	
Title of Invention	BATTERYLESS DUAL FUEL ENGINE WITH LIQUID FUEL CUT-OFF	

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

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

Authorization to Permit Access:

☒ Authorization to Permit Access to the Instant Application by the Participating Offices

If checked, the undersigned hereby grants the USPTO authority to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the World Intellectual Property Office (WIPO), and any other intellectual property offices in which a foreign application claiming priority to the instant patent application is filed access to the instant patent application. See 37 CFR 1.14(c) and (h). This box should not be checked if the applicant does not wish the EPO, JPO, KIPO, WIPO, or other intellectual property office in which a foreign application claiming priority to the instant patent application is filed to have access to the instant patent application.

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

In accordance with 37 CFR 1.14(c), access may be provided to information concerning the date of filing this Authorization.

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	CET1090.042
	Application Number	
Title of Invention	BATTERYLESS DUAL FUEL ENGINE WITH LIQUID FUEL CUT-OFF	

Applicant 1 Remove

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

Clear

(●) Assignee	( ) Legal Representative under 35 U.S.C. 117	( ) Joint Inventor
( ) Person to whom the inventor is obligated to assign.	( ) Person who shows sufficient proprietary interest	

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor :

If the Applicant is an Organization check here. [X]

Organization Name	Champion Engine Technology, LLC		
Mailing Address Information:			
Address 1	W245 N5551 Corporate Circle		
Address 2			
City	Sussex	**State/Province**	WI
Country [i]	US	Postal Code	53089
Phone Number		Fax Number	
Email Address			

Additional Applicant Data may be generated within this form by selecting the Add button. Add

Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not subsitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Assignee 1

Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication . An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.

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If the Assignee or Non-Applicant Assignee is an Organization check here. [ ]

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	CET1090.042
	Application Number	
Title of Invention	BATTERYLESS DUAL FUEL ENGINE WITH LIQUID FUEL CUT-OFF	

Prefix	**Given Name**	Middle Name	**Family Name**	Suffix

Mailing Address Information For Assignee including Non-Applicant Assignee:

Address 1			
Address 2			
City		**State/Province**	
Country i		Postal Code	
Phone Number		Fax Number	
Email Address			

Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button. Add

Signature:

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Signature	/Timothy J. Ziolkowski/			Date (YYYY-MM-DD)	2015-10-28
First Name	Timothy J.	Last Name	Ziolkowski	Registration Number	38368

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

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

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

BATTERYLESS DUAL FUEL ENGINE WITH LIQUID FUEL CUT-OFF

CROSS-REFERENCE TO RELATED APPLICATION

[0001] The present application is a continuation-in-part of, and claims priority to, U.S. Patent Application Serial No. 14/738,060, filed June 12, 2015, the disclosure of which is incorporated herein by reference in its entirety.

BACKGROUND OF THE INVENTION

[0002] Embodiments of the invention relate generally to dual fuel generators, and more particularly, to an apparatus and method for delivering liquid fuel or gaseous fuel to a dual fuel generator.

[0003] Electric generators are frequently driven by internal combustion engines that use gasoline as a fuel source. Gasoline is a common fuel source for generators in a variety of applications. However, alternative fuel sources also provide a desirable fuel source. For instance, alternative fuels may provide a clean burning fuel that limits hazardous emissions. Alternative fuels may also be stored for long periods of time without degradation, whereas gasoline can degrade over a period of months leading to hard starting, rough running, and also lead to gum and varnish deposit left in the fuel system. In addition, generators that operate on alternative fuels may generate electricity when gasoline is not readily available. For instance, generators are frequently used when power outages in the utility grid result from severe weather. Unfortunately, gas stations may also be closed as a result of the power outage. Such a circumstance presents just one example where it would be advantageous to operate electrical generators on alternative fuels.

[0004] Certain generators are configured to operate as "dual fuel" generators, otherwise known as bi-fuel generators. These generators are driven by an internal combustion engine that is configured to operate on a liquid fuel for a period of operation and an alternative fuel for another period of operation. The alternative fuel source is generally a gaseous fuel that may exist in a gaseous state at normal temperature and pressure and can be any one of liquefied petroleum gas, compressed natural gas,

hydrogen, or the like. Liquefied petroleum gas (LPG), often referred to as propane, exists in a gaseous state at normal temperature and pressure but can be conveniently stored under pressure in a liquid state. LPG may be a desirable fuel source for internal combustion engines because it can be stored for longer periods of time and contains fewer impurities than gasoline, resulting in smoother and cleaner operation, and often resulting in a longer lasting engine.

[0005] In order to provide the liquid and gaseous fuel to the engine, the dual fuel engine may have a first fuel line for liquid fuel and a second fuel line for gaseous fuel. A liquid fuel source and a gaseous fuel source may be coupled to the respective lines to provide fuel to the engine. However, a common problem with such configurations that couple two fuel sources to a single engine is the engine can experience overly rich air-fuel ratio when both fuels are simultaneously engaged during cross-over switching between the fuel sources. Such simultaneous delivery of fuel from the first fuel line and the second fuel line may make the engine hard to start or lead to unstable operating conditions. Further, a float bowl in the carburetor that must first fill or empty prior to changeover causes delay in cross-over switching between the fuel sources.

[0006] Therefore, it would be desirable to design a dual fuel generator having a liquid fuel and gaseous fuel delivery system that overcomes the aforementioned detriments without substantially increasing the overall cost of the system.

Champion - EX2137, Page 523 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

BRIEF DESCRIPTION OF THE INVENTION

[0007] In accordance with one aspect of the invention, a dual fuel engine includes an engine operable on a gaseous fuel and a liquid fuel. A carburetor attaches to an intake of the engine to mix air and fuel and connect to a gaseous fuel source and a liquid fuel source. The dual fuel engine also includes a switch to change operation of the engine between gaseous fuel and liquid fuel, and a liquid fuel cut-off attaches to the carburetor to interrupt liquid fuel upon actuation of the switch from liquid fuel to gaseous fuel.

[0008] In accordance with another aspect of the invention, a batteryless dual fuel generator includes a housing containing a pull start engine coupled to drive an alternator. The engine is operable on a gaseous fuel and a liquid fuel and includes a carburetor attached to an intake of the engine. The carburetor has 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. The generator may also include a switch to select engine operation on either the liquid fuel or the gaseous fuel and a fuel shutoff attached to the carburetor to close the fuel passage upon selection of engine operation to gaseous fuel.

[0009] In accordance with yet another aspect of the invention, a carburetor having a fuel shutoff includes a carburetor with a float bowl, a throat, and a fuel passage to provide fuel from the float bowl to the throat. A fuel shutoff couples to the carburetor which may have 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. The fuel shutoff may operate within the carburetor such that the fuel shutoff actuates free from linear motion when opening and closing the fuel passage.

[0010] In accordance with yet another aspect of the invention, a method of assembling a dual fuel engine includes providing an engine operable on a gaseous fuel and a liquid fuel and attaching a carburetor to an intake of the engine to supply the fuels to the engine. The carburetor includes a throat to mix gaseous fuel with air and liquid fuel with air, a float bowl, and a fuel passage to provide liquid fuel from the float bowl to the throat. The fuels may be supplied to the carburetor by a gaseous fuel source coupled to the throat and a liquid fuel source coupled to the float bowl. The method

also includes 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.

[0011] Various other features and advantages will be made apparent from the following detailed description and the drawings.

Champion - EX2137, Page 525 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] The drawings illustrate preferred embodiments presently contemplated for carrying out the invention.

[0013] In the drawings:

[0014] FIG. 1 is a perspective view of a dual fuel generator coupled to a fuel delivery system, according to an embodiment of the invention.

[0015] FIG. 2 is a detail view of a portion of the generator of FIG. 1 about a mechanical fuel lockout switch with the switch in a first position, according to an embodiment of the invention.

[0016] FIG. 3 is a detail view similar to FIG. 2 and showing the mechanical fuel lockout switch in a second position, with an LPG supply line connected thereto, according to an embodiment of the invention.

[0017] FIG. 4A is a schematic diagram of a fuel system for the dual fuel generator of FIG. 1 showing a liquid fuel source in communication with a carburetor of the generator consistent with the first position of the switch as shown in FIG. 2, according to an electro-mechanical embodiment of the invention.

[0018] FIG. 4B is a schematic diagram of the fuel system of FIG. 4A showing a gaseous fuel source in communication with a carburetor of the generator of FIG. 1 consistent with the second position of the switch as shown in FIG. 3, according to an electro-mechanical embodiment of the invention.

[0019] FIG. 5 is a perspective view of a dual fuel carburetor having a manual fuel shutoff system and coupled to a first fuel line and a second fuel line, according to a mechanical embodiment of the invention.

[0020] FIG. 6 is cross-sectional view of the carburetor of FIG. 5 taken along line 6-6 of FIG. 5 through a fuel passage that provides fuel from a float bowl to a throat of the carburetor, according to an embodiment of the invention.

Champion - EX2137, Page 526 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

[0021] FIG. 7A is a partial sectional view of the float bowl of FIG. 6 with a manual fuel shutoff system in an open position, according to an embodiment of the invention.

[0022] FIG. 7B is a detailed partial sectional view of the float bowl with a manual fuel shutoff of FIG. 7A taken along line 7B-7B of FIG. 7A, according to an embodiment of the invention.

[0023] FIG. 8 is a partial sectional view similar to FIG. 7A and showing the manual fuel shutoff system in a closed position, according to an embodiment of the invention.

[0024] FIG. 9 is a perspective view of a shaft for the manual fuel shutoff system of FIG. 5, according to an embodiment of the invention.

[0025] FIG. 10 is a side view of a valve member for the manual fuel shutoff system of FIG. 5, according to an embodiment of the invention.

[0026] FIG. 11 is a perspective view of the carburetor of FIG. 5 with the manual fuel shutoff system exploded from a float bowl of the carburetor.

[0027] FIG. 12 is a flow chart showing steps in fabricating a manual fuel shutoff system for a carburetor, according to an embodiment of the invention.

[0028] FIG. 13 is a magnetic fuel shutoff system for a carburetor, according to a magnetic-mechanical embodiment of the invention.

[0029] FIG. 14 is a wiring diagram of a microcontroller receiving input signals and operating engine components, according to an embodiment of the invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0030] The operating environment of the invention is described with respect to a dual fuel generator. However, it will be appreciated by those skilled in the art that the invention is equally applicable for use with any dual fuel internal combustion engine. Moreover, the invention will be described with respect to a dual fuel generator configured to operate on a liquid fuel and a gaseous fuel. However, one skilled in the art will further appreciate that the invention is equally applicable for use with other fuel combinations for dual fuel generators and internal combustion engines.

[0031] Referring to FIG. 1, a dual fuel generator 20 is coupled to a fuel delivery system 22, in accordance with an embodiment of the invention. Dual fuel generator 20 includes an internal combustion engine (not shown) within housing 21 at one end 24, operatively connected to an alternator also enclosed in housing 21 at another end 26, by conventional means. Dual fuel generator 20 is configured to operate on different fuels via either a first fuel source 28 or a second fuel source 30. In an exemplary embodiment of the invention, first fuel source 28 is a liquid fuel and second fuel source 30 is a gaseous fuel. The liquid fuel may be gasoline and the gaseous fuel may be liquid petroleum gas (LPG). Each can selectively operate the generator as desired and controlled by an operator. For instance, generator 20 may operate on gasoline for a first period of operation and then switch to LPG for a second period of operation. However, it is contemplated that dual fuel generator 20 is configured to operate on fuels other than gasoline and LPG (e.g., natural gas, biodiesel, etc.), and thus the scope of the invention is not meant to be limited strictly to a dual fuel arrangement where first fuel source 28 provides gasoline and second fuel source 30 provides LPG.

[0032] In one embodiment of the invention, dual fuel generator 20 includes a gasoline tank 32 or, generally, a liquid fuel tank, located inside cover 21 onboard generator 20 to provide gasoline to the engine as first fuel source 28. Gasoline tank 32 connects to a first fuel line to provide gasoline to the carburetor to run the engine, as will later be described with reference to FIG. 4A and 4B. Generator 20 is also coupled to a pressurized fuel container 34, or a pressurized fuel source, located off board

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

[0033] Referring back to FIG. 1, in an exemplary embodiment, fuel 30 from pressurized fuel container 34 is regulated using a fuel regulator system 39 for delivery to the engine. Fuel regulator system 39 includes one or more pressure regulators that reduce and control the pressure of the fuel from pressurized fuel container 34 and delivers fuel at a desired pressure for operation of the engine. Fuel regulator system 39 has an inlet 41 operatively coupled to a service valve 40 of pressurized fuel container 34 and an outlet 43 coupled to LPG supply hose 36. Fuel regulator system 39 includes a primary pressure regulator 42 coupled to pressurized fuel container 34 and a secondary pressure regulator 44. Primary pressure regulator 42 protects downstream components from high pressure of pressurized fuel container 34. Primary pressure regulator 42 receives LPG through service valve 40 of pressurized fuel container 34 and reduces the pressure of the LPG to a first stage. In one embodiment of the invention, the first stage may be delivered directly to generator 20 at a pressure required for operation of the engine.

[0034] In an exemplary embodiment of the invention, fuel regulator system 39 includes secondary pressure regulator 44 coupled to the outlet of primary pressure regulator 42 in order to use standard "off-the-shelf" components. Typically, the primary pressure regulator is mounted on the LPG tank, while the secondary pressure regulator is mounted on the component using the fuel, such as an engine or grill. Here, since generator 20 can be used as a gasoline only generator, secondary pressure regulator 44 is mounted off-board the generator to reduce size and cost of the generator. Secondary pressure regulator 44 receives LPG from primary pressure regulator 42 and further

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

[0035] In accordance with an exemplary embodiment of the invention, fuel regulator system 39 includes both the primary and secondary regulators, or a custom single regulator, but in any case is located remotely, or off-board, from dual fuel generator 20. Fuel regulator system 39 may be directly mounted to pressurized fuel container 34 using a regulator mounting bracket 46. Regulator mounting bracket 46 has mounting locations for primary pressure regulator 42 and secondary pressure regulator 44. Regulator mounting bracket 46 also has a securing mechanism 48 to secure regulator mounting bracket 46 to pressurized fuel container 34.

[0036] In another embodiment of the invention, primary pressure regulator 42 is mounted on regulator mounting bracket 46 while secondary pressure regulator 44 could be mounted on or near generator 20. In yet another embodiment of the invention, a dual stage regulator may regulate the fuel received from pressurized fuel container 34 and deliver fuel at a pressure required for operation of generator 20. Such a dual stage regulator may regulate the fuel to the second stage within a single structure. The dual stage regulator may be mounted directly on fuel container 34.

