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

PTO/AIA/82A (07-13)
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TRANSMITTAL FOR POWER OF ATTORNEY TO ONE OR MORE REGISTERED PRACTITIONERS

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

Application Number	
Filing Date	August 24, 2017
First Named Inventor	Wayne Ernest Conrad
Title	SURFACE CLEANING APPARATUS
Art Unit	n/a
Examiner Name	n/a
Attorney Docket Number	10452-P49931US06

SIGNATURE of Applicant or Patent Practitioner

Signature	/Philip C. Mendes da Costa/	Date (Optional)	August 24, 2017
Name	Philip C. Mendes da Costa	Registration Number	33106
Title (if Applicant is a juristic entity)	Vice President and Agent of Record		
Applicant Name (if Applicant is a juristic entity)	Omachron Intellectual Property Inc.		

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

☐ *Total of _____ forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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

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

PTO/AIA/82B (07-13)
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POWER OF ATTORNEY BY APPLICANT

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

Application Number	Filing Date

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

☑ I hereby appoint the Patent Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above: 01059

OR

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

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

☑ The address associated with the above-mentioned Customer Number

OR

☐ The address associated with Customer Number:

OR

Firm or Individual Name					
Address					
City		State		Zip	
Country					
Telephone		Email			

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

Omachron Intellectual Property Inc.

☐ Inventor or Joint Inventor (title not required below)

☐ Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)

☑ Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a juristic entity)

☐ Person Who Otherwise Shows Sufficient Proprietary Interest (e.g., a petition under 37 CFR 1.46(b)(2) was granted in the application or is concurrently being filed with this document) (provide signer's title if applicant is a juristic entity)

SIGNATURE of Applicant for Patent

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

Signature		Date (Optional)	July 28, 2015
Name	Philip C Mendes da Costa		
Title	Vice President		

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

☐ Total of forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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

PTO/AIA/01 (06-12)
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DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

Title of Invention	SURFACE CLEANING APPARATUS

As the below named inventor, I hereby declare that:

This declaration is directed to:

- [■] The attached application, or
- [ ] United States application or PCT international application number _____ filed on _____.

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

LEGAL NAME OF INVENTOR

Inventor: Wayne Ernest Conrad Date (Optional) : _____

Signature: _____

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute 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

Doc Code: ECOMM.AUTH/ECOMM.WTDW
Doc Description: Internet Communications Authorized/Internet Communications Authorization Withdrawn

PTO/SB/439 (11-15)

AUTHORIZATION FOR INTERNET COMMUNICATIONS IN A PATENT APPLICATION OR REQUEST TO WITHDRAW AUTHORIZATION FOR INTERNET COMMUNICATIONS		
	Application No.	
	Filing Date	August 24, 2017
	First Named Inventor	Wayne Ernest Conrad
	Art Unit	n/a
	Examiner Name	n/a
	Practitioner Docket No.	10452-P49931US06

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

I. To authorize permission for Internet Communications.

☑ Recognizing that Internet communications are not secure, I hereby authorize the USPTO to communicate with the undersigned and practitioners in accordance with 37 CFR 1.33 and 37 CFR 1.34 concerning any subject matter of this application via video conferencing, instant messaging, or electronic mail. I understand that a copy of these communications will be made of record in the application file. (MPEP 502.03)

II. To withdraw authorization for Internet Communications.

☐ The authorization given on _____, to the USPTO to communicate with the undersigned and any practitioner in accordance with 37 CFR 1.33 and 37 CFR 1.34 concerning any subject matter of this application via Internet communications such as video conferencing, instant messaging, or electronic mail is hereby withdrawn. I understand that the withdrawal is effective when approved rather than when received.

I am the

☐ applicant.

☑ attorney or agent of record. Registration number 33,106.

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

/Philip C. Mendes da Costa/ — Signature

August 24, 2017 — Date

Philip C. Mendes da Costa — Typed or printed name

416.957.1695 — Telephone Number

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. Juristic entities must be represented by a patent practitioner (see 37 CFR 1.31, which is applicable to any paper filed on or after September 16, 2012, that is presented on behalf of a juristic entity, regardless of application filing date). Submit multiple forms if more than one signature is required, see below*.

☐ * Total of _____ forms are submitted.

Privacy Act Statement

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

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

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

Doc Code: PD.TO.AUTH
Document Description: Auth or Resc of Auth to Access Appl by DAS/PDX Office

PTO/SB/39 (11-15)
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AUTHORIZATION OR RESCISSION OF AUTHORIZATION TO PERMIT ACCESS TO APPLICATION-AS-FILED BY PARTICIPATING OFFICES

Send completed form to: Commissioner for Patents
P.O. Box 1450, Alexandria, VA 22313-1450

Application Number (if known):	Filing Date: August 24, 2017
First Named Inventor: Wayne Ernest Conrad	Attorney Docket Number: 10452-P49931US06

Title (Required): SURFACE CLEANING APPARATUS

Check either box 1 or 2 below, but **not** both:

1. ☒ By checking this box, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization(WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

2. ☐ By checking this box, the undersigned hereby **rescinds the previous authority granted to the USPTO** to provide the EPO, JPO, KIPO, SIPO, WIPO or any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement access to the documents and information identified in paragraph 1 above.

This rescission of the previous authorization will not be effective unless and until an appropriate USPTO official recognizes and acts on the rescission.

However, once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

NOTE: This form must be signed by an authorized party in accordance with 37 CFR 1.14(c). Please see 37 CFR 1.4(d) for the form of the signature. If necessary, submit multiple forms for more than one signature, see below.*

Signature /Philip C. Mendes da Costa/	Date 2017-08-24
Name (Print/Typed) Philip C. Mendes da Costa	Practitioner Registration Number (if applicable) 33106
Name of Assignee (if applicable)	Title (if applicable)

☐ *Total of _____ forms are submitted.

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

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

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.

Electronic Patent Application Fee Transmittal	
Application Number:	
Filing Date:	
Title of Invention:	SURFACE CLEANING APPARATUS
First Named Inventor/Applicant Name:	Wayne Ernest Conrad
Filer:	Philip C. Mendes da Costa/Snezana Lisowsky
Attorney Docket Number:	10452-P49931US06
Filed as Large Entity	
Filing Fees for Utility under 35 USC 111(a)	

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
UTILITY APPLICATION FILING	1011	1	280	280
UTILITY SEARCH FEE	1111	1	600	600
UTILITY EXAMINATION FEE	1311	1	720	720
Pages:				
Claims:				
CLAIMS IN EXCESS OF 20	1202	5	80	400
INDEPENDENT CLAIMS IN EXCESS OF 3	1201	1	420	420
Miscellaneous-Filing:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**2420**

Electronic Acknowledgement Receipt	
EFS ID:	30179575
Application Number:	15685962
International Application Number:	
Confirmation Number:	3872
Title of Invention:	SURFACE CLEANING APPARATUS
First Named Inventor/Applicant Name:	Wayne Ernest Conrad
Customer Number:	1059
Filer:	Philip C. Mendes da Costa/Snezana Lisowsky
Filer Authorized By:	Philip C. Mendes da Costa
Attorney Docket Number:	10452-P49931US06
Receipt Date:	24-AUG-2017
Filing Date:	
Time Stamp:	18:37:31
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$2420
RAM confirmation Number	082517INTEFSW00005202022095
Deposit Account	022095
Authorized User	Snezana Lisowsky
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.16 (National application filing, search, and examination fees) 37 CFR 1.17 (Patent application and reexamination processing fees)	

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Application Data Sheet	P49931US06_ADS_2017_08_24.pdf	1888428 3b5af419e66b0d12a5fd1a0b3ec57e39cfe98ebc	no	8
Warnings:					
Information:					
2	Specification	P49931US06_Specification_2017_08_24.pdf	202130 75d235dcf9737bd0ca29caf681116e5e49d402d4	no	67
Warnings:					
Information:					
3	Claims	P49931US06_CLAIMS_4ind_25_2017_08_24.pdf	41105 70c7bb76e3a00a4028618d3eab4bf19d4791689f	no	5
Warnings:					
Information:					
4	Abstract	P49931US06_Abstract_2017_08_24.pdf	33544 3aca9ac923ca6130e10d45e0653bffe783a2442e	no	1
Warnings:					
Information:					
5	Drawings-only black and white line drawings	P49931US06_Figures_2017_08_24_Nuance.pdf	5969664 31dbe6d66c06502021ffa1a50cc5586b3662310d	no	41
Warnings:					
Information:					
6	Power of Attorney	P49931US06_POA_2017_08_24.pdf	230043 c642108eeccca7b215c59bca819ebbdb770a0eba	no	2
Warnings:					
Information:					

7	Oath or Declaration filed	P49931US06_Declaration_2017_08_24.pdf	783063 3ad8c2018647ac60564544eec3807fc52f74a71c	no	1
Warnings:					
Information:					
8	Internet Communications Authorized	P49931US06_Internet_2017_08_24.pdf	103028 93780e48607504d3b1b363d5f5d0c4ccb400c773	no	2
Warnings:					
Information:					
9	Auth or Resc of Auth to Access Search Results	P49931US06_EPO_Search_2017_08_24.pdf	123231 86ffe1d81fd43562c1aa2df55abfc79d1cd45238	no	2
Warnings:					
Information:					
10	Auth or Resc of Auth to Access Appl by DAS/PDX Office	P49931US06_DASPDX_2017_08_24.pdf	135783 1bf0a382508e2c3d1a84f7a5128efdc9fa6e5f26	no	2
Warnings:					
Information:					
11	Fee Worksheet (SB06)	fee-info.pdf	38258 967c9bd41018a2ca1ea76ea117fa657a744db87a	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	9548277		

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

New Applications Under 35 U.S.C. 111

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

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

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

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

PTO/AIA/14 (11-15)
Approved for use through 04/30/2017. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	10452-P49931US06
	Application Number	
Title of Invention	SURFACE CLEANING APPARATUS	

The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.
This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.

Secrecy Order 37 CFR 5.2:

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Inventor Information:

Inventor 1 — Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Wayne	Ernest	Conrad	

Residence Information (Select One) US Residency ● Non US Residency Active US Military Service

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Postal Code	L0B 1J0	**Country** [i]	CA

All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the **Add** button. Add

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☐ **An Address is being provided for the correspondence Information of this application.**

Customer Number	01059		
Email Address	pmdcosta@bereskinparr.com	Add Email	Remove Email

Application Information:

Title of the Invention	SURFACE CLEANING APPARATUS		
Attorney Docket Number	10452-P49931US06	**Small Entity Status Claimed**	☐
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	41	**Suggested Figure for Publication (if any)**	5A

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	10452-P49931US06
	Application Number	
Title of Invention	SURFACE CLEANING APPARATUS	

Filing By Reference:

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32).
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Please Select One:	● Customer Number	US Patent Practitioner	○ Limited Recognition (37 CFR 11.9)
Customer Number	01059		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing benefit claim information in the Application Data Sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.
When referring to the current application, please leave the "Application Number" field blank.

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
	Continuation in part of	15/095714	2016-04-11

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	10452-P49931US06
	Application Number	
Title of Invention	SURFACE CLEANING APPARATUS	

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)[i] the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

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Application Number	Country[i]	Filing Date (YYYY-MM-DD)	Access Code[i] (if applicable)

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Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.
NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

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Title of Invention	SURFACE CLEANING APPARATUS	

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

☐ A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

☐ B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	10452-P49931US06
	Application Number	
Title of Invention	SURFACE CLEANING APPARATUS	

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Applicant 1 Remove

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

Clear

● Assignee	Legal Representative under 35 U.S.C. 117	Joint Inventor
Person to whom the inventor is obligated to assign.	Person who shows sufficient proprietary interest	

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor:

If the Applicant is an Organization check here. ☒

Organization Name	Omachron Intellectual Property Inc.

Mailing Address Information For Applicant:

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City	Hampton	**State/Province**	ON
Country	CA	Postal Code	L0B 1J0
Phone Number		Fax Number	
Email Address			

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Assignee Information including Non-Applicant Assignee Information:

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Assignee 1

Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.

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If the Assignee or Non-Applicant Assignee is an Organization check here. ☐

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Address 1			
Address 2			
City		**State/Province**	
Country i		Postal Code	
Phone Number		Fax Number	
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Signature:

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See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/Philip C. Mendes da Costa/			Date (YYYY-MM-DD)	2017-08-24
First Name	Philip	Last Name	Mendes da Costa	Registration Number	33106

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	10452-P49931US06
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This collection of information is required by 37 CFR 1.76. 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 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet 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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1 The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.

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9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

TITLE: SURFACE CLEANING APPARATUS

INVENTOR: WAYNE CONRAD

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application is a continuation in part of co-pending U.S. patent application no. 15/095,714, which was filed April 11, 2016 and is incorporated herein in its entirety by reference.

FIELD

[0002] The specification relates to surface cleaning apparatus. In a preferred embodiment, the surface cleaning apparatus comprises a portable surface cleaning apparatus, such as a hand vacuum cleaner or a pod.

INTRODUCTION

[0003] The following is not an admission that anything discussed below is part of the prior art or part of the common general knowledge of a person skilled in the art.

[0004] Various types of surface cleaning apparatus are known. Surface cleaning apparatus include vacuum cleaners. Currently, a vacuum cleaner typically uses at least one cyclonic cleaning stage. More recently, cyclonic hand vacuum cleaners have been developed. See for example, US 7,931,716 and US 2010/0229328. Each of these discloses a hand vacuum cleaner which includes a cyclonic cleaning stage. US 7,931,716 discloses a cyclonic cleaning stage utilizing two cyclonic cleaning stages wherein both cyclonic stages have cyclone axis of rotation that extends vertically. US 2010/0229328 discloses a cyclonic hand vacuum cleaner wherein the cyclone axis of rotation extends horizontally and is co-axial with the suction motor. In addition, hand carriable cyclonic vacuum cleaners are also known (see US 8,146,201 and US 8,549,703).

SUMMARY

[0005] This summary is intended to introduce the reader to the more detailed description that follows and not to limit or define any claimed or as yet unclaimed invention. One or more inventions may reside in any combination or sub-combination of the elements or process steps disclosed in any part of this document including its claims and figures.

[0006] In accordance with one aspect of this disclosure, a hand vacuum cleaner has a uniflow cyclone with a front cyclone air inlet and a rear air cyclone outlet. Accordingly, the cyclone axis extends rearwardly from the front end of the cyclone. The cyclone air inlet may be in an upper portion of the cyclone and may be in an upper portion of the sidewall (e.g., most and preferably essentially all of the inlet opening may be in the sidewall of the cyclone above the axis of rotation of the cyclone). The dirt collection area may be a dirt collection chamber that is external to the cyclone chamber and may be provided below the cyclone chamber. The dirt outlet of the cyclone chamber may be provided in a lower portion of the sidewall of the cyclone near or at the rear end of the cyclone.

[0007] In accordance with this aspect, there is provided a hand vacuum cleaner having a front end having a dirty air inlet, a rear end, a clean air outlet, an upper end and a bottom, the hand vacuum cleaner comprising:

(a) a main body comprising an upper end having a dirty air inlet, a lower end, a front end and a rear end, the main body housing a suction motor and fan assembly, the suction motor and fan assembly having a suction motor axis of rotation; and,

(b) a cyclone unit comprising a cyclone having a cyclone axis of rotation, a front end having a cyclone air inlet and a longitudinally spaced apart rear end having a cyclone air outlet, wherein the cyclone air inlet is in an upper portion of the cyclone;

wherein when the hand vacuum cleaner is oriented with the cyclone underneath the upper end, the cyclone axis of rotation is generally horizontal.

[0008] In some embodiments, when the hand vacuum cleaner is positioned with the bottom on a horizontal surface, the cyclone axis of rotation may be generally horizontal.

[0009] In some embodiments, when the hand vacuum cleaner is oriented with the cyclone underneath the upper end, the suction motor axis of rotation may be generally horizontal.

[0010] In some embodiments, when the hand vacuum cleaner is oriented with the cyclone underneath the upper end, the suction motor axis of rotation may be positioned below the cyclone axis of rotation.

[0011] In some embodiments, the cyclone has a sidewall having an upper portion and a lower portion and a dirt outlet may be provided in the lower portion and is in communication with a dirt collection chamber that is exterior to the cyclone. Optionally, the cyclone air inlet may be provided in the upper portion of the sidewall of the cyclone.

[0012] In some embodiments, the cyclone axis of rotation may be generally parallel to the suction motor axis of rotation.

[0013] In some embodiments, the main body may be provided with a handle.

[0014] In some embodiments, the hand vacuum cleaner further comprises a handle having a hand grip portion that may extend upwardly and forwardly when the hand vacuum cleaner is oriented with the cyclone underneath the upper end.

[0015] In some embodiments, the lower end of the main body may comprise the bottom.

[0016] In some embodiments, the cyclone unit may be provided on the front end of the main body. Alternately, or in addition, the cyclone unit may be removably mounted to the main body.

[0017] In some embodiments, the dirty air inlet may be provided on a front end of the cyclone unit.

