UNITED STATES PATENT AND TRADEMARK OFFICE

# CERTIFICATE OF CORRECTION



| | |
|---|---|
| PATENT NO. | : 10,221,780 B2 |
| APPLICATION NO. | : 14/738060 |
| DATED | : March 5, 2019 |
| INVENTOR(S) | : Sarder et al. |

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

On the Title Page

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

Signed and Sealed this
Eleventh Day of June, 2024

Katherine Kelly Vidal

Katherine Kelly Vidal
*Director of the United States Patent and Trademark Office*

UNITED STATES PATENT AND TRADEMARK OFFICE

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

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

26629 7590 06/11/2024

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

| EXAMINER |
|---|
| LATHERS, KEVIN ANTHONY |

| ART UNIT | PAPER NUMBER |
|---|---|
| 3747 | |

| NOTIFICATION DATE | DELIVERY MODE |
|---|---|
| 06/11/2024 | 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@zpatents.com
jmf@zpatents.com
lje@zpatents.com

| APPLICATION NO. | ISSUE DATE | PATENT NO. |
|---|---|---|
| 14/738,060 | 11-Jun-2024 | 10221780 |

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

# ELECTRONIC CERTIFICATE OF CORRECTION NOTIFICATION

Your electronic certificate of correction is now available, and can be accessed via Patent Center at https://patentcenter.uspto.gov.

The electronic certificate of correction is the official certificate of correction under 35 U.S.C. 254 or 255. For more information, please visit https://www.uspto.gov/electronicgrants.



**Champion - EX2093, Page 3 of 297**
**MWE Investments, LLC et al v. Champion Power Equip., Inc.**
**IPR2025-01423**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

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

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

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

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

3. The errors to be corrected are as follows:

On the Title Page

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

4. Please send the Certificate to:

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

Date: May 15, 2024

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

# UNITED STATES PATENT AND TRADEMARK OFFICE
# CERTIFICATE OF CORRECTION



PATENT NO. : 10,221,780 B2

APPLICATION NO. : 14/738,060

ISSUE DATE : March 5, 2019

INVENTOR(S) : Sarder et al.

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(Also Form PTO-1050)

MAILING ADDRESS OF SENDER:

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

PATENT NO: 10,221,780 B2

Burden Hour Statement: This form is estimated to take 1.0 hour to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450

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 # |
|---|---|---|
| **14/738,060** | **05/15/2024 12:33:58 PM Z ET** | **CET1090.019** |

## Title of Invention

DUAL FUEL LOCKOUT SWITCH FOR GENERATOR ENGINE

## Application Information

| | | | |
|---|---|---|---|
| APPLICATION TYPE | Utility - Nonprovisional Application under 35 USC 111(a) | PATENT # | 10221780 |
| CONFIRMATION # | 9670 | FILED BY | Robyn Templin |
| PATENT CENTER # | 65535201 | FILING DATE | 06/12/2015 |
| CUSTOMER # | 26629 | FIRST NAMED INVENTOR | Mark J. Sarder |
| CORRESPONDENCE ADDRESS | - | AUTHORIZED BY | Timothy Ziolkowski |

## Documents

**TOTAL DOCUMENTS: 1**

| DOCUMENT | PAGES | DESCRIPTION | SIZE (KB) |
|---|---|---|---|
| 2024.05.15 Req for COC.pdf | 2 | Request for Certificate of Correction | 77 KB |

## Digest

| DOCUMENT | MESSAGE DIGEST(SHA-512) |
|---|---|
| 2024.05.15 Req for COC.pdf | 667FB47FFC7A84EB3C98230F1BD2E13D3E06458285DD4D582FDD7A62A96A6101DD6D9ABCA14376DDA21C7C4CEA789576AD9CAB71ED3B14092634646ACC386DC8 |

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents submitted.

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.

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UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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| APPLICATION NO. | ISSUE DATE | PATENT NO. | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 14/738,060 | 03/05/2019 | 10221780 | CET1090.019 | 9670 |

26629 7590 02/13/2019

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

# ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

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

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

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

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

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

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

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

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

1 of 2

# 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

OIPAP JAN 11 2019 PATENT & TRADEMARK OFFICE

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

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

**Certificate of Mailing or Transmission**

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

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

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

TITLE OF INVENTION: DUAL FUEL LOCKOUT SWITCH FOR GENERATOR ENGINE

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

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

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

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

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

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

1 Ziolkowski Patent Solutions Group, SC
2
3

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

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

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

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

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☒ Corporation or other private group entity ☐ 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 _____ Date 1/11/18

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



PTOL-85 Part B (08-18) Approved for use through 01/31/2020 OMB 0651-0033 U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

PAGE 1/2 * RCVD AT 1/11/2019 10:48:51 AM [Eastern Standard Time] * SVR:W-PTOFAX-002/2 * DNIS:2732885 * CSID:2622688185 * DURATION (mm-ss):01-03

Champion - EX2093, Page 9 of 297
MWE Investments, LLC et al v. Champion Power Equip., Inc.
IPR2025-01423

United States Patent and Trademark Office

- Sales Receipt -

01/15/2019 SSANDAR1 00000017 14738060

01 FC:2501 500.00 OP

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UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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Alexandria, Virginia 22313-1450
www.uspto.gov

# NOTICE OF ALLOWANCE AND FEE(S) DUE

26629 7590 12/11/2018

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

| EXAMINER |
|---|
| LATHERS, KEVIN ANTHONY |

| ART UNIT | PAPER NUMBER |
|---|---|
| 3747 | |

DATE MAILED: 12/11/2018

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

TITLE OF INVENTION: DUAL FUEL LOCKOUT SWITCH FOR GENERATOR ENGINE

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

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

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

**HOW TO REPLY TO THIS NOTICE:**

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

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

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

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

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

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

**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 - EX2093, Page 11 of 297
MWE Investments, LLC et al v. Champion Power Equip., Inc.
IPR2025-01423

## 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

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

26629 7590 12/11/2018

ZIOLKOWSKI PATENT SOLUTIONS GROUP, SC (ZPS)
136 S WISCONSIN ST
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| |
|---|
| (Typed or printed name) |
| (Signature) |
| (Date) |

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

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

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(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)*

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

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❑ Applicant certifying micro entity status. See 37 CFR 1.29

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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 - EX2093, Page 12 of 297
MWE Investments, LLC et al v. Champion Power Equip., Inc.
IPR2025-01423

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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26629 7590 12/11/2018

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136 S WISCONSIN ST
PORT WASHINGTON, WI 53074

| EXAMINER | |
|---|---|
| LATHERS, KEVIN ANTHONY | |
| **ART UNIT** | **PAPER NUMBER** |
| 3747 | |

DATE MAILED: 12/11/2018

## Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)

(Applications filed on or after May 29, 2000)

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

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

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

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

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

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

## Privacy Act Statement

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

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

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

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

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

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

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

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

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

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

   **Certified copies:**

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

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

   * Certified copies not received: _____ .

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

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

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

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

**Attachment(s)**

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

/KEVIN A LATHERS/
Primary Examiner, Art Unit 3747

## DETAILED ACTION

### *Notice of Pre-AIA or AIA Status*

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

### *Allowable Subject Matter*

2. Claims 1, 2, 4-8, 19, and 21-27 are allowed.

3. The following is an examiner's statement of reasons for allowance: The closest prior art fails to disclose or make obvious the use of a dual fuel lockout switch on a dual fuel internal combustion engine wherein when the lockout switch is in one position it prevents the fuel source from coupling to the fuel system lines of the engine.

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

### *Conclusion*

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

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

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

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

/KEVIN A LATHERS/
Primary Examiner, Art Unit 3747

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

| CPC - Searched* | | |
|---|---|---|
| Symbol | Date | Examiner |
| F02D19/0613, 16/0605, 19/0647 | 07/28/2017 | /K.L./ |
| Y02T10/36 | 07/28/2017 | /K.L./ |

| 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 |
| EAST including inventor and assignee search. | 07/28/2017 | /K.L./ |
| Google key word search (e.g. "dual fuel generator"). | 07/28/2017 | /K.L./ |
| EAST and google search. | 02/15/2018 | /K.L./ |
| Google Search performed | 08/29/2018 | /K.L./ |
| EAST and google, interference search. | 11/20/2018 | /K.L./ |

| Interference Search | | | |
|---|---|---|---|
| US Class/CPC Symbol | US Subclass/CPC Group | Date | Examiner |
| F02D19 | 19/0613, 19/0605, 19/0647 | 11/20/2018 | /K.L./ |
| Y02T | 10/36 | 11/20/2018 | /K.L./ |

| | |
|---|---|
| /KEVIN A LATHERS/<br>Primary Examiner, Art Unit 3747 | |


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MWE Investments, LLC et al v. Champion Power Equip., Inc.
IPR2025-01423

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

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

**CLAIMS**

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

| CLAIM | | DATE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Final | Original | 07/28/2017 | 02/15/2018 | 08/29/2018 | 11/20/2018 | | | | | |
| 1 | 1 | ✓ | ✓ | ✓ | = | | | | | |
| 2 | 2 | ✓ | O | O | = | | | | | |
| | 3 | ✓ | O | O | - | | | | | |
| 3 | 4 | O | O | O | = | | | | | |
| 4 | 5 | O | O | O | = | | | | | |
| 5 | 6 | O | O | O | = | | | | | |
| 6 | 7 | ✓ | ✓ | ✓ | = | | | | | |
| 7 | 8 | ✓ | ✓ | ✓ | = | | | | | |
| | 9 | ✓ | ✓ | ✓ | - | | | | | |
| | 10 | ✓ | O | O | - | | | | | |
| | 11 | O | O | O | - | | | | | |
| | 12 | O | O | O | - | | | | | |
| | 13 | O | O | O | - | | | | | |
| | 14 | ✓ | ✓ | ✓ | - | | | | | |
| | 15 | ✓ | ✓ | ✓ | - | | | | | |
| | 16 | ✓ | ✓ | ✓ | - | | | | | |
| | 17 | ✓ | ✓ | ✓ | - | | | | | |
| | 18 | ✓ | ✓ | ✓ | - | | | | | |
| 8 | 19 | ✓ | ✓ | ✓ | = | | | | | |
| | 20 | ✓ | O | O | - | | | | | |
| 9 | 21 | ✓ | O | O | = | | | | | |
| 10 | 22 | ✓ | ✓ | ✓ | = | | | | | |
| 11 | 23 | ✓ | ✓ | ✓ | = | | | | | |
| 12 | 24 | ✓ | ✓ | ✓ | = | | | | | |
| 13 | 25 | ✓ | ✓ | ✓ | = | | | | | |
| 14 | 26 | ✓ | ✓ | ✓ | = | | | | | |
| 15 | 27 | | | | = | | | | | |

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

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

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

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

U.S. Patent and Trademark Office — Part of Paper No.: 20181120



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MWE Investments, LLC et al v. Champion Power Equip., Inc.
IPR2025-01423

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

| INTERNATIONAL CLASSIFICATION | | | | |
|---|---|---|---|---|
| **CLAIMED** | | | | |
| F02D | / | 19 | / | 06 |

| NON-CLAIMED | | | | |
|---|---|---|---|---|
| | / | | / | |

| US ORIGINAL CLASSIFICATION | |
|---|---|
| **CLASS** | **SUBCLASS** |
| | |

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

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

U.S. Patent and Trademark Office — Part of Paper No.: 20181120



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MWE Investments, LLC et al v. Champion Power Equip., Inc.
IPR2025-01423

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

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

**CLAIMS**

| Final | Original | Final | Original | Final | Original | Final | Original | Final | Original | Final | Original | Final | Original | Final | Original |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | | 10 | 8 | 19 | | | | | | | | | | |
| 2 | 2 | | 11 | | 20 | | | | | | | | | | |
| | 3 | | 12 | 9 | 21 | | | | | | | | | | |
| 3 | 4 | | 13 | 10 | 22 | | | | | | | | | | |
| 4 | 5 | | 14 | 11 | 23 | | | | | | | | | | |
| 5 | 6 | | 15 | 12 | 24 | | | | | | | | | | |
| 6 | 7 | | 16 | 13 | 25 | | | | | | | | | | |
| 7 | 8 | | 17 | 14 | 26 | | | | | | | | | | |
| | 9 | | 18 | 15 | 27 | | | | | | | | | | |

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

U.S. Patent and Trademark Office

Part of Paper No.: 20181120



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MWE Investments, LLC et al v. Champion Power Equip., Inc.
IPR2025-01423