[0037] Referring to FIG. 2, a detail view of a portion of generator 20 of FIG. 1 depicts mechanical fuel lockout switch 38 in a first position 38(a), in accordance with an embodiment of the invention. In this position, mechanical fuel lockout switch 38 provides gasoline flow from gasoline tank 32 to the engine while preventing connection of an LPG supply line to fuel inlet 59 of the second fuel line, as will later be discussed

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

[0038] Mechanical fuel lockout switch 38, FIG. 2, includes mechanical fuel valve 54 actuateable between first position 38(a) as shown in FIG. 2 and second position 38(b) as shown in FIG. 3 to selectively control fuel flow to the dual fuel engine from first fuel source 28 through a first fuel line and second fuel source 30 through a second fuel line 36. Mechanical fuel lockout switch 38 may also include fuel lockout apparatus 58 coupled to mechanical fuel valve 54 to communicate fuel sources individually to generator 20. In one embodiment of the invention, fuel lockout apparatus 58 communicates first fuel source 28 to the engine by actuating mechanical fuel valve 54 to first position 38(a) to open the first fuel line as shown in FIG. 2, and communicates second fuel source 30 to the engine by actuating mechanical fuel valve 54 to second position 38(b) to open communication of the second fuel source 30 to the engine as shown in FIG. 3. Referring back to FIG. 2, when mechanical fuel valve 54 is in first position 38(a), fuel lockout apparatus 58 communicates first fuel source 28 to the dual fuel engine and prevents communication between the second fuel source and the dual fuel engine.

[0039] In an exemplary embodiment of the invention, mechanical fuel valve 54 controls the flow of LPG to the engine by actuating fuel lockout apparatus 58 to block or unblock fuel inlet 59 for the second fuel source. Mechanical fuel valve 54 is coupled to the first fuel line as a liquid fuel valve, as shown in FIGS. 4A and 4B, and therefore can control the flow of gasoline to the engine by opening and closing the first fuel line. When the mechanical fuel valve 54, FIG. 2, is in the first position 38(a), gasoline flows from the gasoline tank to the engine and the fuel lockout apparatus 58 blocks the fuel inlet 59. Accordingly, fuel lockout apparatus 58 prevents LPG flow to generator 20

when the mechanical fuel valve 54 is in first position 38(a) wherein the engine is operated on gasoline.

[0040] Mechanical fuel valve 54 includes a fuel valve handle 56 to control the opening and closing of the valve. Fuel valve handle 56 is movable between first position 38(a) as shown in FIG. 2 and second position 38(b) as shown in FIG. 3. Mechanical fuel valve 54 opens the first fuel line (to enable liquid fuel flow to the engine) when fuel valve handle 56 is in the first position, and mechanical fuel valve 54 closes the first fuel line (to prevent liquid fuel flow to the engine) when fuel valve handle 56 is in the second position. Thus, when fuel valve handle 56 is in first position 38(a) as shown in FIG. 2, mechanical fuel valve 54 opens the first fuel line and allows gasoline from gasoline tank 32 to flow to the engine.

[0041] Fuel valve handle 56 is coupled to fuel lockout apparatus 58. Fuel valve handle 56 actuates with fuel lockout apparatus 58 to prevent LPG flow to generator 20 when gasoline flow to the generator is enabled. Fuel lockout apparatus 58 is controlled by fuel valve handle 56 so that moving fuel valve handle 56 to the first position causes fuel lockout apparatus 58 to block fuel inlet 59 for LPG, and moving fuel valve handle 56 to the second position causes fuel lockout apparatus 58 to unblock fuel inlet 59 for LPG.

[0042] In an exemplary embodiment of the invention, fuel valve handle 56 rotates between the first position and the second position and fuel lockout apparatus 58 is rigidly coupled to the rotating handle. Fuel lockout apparatus 58 may include a fuel inlet cover 61, which may be a flange, coupled to fuel valve handle 56 so that fuel inlet cover 61 rotates with the handle. Fuel inlet cover 61 extends radially outward from fuel valve handle 56 and sweeps over fuel inlet 59 for LPG as fuel valve handle 56 rotates. That is, fuel inlet cover 61 rotates transversely across fuel inlet 59 and blocks access thereto. Accordingly, fuel inlet cover 61 prevents LPG flow to generator 20 when fuel valve handle 56 is in first position 38(a) to allow gasoline to run the engine.

[0043] Referring to FIG. 3, a detail view of a portion of generator 20 of FIG. 1 depicts mechanical fuel lockout switch 38 in a second position 38(b), in accordance

with an embodiment of the invention. In this position, mechanical fuel lockout switch 38 provides a disconnect to stop gasoline flow from gasoline tank 32 to the engine while allowing connection of LPG supply hose 36 to fuel inlet 59 of the second fuel line. FIG. 3 further shows LPG supply hose 36 coupling second fuel source 30 to generator 20 to deliver LPG to run the generator.

[0044] Mechanical fuel lockout switch 38 includes mechanical fuel valve 54 coupled to fuel lockout apparatus 58 to prevent gasoline flow to generator 20 when LPG from the LPG supply hose 36 is supplied to the engine. In one embodiment of the invention, actuation of mechanical fuel valve 54 to second position 38(b) causes fuel lockout apparatus 58 to allow communication of second fuel source 30 to the dual fuel engine, and interrupts the first fuel source 28 communication with the dual fuel engine. The position of fuel lockout apparatus 58 prevents the fuel valve handle 56 from moving to first position 38(a) (FIG. 2) while LPG supply hose 36 is connected to generator 20.

[0045] A quick-disconnect hose coupling 50, also referred to as a quick-connect hose coupling, connects LPG supply hose 36 to generator 20 so that LPG supply hose 36 may be quickly attached and detached from generator 20. Hose coupling 50 has a first end 50a mounted on the external surface of generator 20 and coupled to supply the second fuel to the engine. Hose coupling 50 has a second end 50b coupled to the outlet of LPG supply hose 36. Each end 50a, 50b has a gaseous fuel valve that opens when the couplings are engaged and closes when the couplings are disengaged. As such, quick-disconnect hose coupling 50 automatically opens when connected to enable fuel flow from LPG supply hose 36 to the engine. Hose coupling 50 automatically disconnects fluid communication when disconnected. Accordingly, when the supply hose is detached from generator 20, the coupling 50 is automaticlaly closed so that fuel does not escape and unwanted air does not enter the fuel system.

[0046] In one embodiment, fuel inlet cover 61 is coupled to fuel valve handle 56 so that it is spaced apart from the surface of generator 20 to provide clearance for first end 50a of the quick-disconnect hose coupling 50 that protrudes from the surface of generator 20. As shown in FIG. 2, fuel inlet cover 61 blocks off first end 50a of the

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

[0047] To operate generator 20 on LPG, fuel valve handle 56 is turned to second position 38(b) to disable the flow of gasoline to the engine and to expose first end 50a of hose coupling 50 on generator 20. LPG supply hose 36 is then connected to generator 20 via hose coupling 50 to enable the flow of LPG to the engine. To operate generator 20 on gasoline, LPG supply hose 36 is disconnected from generator 20 via hose coupling 50 to disable the flow of LPG to the engine and to unblock fuel valve handle 56 from rotating to the first position. As shown in FIG. 2, fuel valve handle 56 is then turned to first position 38(a) to enable the flow of gasoline to generator 20.

[0048] Referring to FIG. 4A, a schematic diagram of a fuel system for a dual fuel engine 60 shows mechanical fuel lockout switch 38 in first position 38(a) to provide communication between the first fuel source 28 and dual fuel carburetor 62, according to an embodiment of the invention. Mechanical fuel lockout switch 38 prevents communication between second fuel source 30 and dual fuel carburetor 62 when the switch is in first position 38(a). In one embodiment of the invention, first fuel source 28 includes a gasoline tank 32 to provide gasoline to carburetor 62 through a first fuel line 66, and second fuel source 30 can include a propane or LPG tank 68 to provide propane or LPG to carburetor 62 through a second fuel line 70. Accordingly, first fuel line 66 may be a liquid fuel line and second fuel line 70 may be a gaseous fuel line.

[0049] Mechanical fuel lockout switch 38 changes the fuel source for engine 60 between liquid fuel and gaseous fuel. Mechanical fuel lockout switch 38 includes a mechanical fuel valve 54 actuateable between first position 38(a) as shown in FIG. 4A and second position 38(b) as shown in FIG. 4B to selectively control fuel flow to the dual fuel engine 60 from first fuel source 28 through first fuel line 66 and second fuel

source 30 through second fuel line 70. Referring back to FIG. 4A, mechanical fuel valve 54 selectively controls fuel flow through first fuel line 66 by opening the line when the mechanical fuel lockout switch 38 actuates to first position 38(a). Mechanical fuel valve 54 may be coupled to fuel lockout apparatus 58 that actuates with mechanical fuel valve 54 to block and unblock fuel inlet 59 of second fuel line 70. First end 50a of the quick-disconnect hose coupling is located at fuel inlet 59 and a mating end 50b of the quick-disconnect hose coupling is coupled to the propane or LPG tank 68. Actuation of mechanical fuel valve 54 to first position 38(a) causes fuel lockout apparatus 58 to block fuel inlet 59 to prevent coupling the first end 50a and second end 50b of the quick-disconnect hose coupling together, and actuation of mechanical fuel valve 54 to another position causes fuel lockout apparatus 58 to unblock fuel inlet 59 to permit attaching first end 50a and second end 50b together.

[0050] A liquid fuel cut-off 72 couples to carburetor 62 to regulate liquid fuel flow through the carburetor. Liquid fuel cut-off 72 can stop liquid fuel flow to engine 60 to prevent an overly rich air-fuel ratio when operating engine 60 on gaseous fuel. Liquid fuel cut-off 72 may attach to carburetor 62 to interrupt liquid fuel upon actuation of mechanical fuel lockout switch 38 from liquid fuel to gaseous fuel. As such, liquid fuel cut-off 72 can prevent engine flooding by stopping liquid fuel flow when starting on gaseous fuel. Liquid fuel cut-off 72 is manually operated in some embodiments of the invention and electrically operated in other embodiments of the invention.

[0051] In one embodiment of the invention, liquid fuel cut-off 72 comprises a fuel cut solenoid 74, also referred to as a carburetor cutoff solenoid, that operates within carburetor 62 as a solenoid valve to control liquid fuel flow to engine 60. Fuel cut solenoid 74 actuates between an open position to provide liquid fuel to engine 60 and a closed position to stop liquid fuel to the engine. Fuel cut solenoid 74 can operate as a normally open solenoid valve so that power is not required to open the solenoid during liquid fuel operation. As such, fuel cut solenoid 74 is powered and moved to a closed position to stop liquid fuel flow to engine 60 during gaseous fuel operation. Alternatively, fuel cut solenoid 74 may be operated as a normally closed valve that is powered to open for liquid fuel operation.

[0052] Fuel cut solenoid 74 is preferably powered by a magneto 76, alternator, engine flywheel with a charge winding, or other electrical power generator having a charge winding or coil 78. Charging coil 78 allows operation of fuel cut solenoid 74 in a batteryless engine. In a batteryless dual fuel generator, the charging coil 78 may be integral to an alternator driven by the batteryless engine. Engine 60 may be a pull-start engine having a recoil starter 80. During engine startup, recoil starter 80 cranks the engine with a manual pull by a user that causes magneto 76 to supply electrical power to fuel cut solenoid 74. While a fuel cut solenoid 74 in a normally open mode does not require any initial electrical power for starting engine 60 on liquid fuel, charging coil 78 powers the solenoid to stop liquid fuel flow during startup on gaseous fuel. Alternatively, charging coil 78 can power a fuel cut solenoid 74 operating in a normally closed mode to open and provide liquid fuel to engine 60 during startup on liquid fuel.

[0053] Charging coil 78 has an output voltage generally proportional to engine speed and therefore charge coil 78 will produce a range of voltages over the range of engine operating speeds. For example, if charging coil 78 produces 12 VAC at 3600 rpm, it may only produce 1 VAC at 300 rpm which would be insufficient voltage during startup to power a solenoid that requires 12 volts. An alternator typically used to power 12 volt accessories, such as a battery, at engine speeds will need increased output voltage to provide sufficient voltage for operation of fuel cut solenoid 74 at low recoil start speeds. In addition, the output voltage of a charging coil may vary if the alternator or magneto 76 also powers accessories. Accordingly, the output voltage of a charging coil should be verified by running engine 60 through the full range of operating speeds before increasing the output voltage.

[0054] Additional turns can be added to a charging coil in the alternator or magneto 76 to increase the output voltage and provide sufficient voltage to activate fuel cut solenoid 74 at manual start speeds. Typical alternators or magnetos may have limited room within stator laminations for additional turns, but low current requirements of fuel cut solenoid 74 allows substitution of smaller gage wire. Alternatively, solenoid windings on fuel cut solenoid 74 can be modified to operate at lower voltages for recoil

starting. However, adding coil turns to a charge winding provides an inexpensive modification and allows use of standard 12 volt solenoids.

[0055] To protect electrical systems, a voltage regulator 82 couples to charging coil 78 to provide a fixed output voltage for a varying input voltage. If charge winding 78 is wound to supply 12 VAC at 300 rpm, it could supply 144 VAC at 3600 rpm. Applying 144 volts could quickly destroy a solenoid designed to operate at 12 volts. Accordingly, voltage regulator 82 may comprise a switching power supply circuit 84 that regulates a rectified DC power output from magneto 76 and provides a fixed voltage to fuel cut solenoid 74. Switching circuits are very efficient, dissipate very little power, and can be made small and inexpensive. Switching power supply circuit 84 allows for low rpm, recoil starter electrical power generation with charge coil 78 voltage control over engine speed range.

[0056] In the embodiment shown in FIGS. 4A and 4B, fuel cut solenoid 74 is operated by an electro-mechanical switch 86. Electro-mechanical switch 86 connects one fuel source to carburetor 62 and is connected to magneto 76 for a power source. Electro-mechanical switch 86 may comprise an electrical switch 88 that provides electrical connection between fuel cut solenoid 74 and magneto 76. Electro-mechanical switch 86 may also comprise mechanical fuel lockout switch 38, and electrical switch 88 can be mechanically actuated and controlled by mechanical fuel lockout switch 38. Fuel cut solenoid 74 connects to open and close a fuel path to pull-start engine 60 in response to reception of electrical power from electro-mechanical switch 86.

[0057] Fuel cut solenoid 74 can operate as a normally open valve that closes when powered by alternator or magneto 76. The normally open valve is activated to close and prevent gasoline flow to engine 60 for LPG mode, and deactivated to open and allow gasoline flow to engine 60 for gasoline mode. As such, actuation of mechanical fuel lockout switch 38 to first position 38(a) opens electrical switch 88 to interrupt power and open fuel cut solenoid 74 as represented in FIG. 4A, and actuation of mechanical fuel lockout switch 38 to second position 38(b) closes electrical switch 88 to power and close fuel cut solenoid 74 as represented in FIG. 4B. Alternatively, fuel cut solenoid 74

can operate as a normally closed valve where actuation of mechanical fuel lockout switch 38 to first position 38(a) closes electrical switch 88 to power and open fuel cut solenoid 74, and actuation of mechanical fuel lockout switch 38 to second position 38(b) opens electrical switch 88 to interrupt power and close fuel cut solenoid 74.