[0018] In some embodiments, the dirty air inlet may comprise an inlet passage that extends longitudinally between an inlet end and an outlet end and has a longitudinal passage axis, the outlet end of the inlet passage communicates with the cyclone air inlet and the inlet passage axis may be positioned between an upper and a lower end of a handle of the hand vacuum cleaner.

[0019] In some embodiments, the handle may comprise a hand grip portion that extends upwardly and forwardly when the hand vacuum cleaner is oriented with the cyclone underneath the upper end. In some of these embodiments, the suction motor axis of rotation may be positioned below the cyclone axis of rotation when the hand vacuum cleaner is oriented with the cyclone underneath the upper end.

[0020] In some embodiments, the inlet passage may have a longitudinal passage axis that is linear and all of the longitudinal passage may be positioned above the cyclone

axis of rotation when the hand vacuum cleaner is oriented with the cyclone underneath the upper end.

[0021] In accordance with this aspect, there is also provided a surface cleaning apparatus comprising the hand vacuum cleaner discussed herein, a surface cleaning head and a rigid air flow conduit extending between the surface cleaning head and the hand vacuum cleaner wherein an outlet end of the rigid air flow conduit is removable connectable in air flow communication with the inlet passage.

[0022] In accordance with this aspect, there is also provided a hand vacuum cleaner having a front end, a rear end, a clean air outlet, an upper end and a bottom, the hand vacuum cleaner comprising:

(a) a main body comprising an upper end, a lower end, a front end and a rear end, the main body housing a suction motor and fan assembly, the suction motor and fan assembly having a suction motor axis of rotation; and,

(b) an air treatment member having a front end having an air treatment member air inlet and a longitudinally rearwardly spaced apart rear end having an air treatment member air outlet, wherein the air treatment member air inlet is in a longitudinally extending sidewall of the air treatment member; and,

(c) a dirty air inlet comprising an inlet passage that extends longitudinally between an inlet end and an outlet end and has a longitudinal passage axis, the outlet end of the inlet passage communicates with the air treatment member air inlet.

[0023] In some embodiments, air travels through the air treatment member air outlet in a flow direction and the flow direction may be generally parallel to the suction motor axis of rotation.

[0024] In accordance with another aspect of this disclosure, a hand vacuum cleaner has an air treatment member with an air flow conduit or passage wherein the conduit is also a handle of the air treatment member.

[0025] In accordance with this aspect, there is provided a hand vacuum cleaner having a front end having a dirty air inlet, a rear end, a clean air outlet, an upper end and a bottom, the hand vacuum cleaner comprising:

(a) a main body comprising an upper end, a lower end, a front end, a rear end and a driving handle, the main body housing a suction motor and fan assembly, the suction motor and fan assembly having a suction motor axis of rotation;

(b) an air treatment member comprising an air treatment member handle, a dirt collection region having an openable door and an openable door lock comprising a door release actuator wherein the door is moveable to an open position when the door release actuator is actuated; and,

(c) an air inlet comprises an inlet passage that extends longitudinally between an inlet end and an outlet end and has a longitudinal passage axis and the inlet passage comprises the air treatment member handle.

[0026] In some embodiments, the driving handle may comprise a portion spaced from the main body whereby a finger receiving area is provided between the driving handle and the main body.

[0027] In some embodiments, the driving handle may be provided at the rear end of the main body.

[0028] In some embodiments, the air treatment member handle may comprise a portion spaced from the air treatment member whereby a finger receiving area is provided between the air treatment member handle and the air treatment member.

[0029] The In some embodiments, the air treatment member handle may be provided above the air treatment member.

[0030] In some embodiments, the openable door may be provided at the front end of the hand vacuum cleaner.

[0031] In some embodiments, the openable door may have a lower end that is moveably mounted to the air treatment member and an upper end that may be engaged by the door lock.

[0032] In some embodiments, the door release actuator may be positioned proximate the air treatment member handle.

[0033] In some embodiments, the inlet passage may extend generally rearwardly.

[0034] In some embodiments, the door release actuator may be positioned at a forward end of the inlet passage.

[0035] In accordance with this aspect, there is also provided a hand vacuum cleaner having a front end having a dirty air inlet, a rear end, a clean air outlet, an upper end and a bottom, the hand vacuum cleaner comprising:

(a) a main body comprising an upper end, a lower end, a front end, a rear end and a driving handle, the main body housing a suction motor and fan assembly, the suction motor and fan assembly having a suction motor axis of rotation; and,

(b) a cyclone unit comprising a cyclone having a cyclone axis of rotation, a cyclone unit handle, a dirt collection region having an openable door and an openable door lock comprising a door release actuator wherein the door is moveable to an open position when the actuator is actuated;

wherein when a user's hand is holding the cyclone unit by the cyclone unit handle, the door release actuator is operable by the same hand.

[0036] In some embodiments, the driving handle may comprise a portion spaced from the main body whereby a finger receiving area is provided between the driving handle and the main body.

[0037] In some embodiments, the driving handle may be provided at the rear end of the main body.

[0038] In some embodiments, the cyclone unit handle may comprise a portion spaced from the cyclone unit whereby a finger receiving area is provided between the cyclone unit handle and the cyclone unit.

[0039] In some embodiments, the cyclone unit handle may be provided above the cyclone unit.

[0040] In some embodiments, the openable door may be provided at the front end of the hand vacuum cleaner.

[0041] In some embodiments, the air inlet may comprise an inlet passage that extends longitudinally between an inlet end and an outlet end and the inlet passage comprises the cyclone unit handle.

[0042] In some embodiments, when the hand vacuum cleaner is positioned with the bottom on a horizontal surface, the cyclone axis of rotation may be generally horizontal.

[0043] In accordance with another aspect of this disclosure, the air treatment member, e.g., a cyclone unit, may be removably mounted to the rest of the hand vacuum cleaner. The air treatment member may include a dirty air inlet that is connectable to an upper end of a longitudinally extending rigid member (e.g., which may be hollow to enable airflow therethrough) and a surface cleaning head may be provided (preferably removably connected) to a lower end of the longitudinally extending rigid member. When assembled as an upright or stick vacuum cleaner with the hand vacuum cleaner drivingly connected to the surface cleaning head by the longitudinally extending rigid member (e.g., a rigid wand), the handle of the hand vacuum cleaner may be used to steer the surface cleaning head. An advantage of this configuration is that the hand vacuum cleaner may be easily converted to an upright or stick vacuum cleaner.

[0044] In such a configuration, lateral stresses (i.e., stresses transverse to the longitudinal forward/rearward axis of the hand vacuum cleaner) may occur as the handle of the hand vacuum cleaner is used to steer the surface cleaning head. In order to assist in stabilizing the joint of the air treatment member and the rest of the hand vacuum cleaner, lateral stability members may be provided at the interface of the air treatment member and the rest of the hand vacuum cleaner. For example, one or more pairs of inter-engagement members may be provided which extend in a direction that extends generally between the lower end and the upper end of the hand vacuum cleaner. These lateral stability members may extend continuously or they may have discontinuities and they may extend linearly or otherwise. As the lateral stresses are exerted in a direction that is at an angle between 0-90°, 25-90°, 45-90° or 70-90° to the lateral stability members, and may be generally perpendicular (90°) thereto, the lateral stability members will strengthen the joint of the air treatment member and the rest of the hand vacuum cleaner. Preferably, at least one pair is provided on either lateral side of a center line extending in the longitudinal forward/rearward

direction of the hand vacuum cleaner. The lateral stability members may be any members that have sides that abut to resist the lateral stresses and may comprise a longitudinally extending protrusion or spline and a mating groove or abutting longitudinally extending protrusions or splines.

[0045] In accordance with this aspect, there is provided a surface cleaning apparatus comprising:

(a) a hand vacuum cleaner having a front end having a dirty air inlet, a longitudinally spaced apart rear end, a clean air outlet, an upper end and a bottom, the hand vacuum cleaner comprising:

(i) a main body comprising an upper end, a lower end, a front end and a rear end, the main body housing a suction motor and fan assembly, the suction motor and fan assembly having a suction motor axis of rotation;

(ii) an air treatment member removably mounted at the front end of the main body, the air treatment member comprising an upper end, a lower end, a front end and a rear end, the lower end of the air treatment member is rotationally mounted to the lower end of the main body; and,

(III) an air treatment member release lock comprising a release actuator and first and second engagement members wherein the first engagement member is provided on the upper end of the air treatment member and the second engagement member is provided on the upper end of the main body and the release actuator is provided on one of the air treatment member and the main body,

(b) a surface cleaning head; and,

(c) a rigid air flow conduit extending between the surface cleaning head and the hand vacuum cleaner wherein an outlet end of the rigid air flow conduit is removably connectable in air flow communication with the inlet passage.

[0046] In some embodiments, the lower end of one of the air treatment member and the main body may be provided with a transversely extending rod and the lower end of the

other of the air treatment member and the main body may be provided with a hook removably connectable with the rod.

[0047] In some embodiments, the lower end of the air treatment member may be rotationally mounted to the lower end of the main body at a position longitudinally spaced from the first and second engagement members.

[0048] In some embodiments, the lower end of the air treatment member may be rotationally mounted to the lower end of the main body at a position longitudinally spaced from a position at which the upper end of the air treatment member abuts the upper end of the main body.

[0049] In some embodiments, one of the air treatment member and the main body may be provided with an outwardly extending protrusion and the other of the air treatment member and the main body may be provided with a groove in which the outwardly extending protrusion is received when the air treatment member is secured to the main body.

[0050] In some embodiments, the main body may have a driving handle and the dirty air inlet is part of the air treatment member.

[0051] In some embodiments, the air treatment member may comprise a cyclone unit and the driving handle may be provided at the rear end of the main body and the dirty air inlet may comprise an inlet passage that extends longitudinally between an inlet end provided at a front end of the cyclone unit and an outlet end, and the inlet end may be adapted to receive an accessory cleaning tool. The accessory cleaning tool may comprise a rigid air flow conduit.

[0052] In some embodiments, the air treatment member may comprise a cyclone unit and the driving handle may be provided at the rear end of the main body and the dirty air inlet may comprise an inlet passage that extends longitudinally between an inlet end provided at a front end of the cyclone unit and an outlet end, and the inlet end may be positioned forward of the cyclone unit.

[0053] In some embodiments, dirty air inlet may be provided above the air treatment member.

[0054] In some embodiments, the air treatment member may comprise a dirt collection region having an openable door and the openable door may be provided at the front end of the air treatment member.

[0055] In some embodiments, when the hand vacuum cleaner is oriented with the air treatment member below the upper end, the cyclone axis of rotation may be generally horizontal.

[0056] In accordance with this aspect, there is also provided a hand vacuum cleaner having a front end having a dirty air inlet, a longitudinally spaced apart rear end, a clean air outlet, an upper end and a bottom, the hand vacuum cleaner comprising:

(a) a main body comprising an upper end, a lower end, a front end and a rear end, the main body housing a suction motor and fan assembly, the suction motor and fan assembly having a suction motor axis of rotation;

(b) a cyclone unit removably mounted at the front end of the main body, the cyclone unit comprising an upper end, a lower end, a front end, a rear end and a cyclone axis of rotation, the lower end of the cyclone unit is rotationally mounted to the lower end of the main body; and,

(c) a cyclone unit release lock comprising a release actuator and first and second engagement members wherein the first engagement member is provided on the upper end of the cyclone unit and the second engagement member is provided on the upper end of the main body and the release actuator is provided on one of the cyclone unit and the main body.

[0057] In some embodiments, the lower end of one of the cyclone unit and the main body may be provided with a transversely extending rod and the lower end of the other of the cyclone unit and the main body may be provided with a hook removably connectable with the rod.

[0058] In some embodiments, the lower end of the cyclone unit may be rotationally mounted to the lower end of the main body at a position longitudinally spaced from the first and second engagement members.

[0059] In some embodiments, the lower end of the cyclone unit may be rotationally mounted to the lower end of the main body at a position longitudinally spaced from a position at which the upper end of the cyclone unit abuts the upper end of the main body.

[0060] In some embodiments, one of the cyclone unit and the main body may be provided with an outwardly extending protrusion and the other of the cyclone unit and the main body is provided with a groove in which the outwardly extending protrusion is received when the cyclone unit is secured to the main body.

[0061] In some embodiments, the main body may have a driving handle and the dirty air inlet is part of the cyclone unit.

[0062] In some embodiments, the driving handle may be provided at the rear end of the main body and the dirty air inlet may comprise an inlet passage that extends longitudinally between an inlet end provided at a front end of the cyclone unit and an outlet end, and the inlet end may be adapted to receive an accessory cleaning tool. The accessory cleaning tool may comprise a rigid air flow conduit.

[0063] In some embodiments, the driving handle may be provided at the rear end of the main body and the dirty air inlet may comprise an inlet passage that extends longitudinally between an inlet end provided at a front end of the cyclone unit and an outlet end, and the inlet end may be positioned forward of the cyclone unit.

[0064] In some embodiments, the dirty air inlet may be provided above the cyclone unit.

[0065] In some embodiments, the cyclone unit may comprise a dirt collection region having an openable door and the openable door may be provided at the front end of the cyclone unit.

[0066] In some embodiments, when the hand vacuum cleaner is oriented with the cyclone below the upper end, the cyclone axis of rotation may be generally horizontal.

[0067] In accordance with another aspect of this disclosure an air treatment member includes an air flow passage which functions as a handle of the air treatment member. An advantage of this design is that the air treatment member may be provided with a handle that is not an additional part. The air flow passage may be part of the air flow path from a

dirty air inlet to the air treatment member air inlet. Alternately or in addition, the air flow passage may be part of an air flow path for a bleed stream and a bleed valve may be provided in the air flow passage.

[0068] In accordance with this aspect of the disclosure, there is provided a hand vacuum cleaner having a front end, a rear end, an upper end and a bottom, the hand vacuum cleaner comprising:

(a) a main body comprising an upper end, a lower end, a front end, a rear end and a driving handle, the main body housing a suction motor and fan assembly, the suction motor and fan assembly having a suction motor axis of rotation; and,

(b) an air treatment member, the air treatment member comprising an air treatment member axis and an air treatment member handle wherein the air treatment member handle comprises an air flow passage.

[0069] In some embodiments, the air flow passage may comprise an inlet passage of the air treatment member.

[0070] In some embodiments, the inlet passage may extend longitudinally between a dirty air inlet end and an outlet end.

[0071] In some embodiments, the air treatment member handle may comprise a portion spaced from the air treatment member whereby a finger receiving area is provided between the air treatment member handle and the air treatment member.

[0072] In some embodiments, the air treatment member handle may be provided above the air treatment member.

[0073] In some embodiments, the passage may extend generally axially in the direction of the air treatment member axis.

[0074] In some embodiments, the driving handle may comprise a portion spaced from the main body whereby a finger receiving area is provided between the driving handle and the main body.

[0075] In some embodiments, the driving handle may be provided at the rear end of the main body.

[0076] In some embodiments, the air treatment member may be removable from the main body and the air treatment member handle may be removable with the air treatment member.

[0077] In some embodiments, a bleed valve may be positioned in the air treatment member handle.

[0078] In accordance with this aspect, there is also provided a hand vacuum cleaner having a front end, a rear end, an upper end and a bottom, the hand vacuum cleaner comprising:

(a) a main body comprising an upper end, a lower end, a front end, a rear end and a driving handle, the main body housing a suction motor and fan assembly, the suction motor and fan assembly having a suction motor axis of rotation; and,

(b) a cyclone unit, the cyclone unit comprising a cyclone having a cyclone axis of rotation, a cyclone unit handle, wherein the cyclone unit handle comprises an air flow passage.

[0079] In some embodiments, the cyclone unit handle may comprise an inlet passage of the cyclone unit.

[0080] In some embodiments, the inlet passage may extend longitudinally between a dirty air inlet end and an outlet end.

[0081] In some embodiments, the cyclone unit handle may comprise a portion spaced from the cyclone unit whereby a finger receiving area is provided between the cyclone unit handle and the cyclone unit.

[0082] In some embodiments, the cyclone unit handle may be provided above the cyclone unit.

[0083] In some embodiments, the passage may extend generally parallel to the cyclone axis.

[0084] In some embodiments, the driving handle may comprise a portion spaced from the main body whereby a finger receiving area is provided between the driving handle and the main body.

[0085] In some embodiments, the driving handle may be provided at the rear end of the main body.

[0086] In some embodiments, the cyclone unit may be removable from the main body and the cyclone unit handle may be removable with the cyclone unit.

[0087] In some embodiments, when the hand vacuum cleaner is oriented with the upper end positioned above the lower end, the cyclone axis of rotation may be generally horizontal.

[0088] In some embodiments, a bleed valve may be positioned in the cyclone unit handle.