# Bibliographic Data

Application No: 14/738,060

Foreign Priority claimed: ○ Yes ◉ No

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

Verified and Acknowledged: /Kevin Lathers/ Examiner's Signature | Initials

Title: DUAL FUEL LOCKOUT SWITCH FOR GENERATOR ENGINE

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

**APPLICANTS**

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

**INVENTORS**

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Aleko D. Sotiriades Cedarburg, WI, UNITED STATES

James J. Dehn Brookfield, WI, UNITED STATES

Leigh Jenison Hartland, WI, UNITED STATES

**CONTINUING DATA**

**FOREIGN APPLICATIONS**

**IF REQUIRED, FOREIGN LICENSE GRANTED****

06/22/2015

** SMALL ENTITY **

**STATE OR COUNTRY**

UNITED STATES

**ADDRESS**

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

**FILING FEE RECEIVED**

$970

**EAST Search History**

**EAST Search History (Prior Art)**

| Ref # | Hits | Search Query | DBs | Default Operator | Plurals | Time Stamp |
|---|---|---|---|---|---|---|
| S1 | 445 | F02D19/0613.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/07/27 14:25 |
| S2 | 1204 | F02D19/0605.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/07/27 14:25 |
| S3 | 3408 | F02D19/0647.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/07/27 14:25 |
| S4 | 15258 | Y02T10/36.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/07/27 14:25 |
| S5 | 808 | (S1 S2 S3 S4) and (switch valve) near20 (propane natural adj gas gaseous lng cng) near20 (gasoline liquid diesel) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/07/27 14:28 |
| S6 | 79 | (S1 S2 S3 S4) and (switch valve) near20 (propane natural adj gas gaseous lng cng) near20 (gasoline liquid diesel) and (second secondary auxiliary) near5 (regulat$3) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/07/27 14:29 |
| S7 | 64 | (S1 S2 S3 S4) and (switch valve) near20 (propane natural adj gas gaseous lng cng) near20 (gasoline liquid diesel) and (second secondary auxiliary) adj (regulat$3 pressure) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/07/27 14:44 |
| S8 | 28 | ("5450832" \| "20130220274" \| "5325835" | USPAT | OR | OFF | 2017/07/27 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | \| "5320078" \| "4619240" \| "6082323" \| "6453877" \| "5171487" \| "6223730" \| "6213083" \| "4489699" \| "5287839" \| "8590510" \| "5673670" \| "4450821" \| "5816224" \| "6276345" \| "4502453" \| "20130047964" \| "4372276" \| "6401685" \| "7905469" \| "2722208" \| "4895124" \| "5161496" \| "5379740" \| "5438968" \| "5419291" \| "6914342" \| "8342158").PN. | | | | 14:45 |
| S9 | 124 | ("5450832" \| "20130220274" \| "5325835" \| "5320078" \| "4619240" \| "6082323" \| "6453877" \| "5171487" \| "6223730" \| "6213083" \| "4489699" \| "5287839" \| "8590510" \| "5673670" \| "4450821" \| "5816224" \| "6276345" \| "4502453" \| "20130047964" \| "4372276" \| "6401685" \| "7905469" \| "2722208" \| "4895124" \| "5161496" \| "5379740" \| "5438968" \| "5419291" \| "6914342" \| "8342158").PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/07/27 14:45 |
| S10 | 421 | (duel dual) near5 fuel near20 (engine generator) same (switch valve) near20 between | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/07/27 14:46 |
| S11 | 0 | dual adj fuel near20 engine same "switchover valve" | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/07/27 15:17 |
| S12 | 44 | dual adj fuel near20 engine same (switch switchover) near5 valve | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/07/27 15:19 |
| S13 | 49 | "6591817" | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/07/27 15:19 |
| S14 | 63 | ("3799125" \| "4150645" \| "4265208" \| "4303049" \| "4305350" \| "4323046" \| "4353345" \| "4391251" \| "4398517" \| "4524033" \| "4671243" \| "5450832" \| "5524582" \| "5623907" \| "5720266" \| "5816224" \| "6035837").PN. OR ("6591817").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2017/07/27 15:20 |
| S15 | 80 | dual adj fuel near20 engine same (switch switchover select$3) near5 valve | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/07/27 15:21 |

| | | | | | | |
|---|---|---|---|---|---|---|
| S16 | 30 | (("SARDER") near3 ("Mark")).INV. | US-PGPUB; USPAT; USOCR | OR | OFF | 2017/07/27 15:25 |
| S17 | 28 | (("SOTIRIADES") near3 ("Aleko")).INV. | US-PGPUB; USPAT; USOCR | OR | OFF | 2017/07/27 15:25 |
| S18 | 41 | (("DEHN") near3 ("James")).INV. | US-PGPUB; USPAT; USOCR | OR | OFF | 2017/07/27 15:25 |
| S19 | 15 | (("JENISON") near3 ("Leigh")).INV. | US-PGPUB; USPAT; USOCR | OR | OFF | 2017/07/27 15:25 |
| S20 | 16 | (("CHAMPION") near3 ("ENGINE") near3 ("TECHNOLOGY") near3 ("LLC")).AANM. | USPAT | OR | OFF | 2017/07/27 15:25 |
| S21 | 19 | (("CHAMPION") near3 ("ENGINE") near3 ("TECHNOLOGY") near3 ("LLC")).as. | US-PGPUB; USPAT; USOCR | OR | OFF | 2017/07/27 15:26 |
| S22 | 5 | ("20040240141" \| "20060169238" \| "20130098349" \| "20130122439" \| "4489699").PN. OR ("9435273").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2017/07/27 15:42 |
| S23 | 41 | ("1973142" \| "2315882" \| "2381304" \| "4068639" \| "4227497" \| "4335697").PN. OR ("4489699").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2017/07/27 15:43 |
| S24 | 97 | (dual multi multiple plural plurality) adj fuel near20 engine same (switch switchover changeover change switch$3) near5 (valve switch) | US-PGPUB; USPAT; USOCR | OR | OFF | 2017/07/27 16:02 |
| S25 | 1 | (09/813622).APP. | USPAT; USOCR | OR | OFF | 2017/07/27 16:03 |
| S26 | 63 | ("3799125" \| "4150645" \| "4265208" \| "4303049" \| "4305350" \| "4323046" \| "4353345" \| "4391251" \| "4398517" \| "4524033" \| "4671243" \| "5450832" \| "5524582" \| "5623907" \| "5720266" \| "5816224" \| "6035837").PN. OR ("6591817").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2017/07/27 16:03 |
| S27 | 64 | ("4335697" \| "4393848" \| "4430978" \| "4606322" \| "4683864" \| "4825842" \| "4922862" \| "5379740" \| "5474047" \| "5479906" \| "5755211" \| "5775282").PN. OR ("6035837").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2017/07/27 16:34 |
| S28 | 27 | ("5999888" \| "6543395" \| "4619240" \| "20140366577" \| "20120168023" \| "20140202430" \| "4463735" \| "5668310" \| "5224457").PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/07/28 10:32 |
| S29 | 0 | (14/156204).APP. | USPAT; USOCR | OR | OFF | 2017/07/28 11:33 |
| S30 | 5 | (gas gasoline liquid near5 fuel) near20 (propane natural adj gas) near20 (fill$3 fueling) same (quick-connect connect$3) near20 (cover flange) | USPAT; USOCR | OR | OFF | 2017/07/28 11:47 |
| S31 | 109 | (gas gasoline liquid near5 fuel) near20 (propane natural adj gas) near20 (fill$3 fueling) same (quick-connect connect$3) near20 (cover flange) | US-PGPUB; USPAT; USOCR; FPRS; | OR | OFF | 2017/07/28 11:47 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | EPO; JPO; DERWENT; IBM_TDB | | | |
| S32 | 280 | (gas gasoline liquid near5 fuel) near20 (propane natural adj gas) near20 (fill$3 fueling) same (cover flange) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/07/28 11:48 |
| S33 | 171 | (gas gasoline liquid near5 fuel) near20 (propane natural adj gas) near20 (fill$3 fueling) same (cover flange) not S31 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/07/28 11:48 |
| S34 | 5 | "9435273" | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/07/28 14:35 |
| S35 | 1 | "20070137591" | USPAT | OR | OFF | 2018/02/12 15:56 |
| S37 | 34 | (champion near3 engine).as. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/12 15:59 |
| S38 | 95 | dual adj fuel near20 valve near10 switch | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2018/02/12 16:19 |
| S39 | 48 | "4489699" | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2018/02/12 16:30 |
| S40 | 5 | "20070137591" | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2018/02/12 16:30 |
| S41 | 29 | "3412258" | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2018/02/12 16:30 |

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| S42 | 3 | "20100258099" | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2018/02/12 16:30 |
| S43 | 53 | "5611312" | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2018/02/12 16:30 |
| S44 | 138 | (S39 S40 S41 S42 S43) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2018/02/12 16:31 |
| S45 | 1 | (10/591304).APP. | USPAT; USOCR | OR | OFF | 2018/02/12 16:45 |
| S46 | 6 | ("6332433" \| "7146962").PN. OR ("7325519").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2018/02/12 16:46 |
| S47 | 35 | (US-20020014077-$ or US-20030168024-$ or US-20110168133-$ or US-20120204835-$ or US-20030010320-$ or US-20160363099-$ or US-20170037796-$ or US-20020134362-$ or US-20140202430-$ or US-20160221518-$ or US-20070137591-$).did. or (US-5320078-$ or US-5450832-$ or US-5816224-$ or US-6591817-$ or US-5524582-$ or US-4570605-$ or US-4712516-$ or US-9435273-$ or US-4489699-$ or US-4305350-$ or US-4353345-$ or US-6035837-$ or US-6904873-$ or US-7045916-$ or US-5092305-$).did. or (US-2558884-$ or US-2470747-$ or US-3022425-$ or US-3451424-$).did. or (JP-2004278332-$).did. or (US-20080290531-$ or US-20130047964-$ or US-4463735-$ or CN-203796423-$).did. | US-PGPUB; USPAT; USOCR; JPO; DERWENT | OR | OFF | 2018/02/12 17:19 |
| S48 | 35 | (US-20020014077-$ or US-20030168024-$ or US-20110168133-$ or US-20120204835-$ or US-20030010320-$ or US-20160363099-$ or US-20170037796-$ or US-20020134362-$ or US-20140202430-$ or US-20160221518-$ or US-20070137591-$).did. or (US-5320078-$ or US-5450832-$ or US-5816224-$ or US-6591817-$ or US-5524582-$ or US-4570605-$ or US-4712516-$ or US-9435273-$ or US-4489699-$ or US-4305350-$ or US-4353345-$ or US-6035837-$ or US-6904873-$ or US-7045916-$ or US-5092305-$).did. or (US-2558884-$ or US-2470747-$ or US-3022425-$ or US-3451424-$).did. or (JP-2004278332-$).did. or (US-20080290531- | US-PGPUB; USPAT; USOCR; JPO; DERWENT | OR | OFF | 2018/02/13 17:40 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | $ or US-20130047964-$ or US-4463735-$ or CN-203796423-$).did. | | | | |
| S50 | 17 | S48 and regulator | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/13 17:40 |

**EAST Search History (Interference)**

| Ref # | Hits | Search Query | DBs | Default Operator | Plurals | Time Stamp |
|---|---|---|---|---|---|---|
| L1 | 1 | (engine and lockout and fuel and first adj fuel and second adj fuel and source and switch).clm. | US-PGPUB; USPAT | OR | OFF | 2018/11/20 15:47 |
| S51 | 88 | F02D19/0613.cpc. | US-PGPUB; USPAT | OR | OFF | 2018/11/20 12:06 |
| S52 | 273 | F02D19/0605.cpc. | US-PGPUB; USPAT | OR | OFF | 2018/11/20 12:06 |
| S53 | 747 | F02D19/0647.cpc. | US-PGPUB; USPAT | OR | OFF | 2018/11/20 12:06 |
| S54 | 3711 | Y02T10/36.cpc. | US-PGPUB; USPAT | OR | OFF | 2018/11/20 12:06 |

**11/ 20/ 2018 3:47:39 PM**
**C:\ Users\ klathers\ Documents\ EAST\ Workspaces\ 14738060.wsp**

**Customer No. 26629** Patent
Confirmation No. 9670 Attorney Docket No. CET1090.019

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

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

**CERTIFICATION UNDER 37 CFR 1.8(a) and 1.10**

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

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

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

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

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

Date: November 5, 2018 /Robyn L. Templin/
Signature

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

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

Dear Sir:

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

OK TO ENTER: /K.A.L/

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<br>Substitute for Form PTO-875 | Application or Docket Number<br>14/738,060 | Filing Date<br>06/12/2015 | ☐ 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

AMENDMENT **11/05/2018**

| | (Column 1) | | (Column 2) | (Column 3) | | |
|---|---|---|---|---|---|---|
| | CLAIMS REMAINING AFTER AMENDMENT | | HIGHEST NUMBER PREVIOUSLY PAID FOR | PRESENT EXTRA | RATE ($) | ADDITIONAL FEE ($) |
| Total (37 CFR 1.16(i)) | * 15 | Minus | ** 26 | = 0 | X $50 = | 0 |
| Independent (37 CFR 1.16(h)) | * 3 | Minus | ***3 | = 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) | | (Column 2) | (Column 3) | | |
|---|---|---|---|---|---|---|
| | CLAIMS REMAINING AFTER AMENDMENT | | HIGHEST NUMBER PREVIOUSLY PAID FOR | 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.**

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

**Customer No. 26629** Patent
Confirmation No. 9670 Attorney Docket No. CET1090.019

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

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

**CERTIFICATION UNDER 37 CFR 1.8(a) and 1.10**

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**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.