[0058] In an alternative embodiment of the invention, a microcontroller 89 operates fuel cut solenoid 74 so that fuel cut solenoid 74 opens to operate engine 60 on gasoline and is closed when the engine operates on LPG. While engine 60 is running, charging coil 78 provides power available to microcontroller 89 for operation of fuel cut solenoid 74. Fuel cut solenoid 74 may operate in a normally open mode to allow gasoline flow to engine 60 without power from microcontroller 89, and microcontroller 89 may operate fuel cut solenoid 74 to operate as an after-fire solenoid when shutting down engine 60 from gasoline operation. That is, microcontroller 89 powers fuel cut solenoid 74 to a closed position preventing fuel being drawn into engine 60 and muffler during engine shutdown from operation on gasoline. When engine 60 runs on LPG, microcontroller 89 switches on power to close fuel cut solenoid 74 to prevent engine 60 from drawing in gasoline from the float bowl of carburetor 62 and first fuel line 66. Microcontroller 89 may also operate fuel cut solenoid 74 configured to be normally closed. Implementation of microcontroller 89 is further described with respect to FIG. 14.

[0059] Referring to FIG. 4B, a schematic diagram of a fuel system for a dual fuel engine shows mechanical fuel lockout switch 38 in second position 38(b) to provide communication between second fuel source 30 and dual fuel carburetor 62, according to an embodiment of the invention. Mechanical fuel lockout switch 38 prevents communication between first fuel source 28 and dual fuel carburetor 62 when the switch is in second position 38(b). The dual fuel engine has a first fuel line 66 to provide fuel from first fuel source 28 to carburetor 62 and a second fuel line 70 to provide fuel from second fuel source 30 to carburetor 62.

[0060] Mechanical fuel lockout switch 38 includes mechanical fuel valve 54 that selectively controls fuel flow through first fuel line 66 by closing the line when

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

[0061] Liquid fuel cut-off 72 couples to carburetor 62 to regulate liquid fuel flow through the carburetor as described with respect to FIG. 4A. Liquid fuel cut-off 72 may comprise a fuel cut solenoid 74 powered by magneto 76. Engine 60 has recoil starter 80 that cranks the engine and drives magneto 76 to power fuel cut solenoid 74 when starting the engine. Voltage regulator 82 reduces the voltage delivered to fuel cut solenoid 74 at higher engine operating speeds. Fuel cut solenoid 74 is activated by electro-mechanical switch 86 providing electrical connection to magneto 76 via electrical switch 88. Electrical switch 88 can be manually actuated and controlled by mechanical fuel lockout switch 38. FIG. 4B shows electrical switch 88 closed to power a normally open configured fuel cut solenoid 74 to a closed position for LPG mode when mechanical fuel lockout switch 38 is in second position 38(b).

[0062] FIG. 4A and FIG. 4B depict an embodiment where mechanical fuel valve 54 operates along first fuel line 66 to provide a flow path for first fuel source 28 to carburetor 62 when the valve is in first position 38(a). That is, mechanical fuel valve 54 may control a single fuel line that runs through the valve while operating fuel lockout apparatus 58 to control fuel flow through second fuel line 70. Embodiments of the invention also contemplate mechanical fuel valve 54 configured to operate along second fuel line 70 to provide a flow path for second fuel source 30 to carburetor 62 when the valve is in second position 38(b). Mechanical fuel valve 54 may be configured to control multiple fuel lines that run through the valve according to embodiments of the

invention. In another embodiment of the invention, a manual fuel petcock is coupled along second fuel line 70 to provide an independent shut-off from second fuel source 30 to the engine.

[0063] Referring to FIG. 5, a dual fuel carburetor having a manual fuel shutoff system is shown, in accordance with a mechanical embodiment of the invention. Carburetor 62 attaches to an intake 90 of the engine to mix air and fuel and connect to a liquid fuel source and a gaseous fuel source. Carburetor 62 has a mixing passage or throat 92 having an inlet 94 for air and an outlet 96 for an air-fuel mixture. A venturi 98 is located in throat 92 with a choke valve 100 located upstream from the venturi and a throttle valve 102 located downstream from the venturi. Carburetor 62 has a float bowl 104 that provides fuel through a fuel passage into a narrow portion of venturi 98. Float bowl 104 has a liquid fuel inlet 106 to receive liquid fuel from first fuel source 28. Throat 92 has a gaseous fuel inlet 108 to receive gaseous fuel from second fuel source 30. Dual fuel carburetor 62 mixes air with fuel from first fuel source 28 and second fuel source 30 and provides the respective air-fuel mixtures for operation of the dual fuel generator.

[0064] Liquid fuel cut-off 72 couples to carburetor 62 to control liquid fuel flow downstream of float bowl 104 in the carburetor. Liquid fuel cut-off 72 can close off float bowl 104 to stop liquid fuel flow to the engine and prevent an overly rich air-fuel ratio during gaseous fuel operation. As such, liquid fuel cut-off 72 prevents engine flooding when starting on gaseous fuel. Liquid fuel cut-off 72 also traps fuel in float bowl 104 to eliminate delay in filling the bowl when starting the engine on liquid fuel, and can stop liquid fuel flow to the engine immediately after ignition shutdown. As such, liquid fuel cut-off 72 reduces emissions and prevents afterfire by stopping the engine from continuing to draw in fuel from float bowl 104 during shutdown.

[0065] In the embodiment of FIG. 5, liquid fuel cut-off 72 comprises a manually operated fuel shutoff 110 coupled to carburetor 62 to control liquid fuel flow downstream of float bowl 104. Manual fuel shutoff 110 can be cable actuated for use on engines without battery power, for instance engines with recoil starters. Manual fuel

shutoff 110 actuates between a first position to allow gasoline flow to the engine, as shown in FIG. 7A, and a second position to prevent gasoline flow to the engine, as shown in FIG. 8. Referring back to FIG. 5, manual fuel shutoff 110 may comprise a shaft 112 extending into carburetor 62 that actuates between the first position and second position. A manually operated control system 114 couples to shaft 112 external to carburetor 62 to control manual fuel shutoff 110.

[0066] A bracket 116 couples to the outer surface of carburetor 62 to support manual control system 114. Bracket 116 mounts to a boss 118 extending outwards from float bowl 104. Boss 118 has a flat vertical surface with a pair of tapped holes for mounting bracket 116 to float bowl 104. Screws 120, 122 extend through respective holes in bracket 116 and into the tapped holes to mount the bracket to carburetor 62. Manual fuel shutoff 110 extends out of carburetor 62 and through an opening 124 in bracket 116. Bracket 116 has a first stopping tab 126 and a second stopping tab 128 extending away from float bowl 104 to hold manual fuel shutoff 110 in a respective open or closed position. A fuel drain screw 130 extends into an opening in carburetor 62 adjacent bracket 116.

[0067] Bracket 116 has a lower arm 132 extending downward and to the air inlet side of carburetor 62. Lower arm 132 has a bottom portion 134 bent outward from carburetor 62 to couple to a control system spring 136. Bottom portion 134 has a hole 138 for control system spring 136 adjacent a positioning groove 140 for the spring. Control system spring 136 is held in position by groove 140 as it hooks through hole 138. Bracket 116 also has an upper arm 142 extending first outward from carburetor 62 and then vertically and to the outlet side of the carburetor. Upper arm 142 has a cable clamp 144 for holding a Bowden cable 146. Cable clamp 144 has a flat midsection and two curved ends contacting bracket 116 to hold the midsection slightly apart from the bracket. Cable clamp 144 is coupled to bracket 116 by a bolt 148 extending through a hole in the midsection and through upper arm 142 of the bracket.

[0068] A lever 150 couples to shaft 112 to actuate manual fuel shutoff 110. A cap 152 holds lever 150 on shaft 112. Alternatively, lever 150 may be coupled to the shaft

112 by welding or staking. Lever 150 has a first lever arm 154 to contact and hold lever 150 against first and second stopping tabs 126, 128 of the bracket. Lever 150 has a second lever arm 156 to actuate shaft 112. First lever arm 154 is in plane with an opening in the lever for shaft 112 and second lever arm 156 extends first outward from carburetor 62 and then parallel to first lever arm 154. Second lever arm 156 extends outward from carburetor 62 to provide clearance between bracket 116 and the second lever arm for control system spring 136 and screw 122. Second lever arm 156 has two holes 158, 160 for coupling control system spring 136 and Bowden cable 146 to lever 150.

[0069] Manual fuel shutoff 110 operates as a valve within carburetor 62 to selectively interrupt liquid fuel flow to the engine. Control system spring 136 preferably pulls on lever 150 to hold manual fuel shutoff 110 in an open valve position, and Bowden cable 146 pulls lever 150 against control system spring 136 to rotate manual fuel shutoff 110 to a closed valve position. As such, control system spring 136 holds manual fuel shutoff 110 open for gasoline mode until Bowden cable 146 is pulled to close the valve for LPG mode. Alternatively, control system spring 136 can hold manual fuel shutoff 110 in a closed valve position until Bowden cable 146 is pulled to open the valve. Therefore, actuation of the Bowden cable 146 acts as a switch to assist in changeover between the dual fuels. Manual fuel shutoff 110 may rotate 90 degrees between the open and closed positions with stopping tabs 126, 128 positioned about bracket 116 accordingly. Lever 150 can be positioned on shaft 112 so that second lever arm 156 is pulled upward by a generally vertical Bowden cable 146. Second lever arm 156 may actuate between a position 45 degrees below horizontal for an open valve and a position 45 degrees above horizontal for a closed valve. When holding the valve open, control system spring 136 may be oriented at a right angle to second lever arm 156 for increased leverage.

[0070] Referring to FIG. 6, a cross-sectional view of the carburetor taken generally about line 6-6 of FIG. 5 is shown, in accordance with an embodiment of the invention. Carburetor 62 includes a throat 92 to mix gaseous fuel with air and liquid fuel with air. Throat 92 includes a gaseous fuel inlet port 162 in communication with gaseous fuel

inlet 108 coupled to a second fuel line 70. Carburetor 62 also includes float bowl 104 and a fuel passage 164 to provide a liquid fuel path from float bowl 104 through a main nozzle 166 into venturi 98. Float bowl 104 has a liquid fuel inlet port 168 and a float valve 170 to regulate liquid fuel flow through liquid fuel inlet port 168. Liquid fuel inlet port 168 is in communication with the liquid fuel inlet 106 coupled to first fuel line 66.

[0071] Manual fuel shutoff 110 couples to carburetor 62 to regulate liquid fuel flow downstream of float bowl 104. Manual fuel shutoff 110 attaches to carburetor 62 to close fuel passage 164 upon selection of engine operation to gaseous fuel. Manual fuel shutoff 110 may have a first end 172 positioned in carburetor 62 adjacent an inlet port 174 to fuel passage 164, and the first end 172 actuates to close fuel passage 164. That is, first end 172 actuates between a first position to permit fuel flow into fuel passage 164, as shown in FIG. 7A, and a second position to prevent fuel flow into fuel passage 164, as shown in FIG. 8.

[0072] Referring back to FIG. 6, manual fuel shutoff 110 has a second end 176 positioned external to carburetor 62 that is manually actuated to operate manual fuel shutoff 110. Manual fuel shutoff 110 may have a rotating shaft 112 that extends through an opening 178 in carburetor 62. A blocking member or valve tip 180 couples to shaft 112 in carburetor 62 to create a valve-shaft assembly 179. Valve tip 180 rotates parallel to inlet 174 of fuel passage 164 between a blocking position and non-blocking position to selectively block fuel flow into fuel passage 164. Lever 150 couples to shaft 112 external to carburetor 62 and actuates to rotate shaft 112 and valve tip 180.

[0073] Shaft 112 may be horizontal or substantially horizontal to allow valve tip 180 to be positioned directly in float bowl 104 adjacent inlet port 174 of fuel passage 164. That is, manual fuel shutoff 110 may be coupled to carburetor 62 such that second end 176 is horizontal from first end 172. Inlet 174 of fuel passage 164 can face horizontal or substantially horizontal to accommodate valve tip 180 in float bowl 104. As such, fuel passage 164 may have a horizontal component that receives fuel from float bowl 104 leading to a vertical component to provide fuel to venturi 98. The interior surface

of the float bowl 104 may also have a recess or cavity 182 to provide room for valve member 180 in the bowl.

[0074] Opening 178 in carburetor 62 has a plug 184 to hold shaft 112 and prevent fuel flow out of the carburetor. Shaft 112 extends through a hole 186 in plug 184 and hole 186 is positioned to align valve tip 180 with fuel passage 164. Plug 184 has a larger outer diameter 188 toward the external side of carburetor 62 and a smaller outer diameter 190 toward the internal side. Larger outer diameter 188 and smaller outer diameter 190 mate with corresponding diameters of opening 178. Plug 184 has a counterbore 192 to hole 186 on the external side of the plug. A compression spring 194 is positioned around shaft 112 in float bowl 104 to push valve tip 180 against plug 184. Compression spring 194 holds valve tip 180 against inlet 174 of fuel passage 164 in order to seal the fuel passage.

[0075] A primary o-ring 196 and a secondary o-ring 198 are positioned around shaft 112 to provide a respective first and second fuel seal between the shaft and plug 184 and to seal first end 172 of manual fuel shutoff 110 in carburetor 62. Primary o-ring 196 may be positioned in an o-ring groove 200 in shaft 112 and secondary o-ring 198 may be positioned in counterbore 192 of plug 184. A bracket 116 or other support member mounts over counterbore 192 and around shaft 112 to hold secondary o-ring 198 in counterbore 192. Bracket 116 has an opening 124 large enough for shaft 112 but small enough to hold secondary o-ring 198 in counterbore 192. Manual fuel shutoff 110 actuates in a rotative motion free from linear motion in part to ensure fuel will not leak through primary o-ring 196 or secondary o-ring 198. Compared to a sliding valve, a rotating valve, such as manual fuel shutoff 110, reduces the likelihood that fuel will leak from carburetor 62.

[0076] Liquid fuel cut-off 72 may regulate fuel flow through multiple fuel passages in carburetor 62 that provide fuel from float bowl 104 to the engine. For instance, carburetor 62 may have a main fuel circuit 202 and an idle fuel circuit 204. Main fuel circuit 202 provides fuel through main nozzle 166 into a narrow portion of venturi 98. Idle fuel circuit 204 provides fuel to throat 92 downstream from the throttle valve.

Liquid fuel cut-off 72 may regulate fuel flow through some or all of the fuel circuits that provide fuel from float bowl 104 to the engine. FIG. 6 shows an embodiment where idle fuel circuit 204 branches off from main fuel circuit 202 and liquid fuel cut-off 72 actuates to block fuel flow into both main fuel circuit 202 and idle fuel circuit 204. In other embodiments, liquid fuel cut-off 72 closes main fuel circuit 202 while small amounts of liquid fuel pass through idle fuel circuit 204. Fuel passing through idle fuel circuit 204 may not negatively affect engine performance during LPG operation but will eventually drain the gasoline tank.

[0077] Referring to FIG. 7A, a partial sectional view of a float bowl shows a manual fuel shutoff system in an open position for gasoline mode, in accordance with an embodiment of the invention. The partial sectional view is taken through a portion of float bowl 104 along fuel passage 164 while showing another portion of float bowl 104 in front of fuel passage 164 and coupled to manual fuel shutoff 110. Inlet 174 to fuel passage 164 is in a boss 206 extending outward from a central region of float bowl 104. Boss 206 has an oval top with sides that extend to the floor of float bowl 104. Inlet 174 to fuel passage 164 extends through boss 206 and has a substantially flat perimeter edge 208 around inlet port 174 on the surface of the boss. Manual fuel shutoff 110 presses against substantially flat perimeter edge 208 surrounding fuel passage 164 to block fuel flow into fuel passage 164.