[0089] In accordance with another aspect of this disclosure, a surface cleaning apparatus is electrically connectable with an accessory cleaning tool (e.g., a rigid air flow conduit, a crevice tool, a brush or the like) and a circuit electrically connecting the accessory tool with a source or power provided for the surface cleaning apparatus (e.g., AC power from a wall outlet or an on board energy storage member such as one or more batteries) is moved from a circuit open position to a circuit closed position when the accessory tool is mounted in air flow communication with the surface cleaning apparatus. An advantage of this design is that the terminal ends of the electrical outlet of the surface cleaning apparatus are de-energized when they are exposed. In one embodiment, an electrical conductor element of the accessory cleaning tool drives an electrical conductor element of the surface cleaning apparatus to a circuit closed position when the accessory tool is mounted in air flow communication with the surface cleaning apparatus. Accordingly, one or more of the electrical conductor elements of the surface cleaning apparatus may be biased to a circuit open position and may be moveable (e.g., linearly moveable, by contact with the electrical conductor element of the accessory tool). In alternate embodiments, the driving member provided on the accessory cleaning tool may be a non-conductive (e.g., plastic) engagement member (e.g., finger), that engages a member (e.g., a slideable tab of a housing of the electrical conductor elements of the surface cleaning apparatus) to move the electrical conductor elements of the surface cleaning apparatus to a circuit closed position.

[0090] In accordance with this aspect, there is provided a surface cleaning apparatus comprising:

(a) an air flow passage extending between a dirty air inlet and a clean air outlet;

(b) a main body housing a suction motor and fan assembly that is positioned in the air flow passage;

(c) an air treatment member positioned in the air flow passage;

(d) an electrical outlet electrically connectable with an accessory cleaning tool; and,

(e) a circuit extending between a source of power and the electrical outlet, the circuit comprising first and second electrical conductor elements, at least the first electrical conductor element is biased to a circuit open position wherein the first electrical conductor element is moved to a circuit closed position when an accessory cleaning tool is connected to the dirty air inlet.

[0091] In some embodiments, the first and second electrical conductor elements may engage electrical conductors of the accessory tool whereby the first and second electrical conductor elements are electrically connectable with the accessory cleaning tool and at least the first electrical connector conductor may be biased to a circuit open position.

[0092] In some embodiments, the first and second electrical conductor elements may comprise first and second electrical connector conductors, each of the electrical conductor elements may have an accessory tool contact end and a terminal end contact end, at least the first electrical connector conductor may be biased to a circuit open position and at least one of the accessory tool contact ends may be recessed in the electrical outlet when in the circuit open position.

[0093] In some embodiments, the circuit may comprise electrical conductive members, each of which extends from the source of power to a terminal end, at least the first electrical conductor element may be moveably mounted from a position in which it contacts one of the terminal ends to a position in which it is spaced from the terminal end.

[0094] In some embodiments, each of the electrical conductor elements may be moveably mounted from a position in which each of the electrical conductor elements

contacts one of the terminal ends to a position in which the electrical conductor elements contacts are spaced from the terminal ends.

[0095] In some embodiments, the circuit may comprise electrical conductive members, each of which may extend from the source of power to a terminal end, the first and second electrical conductor elements may comprise first and second electrical connector conductors, each of the electrical conductor elements may have an accessory tool contact end and a terminal end contact end, at least the first electrical conductor element may be moveably mounted from a position in which it contacts one of the terminal ends to a position in which it is spaced from the terminal end.

[0096] In some embodiments, surface cleaning apparatus may further comprise a compression spring positioned between the first electrical conductor element and one of the terminal ends.

[0097] In some embodiments, the compression spring may be non-conductive.

[0098] The In some embodiments, the source of power may comprise a power cord.

[0099] In some embodiments, the circuit further may comprise a main power switch.

[00100] In some embodiments, the accessory cleaning tool may comprise a rigid air flow conduit.

[00101] In some embodiments, the surface cleaning apparatus may comprise a hand vacuum cleaner and the electrical outlet is provided adjacent the dirty air inlet.

[00102] In accordance with this aspect, there is also provided a surface cleaning apparatus comprising

(a) a suction motor and fan assembly operable on a source of power;

(b) an electrical outlet housing having first and second electrical conductor elements, each of the electrical conductor elements has a first contact end and a second contact end; and,

(c) a circuit including the electrical conductor elements and a main power switch operable between a circuit closed position and a circuit open position, at least the first electrical conductor element is moveable between a circuit closed position and a

circuit open position and is biased to the circuit open position wherein the first electrical conductor element is moved to a circuit closed position upon mechanical engagement of a part having an air flow conduit with the electrical outlet housing.

[00103] In some embodiments, the circuit may comprise electrical conductive members, each of which may extend from the source of power to a terminal end, at least the first electrical conductor element may be moveably mounted from a position in which it contacts one of the terminal ends to a position in which it is spaced from the terminal end.

[00104] In some embodiments, each of the electrical conductor elements may be moveably mounted from a position in which each of the electrical conductor elements contacts one of the terminal ends to a position in which the electrical conductor elements contacts are spaced from the terminal ends.

[00105] In some embodiments, the surface cleaning apparatus may further comprise a compression spring positioned between the first electrical conductor element and the one of the terminal ends.

[00106] In some embodiments, the compression spring may be non-conductive.

[00107] In some embodiments, the source of power may comprise a power cord.

[00108] In some embodiments, the first electrical conductor element may be longitudinally moveable in the electrical outlet housing

[00109] In some embodiments, the surface cleaning apparatus may comprise a hand vacuum cleaner and the electrical outlet housing is provided adjacent a dirty air inlet.

[00110] In accordance with another aspect of this disclosure, a hand vacuum cleaner is provided with a front openable door of a dirt collection area and the hand vacuum cleaner has a handle that extends upwardly and forwardly when the hand vacuum cleaner is oriented with the upper end above the lower end (e.g., when the hand vacuum cleaner is seated on a horizontal surface). An advantage of this design is that the handle is oriented to permit the user to point the hand vacuum cleaner downwardly to empty the dirt collection area when the door is opened.

[00111] In accordance with this aspect, there is provided a hand vacuum cleaner having a front end having a dirty air inlet, a rear end, a clean air outlet, an upper end and a bottom, the hand vacuum cleaner comprising:

(a) a main body comprising an upper end, a lower end, a front end, a rear end and a driving handle, the main body housing a suction motor and fan assembly, the suction motor and fan assembly having a suction motor axis of rotation wherein the driving handle has a hand grip portion that extends upwardly and forwardly when the hand vacuum cleaner is oriented with the upper end above the lower end; and,

(b) an air treatment member comprising a dirt collection region having an openable door provided on a front end of the air treatment member and an openable door lock comprising a door release actuator wherein the door is moveable to an open position when the door release actuator is actuated.

[00112] In some embodiments, the hand grip portion may be spaced from the main body whereby a finger receiving area is provided between the hand grip portion and the main body.

[00113] In some embodiments, at least a portion of the finger receiving area may be positioned linearly rearwardly from the air treatment member.

[00114] In some embodiments, the main body may comprise a suction motor housing and the driving handle has an end that may extend from the suction motor housing.

[00115] In some embodiments, the main body may comprise a suction motor housing and the driving handle may have an end that extends upwardly and forwardly from the suction motor housing.

[00116] In some embodiments, the driving handle may be provided at the rear end of the main body.

[00117] In some embodiments, the inlet passage may extend generally rearwardly.

[00118] In some embodiments, the inlet passage may be positioned above the openable door.

[00119] In some embodiments, the dirty air inlet may comprise an inlet passage that extends longitudinally between an inlet end and an outlet end and has a longitudinal passage axis and the longitudinal passage axis interests the driving handle.

[00120] In some embodiments, the air treatment member may have a front end having an air treatment member air inlet and a longitudinally rearwardly spaced apart rear end having an air treatment member air outlet.

[00121] In some embodiments, the inlet passage may be positioned above the openable door.

[00122] In accordance with this aspect, there is also provided a hand vacuum cleaner having a front end having a dirty air inlet, a rear end, a clean air outlet, an upper end and a bottom, the hand vacuum cleaner comprising:

(a) a main body comprising an upper end, a lower end, a front end, a rear end and a driving handle, the main body housing a suction motor and fan assembly, the suction motor and fan assembly having a suction motor axis of rotation wherein the driving handle has a hand grip portion that extends upwardly and forwardly when the hand vacuum cleaner is oriented with the upper end above the lower end; and,

(b) a cyclone unit comprising a cyclone having a cyclone axis of rotation, a dirt collection region having an openable door provided on a front end of the cyclone unit and an openable door lock comprising a door release actuator wherein the door is moveable to an open position when the actuator is actuated.

[00123] In some embodiments, the hand grip portion may be spaced from the main body whereby a finger receiving area is provided between the hand grip portion and the main body.

[00124] In some embodiments, at least a portion of the finger receiving area may be positioned linearly rearwardly from the cyclone unit.

[00125] In some embodiments, the main body may comprise a suction motor housing and the driving handle has an end that extends from the suction motor housing.

[00126] In some embodiments, the main body may comprise a suction motor housing and the driving handle has an end that extends upwardly and forwardly from the suction motor housing.

[00127] In some embodiments, the driving handle may be provided at the rear end of the main body.

[00128] In some embodiments, the inlet passage may extend generally rearwardly.

[00129] In some embodiments, the inlet passage may be positioned above the openable door.

[00130] In some embodiments, the dirty air inlet may comprise an inlet passage that extends longitudinally between an inlet end and an outlet end and has a longitudinal passage axis and the longitudinal passage axis interests the driving handle.

[00131] In some embodiments, the inlet passage may be positioned above the openable door.

[00132] In some embodiments, when the hand vacuum cleaner may be oriented with the upper end above the lower end, the cyclone axis of rotation is generally horizontal.

[00133] In accordance with another aspect of this disclosure, a surface cleaning apparatus has an air treatment member that includes a dirt collection region having an openable door. The openable door provides access to empty and/or clean the air treatment member. For example, if the air treatment member is a cyclone assembly which comprises a cyclone chamber and a dirt collection chamber exterior to the cyclone chamber, the door may provide access to the cyclone chamber and/or the dirt collection chamber. When an accessory (e.g. a wand, crevice tool, or brush) is connected to the dirty air inlet of the surface cleaning apparatus, the openable door is inhibited from opening. An advantage of this design is that the presence of a connected accessory may inhibit or prevent a user from inadvertently opening the dirt collection region of the air treatment member if, e.g., the door open actuator is located on or proximate to a handle of the surface cleaning apparatus.

[00134] For example, it may be unlikely that a user would try and empty the dirt collection region when an accessory tool is connected. Accordingly, if a user tries to

actuate a release actuator for the openable door when an accessory is connected, it may be desirable to inhibit the door from opening, as the presence of the connected accessory may indicate that the user may not have intended to actuate a door release actuator, and may have instead intended to actuate a different actuator, button, or mechanism of the surface cleaning apparatus.

[00135] Also, the presence of a connected accessory may indicate that it is more likely that the surface cleaning apparatus is being used to clean a surface, as the accessory may typically be disconnected after a surface cleaning operation has been performed. Accordingly, it may be desirable to inhibit or prevent opening of the dirt collection region when an accessory is connected, in the event that a user inadvertently bumps a door release actuator against furniture or another object when manipulating the surface cleaning apparatus with a connected accessory.

[00136] In accordance with this aspect, there is provided a surface cleaning apparatus comprising:

(a) an air flow path from a dirty air inlet to a clean air outlet and including a suction motor;

(b) an air treatment member comprising a dirt collection region having an openable door; and,

(c) an accessory removably connectable to the dirty air inlet wherein, when the accessory is connected to the dirty air inlet, the openable door is inhibited from opening.

[00137] In some embodiments, the surface cleaning apparatus may further comprise a front end having the dirty air inlet and the openable door may be provided on the front end.

[00138] In some embodiments, the accessory may be removably mounted to the dirty air inlet.

[00139] In some embodiments, when the accessory is connected to the dirty air inlet, the accessory may physically inhibit the openable door from opening.

[00140] In some embodiments, when the accessory is connected to the dirty air inlet, the accessory may overlie a portion of the openable door.

[00141] In some embodiments, when the accessory is connected to the dirty air inlet, the accessory may abut a portion of the openable door.

[00142] In some embodiments, the openable door may have first and second opposed sides, the first side having a hinge for the openable door and, when the accessory is connected to the dirty air inlet, the accessory may interact with the second opposed side thereby inhibiting the openable door from opening.

[00143] In some embodiments, the surface cleaning apparatus may further comprise an openable door lock comprising a lock engaging member and a door release actuator drivingly connected to the lock engaging member, the lock engaging member may be moveable between an engaged position in which the lock engaging member secures the openable door in a closed position and a disengaged position in which the openable door is openable wherein the lock engaging member is inhibited from moving to the disengaged position when the accessory is connected to the dirty air inlet.

[00144] In some embodiments, the accessory may have a blocking portion that inhibits the lock engaging member moving to the disengaged position when the accessory is connected to the dirty air inlet.

[00145] In some embodiments, the openable door lock may include a moveable portion that moves along a path from a first position when the lock engaging member is in the engaged position to a second position when the lock engaging member is in the disengaged position, the moveable portion having an abutment surface and the blocking portion is positioned in the path of the abutment surface when the accessory is connected to the dirty air inlet.

[00146] In some embodiments, the moveable portion may be part of a drive member drivingly connecting the door release actuator to the lock engaging member.

[00147] In some embodiments, the surface cleaning apparatus may further comprise a lock deactivation member and the accessory may have a blocking portion that activates the lock deactivation member when the accessory is connected to the dirty air inlet.

[00148] In some embodiments, the lock deactivation member may include a moveable portion that moves along a path from a first position when the lock engaging member is in the engaged position to a second position when the lock engaging member is in the disengaged position, the moveable portion having an abutment surface and the blocking portion is positioned in the path of the abutment surface when the accessory is connected to the dirty air inlet.

[00149] In some embodiments, the surface cleaning apparatus may further comprise an openable door lock wherein the openable door may be moveable to an open position when the openable door lock is moved to an open position and wherein the openable door lock may be inhibited from moving to the open position when the accessory is connected to the dirty air inlet.

[00150] In some embodiments, the accessory may be a longitudinally extending rigid member air flow member, an accessory cleaning tool, or a flexible hose.

[00151] Also in accordance with this broad aspect, there is also provided a surface cleaning apparatus comprising:

(a) an air flow path from a dirty air inlet to a clean air outlet and including a suction motor;

(b) an air treatment member comprising a dirt collection region having an openable door;

(c) an accessory removably connectable in air flow communication with the dirty air inlet; and,

(d) an openable door lock comprising a lock engaging member and a door release actuator drivingly connected to the lock engaging member, the lock engaging member is moveable between an engaged position in which the lock engaging member secures the openable door in a closed position and a disengaged position in which the openable door is openable wherein the lock engaging member is inhibited from moving to the disengaged position when the accessory is connected in air flow communication with the dirty air inlet.

[00152] In some embodiments, the accessory may have a blocking portion that inhibits the lock engaging member moving to the disengaged position when the accessory is connected to the dirty air inlet.

[00153] In some embodiments, the openable door lock may include a moveable portion that moves along a path from a first position when the lock engaging member is in the engaged position to a second position when the lock engaging member is in the disengaged position, the moveable portion having an abutment surface and the blocking portion is positioned in the path of the abutment surface when the accessory is connected to the dirty air inlet.

[00154] In some embodiments, the moveable portion may be part of a drive member drivingly connecting the door release actuator to the lock engaging member.

[00155] Also in accordance with this broad aspect, there is also provided a surface cleaning apparatus comprising:

(a) an air flow path from a dirty air inlet to a clean air outlet and including a suction motor;

(b) an air treatment member comprising a dirt collection region having an openable door;

(c) an accessory removably connectable in air flow communication with the dirty air inlet; and,

(d) a lock deactivation member and the accessory has a blocking portion which activates the lock deactivation member when the accessory is connected in air flow communication with the dirty air inlet.

[00156] In some embodiments, the lock deactivation member may include a moveable portion that moves along a path from a first position when the lock engaging member is in the engaged position to a second position when the lock engaging member is in the disengaged position, the moveable portion having an abutment surface and the blocking portion is positioned in the path of the abutment surface when the accessory is connected to the dirty air inlet.

[00157] Also in accordance with this broad aspect, there is also provided a surface cleaning apparatus comprising:

(a) an air flow path from a dirty air inlet to a clean air outlet and including a suction motor;

(b) an air treatment member comprising a dirt collection region having an openable door;

(c) an accessory removably connectable in air flow communication with the dirty air inlet wherein, when the accessory is connected to the dirty air inlet, the accessory physically inhibits the openable door from opening.

[00158] In some embodiments, when the accessory is connected in air flow communication with the dirty air inlet, the accessory may overlie a portion of the openable door.

[00159] In some embodiments, when the accessory is connected in air flow communication with the dirty air inlet, the accessory may abut a portion of the openable door.

[00160] In some embodiments, the openable door may have first and second opposed sides, the first side having a hinge for the openable door and, when the accessory is connected in air flow communication with the dirty air inlet, the accessory may interact with the second opposed side thereby inhibiting the door from opening.

[00161] It will be appreciated that the aspects and embodiments may be used in any combination or sub-combination.