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Date: November 5, 2018 /Robyn L. Templin/
Signature

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

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

Dear Sir:

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

**In the Claims**

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

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

a fuel lockout apparatus coupled to the mechanical fuel valve;

wherein the mechanical fuel lockout switch:

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

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

wherein the fuel lockout apparatus is configured to:

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

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

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

3. (Canceled)

4. (Currently Amended) The mechanical fuel lockout switch for a dual fuel engine of claim ~~3~~ 1, wherein the fuel lockout apparatus comprises a flange rigidly coupled to the mechanical fuel valve that covers an inlet of the second fuel line while the mechanical fuel valve is in the first position and uncovers the inlet of the second fuel line while the mechanical fuel valve is in the second position.



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

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

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

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

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

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

9-18. (Canceled)

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

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

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

coupling a fuel lockout apparatus to the mechanical fuel valve;



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

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

20. (Canceled)

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

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

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

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

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

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

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



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

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

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

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

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

a fuel lockout apparatus coupled to the mechanical fuel valve;

wherein the mechanical fuel lockout switch:

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

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

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



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## REMARKS

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

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

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

Claim 1

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

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

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



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

Claims 1 and 19

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

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

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

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

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

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

Claim 9

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



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

**Canceled & Newly Presented Claims**

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

**Conclusion**

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

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

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

Respectfully submitted,

/Kevin R. Rosin/

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

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**Champion - EX2093, Page 39 of 297**
**MWE Investments, LLC et al v. Champion Power Equip., Inc.**
**IPR2025-01423**

**General Authorization and Extension of Time**

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

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

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**Champion - EX2093, Page 40 of 297**
**MWE Investments, LLC et al v. Champion Power Equip., Inc.**
**IPR2025-01423**

# Electronic Acknowledgement Receipt

| | |
|---|---|
| **EFS ID:** | 34206596 |
| **Application Number:** | 14738060 |
| **International Application Number:** | |
| **Confirmation Number:** | 9670 |
| **Title of Invention:** | DUAL FUEL LOCKOUT SWITCH FOR GENERATOR ENGINE |
| **First Named Inventor/Applicant Name:** | Mark J. Sarder |
| **Customer Number:** | 26629 |
| **Filer:** | Kevin Roger Rosin./Robyn Templin |
| **Filer Authorized By:** | Kevin Roger Rosin. |
| **Attorney Docket Number:** | CET1090.019 |
| **Receipt Date:** | 05-NOV-2018 |
| **Filing Date:** | 12-JUN-2015 |
| **Time Stamp:** | 10:10:05 |
| **Application Type:** | Utility under 35 USC 111(a) |

## Payment information:

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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 | 133213<br>53dc24c1b4d76339b26913017fec5a2d5b811d0f | yes | 9 |

| | Multipart Description/PDF files in .zip description | | |
|---|---|---|---|
| | **Document Description** | **Start** | **End** |
| | Response After Final Action | 1 | 1 |
| | Claims | 2 | 5 |
| | Applicant Arguments/Remarks Made in an Amendment | 6 | 9 |
| **Warnings:** | | | |
| **Information:** | | | |
| | **Total Files Size (in bytes):** | 133213 | |

**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. |
|---|---|---|---|---|
| 14/738,060 | 06/12/2015 | Mark J. Sarder | CET1090.019 | 9670 |

26629 7590 09/05/2018

ZIOLKOWSKI PATENT SOLUTIONS GROUP, SC (ZPS)
136 S WISCONSIN ST
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| EXAMINER | |
|---|---|
| LATHERS, KEVIN ANTHONY | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 3747 | |

| NOTIFICATION DATE | DELIVERY MODE |
|---|---|
| 09/05/2018 | 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. 14/738,060 | Applicant(s) Sarder et al. | |
|---|---|---|---|
| | Examiner KEVIN A LATHERS | Art Unit 3747 | AIA Status Yes |

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

**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 05/15/2018.

☐ 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) 1-26 is/are pending in the application.

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

6) ☐ Claim(s) _____ is/are allowed.

7) ☑ Claim(s) 1,7-9,14-19 and 22-26 is/are rejected.

8) ☑ Claim(s) 2-6,10-13 and 20-21 is/are objected to.

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

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

**Application Papers**

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

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

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

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

**Priority under 35 U.S.C. § 119**

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

**Certified copies:**

a)☐ All b)☐ Some** c)☐ None of the:

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

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

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

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

**Attachment(s)**

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

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: _____.



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IPR2025-01423

**DETAILED ACTION**

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

***Claim Rejections - 35 USC § 102***

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

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

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

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

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

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

wherein the mechanical fuel lockout switch:

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

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

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

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

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

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

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

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

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

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

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

***Claim Rejections - 35 USC § 103***

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

***Allowable Subject Matter***

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

***Response to Arguments***

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

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

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

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

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

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

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

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

***Conclusion***

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

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

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

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

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

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

/KEVIN A LATHERS/
Primary Examiner, Art Unit 3747

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

| CPC - Searched* | | |
|---|---|---|
| Symbol | Date | Examiner |
| F02D19/0613, 16/0605, 19/0647 | 07/28/2017 | /K.L./ |
| Y02T10/36 | 07/28/2017 | /K.L./ |

| 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 |
| EAST including inventor and assignee search. | 07/28/2017 | /K.L./ |
| Google key word search (e.g. "dual fuel generator"). | 07/28/2017 | /K.L./ |
| EAST and google search. | 02/15/2018 | /K.L./ |
| Google Search performed | 08/29/2018 | /K.L./ |

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


Champion - EX2093, Page 56 of 297
MWE Investments, LLC et al v. Champion Power Equip., Inc.
IPR2025-01423

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

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

**CLAIMS**

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

| CLAIM | | DATE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Final | Original | 07/28/2017 | 02/15/2018 | 08/29/2018 | | | | | | |
| | 1 | ✓ | ✓ | ✓ | | | | | | |
| | 2 | ✓ | O | O | | | | | | |
| | 3 | ✓ | O | O | | | | | | |
| | 4 | O | O | O | | | | | | |
| | 5 | O | O | O | | | | | | |
| | 6 | O | O | O | | | | | | |
| | 7 | ✓ | ✓ | ✓ | | | | | | |
| | 8 | ✓ | ✓ | ✓ | | | | | | |
| | 9 | ✓ | ✓ | ✓ | | | | | | |
| | 10 | ✓ | O | O | | | | | | |
| | 11 | O | O | O | | | | | | |
| | 12 | O | O | O | | | | | | |
| | 13 | O | O | O | | | | | | |
| | 14 | ✓ | ✓ | ✓ | | | | | | |
| | 15 | ✓ | ✓ | ✓ | | | | | | |
| | 16 | ✓ | ✓ | ✓ | | | | | | |
| | 17 | ✓ | ✓ | ✓ | | | | | | |
| | 18 | ✓ | ✓ | ✓ | | | | | | |
| | 19 | ✓ | ✓ | ✓ | | | | | | |
| | 20 | ✓ | O | O | | | | | | |
| | 21 | ✓ | O | O | | | | | | |
| | 22 | ✓ | ✓ | ✓ | | | | | | |
| | 23 | ✓ | ✓ | ✓ | | | | | | |
| | 24 | ✓ | ✓ | ✓ | | | | | | |
| | 25 | ✓ | ✓ | ✓ | | | | | | |
| | 26 | ✓ | ✓ | ✓ | | | | | | |



Champion - EX2093, Page 57 of 297
MWE Investments, LLC et al v. Champion Power Equip., Inc.
IPR2025-01423

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 | 14738060 |
| Filing Date | 2015-06-12 |
| First Named Inventor | Mark J. Sarder et al. |
| Art Unit | 3747 |
| Examiner Name | Kevin A. Lathers |
| Attorney Docket Number | CET1090.019 |

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|---|---|---|---|---|---|---|
| | 1 | 3384059 | | 1968-05-21 | Kopa | |
| | 2 | 3412258 | | 1968-11-19 | Satter | |
| | 3 | 3659574 | | 1972-05-02 | Reschke et al. | |
| | 4 | 3718000 | | 1973-02-27 | Walker | |
| | 5 | 3783849 | | 1974-01-08 | Bramfitt | |
| | 6 | 3888223 | | 1975-06-10 | Mondt | |
| | 7 | 4335697 | | 1982-06-22 | McLean | |
| | 8 | 4373493 | | 1983-02-15 | Welsh | |



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| | Attorney Docket Number | CET1090.019 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | 9 | 4480595 | | 1984-11-06 | Hobby et al. | |
| | 10 | 4628871 | | 1986-12-16 | Glass | |
| | 11 | 4708094 | | 1987-11-24 | Helmich et al. | |
| | 12 | 4979480 | | 1990-12-25 | Daikoku et al. | |
| | 13 | 5092305 | | 1992-03-03 | King | |
| | 14 | 5228423 | | 1993-07-20 | Oikawa et al. | |
| | 15 | 5611312 | | 1997-03-18 | Swanson et al. | |
| | 16 | 6591817 | B2 | 2003-07-15 | Deutsch | |

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|---|---|---|---|---|---|---|
| | 1 | 20020134362 | A1 | 2002-09-26 | Deutsch | |



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| | Attorney Docket Number | CET1090.019 |

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| | 2 | 20040139943 | A1 | 2004-07-22 | Kern et al. | |
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| | 5 | 20140238340 | A1 | 2014-08-28 | Dunn et al. | |
| | 6 | 20140373531 | A1 | 2014-12-25 | Wong | |
| | 7 | 20150122230 | A1 | 2015-05-07 | Sarder et al. | |

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☒ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

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**SIGNATURE**

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| | | | |
|---|---|---|---|
| Signature | /Kevin R. Rosin/ | Date (YYYY-MM-DD) | 2018-05-15 |
| Name/Print | Kevin R. Rosin | Registration Number | 55584 |

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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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MWE Investments, LLC et al v. Champion Power Equip., Inc.
IPR2025-01423

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (03-15)
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| Application Number | 14738060 |
| Filing Date | 2015-06-12 |
| First Named Inventor | Mark J. Sarder et al. |
| Art Unit | 3747 |
| Examiner Name | Kevin A. Lathers |
| Attorney Docket Number | CET1090.019 |

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| | 1 | 2060477 | CN | U | 1990-08-15 | Zhao Yunying | | |

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| | First Named Inventor | Mark J. Sarder et al. |
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| | Examiner Name | Kevin A. Lathers |
| | Attorney Docket Number | CET1090.019 |

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## SIGNATURE

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| | | | |
|---|---|---|---|
| Signature | /Stephanie M. Laundre/ | Date (YYYY-MM-DD) | 2018-02-22 |
| Name/Print | Stephanie M. Laundre | Registration Number | 65124 |

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Champion - EX2093, Page 67 of 297
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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 | 14738060 |
| | Filing Date | 2015-06-12 |
| | First Named Inventor | Mark J. Sarder et al. |
| | Art Unit | 3747 |
| | Examiner Name | Kevin A. Lathers |
| | Attorney Docket Number | CET1090.019 |

| | | | |
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| Examiner Signature | /KEVIN A LATHERS/ | Date Considered | 08/29/2018 |

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# INFORMATION DISCLOSURE STATEMENT BY APPLICANT

**( Not for submission under 37 CFR 1.99)**

| | |
|---|---|
| Application Number | 14738060 |
| Filing Date | 2015-06-12 |
| First Named Inventor | Mark J. Sarder et al. |
| Art Unit | 3747 |
| Examiner Name | Kevin A. Lathers |
| Attorney Docket Number | CET1090.019 |