[0078] Manual fuel shutoff 110 may have a rotating shaft 112 extending through an aperture 178 in float bowl 104. Shaft 112 has a first end 210 coupled to valve tip 180 and located in float bowl 104 that is held against inlet port 174 to fuel passage 164. Shaft 112 rotates valve tip 180 against inlet port 174 between a first position 180(a) allowing fuel flow through the inlet port 174, as shown in FIG. 7A, and a second position 180(b) blocking fuel flow through the inlet port 174, as shown in FIG. 8. That is, valve tip 180 uncovers the inlet 174 of fuel passage 164 to permit fuel flow into the inlet 174 when rotated to first position 180(a), FIG. 7A, and covers inlet 174 of fuel passage 164 to prevent fuel flow into inlet 174 when rotated to second position 180(b), FIG. 8.

[0079] Referring back to FIG. 7A, the manual fuel shutoff system further includes bracket 116 to support shaft 112 in float bowl 104 and provide mounting locations for manually operated control system 114. Bracket 116 also has a pair of stopping tabs 126, 128 to hold the manual fuel shutoff 110 in an open or closed position. Shaft 112 extends through bracket 116 and lever 150 couples to a second end 212 of shaft 112 located outside of float bowl 104. Control system spring 136 couples lever 150 to bracket 116 to hold lever 150 against stopping tab 126 and hold manual fuel shutoff 110 in the open position for gasoline mode. Bowden cable 146 couples to lever 150 to pull against control system spring 136 and rotate manual fuel shutoff 110 to the closed position for LPG mode. As such, second end 176 of manual fuel shutoff 110 is positioned external to float bowl 104 and coupled to manually operated control system 114 to operate manual fuel shutoff 110.

[0080] Referring to FIG. 7B, a detailed partial sectional view of the float bowl of FIG. 7A taken along line 7B-7B shows a manual fuel shutoff in an open position for gasoline mode, in accordance with an embodiment of the invention. Float bowl 104 includes boss 206 through which fuel passage 164 extends and having a substantially flat perimeter edge 208 surrounding inlet 174 to fuel passage 164. Substantially flat perimeter edge 208 preferably has a flat finished surface for improved sealing against valve tip 180. Valve tip 180 maintains planar contact with substantially flat perimeter edge 208 while rotating between an open position permitting fuel flow into inlet 174 and a closed position blocking fuel flow into inlet 174. As such, valve tip 180 rotates parallel to inlet 174 of fuel passage 164 between the open or first position 180(a) and closed or second position 180(b), FIG. 8.

[0081] Referring again to FIG. 7B, valve tip 180 may comprise an oval or stadium 214 having a flat surface 216 that contacts perimeter edge 208 around inlet 174 of fuel passage 164. Valve tip 180 may have a recessed portion or cutout 218 in the flat surface 216 to provide a flow passage through the valve tip. Fuel flows through the cutout 218 into the inlet 174 of fuel passage 164 when cutout 218 is aligned with inlet 174. That is, cutout 218 in valve tip 180 aligns with inlet port 174 when valve tip 180 is rotated to the open position such that fuel can pass from float bowl 104 through cutout 218 into fuel

passage 164. Cutout 218 in valve tip 180 is strategically positioned in a narrow portion of stadium 214 so a long portion of stadium 214 can be rotated to cover and block inlet 174. Valve tip 180 may comprise one of many shapes including a stadium, an oval, a disk, a rectangle, an irregular shape, among others.

[0082] Referring to FIG. 8, a partial sectional view of a float bowl shows a manual fuel shutoff system in a closed position for LPG mode, in accordance with an embodiment of the invention. Valve tip 180 pushes against inlet 174 to fuel passage 164 to seal the inlet when in second position 180(b). Valve tip 180 may have a stadium shape 214 with a cutout 218 in the narrow portion of the stadium to provide a flow passage. Valve tip 180 blocks fuel flow into fuel passage 164 when the cutout 218 in valve tip 180 is rotated away from inlet 174 of fuel passage 164. Cutout 218 may face downward when in the closed position and horizontal when in the open position. Lever 150 couples to shaft 112 outside of float bowl 104 and is actuated by Bowden cable 146 to operate manual fuel shutoff 110.

[0083] Bowden cable 146 may be coupled to mechanical fuel lockout switch 38, FIG. 1, to automatically open and close manual fuel shutoff 110 upon selection of a corresponding fuel source. Mechanical fuel lockout switch 38 may have a lever arm inside of the generator housing for actuating Bowden cable 146, FIG. 8. Alternatively, Bowden cable 146 may have a push-pull knob located on an external surface of the generator housing to independently actuate manual fuel shutoff 110. In either case, manual fuel shutoff 110 can attach to the carburetor to close fuel passage 164 downstream from float bowl 104 upon actuation of the mechanical fuel lockout switch 38, FIG. 1, from liquid fuel to gaseous fuel.

[0084] Referring to FIG. 9, a perspective view of a shaft for the manual fuel shutoff system of FIGS. 5-8 is shown, in accordance with an embodiment of the invention. Shaft 112 has two "D" shaped ends each located at a respective first end 210 and second end 212 of the shaft. Shaft 112 also has a first diameter 220 and a larger second diameter 222 each extending radially from shaft 112 outward beyond the two "D" shaped ends. First diameter 220 and second diameter 222 are separated by o-ring

groove 200 with first diameter 220 toward first end 210 of shaft 112 and second diameter 222 toward second end 212 of shaft 112. First diameter 220 also has a groove 224 for a retaining ring. Lever 150, FIG. 8, has a "D" shaped opening to fit on the second end 212 of shaft 112 and held against the second diameter 222.

[0085] Referring to FIG. 10, a side view of a valve member for the manual fuel shutoff system of FIG. 5-8 is shown, in accordance with an embodiment of the invention. Valve tip 180 has a flat surface 216 to seal and rotate against a mating surface in the carburetor. Valve tip 180 is preferably made from polyoxymethylene (POM) or other thermoplastic material to provide a surface suitable for sealing. Valve tip 180 may be shaped as a stadium 214 with a short direction 226 and a long direction 228 extending from a center of rotation 230. The long direction 228 rotates over inlet 174, FIG. 8, to selectively block fuel passage 164. As such, valve tip 180 may rotate less than 360 degrees between the open and closed positions, and valve tip 180 rotates substantially 90 degrees between the positions in an exemplary embodiment of the invention.

[0086] Referring back to FIG. 10, cutout 218 may be located along a straight side of stadium 214 to create a flow passage through valve tip 180. Cutout 218 may have a depth less than the thickness of stadium 214 or may extend through the thickness of the stadium. Cutout 218 may be a half circle with tangent side components extending perpendicular to a straight edge of stadium 214, through a side of valve tip 180. Cutout 218 may extend into valve tip 180 short of the center of stadium 214 and positioned slightly offset along the length of the stadium from the stadium center.

[0087] Valve tip 180 may have a "D" shaped opening 232 to press onto shaft 112 of FIG. 9, defining center of rotation 230, FIG. 10. Center of rotation 230 may be equal distance from straight edges of stadium 214 and positioned between cutout 218 and a rounded end of the stadium that is the closest rounded end to the cutout. Cutout 218 is askew from center of rotation 230 along the length of stadium 214 in part to cover more distance when rotated away from inlet port 174, FIG. 8. In addition, valve tip 180 is

Champion - EX2137, Page 548 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

positioned off center on shaft 112 to increase the length of long direction 228 from center of rotation 230 that is rotated to cover inlet port 174.

[0088] Referring to FIG. 11, a perspective view of the carburetor of FIG. 5 with the manual fuel shutoff system exploded from a float bowl of the carburetor is shown, in accordance with an embodiment of the invention. Carburetor 62 has a throat 92, a float bowl 104, and a fuel passage 164 from float bowl 104 to an outlet port 234 in throat 92. Manual fuel shutoff 110 includes shaft 112 having first end 210 to be positioned in float bowl 104 and a second end 212 to be positioned external to float bowl 104. A primary o-ring 196 installs on shaft 112 and positioned in an o-ring groove 200 in shaft 112. A retaining ring 236 installs on shaft 112 in a groove 224 toward first end 210 from o-ring groove 200. Compression spring 194 installs on shaft 112 followed by valve tip 180 pressed onto first end 210 of shaft 112 creating a valve-shaft assembly 179. Orientation of valve tip 180 is controlled by a "D" shaped hole 232 in valve tip 180 mating with a "D" shaped end of shaft 112.

[0089] Plug 184 installs on shaft 112 pushing compression spring 194 against valve tip 180. Primary o-ring 196 seals between shaft 112 and plug 184. Valve-shaft assembly 179 inserts through opening 178 in float bowl 104 and plug 184 presses into the opening. Plug 184 anchors in opening 178 so that compression spring 194 holds valve tip 180 against fuel passage 164. Secondary o-ring 198 installs around shaft 112 to seal between the shaft and plug 184. Secondary o-ring 198 may be positioned in a counterbore 192 in plug 184. Bracket 116 couples to float bowl 104 and holds secondary o-ring 198 positioned in counterbore 192. Bracket 116 may be 2.0 mm thick and stamped from Q235 grade steel. A pair of screws 120, 122 each having a spring lock washer 238, 240 extend through a respective hole 242, 244 in bracket 116 to mount bracket 116 to carburetor 62. Screws 120, 122 may be M5 screws. A spacer 246 installs on shaft 112 and against bracket 116.

[0090] Lever 150 couples to shaft 112 and held apart from bracket 116 by spacer 246. Shaft 112 has a "D" shape at second end 212 that is inserted into a corresponding "D" shaped opening 248 in lever 150. The orientation of lever 150 is controlled by "D"

shape hole 248 in lever 150 mating with a "D" shape end of shaft 112. Lever 150 may be 1.5 mm thick and stamped from Q235 grade steel. Cap 152 presses onto shaft 112 to hold lever 150 on shaft 112. Control system spring 136 attaches to lever 150 and bracket 116 to hold manual fuel shutoff 110 open. Cable clamp 144 couples to bracket 116 by bolt 148. Cable clamp 144 has a tab 250 at one or both ends that fits into a corresponding slot or recess 252 in bracket 116. Cable clamp 144 also has a midsection with a notch 254 to pinch and hold Bowden cable 146 to bracket 116. Bowden cable 146 is held by cable clamp 144 and attaches to lever 150 to actuate manual fuel shutoff 110 to the closed position. Fuel drain screw 130 and drain screw spring 256 insert into carburetor 62. In one embodiment, drain screw spring 256 is the same type of spring used for compression spring 194.

[0091] Referring to FIG. 12, and with continued reference back to FIG. 11, a method of fabricating a manual fuel shutoff system for a carburetor is shown, in accordance with an embodiment of the invention. Process 300 begins by providing carburetor 62 at STEP 302. Process 300 continues with making a valve-shaft assembly 179 at STEP 304, with valve tip 180 pressed onto shaft 112. Also in STEP 304, a compression spring 194 is stalled on shaft 112 and primary o-ring 196 is installed around shaft 112. Process 300 continues by installing plug 184 on valve-shaft assembly 179 at STEP 306. Next, valve-shaft assembly 179 is inserted through opening 178 in float bowl 104 and plug 184 is pressed into the opening at STEP 308. Process 300 continues at STEP 310 by installing secondary o-ring 198 in a groove on plug 184. Next, bracket 116 is coupled to float bowl 104 of carburetor 62 in STEP 312. Process 300 continues at STEP 314 by installing lever 150 on shaft 112. Next, cap 152 is pressed onto shaft 112 to hold lever 150 to shaft 112 in STEP 316. In STEP 318, control system spring 136 is installed on lever 150 and bracket 116. Also, in STEP 318, Bowden cable 146 is attached to lever 150 to actuate shaft 112.

[0092] Referring to FIG. 13, a magnetic fuel shutoff system for a carburetor is shown, in accordance with an embodiment of the invention. Magnetic fuel shutoff system 320 couples to the carburetor to provide a magnetically actuated liquid fuel cut-off for the internal combustion engine. Magnetic fuel shutoff system 320 controls liquid

fuel flow through a fuel passage leading from the float bowl to the throat in the carburetor. Magnetic fuel shutoff system 320 can be manually actuated between an open position to allow gasoline flow to the engine for gasoline operation and a closed position to prevent gasoline flow to the engine for LPG operation.

[0093] Magnetic fuel shutoff system 320 includes a housing at least partially enclosing the liquid fuel cut-off. That is, magnetic fuel shutoff system 320 has a first section 322 housing magnetic fuel shutoff 324 and a second section 326 housing a manually actuated magnet 328 to operate the magnetic fuel shutoff. First section 322 has a forward wall 330 and a back wall 332 with the forward wall facing internal to the carburetor. Forward wall 330 has a flange 334 around an outer perimeter for coupling to the carburetor. Forward wall 330 also has an opening 336 through which a plunger 342 of the magnetic fuel shutoff 324 extends into the carburetor. A lip 338 extends forward from forward wall 330 around opening 336 and an o-ring 340 is installed around lip 338. Flange 334 may be mounted to a plug in an opening of the carburetor with magnetic fuel shutoff 324 entering the carburetor through a hole in the plug.

[0094] First section 322 provides a sealing member enclosing plunger 342 of magnetic fuel shutoff 324 to the carburetor and holding fuel in the carburetor. The plunger 342 extends through opening 336 in forward wall 330 with a pointed end that is selectively inserted into a fuel supply path in the carburetor to block fuel flow downstream from the float bowl. Magnetic fuel shutoff 324 has a back plate 344 coupled to plunger 342 in first section 322. Plunger 342 extends perpendicular from a forward face of back plate 344. A spring 346 pushes a back face of back plate 344 against back wall 332 to push plunger 342 through opening 336 in forward wall 330 to block the fuel supply path in the carburetor. Accordingly, the first section 322 holds the spring 346 against the plunger 342. Magnetic fuel shutoff 324 is guided through its actuation by back plate 344 sliding through first section 322 and plunger 342 through opening 336 in forward wall 330.

[0095] Second section 326 couples to first section 322 and is located behind back wall 332. Second section 326 encloses an actuating magnet 328 to selectively pull

magnetic fuel shutoff 324 against spring 346. Second section 326 preferably guides actuating magnet 328 along a path perpendicular to that of magnetic fuel shutoff 324. As such, the magnetic force to pull magnetic fuel shutoff 324 to an open valve position is the strongest when actuating magnet 328 is aligned with the path of magnetic fuel shutoff 324. Actuating magnet 328 pulls magnetic fuel shutoff 324 against spring 346 when actuating magnet 328 approaches magnetic fuel shutoff 324 and releases magnetic fuel shutoff 324 while traveling away from magnetic fuel shutoff 324. Actuating magnet 328 may comprise a rare-earth or other permanent magnet.

[0096] In an exemplary embodiment of the invention, magnetic fuel shutoff 324 actuates horizontally between an open position to permit fuel flow into a fuel passage in the carburetor and a closed positioned to prevent fuel flow into the fuel passage. Actuating magnet 328 preferably follows a vertical path and a spring 348 couples to a top of second section 326 pushing downward on actuating magnet 328. Bowden cable 146 couples to the top of second section 326 and to actuating magnet 328 to pull the magnet vertically against spring 348 and operate magnetic fuel shutoff system 320.