DRAWINGS

[00162] The drawings included herewith are for illustrating various examples of articles, methods, and apparatuses of the teaching of the present specification and are not intended to limit the scope of what is taught in any way.

[00163] Figure 1 is a front perspective view of a surface cleaning apparatus in accordance with at least one embodiment;

[00164] Figure 2 is a rear perspective view of the surface cleaning apparatus of Figure 1;

[00165] Figure 3 is a top perspective view of the surface cleaning apparatus of Figure 1;

[00166] Figure 4 is a bottom perspective view of the surface cleaning apparatus of Figure 1;

[00167] Figure 5 is a perspective view of the surface cleaning apparatus of Figure 1 mounted to a wand and surface cleaning head in a stickvac configuration;

[00168] Figure 5A is a cross-sectional view taken along line 5A-5A in Figure 5, showing an accessory connected to the surface cleaning apparatus inhibiting an openable door of an air treatment member from opening ;

[00169] Figure 6 is a cross-sectional view taken along line 6-6 in Figure 1, showing an air flow path;

[00170] Figure 7 is a front perspective view of the surface cleaning apparatus of Figure 1, with a cyclone unit partially cutaway;

[00171] Figure 8 is a front perspective view of the surface cleaning apparatus of Figure 1 with the cyclone unit separated from a main body and a pre-motor filter chamber in an open position;

[00172] Figure 8A is the front perspective view of Figure 8 with a pre-motor filter in the pre-motor filter chamber;

[00173] Figure 9 is a side elevation view of the surface cleaning apparatus of Figure 1 with the cyclone unit separated from the main body;

[00174] Figure 10 is a rear perspective view of the surface cleaning apparatus of Figure 1 with the cyclone unit separated from the main body;

[00175] Figure 10A is the rear perspective view of Figure 10 showing the cyclone unit being held by the cyclone unit handle;

[00176] Figure 11 is a front perspective view of the surface cleaning apparatus of Figure 1 with the cyclone unit separated from the main body;

[00177] Figure 12 is a cross-sectional view taken along line 6-6 in Figure 1, with an enlargement of a first connector pair in a locked position;

[00178] Figure 13 is the cross-sectional view of Figure 12, with the first connector pair in an unlocked position;

[00179] Figure 14 is the rear perspective view of Figure 10, with the first connector pair exploded;

[00180] Figure 15 is a partial cross-sectional view taken along line 6-6 in Figure 1, showing an alternative first connector pair in a locked position;

[00181] Figure 16 is the partial cross-sectional view of Figure 15 showing the alternative first connector pair in an unlocked position;

[00182] Figure 17 is a cross-sectional view taken along line 6-6 in Figure 1, showing an airflow path through a bleed valve;

[00183] Figure 18 is a front perspective view of the surface cleaning apparatus of Figure 1, with a front cyclone unit wall in an open position;

[00184] Figure 19 is the front perspective view of Figure 1, with an exploded cyclone unit lock and lock actuator;

[00185] Figure 20 is the front perspective view of Figure 1, with an enlarged and partially cutaway cyclone unit lock in an engaged position;

[00186] Figure 21 is the front perspective view of Figure 20, with the cyclone unit lock in a disengaged position;

[00187] Figure 22 is a cross-sectional perspective view taken along line 6-6 in Figure 1;

[00188] Figure 23 is a bottom perspective view of a surface cleaning apparatus with a counterweight stand, in accordance with at least one embodiment;

[00189] Figure 24 is a side-elevation view of the surface cleaning apparatus of Figure 1 supported on a horizontal surface;

[00190] Figure 25 is the front perspective view of Figure 20, with an exploded electrical coupling;

[00191] Figure 26 is a perspective view of a surface cleaning apparatus with the cyclone unit separated from the main body, in accordance with another embodiment;

[00192] Figure 27 is a partial cross-sectional view of the surface cleaning apparatus of Figure 26 with the cyclone unit connected to the main body;

[00193] Figure 28 is a perspective view of a surface cleaning apparatus with the cyclone unit separated from the main body, in accordance with another embodiment;

[00194] Figure 29 is a perspective view of a surface cleaning apparatus with the cyclone unit separated from the main body, in accordance with another embodiment;

[00195] Figure 30 is a perspective view of a surface cleaning apparatus with the cyclone unit separated from the main body, in accordance with another embodiment;

[00196] Figure 31 is a schematic cross-sectional view of an openable door and a dirty air inlet of a surface cleaning apparatus in accordance with another embodiment, with an accessory connected to the surface cleaning apparatus inhibiting the door from opening;

[00197] Figure 32 is the schematic cross-sectional view of Figure 31, with the accessory disconnected from the surface cleaning apparatus and the door in an open position;

[00198] Figure 33 is a schematic cross-sectional view of an openable door and a dirty air inlet of a surface cleaning apparatus in accordance with another embodiment, with an accessory connected to the surface cleaning apparatus inhibiting the door from opening;

[00199] Figure 34 is the schematic cross-sectional view of Figure 33, with the accessory disconnected from the surface cleaning apparatus and the door in an open position;

[00200] Figure 35 is a schematic cross-sectional view of an openable door and a dirty air inlet of a surface cleaning apparatus in accordance with another embodiment, with an accessory connected to the surface cleaning apparatus inhibiting the door from opening;

[00201] Figure 36 is the schematic cross-sectional view of Figure 35, with the accessory disconnected from the surface cleaning apparatus and the door in an open position;

[00202] Figure 37 is a schematic cross-sectional view of an openable door and a dirty air inlet of a surface cleaning apparatus in accordance with another embodiment, with an accessory connected to the surface cleaning apparatus inhibiting the door from opening; and,

[00203] Figure 38 is the schematic cross-sectional view of Figure 37, with the accessory disconnected from the surface cleaning apparatus.

DESCRIPTION OF VARIOUS EMBODIMENTS

[00204] Numerous embodiments are described in this application, and are presented for illustrative purposes only. The described embodiments are not intended to be limiting in any sense. The invention is widely applicable to numerous embodiments, as is readily apparent from the disclosure herein. Those skilled in the art will recognize that the present invention may be practiced with modification and alteration without departing from the teachings disclosed herein. Although particular features of the present invention may be described with reference to one or more particular embodiments or figures, it should be understood that such features are not limited to usage in the one or more particular embodiments or figures with reference to which they are described.

[00205] The terms "an embodiment," "embodiment," "embodiments," "the embodiment," "the embodiments," "one or more embodiments," "some embodiments," and "one embodiment" mean "one or more (but not all) embodiments of the present invention(s)," unless expressly specified otherwise.

[00206] The terms "including," "comprising" and variations thereof mean "including but not limited to," unless expressly specified otherwise. A listing of items does not imply that any or all of the items are mutually exclusive, unless expressly specified otherwise. The terms "a," "an" and "the" mean "one or more," unless expressly specified otherwise.

[00207] As used herein and in the claims, two or more parts are said to be “coupled”, “connected”, “attached”, or “fastened” where the parts are joined or operate together either directly or indirectly (i.e., through one or more intermediate parts), so long as a link occurs. As used herein and in the claims, two or more parts are said to be “directly coupled”, “directly connected”, “directly attached”, or “directly fastened” where the parts are connected in physical contact with each other. As used herein, two or more parts are said

to be “rigidly coupled”, “rigidly connected”, “rigidly attached”, or “rigidly fastened” where the parts are coupled so as to move as one while maintaining a constant orientation relative to each other. None of the terms “coupled”, “connected”, “attached”, and “fastened” distinguish the manner in which two or more parts are joined together.

[00208] Referring to Figure 1, an embodiment of a surface cleaning apparatus 100 is shown. The following is a general discussion of this embodiment which provides a basis for understanding each of the features which is discussed herein. As discussed in detail subsequently, each of the features may be used in other embodiments.

[00209] In the embodiment illustrated, the surface cleaning apparatus 100 is a hand-held vacuum cleaner, which is commonly referred to as a “hand vacuum cleaner” or a “handvac”. As used herein and in the claims, a hand-held vacuum cleaner or hand vacuum cleaner or handvac is a vacuum cleaner that can be operated one-handedly to clean a surface while its weight is held by the same one hand. This is contrasted with upright and canister vacuum cleaners, the weight of which is supported by a surface (e.g. floor below) during use. Optionally, surface cleaning apparatus 100 could be removably mountable on a base so as to form, for example, an upright vacuum cleaner, a canister vacuum cleaner, a stick vac, a wet-dry vacuum cleaner and the like. Power can be supplied to the surface cleaning apparatus 100 by an electrical cord (not shown) that can be connected to a standard wall electrical outlet. Alternatively, or in addition, the power source for the surface cleaning apparatus can be an onboard energy storage device, including, for example, one or more batteries.

[00210] As exemplified in Figures 1-4, the surface cleaning apparatus 100 may comprise a main body 104 having a handle 108, an air treatment member 112 connected to the main body 104, a dirty air inlet 116, a clean air outlet 120, and an air flow path extending between the inlet 116 and outlet 120. Surface cleaning apparatus 100 includes a front end 121, a rear end 122, an upper end 123, and a bottom 125. In the embodiment shown, the dirty air inlet 116 is at the front end 121. As exemplified, dirty air inlet 116 is the inlet end 124 of an inlet passage 128. Dirty air inlet 116 may be positioned forward of air treatment member 112 as shown. Optionally, the inlet end 124 can be used as a nozzle to directly clean a surface. Alternatively, the inlet end 124 can be connected or directly

connected to the downstream end of any suitable accessory tool such as a rigid air flow conduit (e.g. wand, crevice tool, mini brush or the like) for example. For example, Figures 5 and 5A show an exemplary surface cleaning apparatus 132 (e.g. a stickvac) including surface cleaning apparatus 100 with connector inlet end 124 directly connected to a wand 136 (e.g., wand outlet end 612 may be removably connectable in air flow communication with inlet connector 128) that is pivotally connected to a surface cleaning head 140. Wand may be securable to connector 128 by any means known in the art such as a locking member or a friction fit. In the illustrated configuration of Figure 5, the surface cleaning apparatus 100 can be used to clean a floor or other surface in a manner analogous to conventional upright-style vacuum cleaners.

[00211] From the dirty air inlet 116, the air flow path may extend through an air treatment member 112. The air treatment member 112 may be any suitable member that can treat the air in a desired manner, including, for example, removing dirt particles and debris from the air. In the illustrated example, the air treatment member is a cyclone unit 112, which may be of any design. Alternatively or in addition, the air treatment member may comprise one or more of a bag, a filter or other air treating means.

[00212] Cyclone unit 112 may include one or a plurality of cyclones for separating dirt from the air flow, and one or a plurality of dirt collection regions for receiving dirt separated in the cyclone(s). As exemplified in Figure 6, cyclone unit 112 includes a cyclone or cyclone chamber 160 and an external dirt collection chamber 164. The cyclone 160 and dirt collection chamber 164 may be of any configuration suitable for separating dirt from an air stream and collecting the separated dirt, respectively. For example, it will be appreciated that in some dirt collection area may be internal of the cyclone chamber, e.g., a dirt collection area may be provided at a longitudinal end of the cyclone chamber. Cyclone 160 may be oriented in any direction. For example, when surface cleaning apparatus 100 is positioned with bottom 125 on a horizontal surface 584, cyclone axis of rotation 484 may be oriented horizontally as exemplified, vertically, or at any angle between horizontal and vertical.

[00213] As also exemplified in Figure 6, a suction motor and fan assembly 152 may be mounted within a motor housing portion 156 of the main body 104. In this configuration,

the suction motor and fan assembly 152 is downstream from the cyclone unit 112, and the clean air outlet 120 is downstream from the suction motor and fan assembly 152.

[00214] Optionally, one or more pre-motor filters may be placed in the air flow path between the air treatment member and the suction motor and fan assembly. Alternatively, or in addition, one or more post-motor filters may be provided downstream from the suction motor and fan assembly.

[00215] As exemplified in Figure 6, main body 104 is shown including a pre-motor filter housing portion 208 that is positioned in the air flow path downstream of cyclone unit 112. Pre-motor filter housing 208 may be of any construction known in the vacuum cleaner art. As exemplified, filter housing 208 may be bounded by one or more walls, which may be integral with or discrete from the main body exterior walls 212. Turning to Figure 8, pre-motor filter housing 208 is shown including a filter housing first wall 216 axially opposite a filter housing second wall 220, and a filter housing sidewall 224 that extends in the direction of the cyclone axis of rotation between the first and second walls 216 and 220. It will be appreciated that first wall 216 is optional and second wall 220 may be in the form of ribs to hold the filter in place. In the illustrated example, filter housing sidewall 224 is discrete from main body exterior walls 212, which may provide enhanced sound insulation for air passing through the pre-motor filter housing 208. In alternative embodiments, filter housing sidewall 224 may be defined in whole or in part by main body exterior walls 212 for a more compact design.

[00216] Referring back to Figure 6, one or more filters made of or comprising a porous filter media may be positioned within the pre-motor filter housing 208 to filter particles remaining in the air flow exiting the cyclone air outlet 184, before the air flow passes through the suction motor and fan assembly 152. In the illustrated embodiments, pre-motor filter housing 208 contains an upstream filter 228 and a downstream filter 232. The pre-motor filters 228 and 232 may be of any suitable configuration and formed from any suitable materials. Preferably, the pre-motor filters 228 and 232 are made of porous media such as foam, felt, or filter paper. Preferably a foam pre-motor filter is provided upstream of a felt pre-motor filter.

[00217] Pre-motor filter housing 208 may include a filter housing air inlet and a filter housing air outlet of any suitable design and arrangement within the housing 208. In the illustrated embodiment, pre-motor filter housing 208 includes a filter housing air inlet 236 formed in filter housing first wall 216, and a filter housing air outlet 240 formed in filter housing second wall 220.

[00218] Still referring to Figure 6, pre-motor filter housing 208 may promote the air flow to broadly distribute across the pre-motor filters 228 and 232 inside. This allows the collected dust particles to be more evenly distributed throughout pre-motor filters 228 and 232 instead of concentrating in a narrow air flow path. An advantage of this design is that the pre-motor filters 228 and 232 will have a greater effective dirt capacity, which allows the pre-motor filters 228 and 232 to be cleaned or replaced less frequently. To this end, pre-motor filter housing 208 may have any structure suitable for broadly distributing the air flow across pre-motor filters 228 and 232. For example, pre-motor filter housing 208 may provide an upstream header 256, a downstream header 260, or both as shown. Headers 256 and 260 may be provided by spacing the pre-motor filters from the filter housing end walls 216 and 220 respectively. In some embodiments, pre-motor filter housing 208 includes spacing members positioned to hold the pre-motor filters 228 and 232 away from the filter housing end walls 216 and 220. For example, referring to Figures 6 and 8, filter housing first wall 216 may include upstanding ribs 264 that hold the upstream side 268 of pre-motor filter 228 spaced apart from filter housing first wall 216 to allow air from filter housing air inlet 236 to flow laterally between pre-motor filter 228 and filter housing first wall 216 before penetrating pre-motor filter 228. The illustrated example also shows filter housing second wall 220 including upstanding ribs 272 that hold the downstream side 276 of pre-motor filter 232 spaced apart from filter housing second wall 220 to allow air exiting pre-motor filter 232 to flow laterally between pre-motor filter 232 and filter housing second wall 220, to filter housing air outlet 240.

CYCLONE WITH A UNIDIRECTIONAL FLOW OF AIR

[00219] The following is a description of a cyclone that may be used by itself in any surface cleaning apparatus or in any combination or sub-combination with any other feature

or features disclosed including uniflow cyclone, the positioning of the dirt collection chamber, the orientation of the suction motor, the lateral stability members, the air treatment member handle, the position and orientation of a driving handle, pre-motor filter housing door, air treatment member door actuator, air treatment member door control, counterweight stand, and electrical coupling members.

[00220] In accordance with this aspect a cyclone comprises a cyclone with a unidirectional flow of air or a "uniflow" cyclone. As discussed in more detail, the uniflow cyclone may be horizontally disposed as opposed to being vertically disposed which is typical in the art. In other words, when held by hand and used to clean a surface, the axis of the cyclone chamber may be closer to horizontal than vertical.

[00221] In accordance with this aspect, the cyclone air inlet may be at the front end and the cyclone air outlet may be at the rear end. An advantage of this design is that the cyclone inlet may be used to redirect the air from the inlet passage 124 to the cyclone chamber and the air may exit the cyclone and travel linearly to the pre-motor filter. Accordingly, dirty air may travel from the dirty air inlet to the pre-motor filter without passing through any bends, thereby reducing the backpressure created by flow through the vacuum cleaner.

[00222] Alternately or in addition, in accordance with this aspect, the cyclone air inlet may be in an upper portion of the sidewall 168 of the cyclone. An advantage of this design is that is that it inhibits dirt that may remain in cyclone chamber 160 from exiting or blocking the air inlet when the apparatus is moved to various operating angles.