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**OR**

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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) | 2018-06-01 |
| Name/Print | Kevin R. Rosin | Registration Number | 55584 |

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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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MWE Investments, LLC et al v. Champion Power Equip., Inc.
IPR2025-01423

PTO/SB/08a (02-18)
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| Application Number | 14738060 |
| Filing Date | 2015-06-12 |
| First Named Inventor | Mark J. Sarder et al. |
| Art Unit | 3747 |
| Examiner Name | Kevin A. Lathers |
| Attorney Docket Number | CET1090.019 |

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| | Attorney Docket Number | CET1090.019 |

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| Signature | /Kevin R. Rosin/ | Date (YYYY-MM-DD) | 2018-06-01 |
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MWE Investments, LLC et al v. Champion Power Equip., Inc.
IPR2025-01423

**Customer No. 26629**
Confirmation No. 9670

Patent
Attorney Docket No. CET1090.019

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

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

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

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Date: June 1, 2018

/Robyn L. Templin/
Signature

Commissioner for Patents
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**INFORMATION DISCLOSURE STATEMENT**
**CERTIFICATION STATEMENT UNDER 37 CFR 1.704(D)(1)**

Dear Sir:

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Dated: June 1, 2018
Attorney Docket No.: CET1090.019

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***
**- cooperative:** **F02B43/00**; **F02B63/04**; **F02D19/022**; **F02D19/027**; **F02D19/0615**; **F02D19/0647**; **F02D19/0676**; **F02D29/06**; **F02M21/0224**; **F02M21/0287**; **F02M21/029**; **F02M21/06**; F01P5/06; F01P9/02; F02B63/044; F02M21/047; Y02T10/32; Y02T10/36

**Application number:** CN2005822860 20050920

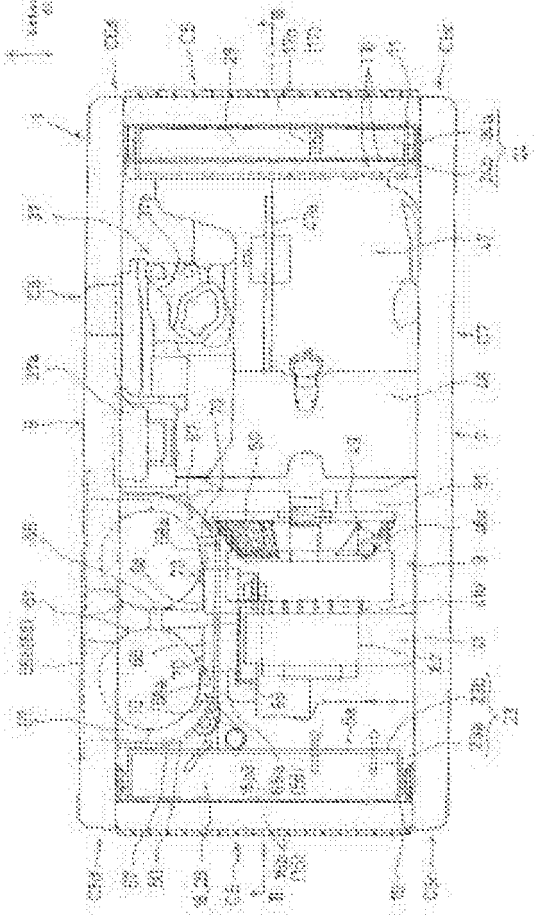
**Priority number(s):** JP20040285036 20040929

**Also published as:** CN100510347 (C) DE05785589 (T1) DE602005003347 (T2) EP1744030 (A1) EP1744030 (A4) more

## 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

[12] 发明专利申请公布说明书

[21] 申请号 200580022860.4

[51] Int. Cl.
*F02B 63/04* (2006.01)
*F01P 5/06* (2006.01)
*F02M 21/02* (2006.01)
*F02M 21/06* (2006.01)

[43] 公开日 2007 年 6 月 13 日

[11] 公开号 CN 1981121A

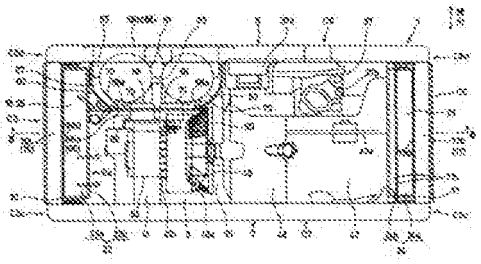
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[21] 申请号 200580022860.4
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[32] 2004.9.29 [33] JP [31] 285036/2004
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[85] 进入国家阶段日期 2007.1.5
[71] 申请人 本田技研工业株式会社
地址 日本东京
[72] 发明人 杉本康弘 小崎洋明 竹村一仁 中川胜博
[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



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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。



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# 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



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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



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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



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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



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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



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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



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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。



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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）



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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



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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。



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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。



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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，



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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



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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



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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



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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



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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



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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



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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。



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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



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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



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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。



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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



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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。



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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。



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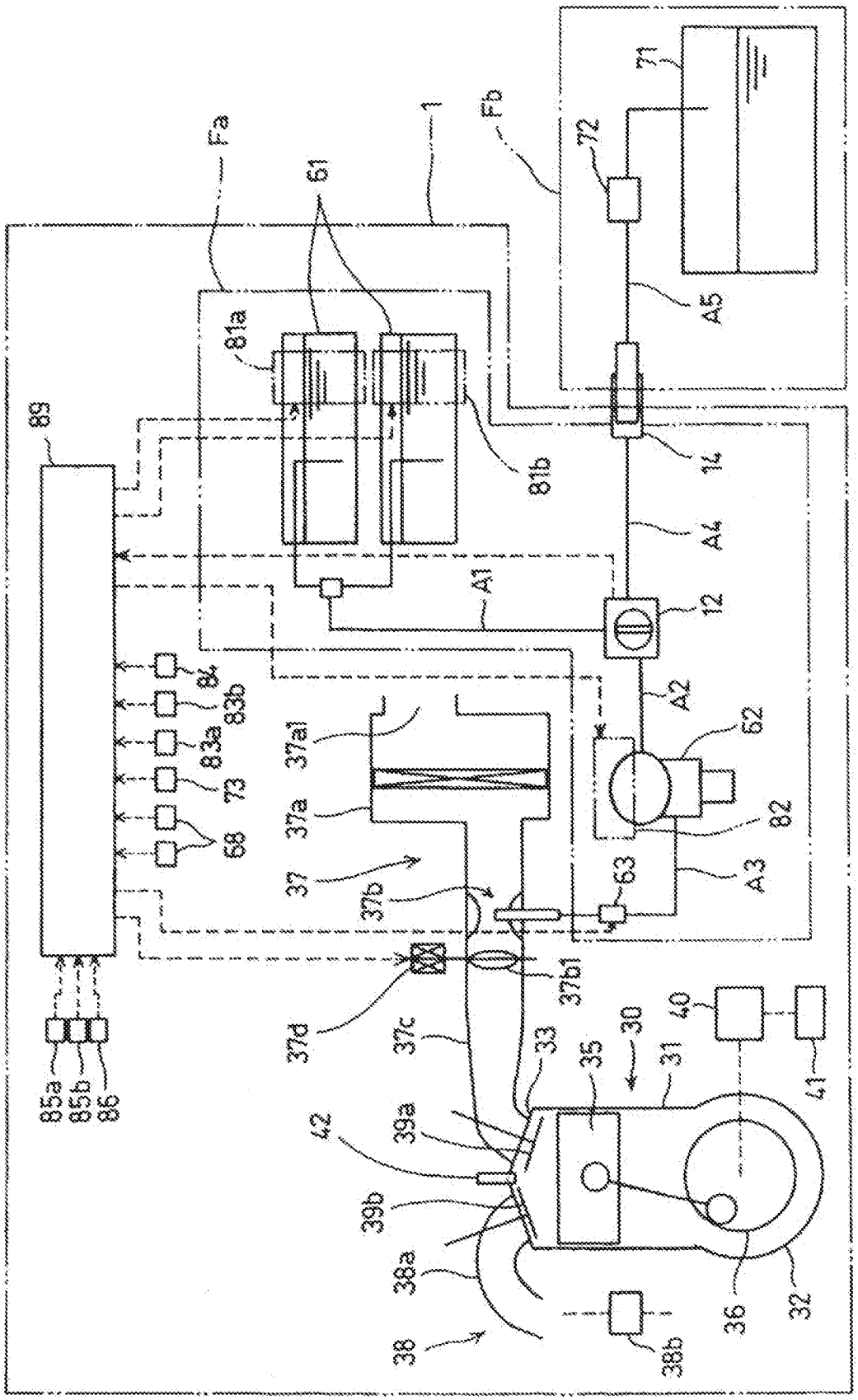



图 1



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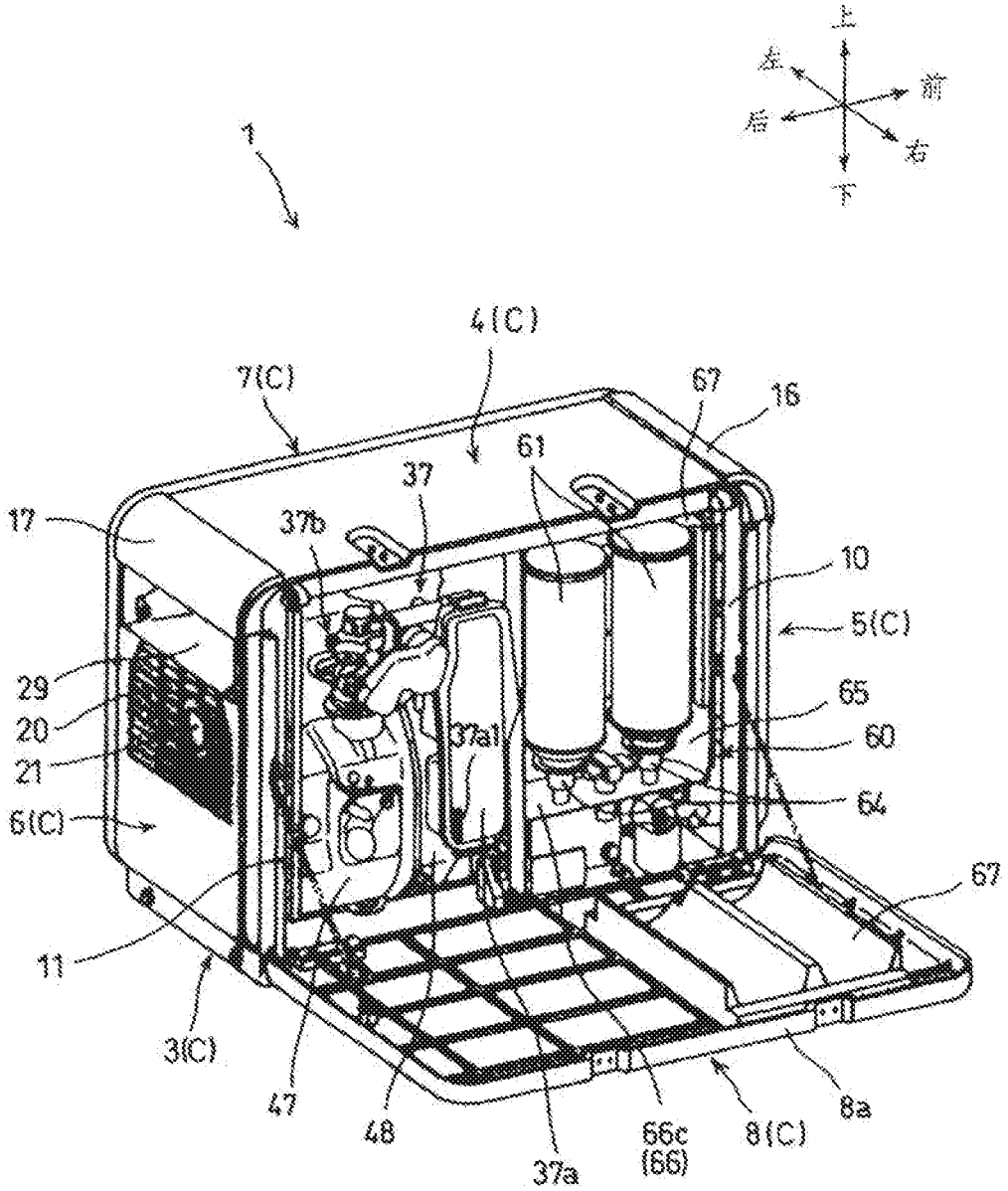