[0097] Referring now to FIG. 14, a wiring diagram of a microcontroller 89 receiving input signals and operating engine components is shown, according to an embodiment of the invention. Microcontroller 89 closes fuel cut solenoid 74 when the engine operates on LPG and opens the fuel cut solenoid to operate the engine on gasoline. For LPG mode, microcontroller 89 switches on power to fuel cut solenoid 74 to close the solenoid preventing the engine from drawing in gasoline from the float bowl of the carburetor. During shutdown from gasoline operation, microcontroller 89 can also power fuel cut solenoid 74 to a closed position preventing additional gasoline being drawn into the engine. While microcontroller 89 can operate fuel cut solenoid 74 operating in a normally open configuration, microcontroller 89 can also operate a fuel cut solenoid operating in a normally closed configuration.

[0098] Microcontroller 89 may include a module 350 to connect fuel cut solenoid 74, charging coil 78, switches and a ground terminal. Module 350 has a first connection 352(a) to couple fuel cut solenoid 74 and a second connection 352(b) to couple charging

coil 78 to power the fuel cut solenoid. Fuel cut solenoid 74 may be coupled to a fuel switch 354 and a combination switch 356 that are also connected to module 350 via a third connection 352(c). Fuel switch 354 changes operation of the engine between LPG and gasoline, and combination switch 356 can operate to kill the engine. A ground terminal 358 connects to module 350 via a fourth connection 352(d) in order to ground fuel cut solenoid 74 via fuel switch 354 or combination switch 356.

[0099] In LPG mode, fuel switch 354 connects a first contact 360(a) to a second contact 360(b), instead of third contact 360(c), to complete an electrical circuit for fuel cut solenoid 74 by connecting the fuel cut solenoid to ground terminal 358. A fuel cut solenoid 74 operating in a normally open configuration is therefore powered and closed to prevent gasoline flow from the fuel bowl of the carburetor to the engine. Fuel switch 354 also connects a fourth contact 360(d) to a fifth contact 360(e), instead of sixth contact 360(f), to prevent combination switch 356 from grounding magneto 76 thereby maintaining power to spark plug 362.

[00100] In gasoline mode, fuel switch 354 connects first contact 360(a) to third contact 360(c) to interrupt an electrical circuit for fuel cut solenoid 74 by disconnecting the fuel cut solenoid from ground terminal 358. A fuel cut solenoid 74 operating in a normally open configuration is therefore unpowered and opened to allow gasoline flow from the fuel bowl of the carburetor to the engine. Fuel switch 354 also connects fourth contact 360(d) to sixth contact 360(f) to allow combination switch 356 to ground magneto 76 upon shutdown thereby interrupting power to spark plug 362.

[00101] Combination switch 356 can actuate fuel cut solenoid 74 upon engine shutdown from gasoline operation to prevent after-fire. That is, combination switch 356 connects a first point 364(a) to a second point 364(b) to kill the engine by connecting magneto 76 to ground terminal 358. At the same time, combination switch 356 connects a third point 364(c) to a fourth point 364(d) completing an electrical circuit for fuel cut solenoid 74 by connecting the solenoid to ground terminal 358. Fuel cut solenoid 74 is then powered and closed to prevent continued gasoline flow to the engine after combination switch 356 stops power supply to spark plug 362.

[00102] In one embodiment of the invention, combination switch 356 can operate as a kill switch only for gasoline operation. That is, combination switch 356 can be decoupled from magneto 76 by fuel switch 354 so that combination switch 356 cannot be actuated to shut down the engine during LPG operation. In another embodiment of the invention, combination switch 356 can operate as a kill switch for both gasoline operation and LPG operation. During LPG operation, combination switch 356 may actuate fuel switch 354 with actuation of combination switch 356 to ground magneto 76 and kill the engine. That is, combination switch 356 connects first point 364(a) to second point 364(b) and also actuates fuel switch 354 to connect fourth contact 360(d) to sixth contact 360(f) so that magneto 76 is coupled to ground terminal 358 killing the engine. At the same time, combination switch 356 connects third point 364(c) to fourth point 364(d) so that fuel cut solenoid 74 maintains connection to ground terminal 358 to remain closed even though fuel switch 354 interrupts connection between first contact 360(a) and second contact 360(b).

[00103] Microcontroller 89 may also include a Voltage Frequency and Low Oil Shutdown (VFO) module 366. VFO module 366 can measure parameters of an alternator driven by an engine in a generator. VFO module 366 monitors alternator voltage and frequency by receiving an input signal 368 from the alternator. Input signal 368 is 120 VAC and 60 Hz from the alternator as a monitoring point for VFO module 366. VFO module 366 allows the engine to run if alternator parameters are within preset limits and shuts down the engine if the parameters are outside the limits. VFO module 366 can also monitor oil volume within the engine by receiving an input signal from an oil level switch 370 shown in the wiring diagram engine block 372. VFO module 366 may allow the engine to operate only if the oil volume is greater than a preset lower limit and can shutdown the engine by initiating connection between the ignition coil or magneto 76 and ground terminal 358.

[00104] Beneficially, embodiments of the invention provide for a fuel lockout switch to ensure that two fuels are not simultaneously delivered to a dual fuel internal combustion engine and to efficiently convert operation of the engine between the fuel sources. Embodiments of the invention also provide for a dual fuel generator with a

remotely mounted gaseous fuel regulator system. Embodiments of the invention also provide for a batteryless dual fuel internal combustion engine having a liquid fuel cut-off coupled to a carburetor to selectively interrupt liquid fuel.

[00105] Therefore, according to one embodiment of the invention, a dual fuel engine includes an engine operable on a gaseous fuel and a liquid fuel and a switch to change operation of the engine between gaseous fuel and liquid fuel. The dual fuel engine also includes 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 cut-off attaches to the carburetor to interrupt liquid fuel upon actuation of the switch from liquid fuel to gaseous fuel.

[00106] According to another embodiment of the invention, a batteryless dual fuel generator includes 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 attaches to an intake of the engine and includes 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. The generator also includes a fuel shutoff attached to the carburetor to close the fuel passage upon selection of engine operation to gaseous fuel.

[00107] According to yet another embodiment of the invention, a carburetor having a fuel shutoff includes a carburetor with a float bowl, a throat, and a fuel passage to provide fuel from the float bowl to the throat. The carburetor further includes 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 the fuel shutoff can actuate free from linear motion.

[00108] According to yet another embodiment of the invention, a method of assembling a dual fuel engine includes providing an engine operable on a gaseous fuel and a liquid fuel. The method also includes attaching a carburetor to an intake of the engine, the carburetor includes a throat to mix gaseous fuel with air and liquid fuel with air, a float bowl, and a fuel passage to provide liquid fuel from the float bowl to the throat. The method also includes 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.

[00109] This written description uses examples to disclose the invention, including the best mode, and also to enable any person skilled in the art to practice the invention, including making and using any devices or systems and performing any incorporated methods. The patentable scope of the invention is defined by the claims, and may include other examples that occur to those skilled in the art. Such other examples are intended to be within the scope of the claims if they have structural elements that do not differ from the literal language of the claims, or if they include equivalent structural elements with insubstantial differences from the literal languages of the claims.

Champion - EX2137, Page 556 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

CLAIMS

What is claimed is:

1. 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 attached to the carburetor to interrupt liquid fuel upon actuation of the switch from liquid fuel to gaseous fuel.

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

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

4. 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. 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. 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. The dual fuel engine of claim 5, wherein the liquid fuel cut-off is a solenoid valve powered by the electrical power generator.

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

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

14. 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. 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

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

17. 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. 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. 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,

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.

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

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

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. 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. 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. 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. The batteryless dual fuel generator of claim 24 further comprising:

a lever coupled to the shaft outside the carburetor; and

Champion - EX2137, Page 560 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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

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

27. 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. The batteryless dual fuel generator of claim 19 further comprising:

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

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

29. 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. 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. 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. 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. 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. 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.

35. A carburetor having a fuel shutoff comprising:

a carburetor comprising:

a float bowl,

a throat,

a fuel passage to provide fuel 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. The carburetor having a fuel shutoff of claim 35, wherein the fuel shutoff is a manually actuated fuel shutoff.

37. 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. 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. 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. 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. 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.

42. 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. 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. 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. The carburetor having a fuel shutoff of claim 37, wherein the valve tip comprises thermoplastic.

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

47. 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. 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,

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

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

Champion - EX2137, Page 564 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

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

53. 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. 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.

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

62. 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.

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

Champion - EX2137, Page 566 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

ABSTRACT

A dual fuel engine includes an engine operable on a gaseous fuel and a liquid fuel and a switch to change operation of the engine between gaseous fuel and liquid fuel. The dual fuel engine also includes 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 cut-off attaches to the carburetor to interrupt liquid fuel upon actuation of the switch from liquid fuel to gaseous fuel.

Champion - EX2137, Page 567 of 585
Generac Power Systems, Inc. v. Champion Power Equip., Inc.
IPR2025-01457

DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

Title of Invention	BATTERYLESS DUAL FUEL ENGINE WITH LIQUID FUEL CUT-OFF

As the below named inventor, I hereby declare that

This declaration is directed to: ☑ The attached application, or

☐ United States application or PCT international application number _____

filed on _____

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

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Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

LEGAL NAME OF INVENTOR

Inventor: Kendall J. Collie Date (Optional): 10/27/15

Signature: Kendall J. Collie

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form. Use an additional PTO/AIA/01 form for each additional inventor.

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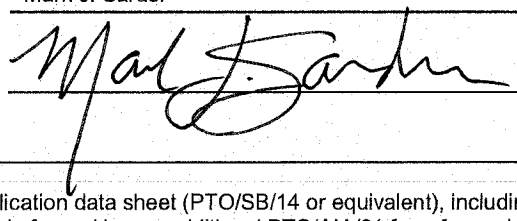
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LEGAL NAME OF INVENTOR

Inventor: Mark J. Sarder Date (Optional): _____

Signature: 

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LEGAL NAME OF INVENTOR

Inventor: Aleko D. Sotiriades Date (Optional): 10/23/2015

Signature: Aleko D. Sotiriades

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LEGAL NAME OF INVENTOR

Inventor: James J. Dehn Date (Optional): 10/23/2015

Signature: James J Dehn

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LEGAL NAME OF INVENTOR

Inventor: Leigh Jenison Date (Optional): 10·23·2015

Signature: Leigh Jenison

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form. Use an additional PTO/AIA/01 form for each additional inventor.

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LEGAL NAME OF INVENTOR

Inventor: Hiroaki Sato Date (Optional): 10/23/15

Signature: H. Sato

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form. Use an additional PTO/AIA/01 form for each additional inventor.