[00223] Alternately or in addition, in accordance with this aspect, the dirt collection chamber 164 may be external to the cyclone chamber 160. Further, the dirt outlet 188 of the cyclone chamber 160 may be at a rear end of the cyclone chamber and/or may be in a lower portion of the cyclone chamber, such as in a lower part of sidewall 168 of the cyclone chamber. An advantage of placing the dirt outlet 188 in a lower portion of the rear end of the cyclone chamber 160 is that, when the handvac is in use with inlet 116 pointed downwardly, dirt will enter the dirt collection chamber 164 and fall forwardly due to gravity thereby preventing outlet 188 from becoming blocked until the dirt collection chamber 164 is full.

[00224] Figure 7 exemplifies a cyclone unit including these aspects. As exemplified, cyclone 160 comprises a cyclone sidewall 168 extending axially from a cyclone first end 172 (e.g. front end comprising first end wall 192) to a cyclone second end 176 (e.g. rear end comprising second end wall 196), a cyclone air inlet 180 which enters cyclone 160 at a front portion of sidewall 168, a cyclone air outlet 184 provided in cyclone second end wall 196, and a cyclone dirt outlet 188. Cyclone sidewall 168 includes an upper wall 169 and a lower wall 171. As exemplified in Figure 6, dirty air may enter cyclone 160 tangentially at cyclone air inlet 180 (which may be provided in the upper wall 169), and swirl (e.g. move cyclonically) through cyclone 160 to separate dirt from the air flow, and then exit cyclone 160 through cyclone air outlet 184. The separated dirt may exit cyclone 160 through cyclone dirt outlet 188 and deposit into dirt collection chamber 164.

[00225] As exemplified a vortex finder 204 may extend axially between cyclone first and second ends 172 and 176. Vortex finder 204 may have any configuration known in the art. For example, vortex finder 204 may be connected to cyclone second end wall 196 and extend axially towards cyclone first end 172. Vortex finder 204 may surround cyclone air outlet 184, so that air exiting cyclone 160 travels downstream through vortex finder 204 to cyclone air outlet 184. Vortex finder 204 may include filter media 206 (e.g. mesh) to capture large dirt particles (e.g. hair and coarse dust) that remains in the air flow exiting cyclone 160.

[00226] It will be appreciated that if cyclone air inlet 180 is located at an upper end of the cyclone 160, then inlet passage 128 is may be located above the central longitudinal axis of cyclone 160 and preferably is located above cyclone 160. For example, as exemplified in Figures 1, 6 and 7, cyclone air inlet 180 may be a tangential air inlet so that air entering the cyclone 160 will tend to rotate as the air travels axially through the cyclone 160, thereby dis-entraining dirt and debris from the air flow, before leaving the cyclone via the air outlet 184. Further, inlet passage 128 extends longitudinally between passage inlet end 124 (i.e., the dirty air inlet 116) and passage outlet end 130 along a longitudinal passage axis 364, and passage outlet end 130 communicates (e.g. is positioned upstream) of cyclone air inlet 180. Passage axis 364 may be linear, and all of the longitudinal passage axis 364 may be positioned above cyclone axis of rotation 484 when surface cleaning apparatus 100 is positioned with bottom 125 on a horizontal surface 584.

[00227] Cyclone air inlet 180 may be positioned and constructed in any manner suitable for directing air tangentially into cyclone 160. In the illustrated example of Figure 22, cyclone air inlet 180 is formed as a curved passage extending from a cyclone air inlet upstream end 532 to a cyclone air inlet downstream end 536. The cyclone air inlet downstream end 536 may be oriented to direct air substantially tangentially to the inner surface of sidewall 168. As exemplified, cyclone air inlet 180 may be positioned above cyclone axis of rotation 484 and suction motor axis of rotation 540. For example, cyclone air inlet 180 may be positioned at an upper end 544 of cyclone 160. This allows gravity to assist with inhibiting dirt inside cyclone 160 from blocking or exiting cyclone air inlet 180. This is because at least a portion of the cyclone 160 will be positioned below the cyclone air inlet 180 when apparatus 100 is held at various operating angles, so that the dirt inside will tend to fall away from cyclone air inlet 180.

[00228] Still referring to Figure 22, cyclone air inlet 180 is formed in cyclone sidewall 168 at cyclone first end 172, and cyclone air outlet 184 is formed in cyclone second end wall 196 at cyclone second end 176. As exemplified, air may exit cyclone air outlet 184 in a flow direction 616 that is generally parallel to the suction motor axis of rotation 540.

[00229] As exemplified in Figure 6, main body lower end 568 may comprise bottom 125. In the illustrated example, when bottom 125 is placed on a horizontal surface, cyclone 160 may be oriented horizontally if bottom or base 125 is parallel to the cyclone axis. If will be appreciated that if bottom 125 is oriented at an angle to the horizontal, e.g., so that dirty air inlet 116 points downwardly when bottom 125 is on a horizontal surface, cyclone 160 may be not be oriented horizontally when bottom 125 is on a horizontal surface. It will be appreciated that, as referred to herein, cyclone 160 being horizontal relates to the orientation if bottom 125 is parallel to the cyclone axis of rotation 484.

[00230] As exemplified in Figure 5A, when inlet connector 128 is mounted to a wand 557 (i.e. rigid air flow conduit), the wand axis 559, the inlet connector axis 364, and the cyclone axis of rotation 484 may be parallel. An advantage of this embodiment is that this reduces bends in the air flow for improved air efficiency. It will be appreciated that only some of these axes may be parallel. For example, only the inlet connector axis 364 and the cyclone axis of rotation 484 may be parallel.

POSITIONING OF THE DIRT COLLECTION CHAMBER

[00231] The following is a description of a dirt collection chamber that may be used by itself in any surface cleaning apparatus or in any combination or sub-combination with any other feature or features disclosed herein including the uniflow cyclone, the orientation of the suction motor, the lateral stability members, the air treatment member handle, the position and orientation of a driving handle, pre-motor filter housing door, air treatment member door actuator, air treatment member door control, counterweight stand, and electrical coupling members.

[00232] In accordance with this aspect of the disclosure, a dirt collection chamber for a cyclone chamber may be provided external to and below the cyclone chamber. An advantage of this design is that a cyclone dirt outlet 188 may be provided in a lower portion of the cyclone chamber (e.g., cyclone dirt outlet 188 is provided in lower wall 171) such that dirt which remains in the cyclone chamber after termination of operation of the vacuum cleaner may fall into the dirt collection chamber when the vacuum cleaner is held with the cyclone extending horizontally and slightly upwardly. A further advantage is that the width of the vacuum cleaner may be narrower as the dirt collection chamber is not located on the lateral sides of the cyclone chamber. Therefore, as exemplified in Figure 18, the maximum width of a handvac may be determined by the width of the suction motor housing or the width of the cyclone 160.

[00233] As exemplified in Figure 18, dirt collection chamber 164 extends around approximately one-half of cyclone 160. As exemplified, partition wall 556 may circumscribe approximately one-half of cyclone 160. In other embodiments, dirt collection chamber 164 may extend around less than or greater than one-half of cyclone 160, and partition wall 556 may similarly circumscribe less than or greater than one-half of cyclone 160. In alternative embodiments, dirt collection chamber 164 may not surround cyclone 160.

[00234] It will be appreciated that cyclone sidewall 168 and dirt collection chamber sidewall 548 may have any construction suitable for separating the cyclone 160 from dirt collection chamber 164 and allowing the passage of dis-entrained dirt therebetween. For example, cyclone sidewall 168 and dirt collection chamber sidewall 548 may be discrete

walls that are spaced apart and connected by a dirt outlet passage. As exemplified in Figure 18, dirt collection chamber sidewall 548 is formed at least in part by portions of cyclone sidewall 168 and portions of cyclone unit exterior wall 552. Similarly, cyclone sidewall 168 as shown is formed at least in part by portions of dirt collection chamber sidewall 548 and cyclone unit exterior wall 552. Accordingly, the wall portion 556 in common between cyclone 160 and dirt collection chamber 164 may operate as a dividing wall. Sharing a common dividing wall may help reduce the overall size of the cyclone unit 112, for a more compact design.

[00235] Returning to Figure 22, cyclone 160 may include any dirt outlet 188 suitable for directing dis-entrained dirt from cyclone 160 to dirt collection chamber 164. For example, dirt outlet 188 may be formed in or connected to one or more (or all) of cyclone sidewall 168 and cyclone end walls 192 and 196. In the illustrated embodiment, dirt outlet 188 is formed in cyclone sidewall 168. Dirt outlet 188 may have any shape and size suitable for allowing dirt particles to pass into dirt collection chamber 164. In the illustrated embodiment, dirt outlet 188 is formed as a rectangular aperture in wall portion 556. In alternative embodiment, dirt outlet 188 may be circular, triangular, or another regular or irregularly shaped aperture. As exemplified, cyclone dirt outlet 188 may be bounded in part by cyclone second end wall 196.

[00236] It will be appreciated that cyclone dirt outlet 188 may be positioned anywhere at or between cyclone first and second ends 172 and 176. In the illustrated embodiment, cyclone 160 is a uniflow cyclone and accordingly cyclone dirt outlet 188 is positioned at cyclone second end 176 proximate cyclone air outlet 184. This allows the dirt and air to travel towards the same end of the cyclone 160 before parting ways – the air exiting through air outlet 184 and the dirt exiting through dirt outlet 188.

[00237] In use, the air stream inside cyclone 160 swirls towards cyclone air outlet 184 at cyclone second end 176, which dis-entrains dirt particles against cyclone sidewall 168. Under the influence of the rearward air stream, the dirt particles travel towards cyclone second end 176 and exit through cyclone dirt outlet 188 to dirt collection chamber 164.

[00238] Referring to Figure 18, dirt collection chamber 164 may have any size and shape suitable to accommodate dirt separated by cyclone 160 during one or more uses. A

larger dirt collection chamber 164 can store more dirt to allow apparatus 100 to run longer before emptying dirt collection chamber 164, but will add bulk and weight to the apparatus 100. A smaller dirt collection chamber 164 is smaller and lighter, but must be emptied more frequently.

ORIENTATION OF THE SUCTION MOTOR

[00239] The following is a description of the orientation of a suction motor that may be used by itself in any surface cleaning apparatus or in any combination or sub-combination with any other feature or features disclosed herein including the uniflow cyclone, the positioning of the dirt collection chamber, the lateral stability members, the air treatment member handle, the position and orientation of a driving handle, pre-motor filter housing door, air treatment member door actuator, air treatment member door control, counterweight stand, and electrical coupling members.

[00240] As exemplified in Figure 22, in accordance with this aspect, the axis of rotation of the suction motor may be generally parallel to the cyclone axis of rotation and/or the inlet conduit axis. An advantage of this design is that the air may travel generally rearwardly from the cyclone air outlet to the suction motor air inlet, thereby reducing the backpressure through this portion of the vacuum cleaner due to a reduction in the number of bends in the air flow path.

[00241] As exemplified in Figure 22, when surface cleaning apparatus 100 is positioned with bottom 125 on a horizontal surface 584, the suction motor axis of rotation 540 may be generally horizontal. For example, cyclone sidewall 168 may extend generally horizontally between longitudinally spaced apart cyclone end walls 172 and 176, when surface cleaning apparatus 100 is positioned with bottom 125 on a horizontal surface 584. As exemplified, suction motor axis of rotation 540 may be generally parallel with cyclone axis of rotation 484. This allows for fewer bends in the air flow between dirty air inlet 116 and clean air outlet 120, which can result in reduced backpressure, all other elements remaining the same.

[00242] As exemplified, the suction motor axis of rotation 540 may be positioned below cyclone axis of rotation 484. This may provide surface cleaning apparatus 100 with a

relatively lower center of gravity for greater stability when surface cleaning apparatus 100 is positioned with bottom 125 on a horizontal surface 584. In such a case, the pre-motor filter air inlet and outlet 236 and 240 may be axially offset as shown. In the illustrated example, filter housing air inlet axis 248 is located above and spaced apart from filter housing air outlet axis 252. An advantage of this design is that one or both of the headers may be used to change to elevation at which the air travels reawardly with without using a conduit with bends. For example, air may travel generally rearwardly (linearly) into the pre-motor filter housing and air may travel generally rearwardly (linearly) out of the pre-motor filter housing, but at a lower elevation.

[00243] In alternate embodiments, filter housing air inlet and outlet axes 248 and 252 may not be spaced apart (e.g. they may be collinear).

[00244] In alternate embodiments, it will be appreciated that suction motor and fan assembly 152 may be positioned in main body 104 with its axis of rotation 540 oriented in any direction.

LATERAL STABILITY MEMBERS

[00245] The following is a description of the lateral stability members that may be used by itself in any surface cleaning apparatus or in any combination or sub-combination with any other feature or features disclosed herein including the uniflow cyclone, the positioning of the dirt collection chamber, the orientation of the suction motor, the air treatment member handle, the position and orientation of a driving handle, pre-motor filter housing door, air treatment member door actuator, air treatment member door control, counterweight stand, and electrical coupling members.

[00246] Optionally, the air treatment member may be separable from the main body, such as for emptying, cleaning, or replacing the air treatment member or other internal components of the apparatus, such as the pre-motor filters.

[00247] In accordance with this aspect the air treatment member 112 is removable mountable to the main body 104 and is provided with lateral stability members. For example, the air treatment member 112 may abut against a front face of the main body 104

(see for example Figure 1). Optionally, one of the air treatment member 112 and the main body may be receivable in the other. Accordingly, when unlocked, the air treatment member 112 may be removed from the main body 104 by moving it forwardly. During use, a transverse force may be applied to the air treatment member 112. As exemplified, inlet 116 is provided on the removable air treatment member 112. Therefore, when used as part of a stickvac and handle 108 is driving connected to a surface cleaning head (see for example Figure 5), a force may be provided transverse to wand axis 559. If sufficient pressure is applied, then the air treatment member may break off of the main body or the air tight seal between the air treatment member and the main body may be broken allowing air to bypass the surface cleaning head. The provision of the lateral stability members reinforces the joint of the air treatment member and the main body to resist such transverse forces.

[00248] The lateral stability members are provided internal of the handvac and may be provided on opposed facing faces of the air treatment member and the main body. The lateral stability members may comprise generally vertically extending inter-engagement members

[00249] Cyclone unit 112 may be securable to main body 104 in any manner that allows the cyclone unit 112 to be selectively separated and reconnected to main body 104. For example, cyclone unit 112 and main body 104 may collectively include any releasable engagement members (e.g. latches, snaps, magnets, straps, etc.) suitable for releasably joining the cyclone unit 112 and main body 104. Further, cyclone unit 112 and main body 104 may collectively include any actuators that allow selective manual release (i.e. by hand) of the releasable engagement member(s). The releasable engagement member(s) and the actuator(s) may be mechanical, electrical, and/or electro-mechanical in nature.

[00250] As exemplified in Figures 9-11, main body 104 and cyclone unit 112 are separably connected by a cyclone unit release lock 278. As exemplified, cyclone unit release lock 278 includes a pair 280 of engagement members 304 and 308, and a release actuator 328. The release actuator 328 may be manually user operable (e.g. by hand) for selectably unlocking cyclone unit release lock 278 to allow main body 104 and cyclone unit 112 to separate.

[00251] In the illustrated example, cyclone unit 112 is also rotationally mounted to main body 104. For example, cyclone unit 112 may be rotationally mounted to main body 104 at a position longitudinally spaced apart from cyclone unit release lock 278. This allows cyclone unit 112 to rotationally separate from main body 104 when cyclone unit release lock 278 is unlocked (e.g. by operation of release actuator 328). In some embodiments, cyclone unit 112 may be rotationally mounted to main body 104 by a detachable pair 284 of engagement members 312 and 316. This allows for the option of fully detaching cyclone unit 112 from main body 104, such as to carry cyclone unit 112 to a garbage bin for emptying or cleaning for example. In alternative embodiments, second pair 284 of engagement members 312 and 316 may provide a permanent rotational connection that is not detachable. It will be appreciated that an alternate connection mechanism may be provided to secure the lower end of the air treatment member 112 and the main body 104 together when cyclone unit release lock 278 is engaged.

[00252] Cyclone unit release lock 278 and engagement member pair 284 may be positioned at any location on apparatus 100 suitable for securely joining the main body 104 and cyclone unit 112. For example cyclone unit release lock 278 and engagement member pair 284 may be positioned at opposite ends of apparatus 100, such as longitudinally spaced at apparatus upper end 288 and lower end 292 as shown. In the illustrated example, first cyclone unit engagement member 304 is positioned on cyclone unit upper end 348 and first main body engagement member is positioned on main body upper end 570. In alternate embodiments, the lock positions may be reversed.

[00253] Cyclone unit release lock 278 and engagement member pair 284 may take any form suitable for separably joining main body 104 and cyclone unit 112. For example, one or both engagement member pairs 280 and 284 may include a first engagement member removably receivable in a second engagement member. As exemplified, first engagement member pair 280 includes a first cyclone unit engagement member 304 and a first main body engagement member 308, and second engagement member pair 284 includes a second cyclone unit engagement member 312 and a second main body engagement member 316.