图 2



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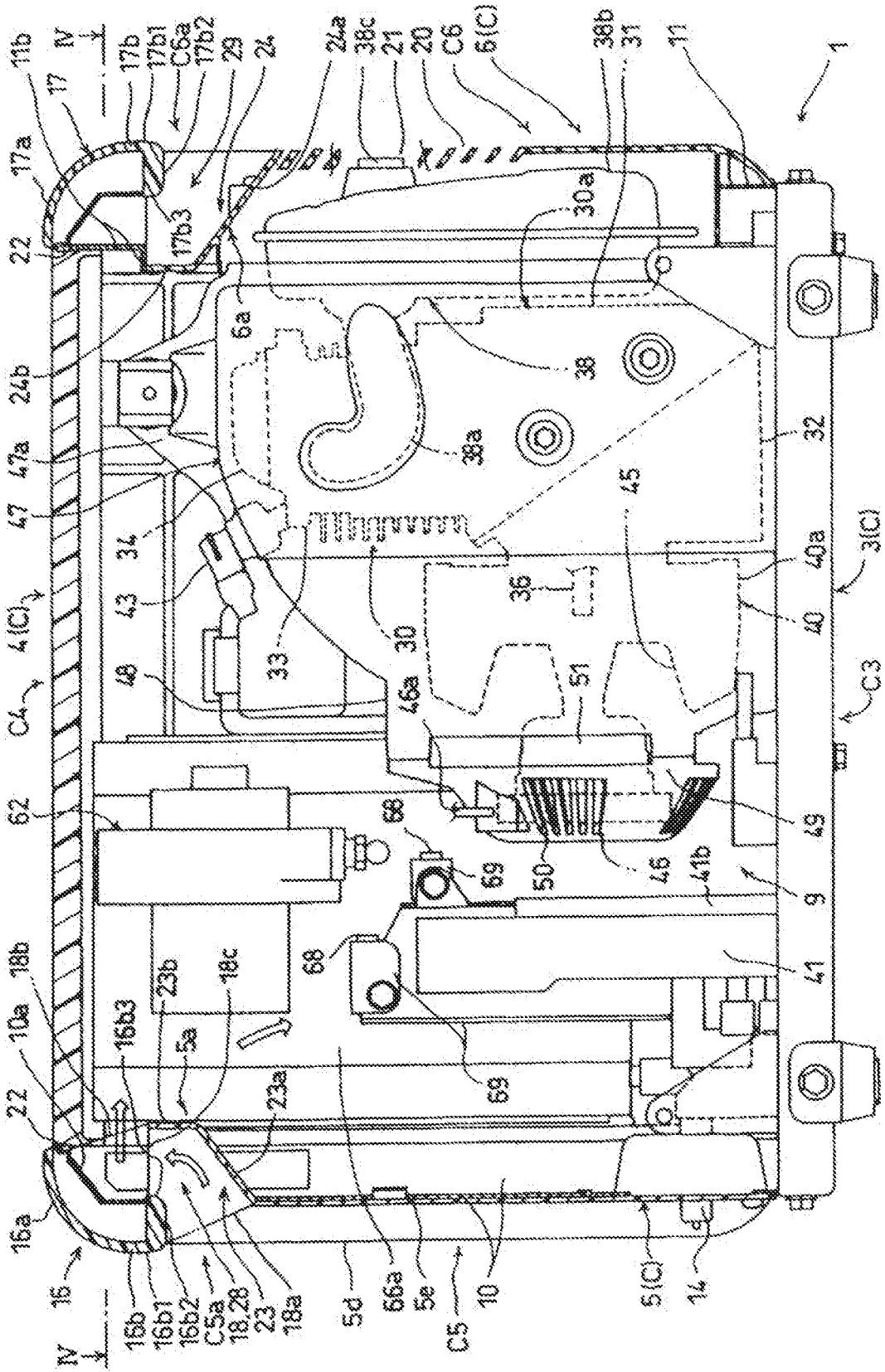



图 3



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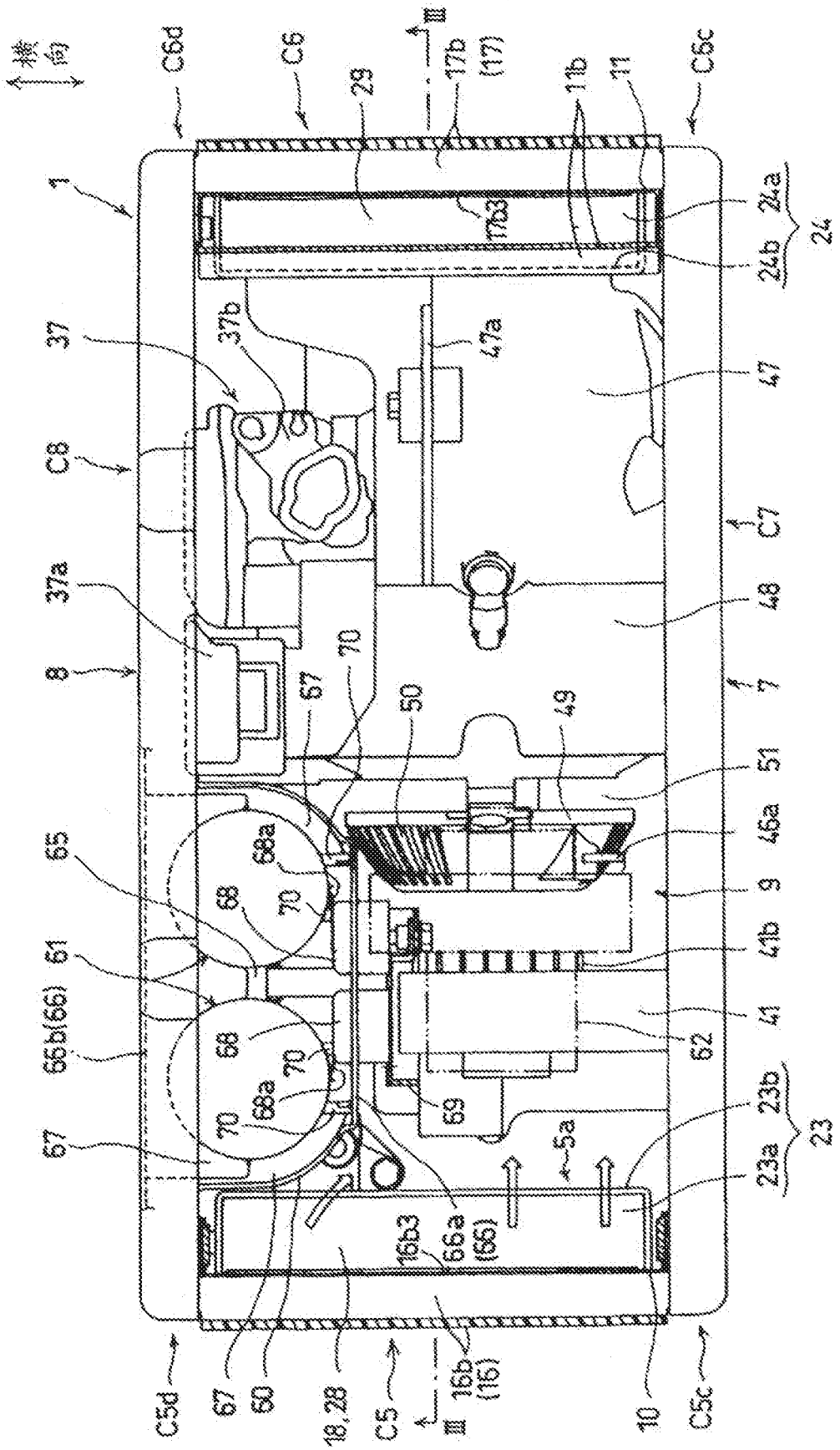



图 4



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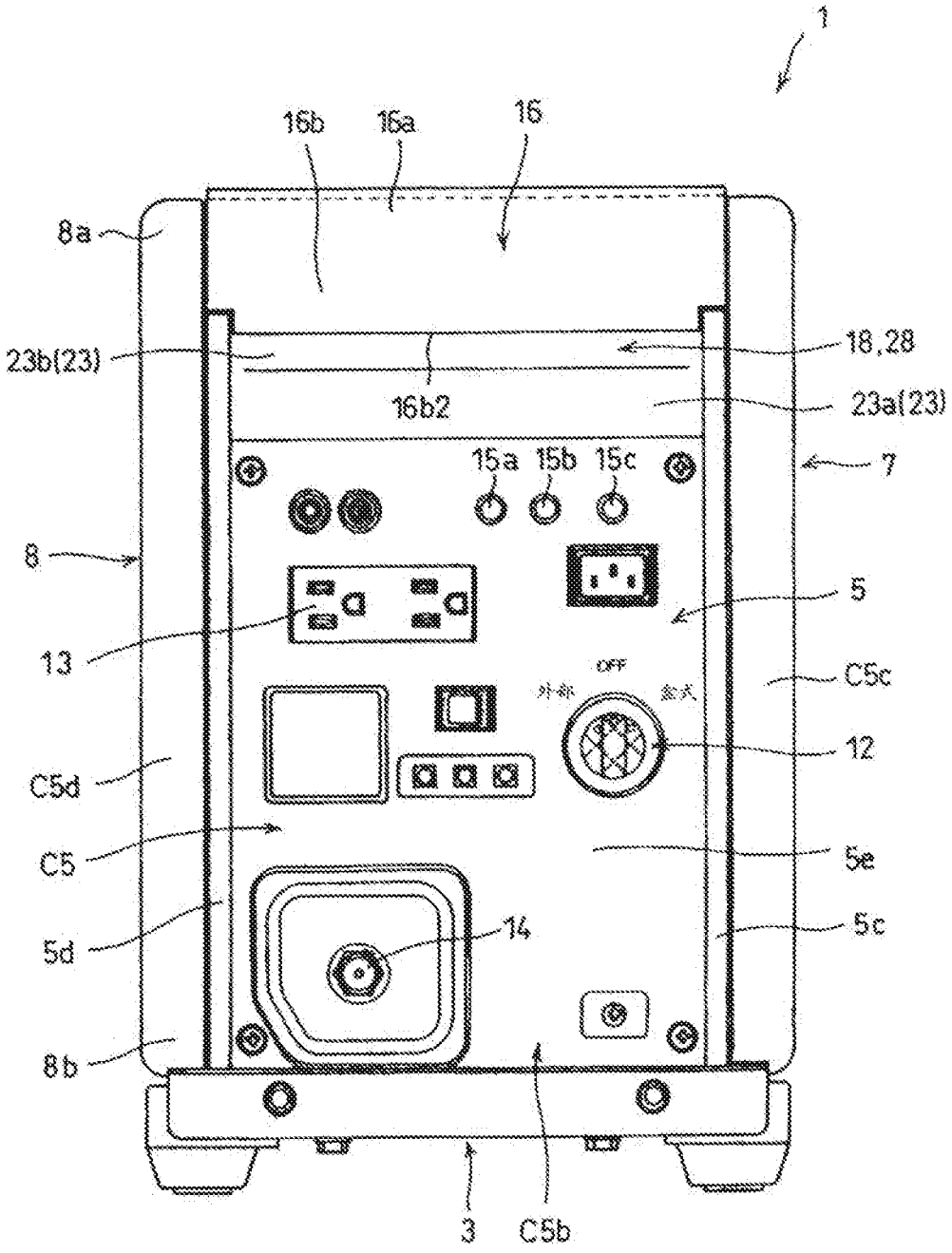