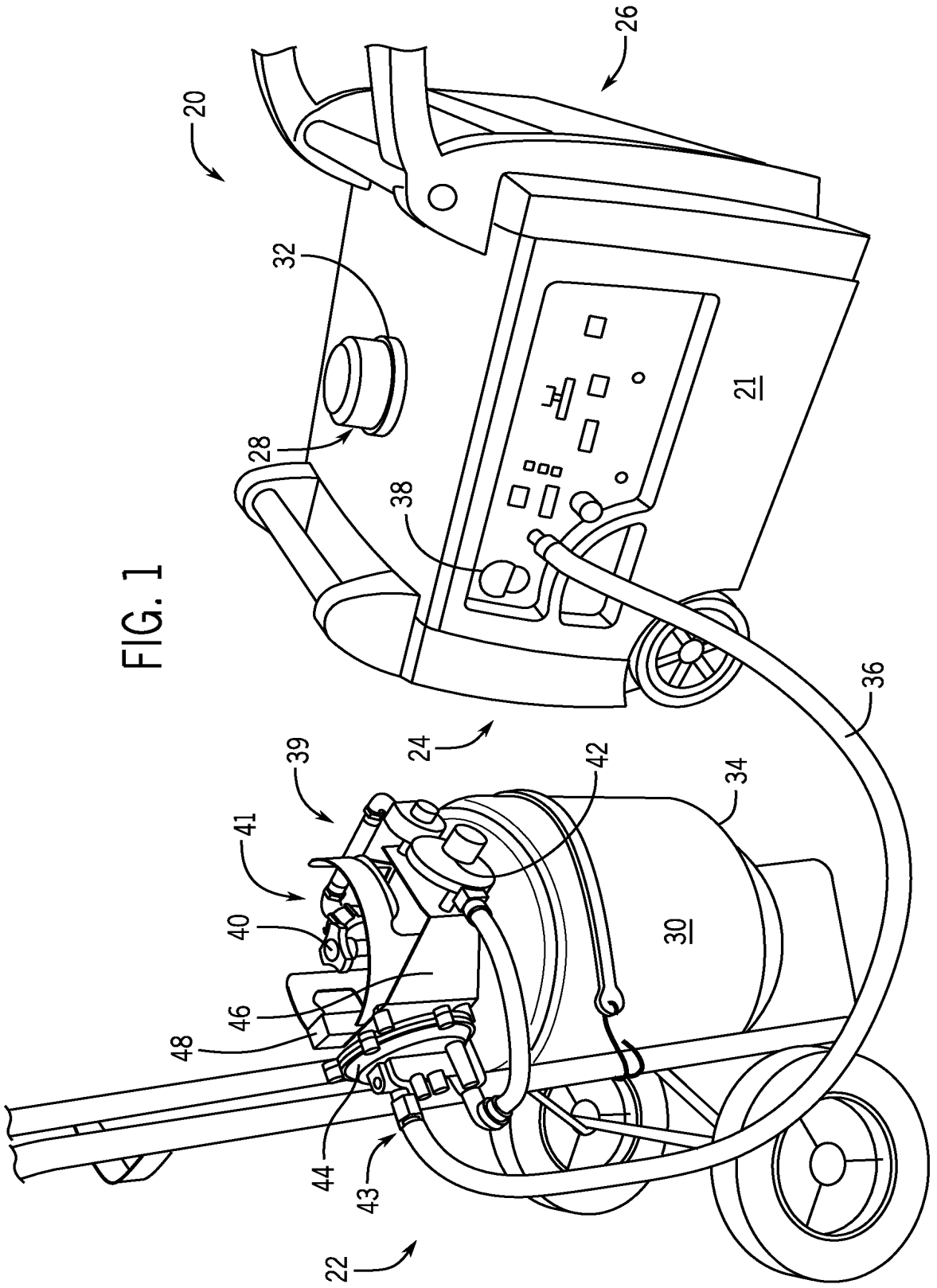


FIG. 1

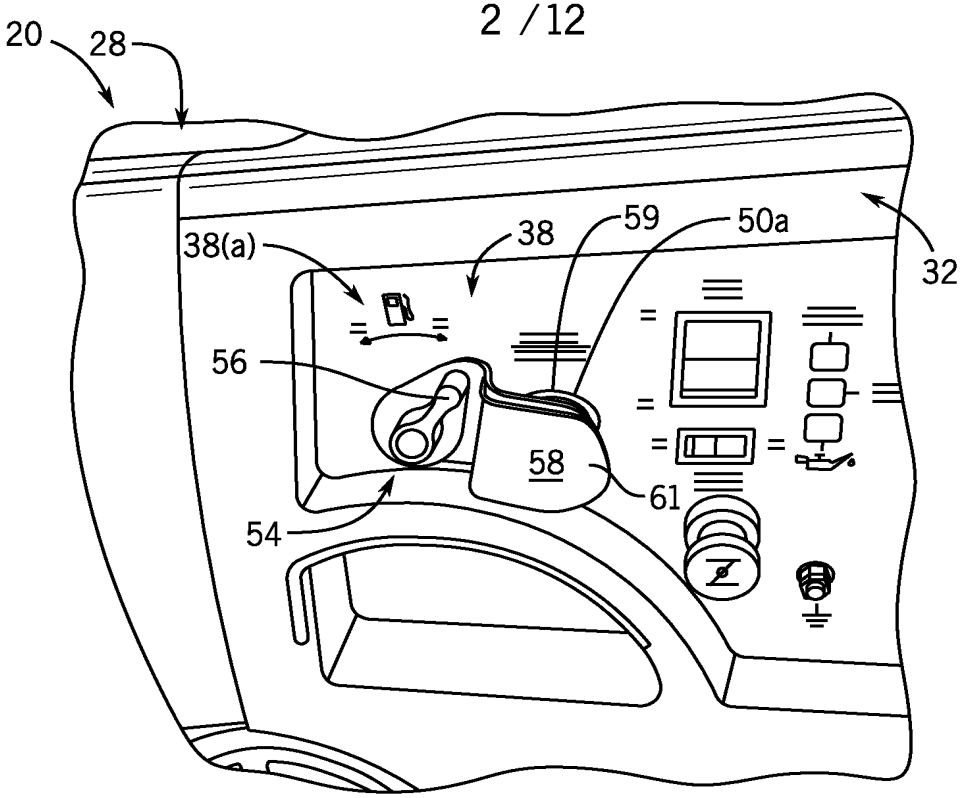

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FIG. 2

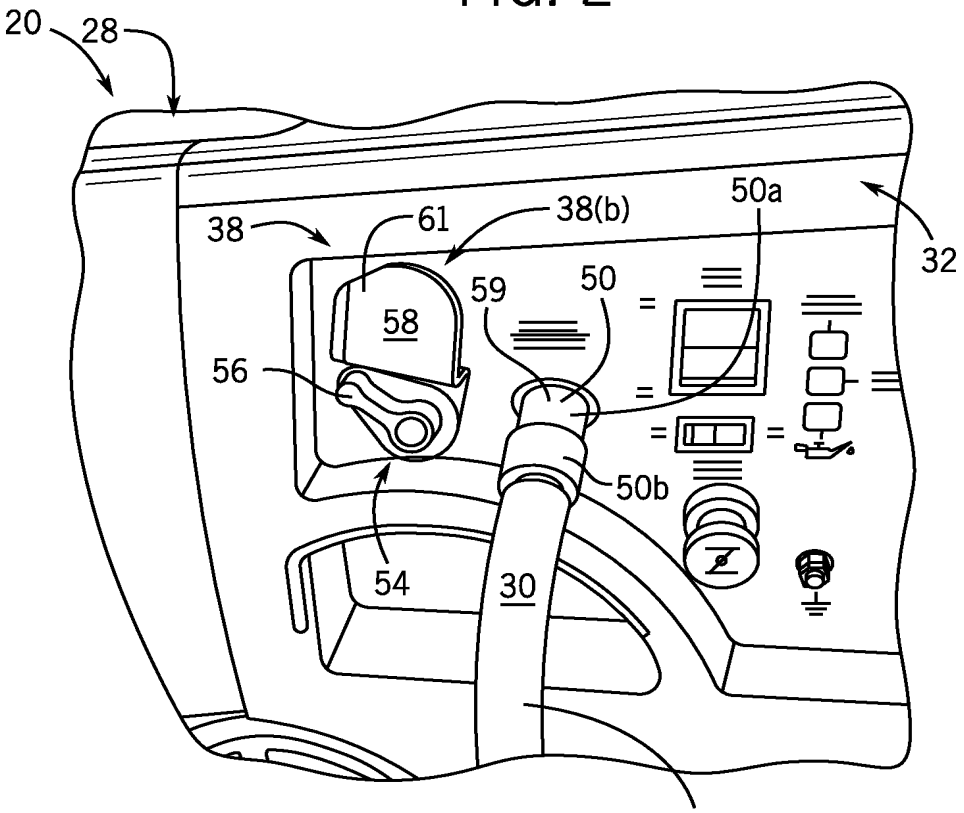

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FIG. 3

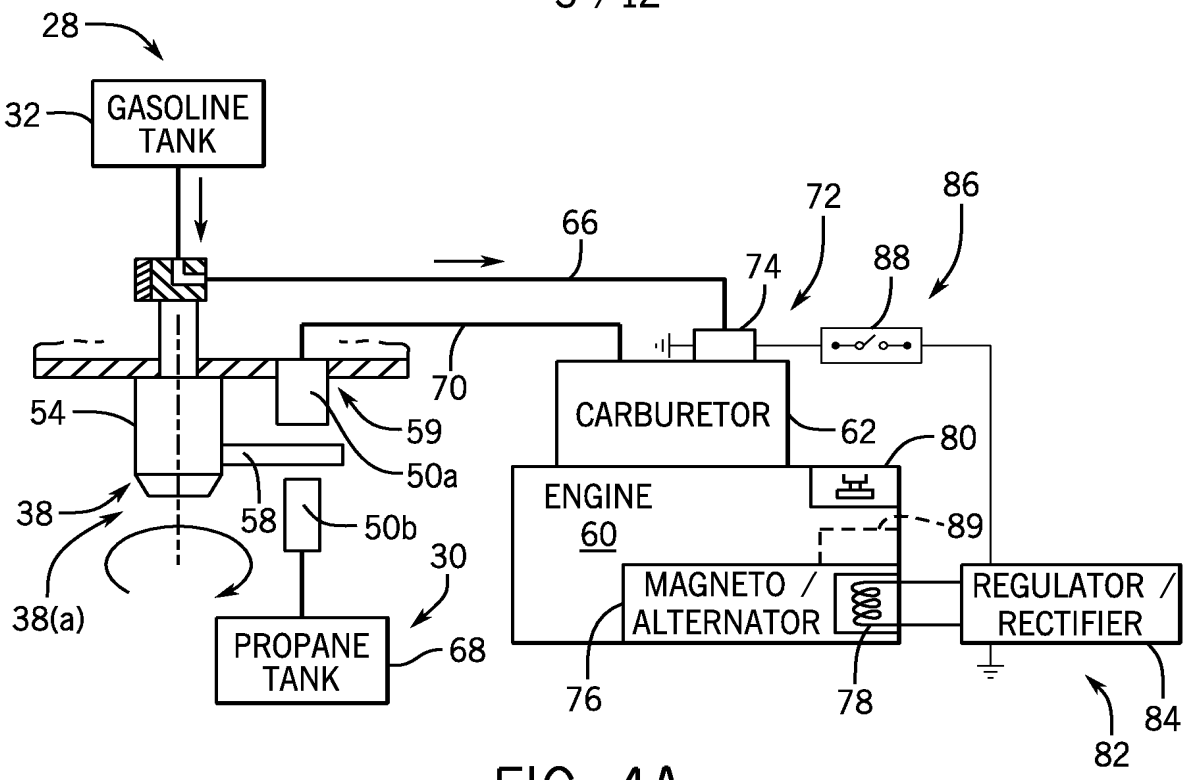

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ENGINE
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MAGNETO / ALTERNATOR
REGULATOR / RECTIFIER
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FIG. 4A

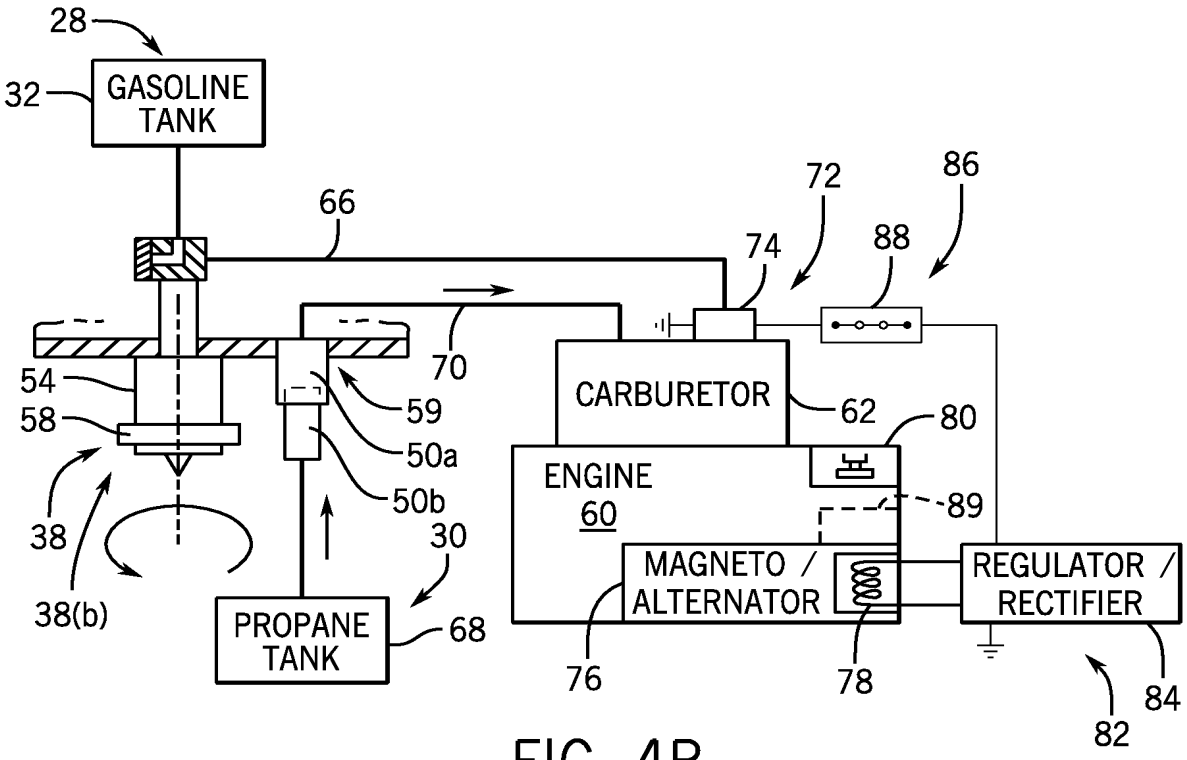

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REGULATOR / RECTIFIER
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FIG. 4B