[00254] Referring to Figure 12, first cyclone unit engagement member 304 and first main body engagement member 308 are shown formed as hooks which are sized and positioned to interlock when the cyclone unit 112 and main body 104 are brought together. Second cyclone unit engagement member 312 is shown formed as a transversely extending rod which is received in hook-like second main body engagement member 316 when the cyclone unit 112 and main body 104 are brought together. As exemplified, cyclone unit lower end 352 is rotationally mounted to main body lower end 568 when second engagement member pair 284 is connected. When connected, cyclone unit release lock 278 and engagement member pair 284 hold cyclone unit 112 in fluid communication with main body 104, so that an air flow path is formed from dirty air inlet 116 to clean air outlet 120. A gasket or the like may be provided to form an air tight seal.

[00255] As exemplified in Figures 12 – 14, one or more of engagement members 304, 308, 312, and 316 may be movable to facilitate manual disconnection of the cyclone unit 112 from main body 104. For example, one or more of engagement members 304, 308, 312, and 316 may be movable away from the other engagement member of its respective engagement member pair 280 or 284 from a locked position to an unlocked position for disconnecting that engagement member pair 280 or 284. It will be appreciated that an engagement member 304, 308, 312, or 316 may be moveable in any direction. For example, it may be translatable in a linear direction or along a curved path, rotatable about any one or more axes, or combinations thereof.

[00256] As shown in Figure 13, first cyclone unit engagement member 304 is in the open or unlocked position wherein it has been moved away from the closed or locked position shown in Figure 12 in which it engages first main body engagement member 308, thereby disengaging the first engagement member pair 280. As exemplified, first cyclone unit engagement member 304 is pivotally mounted to a first engagement member axle 324 for rotation about the first engagement member axis 320 that extends laterally and first cyclone unit engagement member 304 extends substantially rearwardly whereby rotation of first cyclone unit engagement member 304 about first engagement member axis 320 moves the first cyclone unit engagement member 304 substantially vertically. In this example, first cyclone unit engagement member 304 is formed as a lower upwardly facing hook, first main body engagement member 308 is formed as an upper downwardly facing

hook, and first cyclone unit engagement member 304 is pivotal about first engagement member axis 320 to move first cyclone unit engagement member 304 downwardly away from first main body engagement member 308 from the locked position (Figure 12) to the unlocked position (Figure 13), thereby disconnecting the first engagement member pair 280.

[00257] Once the first engagement member pair 280 is disconnected, the cyclone unit 112 and main body 104 may be separated at the apparatus upper end 288, and then the cyclone unit 112 may be moved relative to the main body 104 to disconnect the second engagement member pair 284 thereby completing the disconnection of the cyclone unit 112 from the main body 104.

[00258] Apparatus 100 may include any actuator 328 suitable for disengaging engagement member 304 and 308 to unlock cyclone unit release lock 278. Actuator 328 may be provided on either of cyclone unit 112 or main body 104. Preferably, the actuator 328 is manually operable (i.e. by hand) to allow selective disconnection of the engagement members 304 and 308. In the illustrated embodiment, first main body engagement member 308 is connected to an actuator 328. Actuator 328 may take any form such as a button as shown, a switch, or a slider for example. Actuator 328 may be connected to first main body engagement member 308 in manner suitable for directing the movement of first main body engagement member 308. In the illustrated example, first main body engagement member 308 is integrally formed with a distal end of actuator 328. In alternative embodiments, actuator 328 may be a discrete component that is rigidly or movably connected to first main body engagement member 308 directly or indirectly by way of one or more intermediary components.

[00259] As exemplified, a proximal end of actuator 328 may be pivotally mounted to cyclone unit 112 by first engagement member axle 324 for rotation about first engagement member axis 320. In use, a user may depress actuator 328 to rotate actuator 328 and first cyclone unit engagement member 304 downwardly, thereby disconnecting the first engagement member pair 280.

[00260] In some embodiments, first cyclone unit engagement member 304 may be biased to the locked position to mitigate the risk of first engagement member pair 280

becoming unlocked during use of apparatus 100. In the illustrated example, a bias 332 biases first cyclone unit engagement member 304 to the open position. Bias 332 may be formed as a torsional spring, as shown, which is mounted to first engagement member axle 324. A user may depress actuator 328 to move the first cyclone unit engagement member 304 against the bias of spring 332 and disconnect first engagement member pair 280.

[00261] Reference is now made to Figures 15 and 16, which show apparatus 100 including an alternative first engagement member pair 280. As exemplified, first cyclone unit engagement member 304 may include an engagement member arm 336 with an engagement member socket 340, and first main body engagement member 308 may be formed as a peg. In the locked position (Figure 15), peg 308 may be received in engagement member socket 340 to securely join first engagement member pair 280. In the unlocked position (Figure 16) peg 308 may be removed from engagement member socket 340 to disconnect first engagement member pair 280. As exemplified, engagement member arm 336 may be resiliently bendable (i.e. as a living hinge) for moving first main body engagement member 308 between the locked and unlocked positions. For example, engagement member arm 336 can resiliently bend upwardly to remove peg 308 from engagement member socket 340 (Figure 16), and vice versa. Preferably, the resiliency of engagement member arm 336 biases first cyclone unit engagement member 304 towards the locked position.

[00262] Exemplary lateral stability members are shown in Figures 26 – 30. As exemplified, air treatment member 112 and main body 104 may collectively include one or more pairs of protrusions and recesses, which mate at the interface between air treatment member 112 and main body 104 when air treatment member 112 is connected to main body 104. This helps provide a more robust separable connection between air treatment member 112 and main body 104 with enhanced strength and rigidity. Air treatment member rear end 436 and main body front end 432 may be provided with mating protrusions 620 that are receivable in recesses 624.

[00263] Protrusions 620 and recesses 624 may have any size, shape, and position which allows the protrusions 620 to be received in the recesses 624 when air treatment member 112 and main body 104 are connected. As exemplified, each of protrusions 620

and recesses 624 may be formed as elongate segments which are continuous or have discontinuities. In the illustrated embodiment, each of protrusions 620 and recesses 624 extend longitudinally downwardly.

[00264] As exemplified in Figures 26 and 27, protrusions 620 are formed in cyclone unit upper end 348 (engagement member arm 336) and recesses 624 are formed in surface of main body upper end 570 against which engagement member arm 336 abuts. Protrusions 620 are received in recesses 624 when air treatment member 112 is connected to main body 104.

[00265] Figure 28 shows an alternate embodiment, in which cyclone unit upper end 348 includes recesses 624 and main body upper end 570 includes protrusions 620.

[00266] Figure 29 shows another alternate embodiment including protrusions 620 and recesses 624 extending across cyclone rear end wall 176 and filter housing front wall 216.

[00267] Figure 30 shows another embodiment including protrusions 620 extending across cyclone rear end wall 176 and filter housing front wall 216. When air treatment member 112 is connected to main body 104, protrusions 620 on cyclone rear end wall 176 contact filter housing front wall 216, and protrusions 620 on filter housing front wall 216 contact cyclone rear end wall 176. In this embodiment, protrusion 620 provide rigid beams at the interface between main body 104 and air treatment member 112 which may increase the rigidity and strength of the separable connection.

AIR TREATMENT MEMBER HANDLE

[00268] The following is a description of an air treatment member handle that may be used by itself in any surface cleaning apparatus or in any combination or sub-combination with any other feature or features disclosed herein including the uniflow cyclone, the positioning of the dirt collection chamber, the orientation of the suction motor, the lateral stability members, the position and orientation of a driving handle, pre-motor filter housing door, air treatment member door actuator, air treatment member door control, counterweight stand, and electrical coupling members.

[00269] In accordance with this aspect, the air treatment member may include a handle in addition to the main body handle ("driving handle"). This allows a user to hold the main body and the air treatment member simultaneously, with different hands before, during, and after disconnecting the main body from the air treatment member.

[00270] In one embodiment, the air treatment member handle may for part of an air flow conduit of the air treatment member. Alternately or in addition, the air treatment member handle may extend along the axial direction of the air treatment member and/or may be on an upper portion thereof and/or may provide a gap for receiving fingers of the user.

[00271] As exemplified in Figure 11, cyclone unit handle 344 is connected to cyclone unit 112 when cyclone unit 112 is disconnected from main body 104, and driving handle 108 is connected to main body 104 when main body 104 is disconnected from cyclone unit 112. Cyclone unit handle 344 may have any suitable size, shape, and position on cyclone unit 112 which allows a user to easily grasp the cyclone unit handle 344 by hand to carry the cyclone unit 112 (see Figure 10A). In the illustrated embodiment, cyclone unit handle 344 is formed as a substantially cylindrical member, which extends rearwardly along cyclone unit upper portion 348. In other embodiments, cyclone unit handle 344 may have a different regular or irregular cross-sectional shape, and may extend along a different portion of cyclone unit 112, such as along lower portion 352, or a lateral side 356 for example. As exemplified in Figure 6, cyclone unit handle 344 may include a portion or gap 347 spaced from cyclone unit 112 whereby a finger receiving area 349 is provided between the cyclone unit handle 344 and the cyclone unit 112.

[00272] Returning to FIG. 11, preferably apparatus 100 is configured to allow the user to take whatever action disconnects the main body 104 from air treatment member 112 while holding air treatment member handle 344 with one hand and holding driving handle 108 with the other hand. For example, cyclone unit handle 344 or driving handle 108 may be positioned proximate (e.g. within finger-reach of) an actuator that releases the connector(s) which hold air treatment member 112 and main body 104 together. This would allow the user to use a finger to operate the actuator while holding the handle 344 or 108 with the remaining fingers of their hand. In the illustrated embodiment, cyclone unit handle

344 and actuator 328 are both located on the cyclone unit upper portion 348 and in close proximity. This allows a user to hold air treatment member 112 by handle 344 while simultaneously operating actuator 328 with the same hand to disconnect air treatment member 112 from main body 104. The user may also use the same hand to open a front door of the air treatment member as discussed subsequently in more detail.

[00273] Referring to Figure 6, cyclone unit handle 344 is shown extending along a cyclone unit handle axis 360. In some embodiments, cyclone unit handle axis 360 may be parallel with and may be coaxial with inlet connector axis 364. This may promote a compact shape for apparatus 100 in contrast with handles with an axis that extends above the inlet connector axis 364.

[00274] As exemplified in Figures 1 and 17, cyclone unit handle 344 may comprise an air flow passage (e.g. an air flow conduit). This may promote a compact design for apparatus 100 by reducing or eliminating the volume added to apparatus 100 to incorporate cyclone unit handle 344. For example, an existing air flow conduit may be reshaped and/or repositioned to provide handle functionality. As exemplified in Figure 17, handle 344 is positioned rearward and coaxial with the inlet conduit extending from dirty air inlet 116. It will be appreciated that if the inlet to the air treatment member chamber (e.g., cyclone chamber 160) is rearward of the front of handle 344, then part of handle 344 form part of inlet conduit 124. Alternately, or in addition as exemplified in Figure 17, handle 344 may provide part or all of a bleed air conduit 380 having a longitudinal passage axis 390. Bleed conduit 380 provides a portion of the air flow path between the bleed air inlet 384 and the suction motor and fan assembly 152 and houses bleed valve 388. The bleed valve 388 may be any suitable valve that known in the art, which typically open automatically in response to low pressure. For example, bleed valve 388 may be a pressure relief valve. Bleed valve 388 may help maintain adequate volumetric air flow through the suction motor and fan assembly 152 during low pressure events to avoid overheating of the suction motor and fan assembly 152. Low pressure may occur where there is a partial or total blockage in the air flow upstream of the suction motor and fan assembly 152 (e.g. a plastic bag is blocking dirty air inlet 116).

[00275] It will be appreciated that cyclone unit handle 344 is grasped primarily when apparatus 100 is turned off (e.g. when separating, reconnecting, or transporting cyclone unit 112) so that there is little or no concern of the bleed air inlet 384 being blocked by a user's hands when apparatus 100 is turned on.

[00276] Figure 17 exemplifies an optional air flow path from bleed air inlet 384 to suction motor and fan assembly 152 which bypasses cyclone 160 and pre-motor filters 228 and 232. As exemplified, the air flow path may extend rearwardly through bleed valve conduit 380 to filter housing downstream header 260 bypassing filter housing upstream header 256 and pre-motor filters 228 and 232. In alternate embodiments, the air flow path may extend through pre-motor filters 228 and 232 to filter fine particulates that may be present in the ambient air drawn into bleed air inlet 384. For example, filter housing upstream header 256 may be positioned downstream of bleed valve 388 in the air flow path from bleed air inlet 384.

POSITION AND ORIENTATION OF A DRIVING HANDLE

The following is a description of a driving handle that may be used by itself in any surface cleaning apparatus or in any combination or sub-combination with any other feature or features disclosed herein including the uniflow cyclone, the positioning of the dirt collection chamber, the orientation of the suction motor, the lateral stability members, the air treatment member handle, the pre-motor filter housing door, the air treatment member door actuator, air treatment member door control, the counterweight stand, and the electrical coupling members.

[00277] In accordance with this aspect, the driving handle is which extends upwardly and forwardly. Driving handle 108 may extend upwardly from the suction motor housing (e.g., an upper surface of the main body that houses the suction motor). Driving handle 108 may terminate at 0r above an upper end of the handvac 100. Accordingly, the inlet conduit axis 364 and/or the handle axis 360 may intersect the driving handle 108. An advantage of this design is that the weight of the motor is below the hand grip. Further, the driving axis of the handvac when connected to a wand (the wand axis) is at an opposite end of the handle to the suction motor. This provides improved hand weight for a user.

[00278] As exemplified in Figure 6, driving handle 108 may extend from its lower end 368 to its upper end 372 along a driving handle axis 376. When surface cleaning apparatus 100 is positioned with bottom 125 on a horizontal surface 584 and the bottom 125 extends horizontally, driving handle axis 376 may extend generally upwardly and forwardly (e.g. at an angle 378 of less than 45 degrees to vertical) to provide a comfortable natural grip during use.

[00279] As exemplified, driving handle axis 376 may be at an angle to cyclone unit handle axis 360. For example, axes 360 and 376 may be angularly offset by 30 degrees or more. This reflects that the driving handle 108 and cyclone unit handle 344 may have different functions. For example, the driving handle 108 may be configured to provide a comfortable grip for the user during use, and the cyclone unit handle 344 may be configured with a compact design.

[00280] In the illustrated embodiment, driving handle 108 includes a portion 377 spaced from main body 104 whereby a finger receiving area 379 is provided between the driving handle 108 and the main body 104. As exemplified, driving handle 108 may be positioned at main body rear end 434 and longitudinally spaced apart from cyclone unit handle 344.

PRE-MOTOR FILTER HOUSING DOOR

The following is a description of a pre-motor filter door that may be used by itself in any surface cleaning apparatus or in any combination or sub-combination with any other feature or features disclosed herein including the uniflow cyclone, the positioning of the dirt collection chamber, the orientation of the suction motor, the lateral stability members, the air treatment member handle, the position and orientation of a driving handle, the air treatment member door actuator, air treatment member door control, the counterweight stand, and the electrical coupling members.

[00281] In accordance with this aspect, a surface cleaning apparatus may have a pre-motor filter chamber which is closed by an openable door that is accessible when the air treatment member is removed from the remainder of the surface cleaning apparatus (as exemplified in Figure 6). A pre-motor filter may be accessed for cleaning or replacement

when the door is opened. The pre-motor filter door may include a handle for user operation. The pre-motor filter chamber may be provided in the removable air treatment member 112 or the main body 104. The door may be held in a closed position by a part of the surface cleaning apparatus that does not include the pre-motor filter chamber. For example, if the pre-motor filter chamber is provided in the air treatment member, then the door may be held closed by a part of the main body when the air treatment member is attached to the main body. Conversely, if the pre-motor filter chamber is provided in the main body as exemplified in Figure 8, then the door may be held closed by a part of the air treatment member when the air treatment member is attached to the main body. An advantage of this design is that it allows a simpler design for the pre-motor filter door that is free of locking members such as latches. A further advantage is that unintentional user access to the pre-motor filter housing 208 may be prevented while the apparatus 100 is in operation.

[00282] Figures 8, 8A and 11 exemplify an embodiment in which pre-motor filter housing 208 is accessible when air treatment member 112 is disconnected from main body 104. For example, one of the filter housing walls 216 and 220 (e.g., filter housing upstream wall 216 as exemplified in Figure 8) may be exposed when air treatment member 112 is disconnected from main body 104.

[00283] The openable filter housing wall may be openable in any manner suitable for providing access to clean or replace the pre-motor filters inside. For example, the openable wall may be moveably mounted or removably mounted. Accordingly, filter housing wall 216 or 220 may be pivotally attached to the pre-motor filter housing 208, slideably attached to the pre-motor filter housing 208, or removable altogether from the pre-motor filter housing 208. In the illustrated embodiment, filter housing upstream wall 216 is pivotally attached to pre-motor filter housing 208.