图 5



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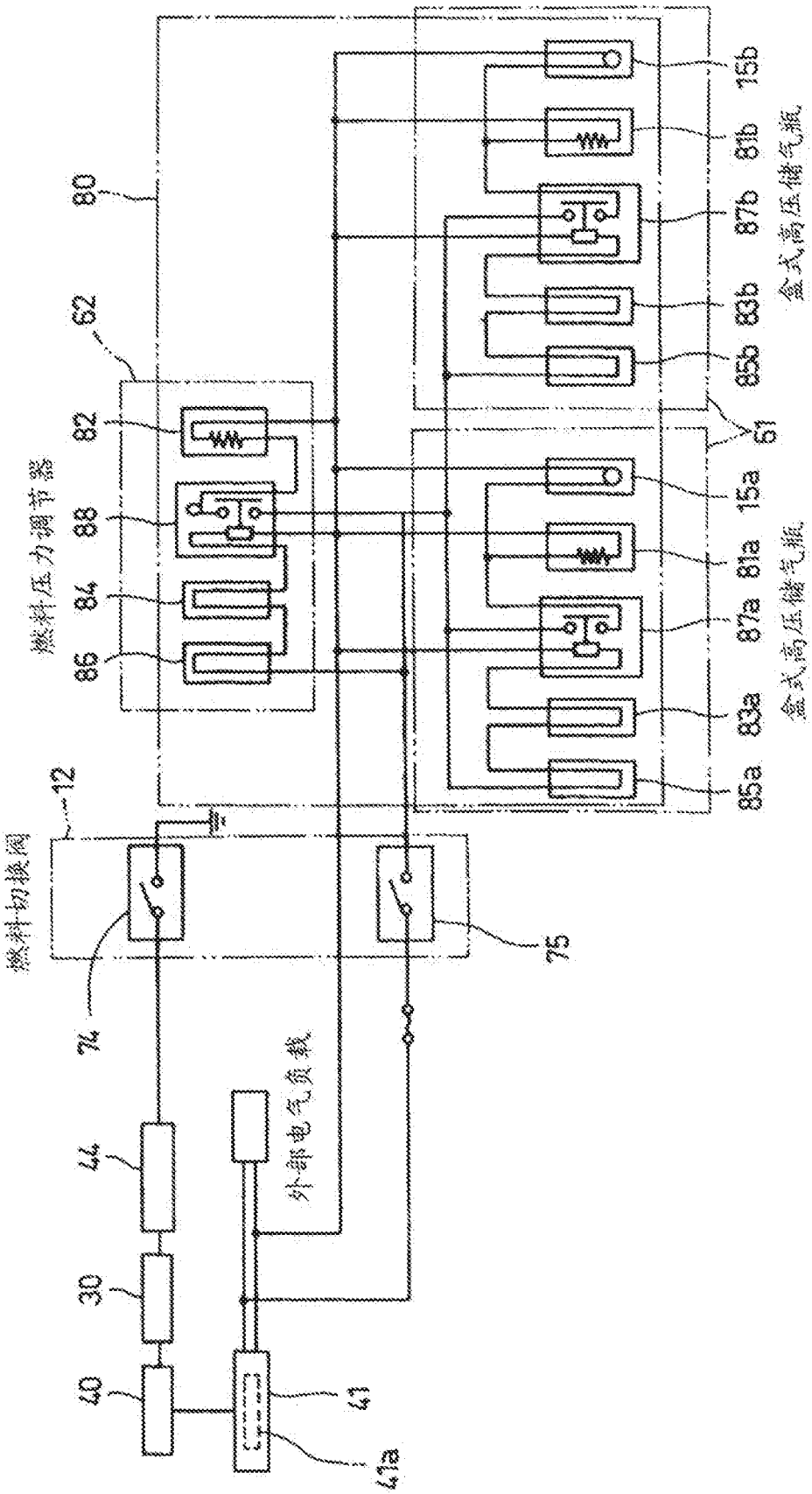



图 6



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| | 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



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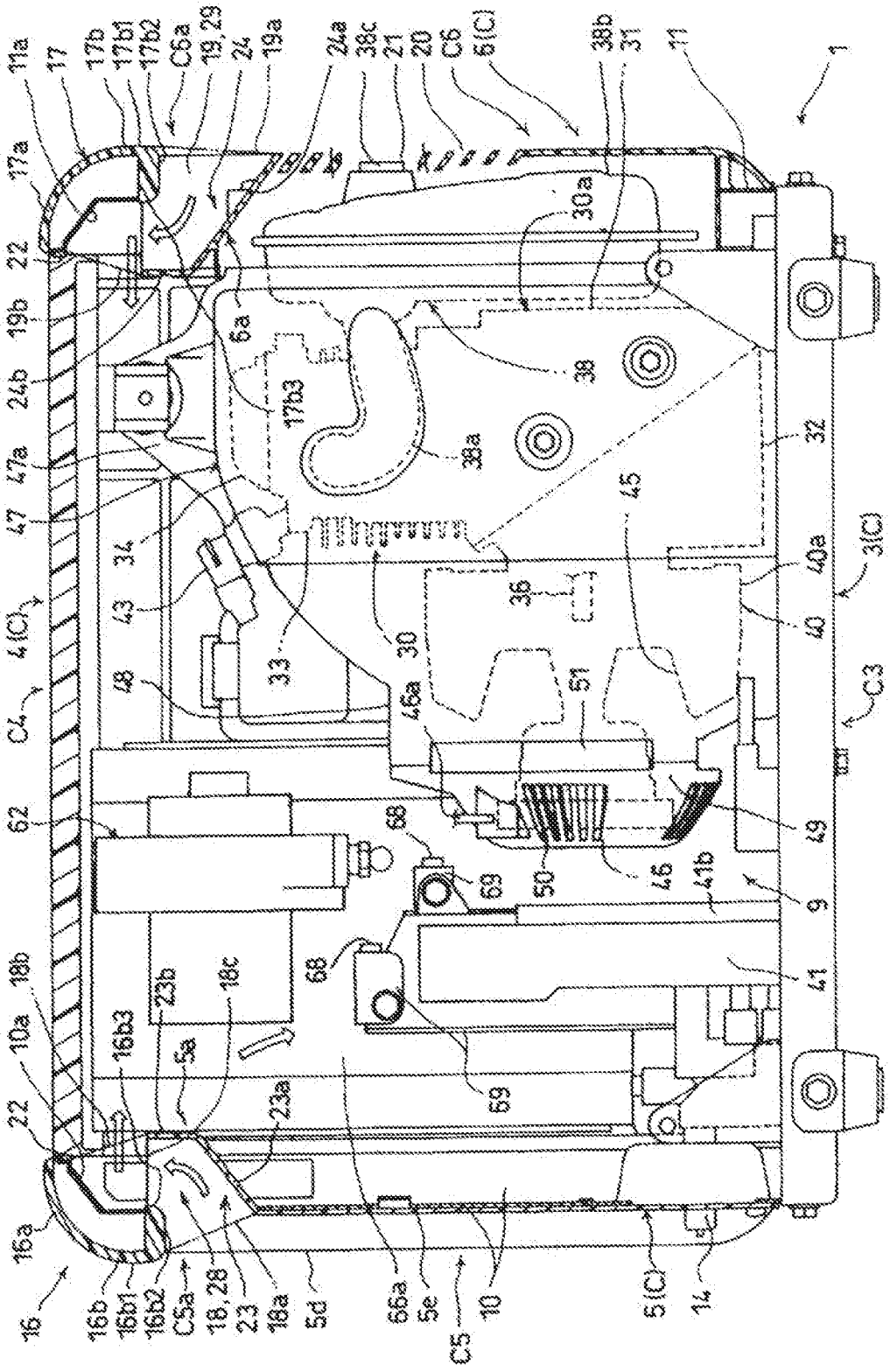



图 8



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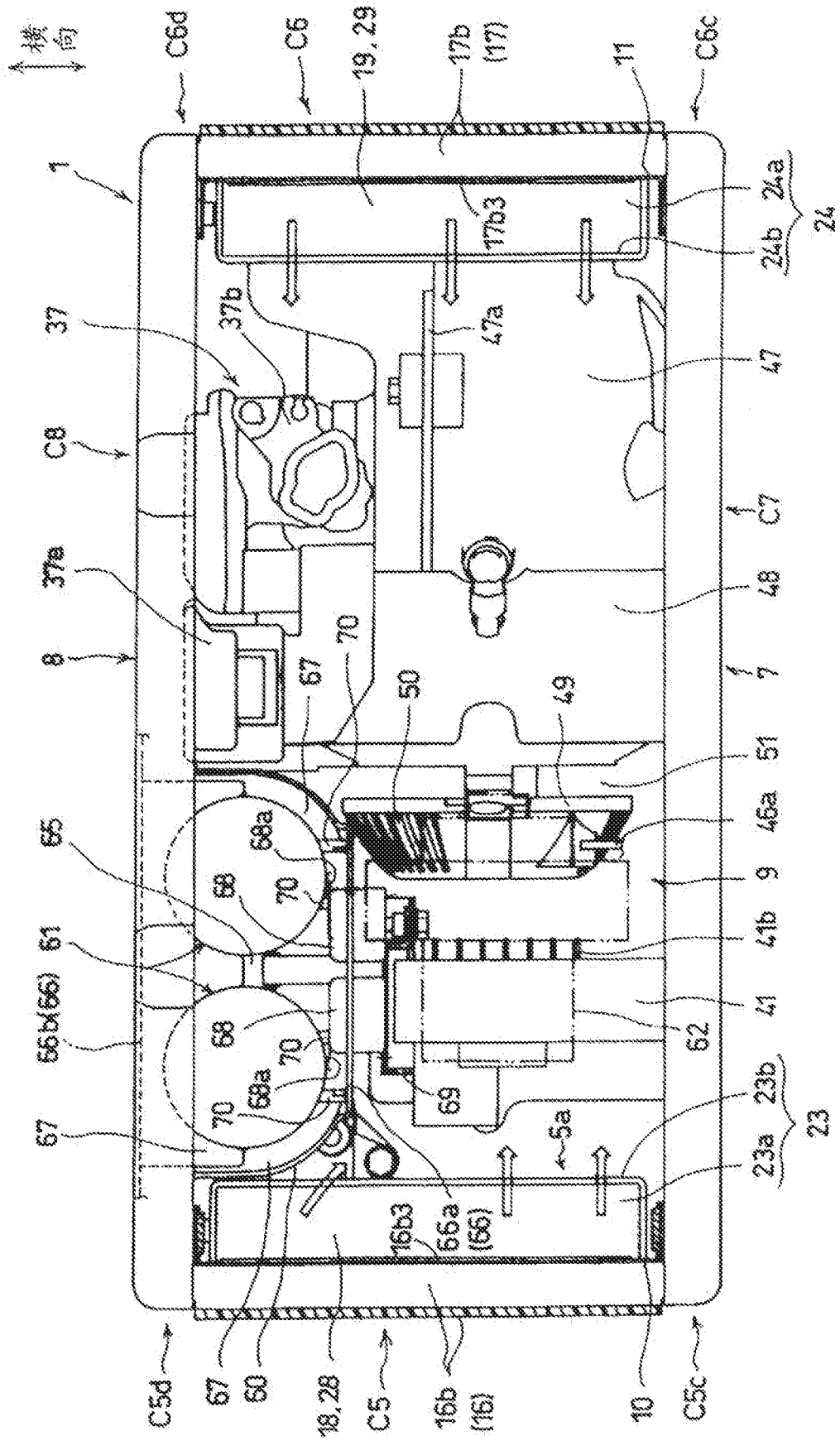



图 9



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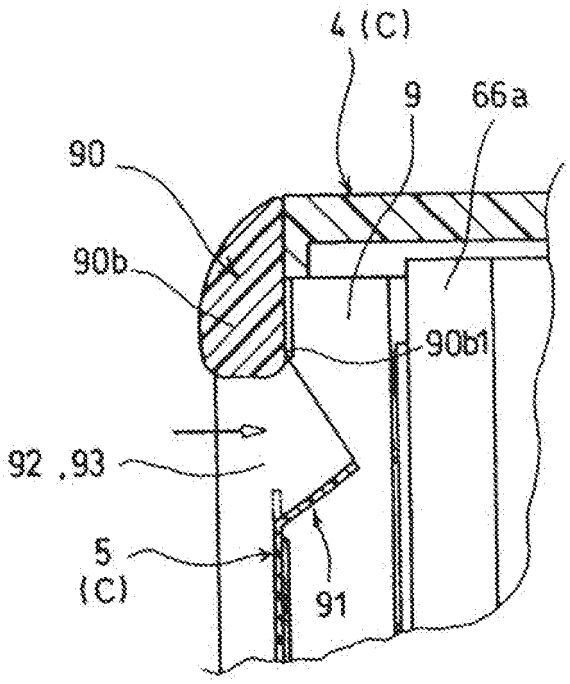



图 10



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# Electronic Acknowledgement Receipt

| | |
|---|---|
| **EFS ID:** | 32782612 |
| **Application Number:** | 14738060 |
| **International Application Number:** | |
| **Confirmation Number:** | 9670 |
| **Title of Invention:** | DUAL FUEL LOCKOUT SWITCH FOR GENERATOR ENGINE |
| **First Named Inventor/Applicant Name:** | Mark J. Sarder |
| **Customer Number:** | 26629 |
| **Filer:** | Kevin Roger Rosin./Robyn Templin |
| **Filer Authorized By:** | Kevin Roger Rosin. |
| **Attorney Docket Number:** | CET1090.019 |
| **Receipt Date:** | 01-JUN-2018 |
| **Filing Date:** | 12-JUN-2015 |
| **Time Stamp:** | 14:38:52 |
| **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.) |
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**Customer No. 26629** Patent
Confirmation No. 9670 Attorney Docket No. CET1090.019