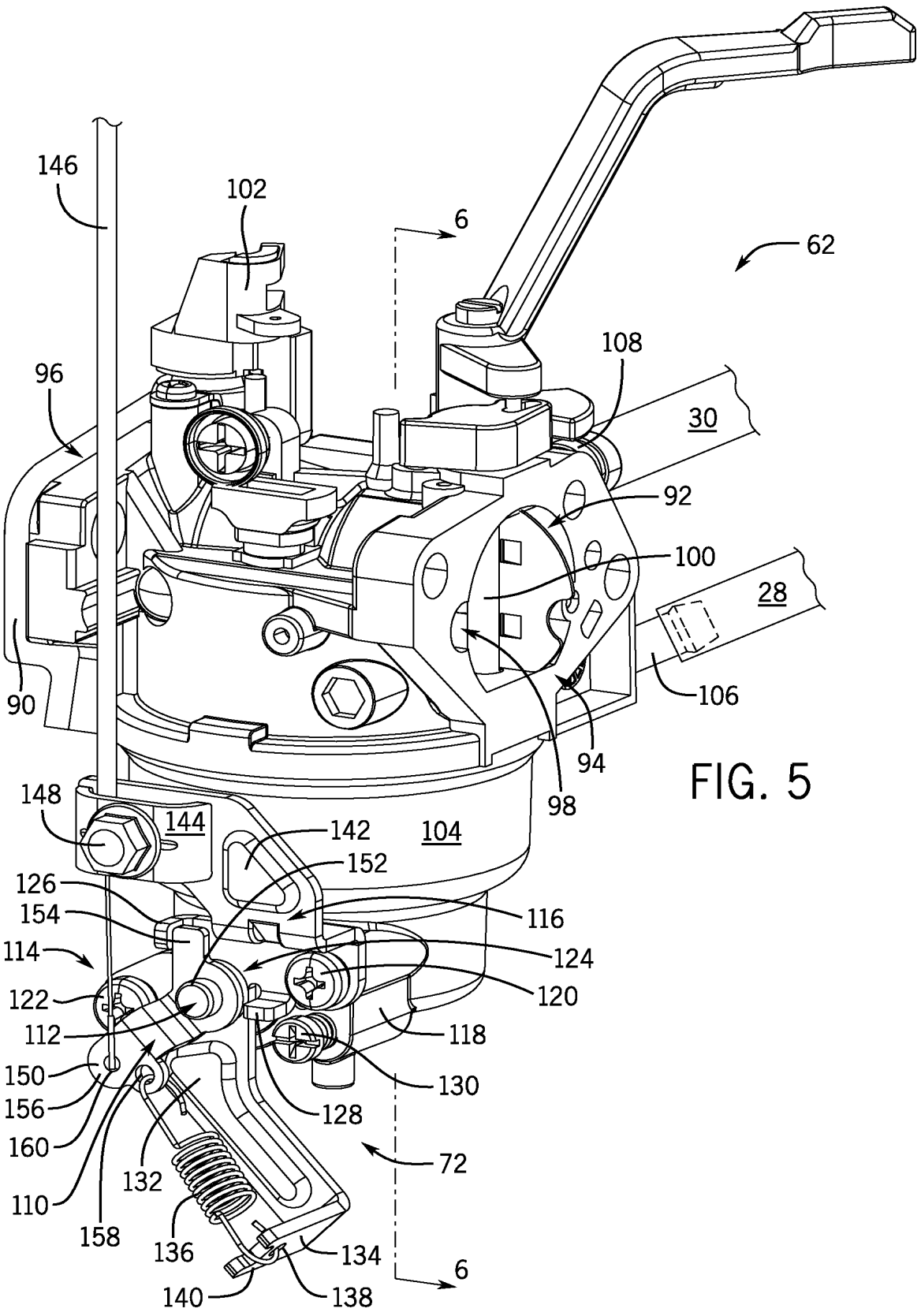

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FIG. 5

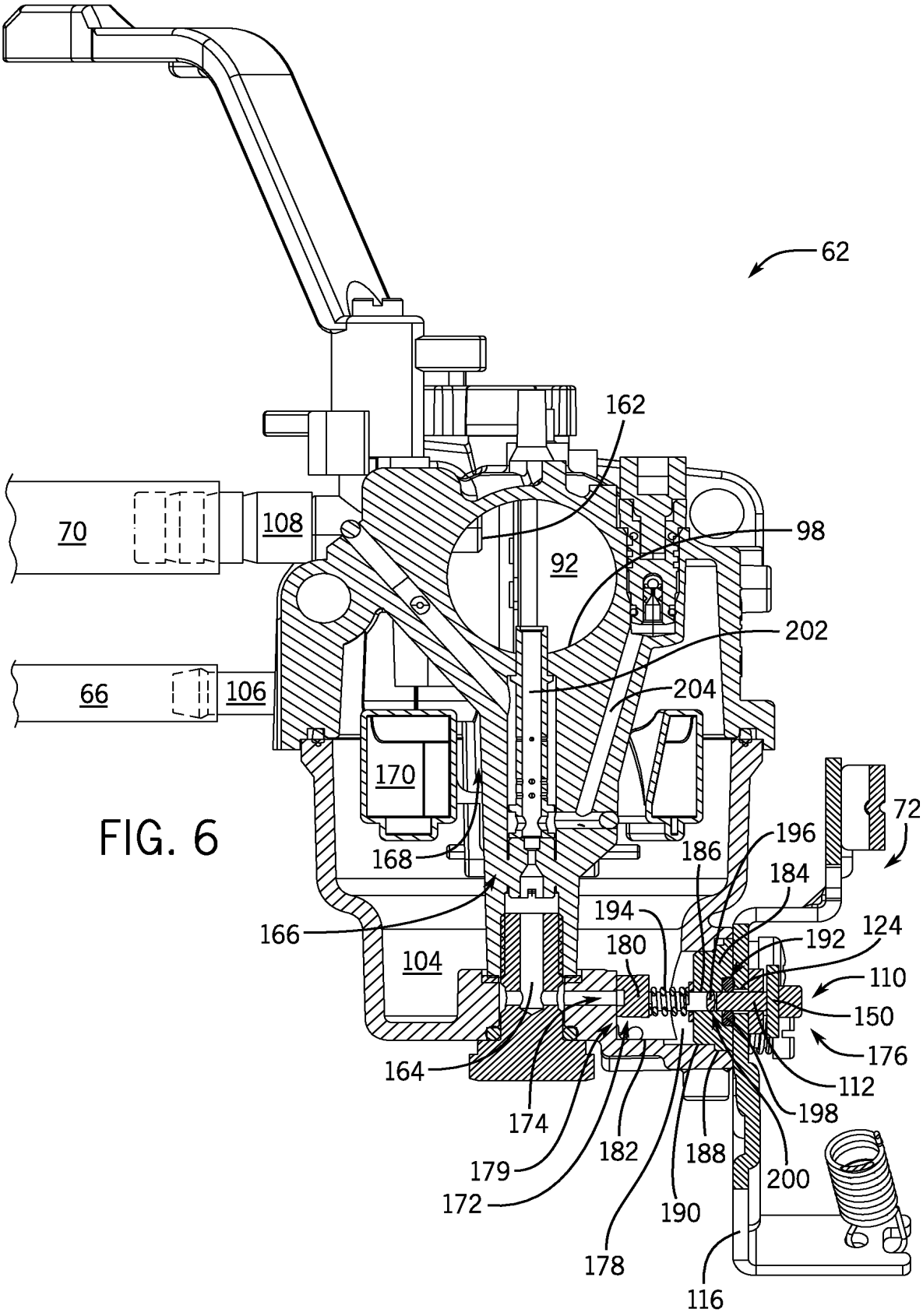

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196
186
184
168
194
166
180
192
124
104
110
150
176
164
112
198
174
182
188
200
179
172
190
178
116

FIG. 6

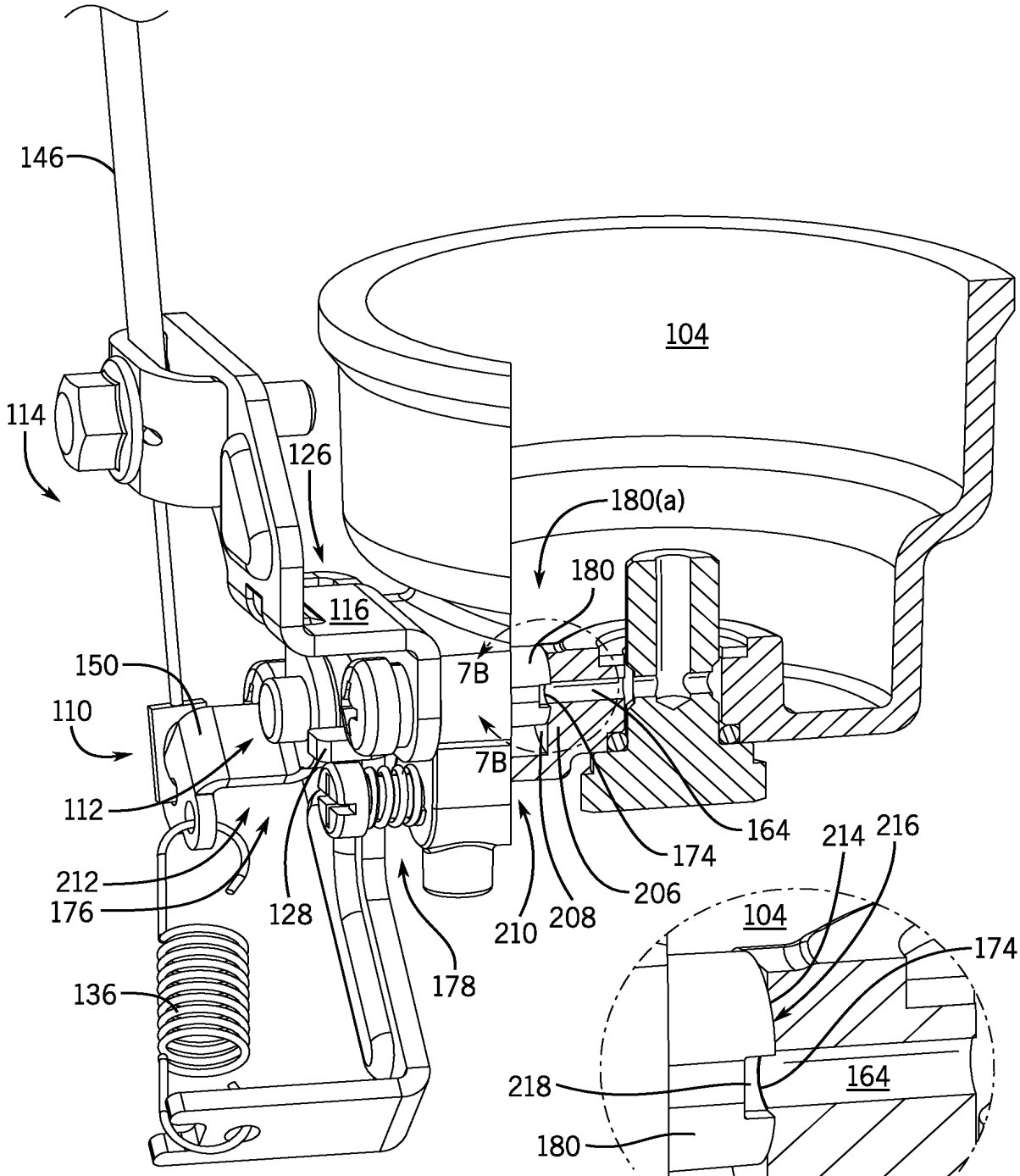

146
104
114
126
180(a)
180
116
150
7B
110
7B
112
164
214
216
174
212
206
176
128
210
208
104
174
178
136
164
218
180
208
206
180(a)