[00284] As exemplified in Figure 8A and 11, filter housing upstream wall 216 is rotatable about a filter-housing wall pivot axis 392 between a closed position (Figure 11), and an open position (Figure 8A). It will be appreciated that filter housing upstream wall 216 may be rotatable in any manner and direction suitable for moving the filter housing upstream wall 216 generally away from the pre-motor filter housing 208 to provide access to the pre-motor filters 228 and 232 inside. In the illustrated embodiment, filter housing

upstream wall 216 is upwardly rotatable about a laterally extending (e.g. horizontal) filter housing wall pivot axis 392 located at an upper end 396 of the pre-motor filter housing 208. As exemplified, the filter housing wall pivot axis 392 is transverse to (e.g. substantially perpendicular to) the inlet connector axis 364, the cyclone unit handle axis 360, and the filter housing air inlet axis 248.

[00285] In alternative embodiments, filter housing upstream wall 216 may rotate in a different direction about a different axis. For example, filter housing upstream wall 216 may move laterally outwardly by rotation about a substantially vertical axis positioned proximate a left or right side of the pre-motor filter housing 208.

[00286] Still referring to Figures 8A and 11, the filter housing upstream wall 216 may have any construction suitable for allowing the filter housing upstream wall 216 to rotate about the filter housing wall pivot axis 392. For example, filter housing upstream wall 216 may be connected to filter housing sidewall 224 by a hinge 404 of any suitable type. In some embodiments, filter housing upstream wall 216 may be resiliently bendable to connect with pre-motor filter housing 208 by a living hinge.

[00287] Optionally, filter housing upstream wall 216 may be at least partially transparent (e.g., the wall may be made of a transparent material or it may have a window) to provide visibility of the upstream surface 268 (Figure 8A) of the pre-motor filter inside. This would allow the user to inspect the pre-motor filter through the filter housing upstream wall 216, without opening the pre-motor filter housing 208, in order to assess whether to clean or replace the pre-motor filter. In alternative embodiments, the filter housing upstream wall 216 may be opaque, and the pre-motor filter may not be visible through the filter housing upstream wall 216.

[00288] Still referring to Figures 8A and 11, the openable filter housing wall is preferably manually user openable (e.g. by hand). This allows the user to selectively open the openable filter housing wall to access the pre-motor filters inside. In the illustrated example, the filter housing upstream wall 216 includes a filter housing handle 408 that is user operable to move the filter housing upstream wall 216 between the open and closed positions. The filter housing handle 408 may have any construction that allows the user to easily grasp and pull the filter housing handle 408 to open the pre-motor filter housing 208.

In the illustrated example, the filter housing handle 408 extends outwardly from an end opposed to the hinged end (in this case lower end 412 of the filter housing upstream wall 216). Referring to Figures 11 and 13, the filter housing handle 408 extends from a filter housing handle inboard end 416 to a filter housing handle outboard end 420. As exemplified, the filter housing handle inboard end 416 may be connected to an upstream face 424 of the filter housing upstream wall 216. The filter housing outboard end 420 may include a gripping feature, which may be of any design such a lip 428. In the illustrated example, lip 428 is curls approximately 90 degrees.

[00289] As exemplified in Figure 13, the filter housing handle 408 may extend from filter housing upstream wall 216 outwardly towards cyclone unit 112. In the illustrated example, a front end 432 of main body 104 is connectable to the rear end 436 of cyclone unit 112, and filter housing handle 408 extends forwardly from filter housing upstream wall 216 towards cyclone unit 112. As shown, the filter housing handle outboard end 420 extends into a handle recess 440 of cyclone unit 112 outside of cyclone 160 and dirt collection chamber 164. In this way, the handle may overlap a portion of the cyclone chamber so as to have a longer length in the direction of the cyclone axis. This construction allows the filter housing handle 408 to have a greater dimension 444 between its inboard and outboard ends 416 and 420, while permitting the filter housing upstream wall 216 to contact at least a portion of cyclone second wall 196 to fluidly connect the cyclone air outlet 184 to the filter housing air inlet 236. In the illustrated example, the filter housing handle 408 extends from filter housing upstream wall lower end 412, and cyclone unit handle recess 440 is provided in cyclone unit lower portion 352.

[00290] Returning to Figure 8A and 11, in some embodiments, pre-motor filter housing 208 may be free of locking members, such as latches or clasps, which are operable to secure the openable wall in the closed position. Accordingly, when the main body 104 and cyclone unit 112 are connected together (see, e.g. Figure 1) filter housing handle 408 extends forwardly from filter housing upstream wall 216 and abuts a part of air treatment member 112, e.g., rear end wall 196 of the air treatment member.

[00291] As exemplified in Figure 13, the openable door of the pre-motor filter housing 208 may be held in its closed position by interaction with cyclone unit 112, when cyclone

unit 112 is connected to main body 104. For example, at least a portion of cyclone unit rear end 436 may contact filter housing upstream wall 216 to hold the filter housing upstream wall 216 in its closed position. In the illustrated example, cyclone second wall 196 is bordered by a peripheral lip 448 which contacts upstream face 424 of filter housing upstream wall 216, and cyclone air outlet 184 is bordered by a peripheral lip 452 that contacts a peripheral recess 456 of filter housing air inlet 236. Peripheral lip 452 and recess 456 may form a substantially air tight connection between cyclone air outlet 184 and filter housing air inlet 236.

[00292] In some embodiments, a gasket, such as an O-ring (not shown) may be provided and compressed when the air treatment member is attached to provide an air tight seal between the openable door and the rest of the pre-motor filter chamber.

AIR TREATMENT MEMBER DOOR ACUTATOR

[00293] The following is a description of an air treatment member door actuator that may be used by itself in any surface cleaning apparatus or in any combination or sub-combination with any other feature or features disclosed herein including the uniflow cyclone, the positioning of the dirt collection chamber, the orientation of the suction motor, the lateral stability members, the air treatment member handle, the position and orientation of a driving handle, the pre-motor filter housing door, the air treatment member door control, the counterweight stand, and the electrical coupling members.

[00294] The air treatment member may include an openable door that provides access to empty or clean the air treatment member (e.g. to empty or clean a dirt collection region of the air treatment member). In accordance with this aspect, the air treatment member door may be openable by an actuator positioned within finger-reach of the air treatment member handle. This allows for one handed operation of the air treatment member door.

[00295] Reference is now made to Figures 1 and 18. In some embodiments, air treatment member 112 includes an openable wall (e.g., a door) to provide access to clean or empty the air treatment member (e.g., cyclone 160 and dirt collection chamber 164). Any

portion of air treatment member 112 suitable for emptying air treatment member 112 may be openable.

[00296] In the illustrated example, air treatment member 112 includes an openable front end 472 wherein all of the front end is opeanable. As exemplified, the air treatment member may be a cyclone unit comprising a cyclone and a dirt collection chamber external to the cyclone and may have a front end 472 the includes cyclone first end wall 192, and dirt collection chamber first end wall 476. It will be appreciated that, in some embodiments, only a portion of the front end 472 may be openable.

[00297] The openable door may be openable in any manner suitable for providing access to clean or empty air treatment member 112, e.g., cyclone 160 and dirt collection chamber 164. For example, the door may be pivotally attached to the air treatment member 112 which is exemplified in Figure 18, slideably attached to the air treatment member 112, and/or removable altogether from the air treatment member 112.

[00298] As exemplified, cyclone unit front door 472 is rotatable about a cyclone unit wall pivot axis 480 between a closed position (Figure 1), and an open position (Figure 18). It will be appreciated that cyclone unit front door 472 may be rotatable in any manner and direction suitable for moving cyclone unit front door 472 generally away from the cyclone unit 112 to provide access to the cyclone 160 and dirt collection chamber 164 inside. In the illustrated embodiment, cyclone unit front door 472 is downwardly rotatable about a laterally extending (e.g. horizontal) cyclone unit wall pivot axis 480 located at a lower portion 352 of the cyclone unit 112. As exemplified, the cyclone unit wall pivot axis 480 is transverse to (e.g. substantially perpendicular to) the inlet connector axis 364, the cyclone unit handle axis 360, and the cyclone axis of rotation 484.

[00299] In alternative embodiments, cyclone unit front door 472 may rotate in a different direction about a different axis. For example, cyclone unit front door 472 may move laterally outwardly by rotation about a substantially vertical axis positioned proximate a left or right side of the cyclone unit 112. In other embodiments, cyclone unit front door 472 may move upwardly by rotation about a substantially horizontal axis positioned proximate cyclone unit lower portion 352.

[00300] Still referring to Figures 1 and 18, the cyclone unit front door 472 may have any construction suitable for allowing the cyclone unit front door 472 to rotate about the cyclone unit wall pivot axis 480. For example, cyclone unit front door 472 may be connected to cyclone unit 112 by a hinge 486 of any type known in the art. In some embodiments, cyclone unit front door 472 may be resiliently bendable to connect with cyclone unit 112 by a living hinge.

[00301] Still referring to Figures 1 and 18, the openable cyclone unit wall is locked in the closed position, and manually user openable (e.g. by hand). This allows the openable cyclone unit wall to remain closed while the apparatus 100 is operating, and allows the user to selectively open the openable cyclone unit wall to empty the cyclone 160 and dirt collection chamber 164 inside when the apparatus 100 is turned off. In the illustrated example, cyclone unit 112 includes a door lock 492, which inhibits opening of cyclone unit front door 472 when engaged. Door lock 492 is user operable to disengage door lock 492 to thereby permit cyclone unit front door 472 to move to its open position.

[00302] Door lock 492 may be any type of lock suitable for retaining cyclone unit front door 472 in its closed position, and which is user releasable to permit cyclone unit 112 to open. In some embodiments, door lock 492 may have a manually operable actuator for moving the lock between its engaged and disengaged positions. In the illustrated embodiment, door lock 492 includes an engaging member 496 and an actuator 504.

[00303] Preferably, actuator is positioned proximate the air treatment member handle 344 so that a user may operate actuator 504 with the same hand that is used to hold handle 504. For example, actuator 504 may be located within close proximity (e.g. finger-reach) of handle 344, e.g., it may be provided on or adjacent handle 344 and may be provided at the end of handle 344 at which the door is located. Accordingly while holding handle 344, the user may use their thumb of the same hand to operate actuator 504, i.e., door release actuator 504 may be operated by the same hand which is holding the cyclone unit 112 for single-handed emptying of cyclone unit 112. In the illustrated embodiment, unit door release actuator 504 is positioned forward of handle 344 on upper portion 348 (e.g. at a forward end of inlet passage 380). In other embodiments, door release actuator 504 may be located on handle 344, or rearwardly of handle 344.

[00304] As exemplified in Figures 20 and 21, the door release actuator 504 is manually user operable (i.e. by hand) to move the engaging member 496 between its engaged position (Figure 20) and its disengaged position (Figure 21). As exemplified, in the engaged position (Figure 20), door release actuator 504 may engage cyclone unit front door 472 to inhibit movement of front door 472 to its open position. This prevents front door 472 from rotating about its cyclone unit wall pivot axis 480 to its open position. In the disengaged position (Figure 21), door release actuator 504 releases cyclone unit front door 472 to permit front door 472 to move to its open position.

[00305] Referring to Figures 19-21, lock engaging member 496 may be of any construction having an engaged position for retaining the openable cyclone unit wall in its closed position, and a disengaged position for releasing the openable cyclone unit to move to its open position. In the illustrated example, lock engaging member 496 is connected to an exterior of air treatment member 112. As exemplified, lock engaging member 496 has a front end 508 which is sized and positioned to releasably hook onto a recess 512 formed in cyclone unit front door 472 to retain the front door 472 in its closed position.

[00306] Lock engaging member 496 may be movable in any suitable manner between its engaged and disengaged positions. For example, lock engaging member 496 may be rotatable as shown, translatable, or combinations thereof. In the illustrated embodiment, lock engaging member 496 is pivotally connected to air treatment member 112 for rotation about a lock engaging member axis 516 (Figure 19) between its engaged and disengaged positions. As exemplified, in the engaged position, lock engaging member 496 may hook onto front wall lock recess 512. Lock engaging member 496 may then be rotated about its axis 516 away from cyclone unit front door 472 to unhook from front wall lock recess 512. Optionally, lock engaging member 496 may be biased to the locked position. For example, a biasing member (e.g. torsional spring, not shown) may bias lock engaging member 496 to rotate toward the closed position.

[00307] Still referring to Figures 19-21, door lock 492 may have any door release actuator 504 suitable for moving the lock engaging member 496 between its engaged and disengaged positions. In the illustrated example, door release actuator 504 is formed as a button which is operable to rotate lock engaging member 496 to its unlocked position. As

exemplified, door release actuator 504 and lock engaging member 496 may both include abutments 520 and 524, respectively, which make contact to move lock engaging member 496 when door release actuator 504 is depressed. In this example, when door release actuator 504 is depressed, abutment 520 moves abutment 524 downwardly which teeters lock engaging member 496 to rotate about its lock engaging member axis 516 to its disengaged position. It will be appreciated that door release actuator 504 may be movable in any suitable manner. For example, door release actuator 504 may be rotatable (e.g. pivotal) as shown, or translatable (e.g. slidable). In the illustrated example, door release actuator 504 is rotatably connected to cyclone unit 112 about a lock actuator axis 528 between its raised position (Figure 20) and its depressed position (Figure 21).

AIR TREATMENT MEMBER DOOR CONTROL

[00308] The following is a description of systems and methods for controlling an openable door of an air treatment member that may be used by itself in any surface cleaning apparatus or in any combination or sub-combination with any other feature or features disclosed herein including the air treatment member door actuator, uniflow cyclone, the positioning of the dirt collection chamber, the orientation of the suction motor, the lateral stability members, the air treatment member handle, the position and orientation of a driving handle, the pre-motor filter housing door, the counterweight stand, and the electrical coupling members.

[00309] The air treatment member may include an openable door that provides access to empty or clean the air treatment member (e.g. to empty or clean a dirt collection region of the air treatment member). In accordance with this aspect, the air treatment member door may be inhibited or prevented from opening when an accessory (e.g. a cleaning tool such as a wand (e.g. a rigid airflow conduit), crevice tool, mini brush, or the like) is connected to or in fluid communication with a dirty air inlet.

[00310] In some embodiments, an accessory may be removably connectable to a dirty air inlet of the surface cleaning apparatus, and when the accessory is connected to the dirty air inlet, the accessory may itself physically inhibit an openable door from opening. For

example, when the openable door is closed and the accessory is connected to the dirty air inlet, the accessory may overlie or abut at least a portion of the openable door.

[00311] An example of such an embodiment is illustrated in Figures 5 and 5A. As exemplified a dirty air inlet 116 of surface cleaning apparatus 100 is the inlet end 124 of an inlet passage 128. In the illustrated example, the dirty air inlet 116 is connected to a wand 136. As seen in Figure 5A, the outlet end 612 of the wand 136 has a collar 702 which is sized to overly a portion of the openable door of the cyclone assembly. Accordingly, when the wand is connected to the dirty air inlet, collar 702 abuts a portion of an openable front end 472 (which may also be referred to as a cyclone unit front door 472) of air treatment member 112, thereby inhibiting or preventing the openable door from opening when the wand is connected. When wand 136 is disconnected from dirty air inlet 116, collar 702 no longer abuts openable door 472, and thus no longer inhibits door 472 from opening.

[00312] In some embodiments, the surface cleaning apparatus may include an openable door lock which is moveable between a closed position which inhibits the opening of an openable door of an air treatment member and an open position in which the door may be opened. The door lock is preferably user operable to disengage the door lock to thereby permit the door to move to its open position. In such embodiments, when an accessory is connected to the dirty air inlet, the door lock may be inhibited or prevented from being disengaged. The accessory may itself inhibit the door lock from moving to the open position or it may actuate a mechanism (a motorized mechanism or a mechanical mechanism) that inhibits the door lock from moving to the open position.

[00313] In the example illustrated in Figures 31 and 32, a door lock 492 inhibits opening of cyclone unit front door 472 when engaged. In the illustrated embodiment, door lock 492 includes an engaging member 496 which, when the door lock is in the closed position that is exemplified in Figure 31, abuts door 472. Door lock 492 also comprises an actuator 504. As exemplified, door release actuator 504 and lock engaging member 496 may both include abutments 520 and 524, respectively, which make contact to move lock engaging member 496 when door release actuator 504 is depressed to move the door lock to the open position (see Figure 32).

[00314] In the illustrated example, an accessory itself has a blocking member that, when the accessory is connected to the dirty air inlet, inhibits the door lock from being disengaged. As exemplified, an outlet end 612 of a wand 136 includes a flange 710 that, when the wand 136 is connected to the dirty air inlet 116 (as shown in Figure 31), is interposed between the abutment 520 of door release actuator 504 and the abutment 524 of lock engaging member 496. In this position, flange 710 is a physical barrier between the abutments 520 and 524 and thereby inhibits door release actuator 504 from moving lock engaging member 496, thereby inhibiting door 472 from being moved to an open position. When the accessory is disconnected from the dirty air inlet 116 (as shown in Figure 32), flange 710 no longer inhibits door release actuator 504 from moving lock engaging member 496.