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

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

**CERTIFICATION UNDER 37 CFR 1.8(a) and 1.10**

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Signature

Commissioner for Patents
P.O. Box 1450
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**RESPONSE TO OFFICE ACTION MAILED FEBRUARY 22, 2018**

Dear Sir:

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

**In the Claims**

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

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

a fuel lockout apparatus coupled to the mechanical fuel valve;

wherein the mechanical fuel lockout switch:

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

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

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

3. (Original) The mechanical fuel lockout switch for a dual fuel engine of claim 1, wherein the fuel lockout apparatus is configured to:

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

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

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



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

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

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

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

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

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

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

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

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

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



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

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

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

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

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

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

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

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



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

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

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

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

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

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

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

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

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

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

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



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

coupling a fuel lockout apparatus to the mechanical fuel valve;

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

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

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

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

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

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

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

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



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

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

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

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



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## REMARKS

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

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

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

Claim 1

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

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

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



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

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

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

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



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

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

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



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

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

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

Claims 1 and 19

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

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

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



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

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



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

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

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



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

Claim 9

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

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

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



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

**Conclusion**

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

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

Respectfully submitted,

/Kevin R. Rosin/

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

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

**P.O. ADDRESS:**
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136 South Wisconsin Street
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**Champion - EX2093, Page 133 of 297**
**MWE Investments, LLC et al v. Champion Power Equip., Inc.**
**IPR2025-01423**

**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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Registration No. 55,584
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Dated: May 15, 2018
Attorney Docket No.: CET1090.019

**P.O. ADDRESS:**
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Port Washington, WI 53074
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**Champion - EX2093, Page 134 of 297**
**MWE Investments, LLC et al v. Champion Power Equip., Inc.**
**IPR2025-01423**

PTO/SB/08a (02-18)
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# INFORMATION DISCLOSURE STATEMENT BY APPLICANT

**( Not for submission under 37 CFR 1.99)**

| | |
|---|---|
| Application Number | 14738060 |
| Filing Date | 2015-06-12 |
| First Named Inventor | Mark J. Sarder et al. |
| Art Unit | 3747 |
| Examiner Name | Kevin A. Lathers |
| Attorney Docket Number | CET1090.019 |

**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 | 3384059 | | 1968-05-21 | Kopa | |
| | 2 | 3412258 | | 1968-11-19 | Satter | |
| | 3 | 3659574 | | 1972-05-02 | Reschke et al. | |
| | 4 | 3718000 | | 1973-02-27 | Walker | |
| | 5 | 3783849 | | 1974-01-08 | Bramfitt | |
| | 6 | 3888223 | | 1975-06-10 | Mondt | |
| | 7 | 4335697 | | 1982-06-22 | McLean | |
| | 8 | 4373493 | | 1983-02-15 | Welsh | |

| INFORMATION DISCLOSURE STATEMENT BY APPLICANT ( Not for submission under 37 CFR 1.99) | | |
|---|---|---|
| | Application Number | 14738060 |
| | Filing Date | 2015-06-12 |
| | First Named Inventor | Mark J. Sarder et al. |
| | Art Unit | 3747 |
| | Examiner Name | Kevin A. Lathers |
| | Attorney Docket Number | CET1090.019 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | 9 | 4480595 | | 1984-11-06 | Hobby et al. | |
| | 10 | 4628871 | | 1986-12-16 | Glass | |
| | 11 | 4708094 | | 1987-11-24 | Helmich et al. | |
| | 12 | 4979480 | | 1990-12-25 | Daikoku et al. | |
| | 13 | 5092305 | | 1992-03-03 | King | |
| | 14 | 5228423 | | 1993-07-20 | Oikawa et al. | |
| | 15 | 5611312 | | 1997-03-18 | Swanson et al. | |
| | 16 | 6591817 | B2 | 2003-07-15 | Deutsch | |

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|---|---|---|---|---|---|---|
| | 1 | 20020134362 | A1 | 2002-09-26 | Deutsch | |

| INFORMATION DISCLOSURE STATEMENT BY APPLICANT ( Not for submission under 37 CFR 1.99) | | |
|---|---|---|
| | Application Number | 14738060 |
| | Filing Date | 2015-06-12 |
| | First Named Inventor | Mark J. Sarder et al. |
| | Art Unit | 3747 |
| | Examiner Name | Kevin A. Lathers |
| | Attorney Docket Number | CET1090.019 |

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|---|---|---|---|---|---|---|
| | 2 | 20040139943 | A1 | 2004-07-22 | Kern et al. | |
| | 3 | 20100258099 | A1 | 2010-10-14 | Andersson et al. | |
| | 4 | 20110253102 | A1 | 2011-10-20 | Watanabe | |
| | 5 | 20140238340 | A1 | 2014-08-28 | Dunn et al. | |
| | 6 | 20140373531 | A1 | 2014-12-25 | Wong | |
| | 7 | 20150122230 | A1 | 2015-05-07 | Sarder et al. | |

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|---|---|---|
| | Application Number | 14738060 |
| | Filing Date | 2015-06-12 |
| | First Named Inventor | Mark J. Sarder et al. |
| | Art Unit | 3747 |
| | Examiner Name | Kevin A. Lathers |
| | Attorney Docket Number | CET1090.019 |

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|---|---|---|
| | Application Number | 14738060 |
| | Filing Date | 2015-06-12 |
| | First Named Inventor | Mark J. Sarder et al. |
| | Art Unit | 3747 |
| | Examiner Name | Kevin A. Lathers |
| | Attorney Docket Number | CET1090.019 |

**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 | /Kevin R. Rosin/ | Date (YYYY-MM-DD) | 2018-05-15 |
|---|---|---|---|
| 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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IPR2025-01423

# Electronic Patent Application Fee Transmittal

| | |
|---|---|
| **Application Number:** | 14738060 |
| **Filing Date:** | 12-Jun-2015 |
| **Title of Invention:** | DUAL FUEL LOCKOUT SWITCH FOR GENERATOR ENGINE |
| **First Named Inventor/Applicant Name:** | Mark J. Sarder |
| **Filer:** | Kevin Roger Rosin./Robyn Templin |
| **Attorney Docket Number:** | CET1090.019 |

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:** | 32623422 |
| **Application Number:** | 14738060 |
| **International Application Number:** | |
| **Confirmation Number:** | 9670 |
| **Title of Invention:** | DUAL FUEL LOCKOUT SWITCH FOR GENERATOR ENGINE |
| **First Named Inventor/Applicant Name:** | Mark J. Sarder |
| **Customer Number:** | 26629 |
| **Filer:** | Kevin Roger Rosin./Robyn Templin |
| **Filer Authorized By:** | Kevin Roger Rosin. |
| **Attorney Docket Number:** | CET1090.019 |
| **Receipt Date:** | 15-MAY-2018 |
| **Filing Date:** | 12-JUN-2015 |
| **Time Stamp:** | 10:07:51 |
| **Application Type:** | Utility under 35 USC 111(a) |

## Payment information:

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|---|---|
| Submitted with Payment | yes |
| Payment Type | CARD |
| Payment was successfully received in RAM | $120 |
| RAM confirmation Number | 051518INTEFSW10100400 |
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| 1 | | Response.pdf | 192042<br>d6db05d9301bc94c09ad66a0a688b799823cd365 | yes | 16 |
| | **Multipart Description/PDF files in .zip description** | | | | |
| | **Document Description** | | **Start** | **End** | |
| | Amendment/Req. Reconsideration-After Non-Final Reject | | 1 | 1 | |
| | Claims | | 2 | 7 | |
| | Applicant Arguments/Remarks Made in an Amendment | | 8 | 16 | |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 2 | Information Disclosure Statement (IDS) Form (SB08) | SuppIDS.pdf | 1035121<br>69a944958f5680dc62a534631bedd830ce66a24b | no | 6 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 3 | Fee Worksheet (SB06) | fee-info.pdf | 30716<br>07174a4e0d317092280692437c4b9763cc86a82d | no | 2 |
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| PATENT APPLICATION FEE DETERMINATION RECORD<br>Substitute for Form PTO-875 | Application or Docket Number<br>14/738,060 | Filing Date<br>06/12/2015 | ☐ 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) | | |
|---|---|---|---|---|---|---|---|
| AMENDMENT | 05/15/2018 | CLAIMS REMAINING AFTER AMENDMENT | | HIGHEST NUMBER PREVIOUSLY PAID FOR | PRESENT EXTRA | RATE ($) | ADDITIONAL FEE ($) |
| | Total (37 CFR 1.16(i)) | * 26 | Minus | ** 26 | = 0 | X $50 = | 0 |
| | Independent (37 CFR 1.16(h)) | * 3 | Minus | ***3 | = 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) | | |
|---|---|---|---|---|---|---|---|
| AMENDMENT | | CLAIMS REMAINING AFTER AMENDMENT | | HIGHEST NUMBER PREVIOUSLY PAID FOR | 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.
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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 14/738,060 | 06/12/2015 | Mark J. Sarder | CET1090.019 | 9670 |

26629 7590 02/22/2018

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

| EXAMINER |
|---|
| LATHERS, KEVIN ANTHONY |

| ART UNIT | PAPER NUMBER |
|---|---|
| 3747 | |

| NOTIFICATION DATE | DELIVERY MODE |
|---|---|
| 02/22/2018 | ELECTRONIC |

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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. 14/738,060 | Applicant(s) SARDER ET AL. | |
|---|---|---|---|
| | Examiner KEVIN A. LATHERS | Art Unit 3747 | AIA (First Inventor to File) Status Yes |

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

**Period for Reply**

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

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

**Status**

1)☒ Responsive to communication(s) filed on *11/03/2017*.

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

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

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

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

**Disposition of Claims***

5)☒ Claim(s) *1-26* is/are pending in the application.

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

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *1,7-9,14-19 and 22-26* is/are rejected.

8)☐ Claim(s) *2-6,10-13,20 and 21* is/are objected to.

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

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

**Application Papers**

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

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

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

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

**Priority under 35 U.S.C. § 119**

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

**Certified copies:**

a)☐ All b)☐ Some** c)☐ None of the:

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

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

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

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

**Attachment(s)**

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

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 - EX2093, Page 148 of 297
MWE Investments, LLC et al v. Champion Power Equip., Inc.
IPR2025-01423

## DETAILED ACTION

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

### *Claim Interpretation*

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

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

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

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

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

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

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

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

***Claim Rejections - 35 USC § 102***

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

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

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

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

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

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

wherein the mechanical fuel lockout switch:

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

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

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

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

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

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

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

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

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

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

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

### *Claim Rejections - 35 USC § 103*

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

***Allowable Subject Matter***

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

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

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

***Response to Arguments***

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

## *Conclusion*

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

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

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

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

/KEVIN A LATHERS/
Primary Examiner, Art Unit 3747

| Notice of References Cited | Application/Control No. 14/738,060 | Applicant(s)/Patent Under Reexamination SARDER ET AL. | |
|---|---|---|---|
| | Examiner KEVIN A. LATHERS | 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-2007/0137591 A1 | 06-2007 | Sugimoto; Yasuhiro | F02B43/00 | 123/41.7 |
| * | B | US-2011/0168133 A1 | 07-2011 | Pursifull; Ross Dykstra | F02M37/0064 | 123/495 |
| | C | US- | | | | |
| | D | US- | | | | |
| | E | US- | | | | |
| | F | US- | | | | |
| | G | US- | | | | |
| | H | US- | | | | |
| | I | US- | | | | |
| | J | US- | | | | |
| | K | US- | | | | |
| | L | US- | | | | |
| | 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 |
|---|---|---|
| | 14738060 | SARDER ET AL. |
| | Examiner | Art Unit |
| | KEVIN A LATHERS | 3747 |

| CPC- SEARCHED | | |
|---|---|---|
| Symbol | Date | Examiner |
| F02D19/0613, 16/0605, 19/0647 | 07/28/2017 | /K.L./ |
| Y02T10/36 | 07/28/2017 | /K.L./ |

| 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 |
| EAST including inventor and assignee search. | 07/28/2017 | /K.L./ |
| Google key word search (e.g. "dual fuel generator"). | 07/28/2017 | /K.L./ |
| EAST and google search. | 02/15/2018 | /K.L./ |

| INTERFERENCE SEARCH | | | |
|---|---|---|---|
| US Class/ CPC Symbol | US Subclass / CPC Group | Date | Examiner |
| | | | |