FIG. 7A

FIG. 7B

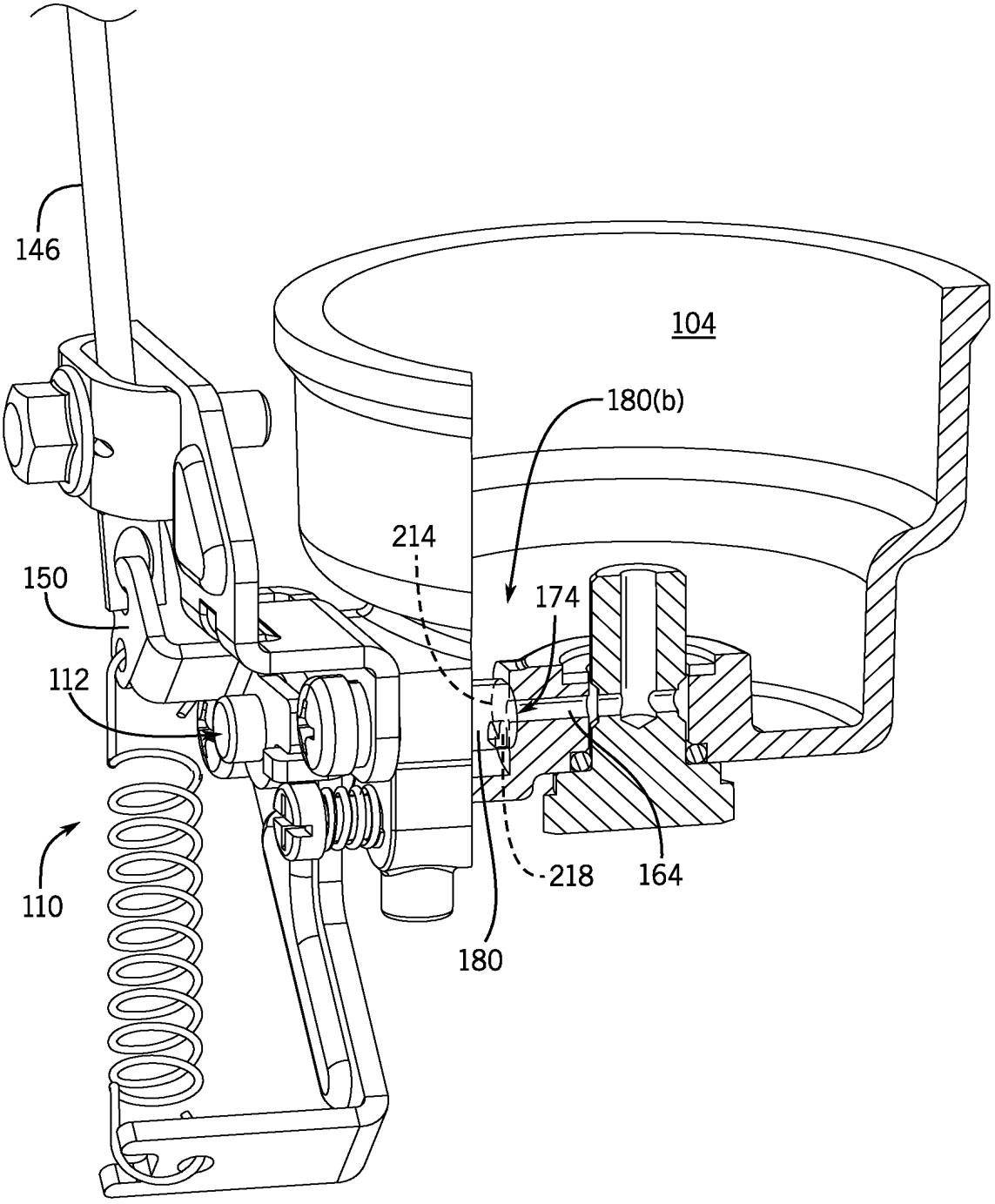


FIG. 8

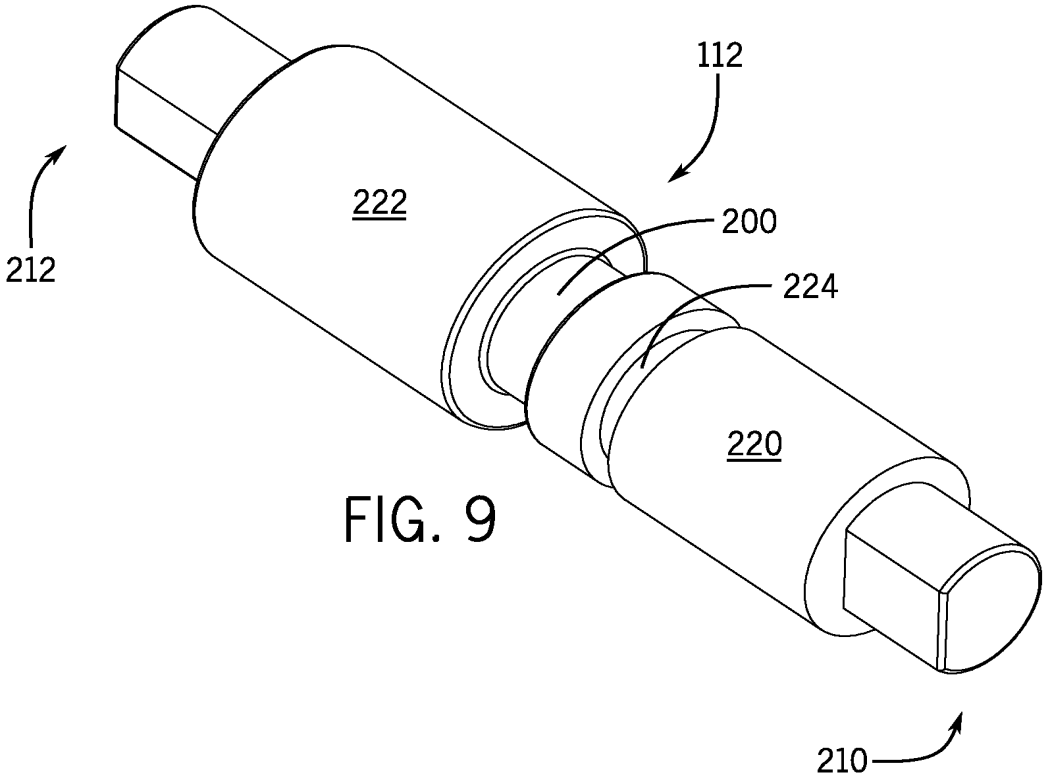


FIG. 9

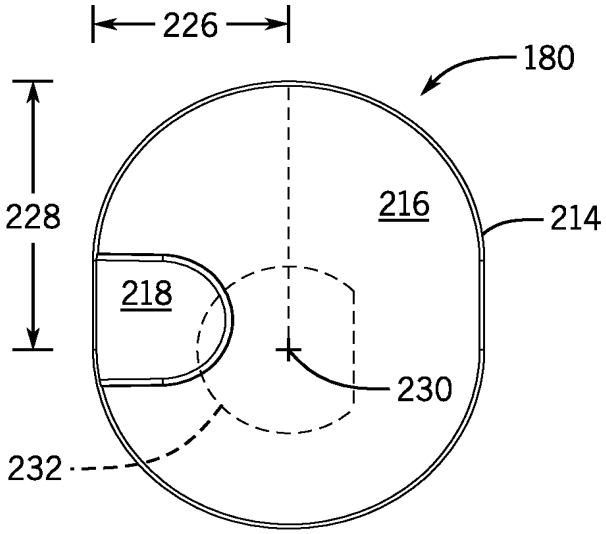


FIG. 10

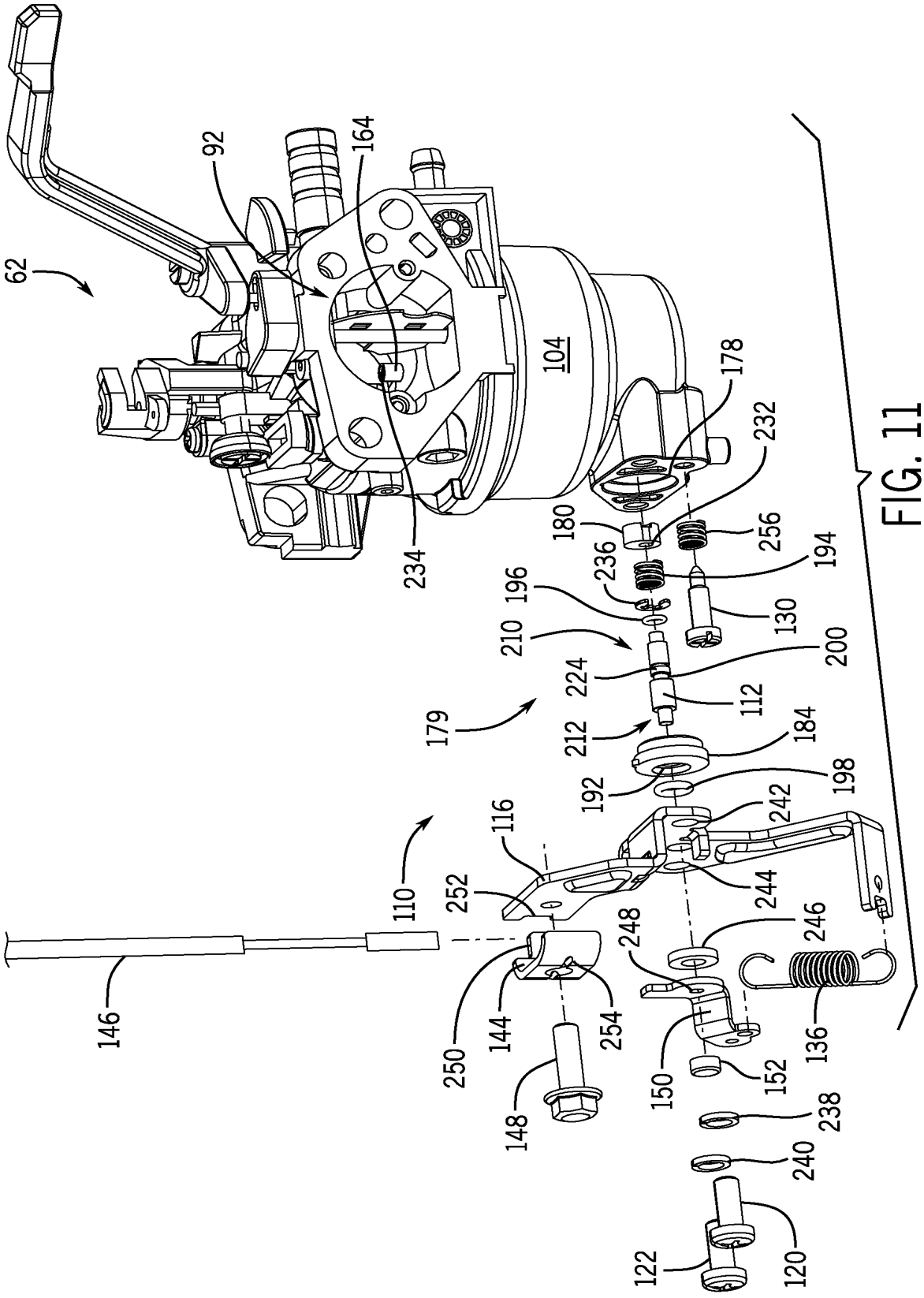

62
92
164
234
104
178
232
180
256
236
194
196
130
210
200
224
112
179
212
184
192
198
242
116
110
252
244
246
248
146
250
144
254
150
152
136
148
238
240
122
120

FIG. 11

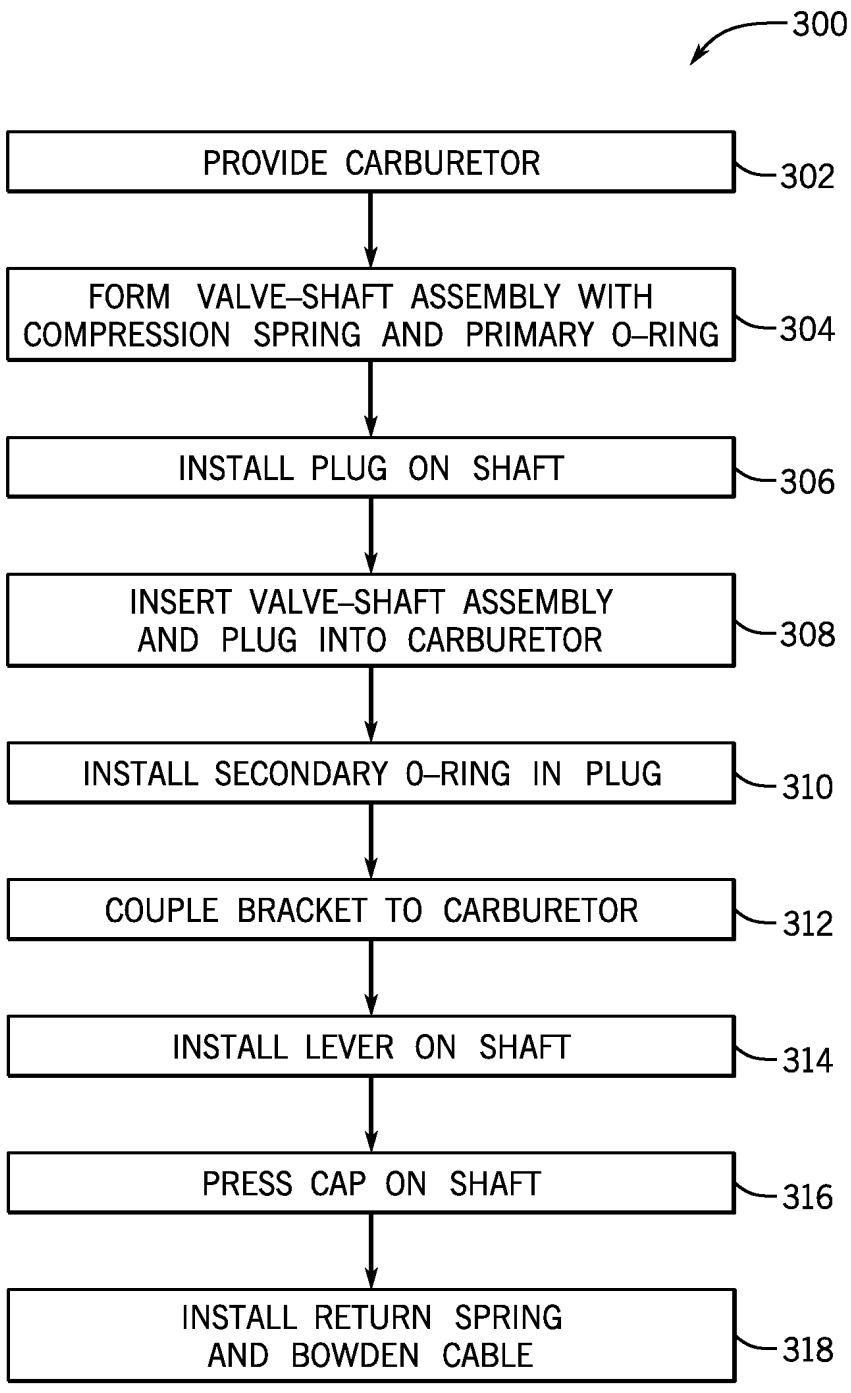

300
PROVIDE CARBURETOR
302
FORM VALVE–SHAFT ASSEMBLY WITH COMPRESSION SPRING AND PRIMARY O–RING
304
INSTALL PLUG ON SHAFT
306
INSERT VALVE–SHAFT ASSEMBLY AND PLUG INTO CARBURETOR
308
INSTALL SECONDARY O–RING IN PLUG
310
COUPLE BRACKET TO CARBURETOR
312
INSTALL LEVER ON SHAFT
314
PRESS CAP ON SHAFT
316
INSTALL RETURN SPRING AND BOWDEN CABLE
318

FIG. 12

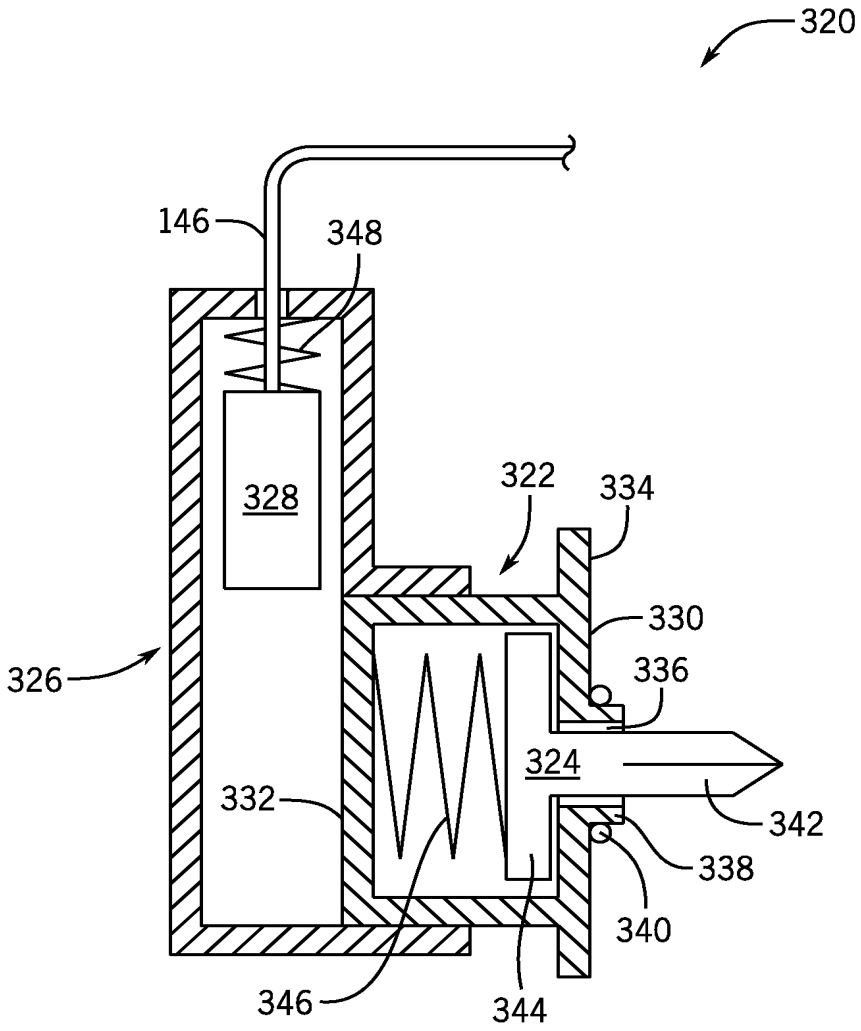


FIG. 13

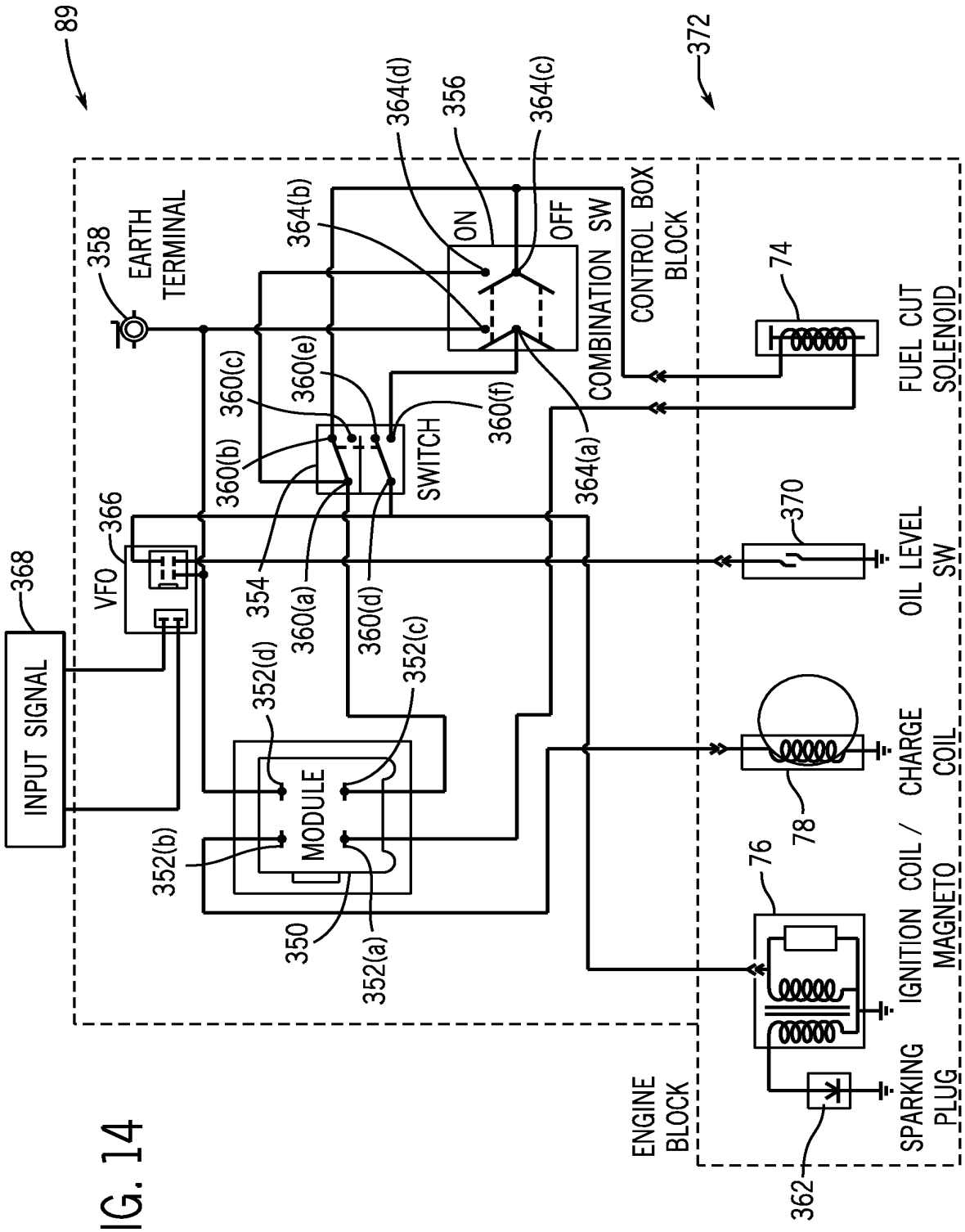

89
372
364(d)
356
364(c)
364(b)
ON
OFF
COMBINATION SW
CONTROL BOX
BLOCK
358
EARTH
TERMINAL
74
FUEL CUT
SOLENOID
360(c)
360(e)
360(f)
360(b)
SWITCH
364(a)
366
370
OIL LEVEL
SW
VFO
368
354
360(a)
360(d)
352(c)
352(d)
INPUT SIGNAL
MODULE
CHARGE
COIL
78
352(b)
76
IGNITION COIL /
MAGNETO
350
352(a)
SPARKING
PLUG
ENGINE
BLOCK
362

FIG. 14