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

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

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

| CLAIM | | DATE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Final | Original | 07/28/2017 | 02/15/2018 | | | | | | | |
| | 1 | ✓ | ✓ | | | | | | | |
| | 2 | ✓ | O | | | | | | | |
| | 3 | ✓ | O | | | | | | | |
| | 4 | O | O | | | | | | | |
| | 5 | O | O | | | | | | | |
| | 6 | O | O | | | | | | | |
| | 7 | ✓ | ✓ | | | | | | | |
| | 8 | ✓ | ✓ | | | | | | | |
| | 9 | ✓ | ✓ | | | | | | | |
| | 10 | ✓ | O | | | | | | | |
| | 11 | O | O | | | | | | | |
| | 12 | O | O | | | | | | | |
| | 13 | O | O | | | | | | | |
| | 14 | ✓ | ✓ | | | | | | | |
| | 15 | ✓ | ✓ | | | | | | | |
| | 16 | ✓ | ✓ | | | | | | | |
| | 17 | ✓ | ✓ | | | | | | | |
| | 18 | ✓ | ✓ | | | | | | | |
| | 19 | ✓ | ✓ | | | | | | | |
| | 20 | ✓ | O | | | | | | | |
| | 21 | ✓ | O | | | | | | | |
| | 22 | ✓ | ✓ | | | | | | | |
| | 23 | ✓ | ✓ | | | | | | | |
| | 24 | ✓ | ✓ | | | | | | | |
| | 25 | ✓ | ✓ | | | | | | | |
| | 26 | ✓ | ✓ | | | | | | | |

**EAST Search History**

**EAST Search History (Prior Art)**

| Ref # | Hits | Search Query | DBs | Default Operator | Plurals | Time Stamp |
|---|---|---|---|---|---|---|
| S1 | 445 | F02D19/0613.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/07/27 14:25 |
| S2 | 1204 | F02D19/0605.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/07/27 14:25 |
| S3 | 3408 | F02D19/0647.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/07/27 14:25 |
| S4 | 15258 | Y02T10/36.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/07/27 14:25 |
| S5 | 808 | (S1 S2 S3 S4) and (switch valve) near20 (propane natural adj gas gaseous lng cng) near20 (gasoline liquid diesel) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/07/27 14:28 |
| S6 | 79 | (S1 S2 S3 S4) and (switch valve) near20 (propane natural adj gas gaseous lng cng) near20 (gasoline liquid diesel) and (second secondary auxiliary) near5 (regulat$3) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/07/27 14:29 |
| S7 | 64 | (S1 S2 S3 S4) and (switch valve) near20 (propane natural adj gas gaseous lng cng) near20 (gasoline liquid diesel) and (second secondary auxiliary) adj (regulat$3 pressure) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/07/27 14:44 |
| S8 | 28 | ("5450832" \| "20130220274" \| "5325835" | USPAT | OR | OFF | 2017/07/27 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | \| "5320078" \| "4619240" \| "6082323" \| "6453877" \| "5171487" \| "6223730" \| "6213083" \| "4489699" \| "5287839" \| "8590510" \| "5673670" \| "4450821" \| "5816224" \| "6276345" \| "4502453" \| "20130047964" \| "4372276" \| "6401685" \| "7905469" \| "2722208" \| "4895124" \| "5161496" \| "5379740" \| "5438968" \| "5419291" \| "6914342" \| "8342158").PN. | | | | 14:45 |
| S9 | 124 | ("5450832" \| "20130220274" \| "5325835" \| "5320078" \| "4619240" \| "6082323" \| "6453877" \| "5171487" \| "6223730" \| "6213083" \| "4489699" \| "5287839" \| "8590510" \| "5673670" \| "4450821" \| "5816224" \| "6276345" \| "4502453" \| "20130047964" \| "4372276" \| "6401685" \| "7905469" \| "2722208" \| "4895124" \| "5161496" \| "5379740" \| "5438968" \| "5419291" \| "6914342" \| "8342158").PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/07/27 14:45 |
| S10 | 421 | (duel dual) near5 fuel near20 (engine generator) same (switch valve) near20 between | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/07/27 14:46 |
| S11 | 0 | dual adj fuel near20 engine same "switchover valve" | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/07/27 15:17 |
| S12 | 44 | dual adj fuel near20 engine same (switch switchover) near5 valve | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/07/27 15:19 |
| S13 | 49 | "6591817" | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/07/27 15:19 |
| S14 | 63 | ("3799125" \| "4150645" \| "4265208" \| "4303049" \| "4305350" \| "4323046" \| "4353345" \| "4391251" \| "4398517" \| "4524033" \| "4671243" \| "5450832" \| "5524582" \| "5623907" \| "5720266" \| "5816224" \| "6035837").PN. OR ("6591817").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2017/07/27 15:20 |
| S15 | 80 | dual adj fuel near20 engine same (switch switchover select$3) near5 valve | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/07/27 15:21 |

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|---|---|---|---|---|---|---|
| S16 | 30 | (("SARDER") near3 ("Mark")).INV. | US-PGPUB; USPAT; USOCR | OR | OFF | 2017/07/27 15:25 |
| S17 | 28 | (("SOTIRIADES") near3 ("Aleko")).INV. | US-PGPUB; USPAT; USOCR | OR | OFF | 2017/07/27 15:25 |
| S18 | 41 | (("DEHN") near3 ("James")).INV. | US-PGPUB; USPAT; USOCR | OR | OFF | 2017/07/27 15:25 |
| S19 | 15 | (("JENISON") near3 ("Leigh")).INV. | US-PGPUB; USPAT; USOCR | OR | OFF | 2017/07/27 15:25 |
| S20 | 16 | (("CHAMPION") near3 ("ENGINE") near3 ("TECHNOLOGY") near3 ("LLC")).AANM. | USPAT | OR | OFF | 2017/07/27 15:25 |
| S21 | 19 | (("CHAMPION") near3 ("ENGINE") near3 ("TECHNOLOGY") near3 ("LLC")).as. | US-PGPUB; USPAT; USOCR | OR | OFF | 2017/07/27 15:26 |
| S22 | 5 | ("20040240141" \| "20060169238" \| "20130098349" \| "20130122439" \| "4489699").PN. OR ("9435273").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2017/07/27 15:42 |
| S23 | 41 | ("1973142" \| "2315882" \| "2381304" \| "4068639" \| "4227497" \| "4335697").PN. OR ("4489699").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2017/07/27 15:43 |
| S24 | 97 | (dual multi multiple plural plurality) adj fuel near20 engine same (switch switchover changeover change switch$3) near5 (valve switch) | US-PGPUB; USPAT; USOCR | OR | OFF | 2017/07/27 16:02 |
| S25 | 1 | (09/813622).APP. | USPAT; USOCR | OR | OFF | 2017/07/27 16:03 |
| S26 | 63 | ("3799125" \| "4150645" \| "4265208" \| "4303049" \| "4305350" \| "4323046" \| "4353345" \| "4391251" \| "4398517" \| "4524033" \| "4671243" \| "5450832" \| "5524582" \| "5623907" \| "5720266" \| "5816224" \| "6035837").PN. OR ("6591817").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2017/07/27 16:03 |
| S27 | 64 | ("4335697" \| "4393848" \| "4430978" \| "4606322" \| "4683864" \| "4825842" \| "4922862" \| "5379740" \| "5474047" \| "5479906" \| "5755211" \| "5775282").PN. OR ("6035837").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2017/07/27 16:34 |
| S28 | 27 | ("5999888" \| "6543395" \| "4619240" \| "20140366577" \| "20120168023" \| "20140202430" \| "4463735" \| "5668310" \| "5224457").PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/07/28 10:32 |
| S29 | 0 | (14/156204).APP. | USPAT; USOCR | OR | OFF | 2017/07/28 11:33 |
| S30 | 5 | (gas gasoline liquid near5 fuel) near20 (propane natural adj gas) near20 (fill$3 fueling) same (quick-connect connect$3) near20 (cover flange) | USPAT; USOCR | OR | OFF | 2017/07/28 11:47 |
| S31 | 109 | (gas gasoline liquid near5 fuel) near20 (propane natural adj gas) near20 (fill$3 fueling) same (quick-connect connect$3) near20 (cover flange) | US-PGPUB; USPAT; USOCR; FPRS; | OR | OFF | 2017/07/28 11:47 |

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|---|---|---|---|---|---|---|
| | | | EPO; JPO; DERWENT; IBM_TDB | | | |
| S32 | 280 | (gas gasoline liquid near5 fuel) near20 (propane natural adj gas) near20 (fill$3 fueling) same (cover flange) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/07/28 11:48 |
| S33 | 171 | (gas gasoline liquid near5 fuel) near20 (propane natural adj gas) near20 (fill$3 fueling) same (cover flange) not S31 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/07/28 11:48 |
| S34 | 5 | "9435273" | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/07/28 14:35 |
| S35 | 1 | "20070137591" | USPAT | OR | OFF | 2018/02/12 15:56 |
| S37 | 34 | (champion near3 engine).as. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/12 15:59 |
| S38 | 95 | dual adj fuel near20 valve near10 switch | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2018/02/12 16:19 |
| S39 | 48 | "4489699" | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2018/02/12 16:30 |
| S40 | 5 | "20070137591" | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2018/02/12 16:30 |
| S41 | 29 | "3412258" | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2018/02/12 16:30 |

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|---|---|---|---|---|---|---|
| S42 | 3 | "20100258099" | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2018/02/12 16:30 |
| S43 | 53 | "5611312" | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2018/02/12 16:30 |
| S44 | 138 | (S39 S40 S41 S42 S43) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2018/02/12 16:31 |
| S45 | 1 | (10/591304).APP. | USPAT; USOCR | OR | OFF | 2018/02/12 16:45 |
| S46 | 6 | ("6332433" \| "7146962").PN. OR ("7325519").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2018/02/12 16:46 |
| S47 | 35 | (US-20020014077-$ or US-20030168024-$ or US-20110168133-$ or US-20120204835-$ or US-20030010320-$ or US-20160363099-$ or US-20170037796-$ or US-20020134362-$ or US-20140202430-$ or US-20160221518-$ or US-20070137591-$).did. or (US-5320078-$ or US-5450832-$ or US-5816224-$ or US-6591817-$ or US-5524582-$ or US-4570605-$ or US-4712516-$ or US-9435273-$ or US-4489699-$ or US-4305350-$ or US-4353345-$ or US-6035837-$ or US-6904873-$ or US-7045916-$ or US-5092305-$).did. or (US-2558884-$ or US-2470747-$ or US-3022425-$ or US-3451424-$).did. or (JP-2004278332-$).did. or (US-20080290531-$ or US-20130047964-$ or US-4463735-$ or CN-203796423-$).did. | US-PGPUB; USPAT; USOCR; JPO; DERWENT | OR | OFF | 2018/02/12 17:19 |
| S48 | 35 | (US-20020014077-$ or US-20030168024-$ or US-20110168133-$ or US-20120204835-$ or US-20030010320-$ or US-20160363099-$ or US-20170037796-$ or US-20020134362-$ or US-20140202430-$ or US-20160221518-$ or US-20070137591-$).did. or (US-5320078-$ or US-5450832-$ or US-5816224-$ or US-6591817-$ or US-5524582-$ or US-4570605-$ or US-4712516-$ or US-9435273-$ or US-4489699-$ or US-4305350-$ or US-4353345-$ or US-6035837-$ or US-6904873-$ or US-7045916-$ or US-5092305-$).did. or (US-2558884-$ or US-2470747-$ or US-3022425-$ or US-3451424-$).did. or (JP-2004278332-$).did. or (US-20080290531- | US-PGPUB; USPAT; USOCR; JPO; DERWENT | OR | OFF | 2018/02/13 17:40 |

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| | | $ or US-20130047964-$ or US-4463735-$ or CN-203796423-$).did. | | | | |
| S50 | 17 | S48 and regulator | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/13 17:40 |

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**( Not for submission under 37 CFR 1.99)**

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| Application Number | 14738060 |
| Filing Date | 2015-06-12 |
| First Named Inventor | Mark J. Sarder et al. |
| Art Unit | 3747 |
| Examiner Name | Kevin A. Lathers |
| Attorney Docket Number | CET1090.019 |

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