[00315] In the example illustrated in Figures 33 and 34, the accessory physically engages the door release actuator 504 to thereby inhibit the door lock from being disengaged. For example, door release actuator 504 may have an engagement portion, and a blocking member of an accessory tool may have a mating engagement portion. The engagement portions may interengage when the accessory is mounted to the inlet. As exemplified, an engagement portion in the form of a notch 720 is provided along shaft 725 of door release actuator 504.

[00316] As shown in Figure 33, when the wand 136 is connected to the dirty air inlet 116, an engagement portion of the wand 136 (e.g., flange 710) is received in the notch 720. In this position, flange 710 inhibits door release actuator 504 from moving towards lock engaging member 496, thereby inhibiting door 472 from being moved to an open position. When the accessory is disconnected from the dirty air inlet 116 (as shown in Figure 34), flange 710 no longer engages the engagement portion 720, and thus no longer inhibits door release actuator 504 from moving lock engaging member 496 to its disengaged position.

[00317] Figures 35 and 36 exemplify an embodiment wherein the accessory actuates a mechanical mechanism that inhibits the door lock from moving to the open position. As exemplified, the surface cleaning apparatus includes a lock deactivation member that, when an accessory is connected, inhibits the door lock from being disengaged. As

exemplified, a lock deactivation member is in the form of a bar 740 that is translatable between a position in which the door lock is inhibited from being disengaged (the closed position of the door lock) and a position in which the door lock is not inhibited from being disengaged (the open position of the door lock).

[00318] As shown in Figure 35, when the wand 136 is connected to the dirty air inlet 116, bar 740 is moved to a position in which it is interposed between the abutment 520 of door release actuator 504 and the abutment 524 of lock engaging member 496. In this position, bar 740 inhibits door release actuator 504 from moving lock engaging member 496, thereby inhibiting door 472 from being moved to an open position. In Figure 36, the accessory is disconnected from the dirty air inlet 116, and bar 740 has moved so that it no longer inhibits door release actuator 504 from moving lock engaging member 496. It will be appreciated that bar 740 may be moved to the open position of the door lock shown in Figure 36 by wand 136 pulling the bar to the open position, bar 740 being biased to the open position, or the like.

[00319] In some embodiments, an openable door lock may be moved to an engaged position by connecting an accessory tool to the surface cleaning apparatus, and moved to a disengaged position by disconnecting the accessory tool from the surface cleaning apparatus. That is, instead of inhibiting or preventing a door lock from being released, connection of an accessory to a dirty air inlet may positively engage a door lock to inhibit or prevent the openable door from opening.

[00320] In the example illustrated in Figures 37 and 38, a door lock 492 inhibits opening of cyclone unit front door 472 when engaged. In the illustrated embodiment, door lock 492 includes an engaging member 496 and an actuator 504. As exemplified, door release actuator 504 includes a rounded abutment surface 520, and lock engaging member 496 includes an angled abutment surface 524. As exemplified in Figure 37, when an accessory is connected to the dirty air inlet 116, actuator 504 is driven against lock engaging member 496, and the interaction of the abutment surfaces results in engaging member 496 being driven towards a recess 512 formed in cyclone unit front door 472 to retain the front door 472 in its closed position. When the accessory is disconnected a biasing member such as a spring 750 retracts or draws engaging member 496 towards a

disengaged position, as shown in Figure 38. In this position, door lock 492 does not inhibit door 472 from being moved to an open position.

COUNTERWEIGHT STAND

[00321] The following is a description of a counterweight stand that may be used by itself in any surface cleaning apparatus or in any combination or sub-combination with any other feature or features disclosed herein including the uniflow cyclone, the positioning of the dirt collection chamber, the orientation of the suction motor, the lateral stability members, the air treatment member handle, the position and orientation of a driving handle, the pre-motor filter housing door, the air treatment member door actuator, the air treatment member door control, and the electrical coupling members.

[00322] In accordance with this aspect, the apparatus may include a counterweight positioned to adjust the apparatus center of gravity for reducing user-torque required to orient the apparatus at common operating angles. The counterweight may be located at a lower end of the main body to provide a stand for supporting the apparatus on a horizontal surface. The counterweight may be formed by a removable member (e.g. energy storage member), or a permanently attached or integrally molded member (e.g. ribs).

[00323] As exemplified in Figure 23, apparatus 100 includes a counterweight stand 564. The counterweight stand 564 may have any configuration suitable for helping to support apparatus 100 on horizontal surface and for influencing the center of gravity of apparatus 100. As exemplified, counterweight stand 564 may be connected to apparatus lower end 292 for supporting apparatus 100 when apparatus lower end 292 is placed on a horizontal surface (e.g. for storage). In various embodiments, counterweight stand 564 may be connected to main body 104, air treatment member 112, or both. In the illustrated embodiment, counterweight stand 564 is connected to main body lower end 568 to define at least a portion of a lower wall of main body 104 for supporting apparatus 100 on a horizontal surface.

[00324] Counterweight stand 564 may be of any size and weight suitable for providing stable support and for influencing the apparatus center of gravity. For example, counterweight stand 564 may be formed of the same material as main body exterior wall

212 (e.g. plastic), and may be formed as a solid member, a hollow member, a porous member, or a plurality of spaced apart members. In the illustrated embodiment, counterweight stand 564 is formed as a plurality of spaced apart counterweight ribs 572 that are integrally formed with the main body exterior wall 212. As exemplified, counterweight ribs 572 may be rearwardly extending and laterally spaced apart. This allows the counterweight ribs 572 to be distributed across a large area to form a base that nay itself or with bottom 125 stably support the apparatus 100 on a horizontal surface. The collective weight of ribs 572, and thus their influence on the apparatus center of gravity, is determined by varying the number, density, spacing, and distribution of the counterweight ribs 572. In alternative embodiments, counterweight stand 564 may be formed by a hollow member, and the weight of the counterweight stand 564 is determined by the fill density inside the block. In some embodiments, counterweight stand 564 may be formed from a different material than main body exterior wall 212, such as a material of greater density to provide greater stability and influence on center of gravity.

[00325] Still referring to Figure 23, the counterweight stand 564 may be integrally formed, permanently connected, or removably connected to apparatus 100. In the illustrated embodiment, counterweight stand 564 is permanently connected to apparatus 100. As exemplified, apparatus 100 may be a corded appliance having a power cord connector 576 for permanently or removably receiving a power cord (not shown) that is connectable to an external power source (e.g. wall outlet). Turning to Figures 4 and 24, another embodiment of apparatus 100 is shown including a counterweight stand 564 formed as an energy storage member 580 (e.g. battery). Energy storage member 580 may be permanently or removably connected to apparatus 100, and may have a size and weight suitable for helping to support apparatus 100 on a horizontal surface 584 and influencing the center of gravity of apparatus 100.

ELECTRICAL COUPLING MEMBERS

[00326] The following is a description of an electrical coupling members that may be used by itself in any surface cleaning apparatus or in any combination or sub-combination with any other feature or features disclosed herein including the uniflow cyclone, the

positioning of the dirt collection chamber, the orientation of the suction motor, the lateral stability members, the air treatment member handle, the position and orientation of a driving handle, the pre-motor filter housing door, the air treatment member door actuator, the air treatment member door control, and the counterweight stand.

[00327] In accordance with this aspect, the apparatus may include an electrical outlet with electrical conductor element(s) that are movable from a circuit closed position to a circuit open position upon removal of an accessory tool such as a wand, crevice tool, mini brush or the like. The accessory tool which is mounted on the apparatus may have a member which engages a driven member on the apparatus. When engaged, the driven member mechanically moves an element of the circuit to open the circuit so that the electrical conductor elements on the apparatus are not live. This allows the electrical outlet to be safe to touch when the accessory tool is disconnected.

[00328] Referring to Figure 1, connector 128 may be any suitable connector that is operable to connect to, and preferably detachably connect to, a hose, cleaning tool or other accessory tool. Optionally, in addition to providing an air flow connection, connector 128 may also include an electrical connection. Providing an electrical connection may allow accessory tools that are coupled to the connector 128 to be powered by the surface cleaning apparatus 100. For example, the surface cleaning unit 100 can be used to provide both power and suction to a surface cleaning head, or other suitable accessory tool. In the illustrated embodiment, the connector 128 includes an electrical outlet 144 in the form of a female socket member, and a corresponding male connector member may be provided on the hose, cleaning tool or other accessory tool that is connected to the connector inlet end 124. In other embodiments, electrical outlet 144 may include male connectors.

[00329] As exemplified in Figure 25, apparatus 100 includes an electrical circuit 624 between a source of power and electrical conductor elements 588. The source of power may be an energy storage member 580 (e.g. battery) or a power cord 628 (connectable to an external power outlet), for example. In accordance with this aspect, electrical conductor elements 588 may be de-energized when not connected with a mating electrical coupling (e.g. of a power accessory). This may prevent user injury from being hurt by inadvertent contact with the electrical conductor elements 588.

[00330] The electrical circuit 624 may include two or more electrical conductor elements 588, at least one of which, and preferably two of which, may be movable between a circuit closed position and a circuit open position, and biased to the circuit open position. In the circuit closed position, the electrical conductor element 588 is electrically connected to the source of power. In the circuit open position, the electrical conductor 588 is electrically disconnected from the source of power. Accordingly, at least one of the electrical conductor elements 588 is normally electrically disconnected from the source of power, which may prevent accidental electric shock. In use, the electrical conductor element 588 is moved to the circuit closed position upon attaching an accessory tool to dirty air inlet 116.

[00331] In one embodiment, the electrical conductor elements 588 may be moved to the circuit closed position by engagement with the electrical conductor elements of an accessory tool. Accordingly, when the accessory tool is mounted on inlet 116, the electrical conductor elements of the accessory tool may drive electrical conductor elements 588 to the circuit closed position.

[00332] As exemplified, electrical conductor elements 588 may be a rigid rod movably mounted in a housing 596 of electrical outlet 144. Each electrical conductor element 588 extends from a first contact end 640 to a second contact end 644. The first contact end 640 may be an accessory tool contact end which makes electrical contact with a mating electrical conductor element of an attached accessory tool. The second contact ends 644 may be a terminal end contact end which makes electrical contact with the terminal ends 636 of electrical conductive members 590 when the electrical conductor elements 588 are in a circuit closed position. Accordingly, when an accessory tool is electrically connected to electrical outlet 144 and electrical conductor elements 588 are in the circuit closed position, the conductor element 588 can conduct electricity from the source of power to the connected accessory tool.

[00333] It will be appreciated that electrical conductive members (e.g. wires) 590 extend from the source of power to terminal ends 636. One or both of electrical conductor elements 588 may be movable between a circuit closed position, in which second contact end 644 contacts terminal end 636 of an electrical conductive member 590, and a circuit

open position, in which second contact end 644 is spaced apart from the terminal ends 636 of electrical conductive members 590. For example, one or both of electrical conductor elements 588 may be axially slidable in electrical outlet housing between the circuit open and circuit closed positions. In the illustrated example, electrical conductor elements 588 are rearwardly slideable in rearwardly extending housing channels 604 formed in electrical outlet housing 596.

[00334] In some embodiments, the first end 640 of one or both of electrical conductor elements 588 may be recessed into the electrical outlet 144 when in the circuit open position. For example, first end 640 may be positioned rearwardly of electrical outlet front end 608.

[00335] Electrical conductor element 588 may be biased to the circuit open position in any manner. For example, electrical outlet 144 includes a biasing member 648 that applies a biasing force urging electrical conductor element 588 toward the circuit open position. In the illustrated example, biasing member 648 is a compression spring positioned between the electrical conductor element 588 and the terminal end 636 of electrical conductive member 590 which urges electrical conductor element 588 forwardly. The force of biasing member 648 may be overcome when connecting an accessory tool to dirty air inlet 116 to move the electrical conductor element 588 rearwardly to the circuit closed position. Preferably, biasing member 648 is substantially non-electrically conductive. For example, biasing member 648 may be formed of (or coated with) plastic, rubber, a non-conductive metal or another substantially non-electrically conductive material. This helps to prevent biasing member 648 from short circuiting electrical circuit 624 or electrically connecting electrical conductor element 588 and terminal end 632 when the electrical conductor element 588 is in the closed position.

[00336] It will be appreciated that, in an alternate embodiment, electrical conductor elements 588 may be mounted in a moveable (e.g., plastic or other non-conductive material) housing and the housing may have an engagement member that is engaged by, e.g., a protrusion or finger provided on the accessory tool. In this way, the electrical conductor elements of the accessory tool need not be used to drive the circuit 624 to a closed position.

[00337] In some embodiments, main power switch 650, which is movable between a circuit closed position and a circuit open position to energize the suction motor, may be part of electrical circuit 624. The power switch may be manually user. In the circuit open position, power switch 650 electrically disconnects electrical terminal end 636 from the power source. In the circuit closed position, power switch 650 electrically connects circuit terminal end 636 with the power source.

[00338] While the above description provides examples of the embodiments, it will be appreciated that some features and/or functions of the described embodiments are susceptible to modification without departing from the spirit and principles of operation of the described embodiments. Accordingly, what has been described above has been intended to be illustrative of the invention and non-limiting and it will be understood by persons skilled in the art that other variants and modifications may be made without departing from the scope of the invention as defined in the claims appended hereto. The scope of the claims should not be limited by the preferred embodiments and examples, but should be given the broadest interpretation consistent with the description as a whole.

CLAIMS:

1. A surface cleaning apparatus comprising:

(a) an air flow path from a dirty air inlet to a clean air outlet and including a suction motor;

(b) an air treatment member comprising a dirt collection region having an openable door; and,

(c) an accessory removably connectable to the dirty air inlet wherein, when the accessory is connected to the dirty air inlet, the openable door is inhibited from opening.

2. The surface cleaning apparatus of claim 1 further comprising a front end having the dirty air inlet and the openable door is provided on the front end.

3. The surface cleaning apparatus of claim 1 wherein the accessory is removably mounted to the dirty air inlet.

4. The surface cleaning apparatus of claim 1 wherein, when the accessory is connected to the dirty air inlet, the accessory physically inhibits the openable door from opening.

5. The surface cleaning apparatus of claim 4 wherein, when the accessory is connected to the dirty air inlet, the accessory overlies a portion of the openable door.

6. The surface cleaning apparatus of claim 5 wherein, when the accessory is connected to the dirty air inlet, the accessory abuts a portion of the openable door.

7. The surface cleaning apparatus of claim 4 wherein the openable door has first and second opposed sides, the first side having a hinge for the openable door and, when the accessory is connected to the dirty air inlet, the accessory interacts with the second opposed side thereby inhibiting the openable door from opening.

8. The surface cleaning apparatus of claim 1 further comprising an openable door lock comprising a lock engaging member and a door release actuator drivingly connected to the

lock engaging member, the lock engaging member moveable between an engaged position in which the lock engaging member secures the openable door in a closed position and a disengaged position in which the openable door is openable wherein the lock engaging member is inhibited from moving to the disengaged position when the accessory is connected to the dirty air inlet.

9. The surface cleaning apparatus of claim 8 wherein the accessory has a blocking portion which inhibits the lock engaging member moving to the disengaged position when the accessory is connected to the dirty air inlet.

10. The surface cleaning apparatus of claim 9 wherein the openable door lock includes a moveable portion which moves along a path from a first position when the lock engaging member is in the engaged position to a second position when the lock engaging member is in the disengaged position, the moveable portion has an abutment surface and the blocking portion is positioned in the path of the abutment surface when the accessory is connected to the dirty air inlet.

11. The surface cleaning apparatus of claim 10 wherein the moveable portion is part of a drive member drivingly connecting the door release actuator to the lock engaging member.

12. The surface cleaning apparatus of claim 8 further comprising a lock deactivation member and the accessory has a blocking portion which activates the lock deactivation member when the accessory is connected to the dirty air inlet.

13. The surface cleaning apparatus of claim 12 wherein the lock deactivation member includes a moveable portion which moves along a path from a first position when the lock engaging member is in the engaged position to a second position when the lock engaging member is in the disengaged position, the moveable portion has an abutment surface and the blocking portion is positioned in the path of the abutment surface when the accessory is connected to the dirty air inlet.

14. The surface cleaning apparatus of claim 1 further comprising an openable door lock wherein the openable door is moveable to an open position when the openable door lock is

moved to an open position and wherein the openable door lock is inhibited from moving to the open position when the accessory is connected to the dirty air inlet.

15. The surface cleaning apparatus of claim 1 wherein the accessory is a longitudinally extending rigid member air flow member, an accessory cleaning tool, or a flexible hose.

16. A surface cleaning apparatus comprising:

(a) an air flow path from a dirty air inlet to a clean air outlet and including a suction motor;

(b) an air treatment member comprising a dirt collection region having an openable door;

(c) an accessory removably connectable in air flow communication with the dirty air inlet; and,

(d) an openable door lock comprising a lock engaging member and a door release actuator drivingly connected to the lock engaging member, the lock engaging member is moveable between an engaged position in which the lock engaging member secures the openable door in a closed position and a disengaged position in which the openable door is openable wherein the lock engaging member is inhibited from moving to the disengaged position when the accessory is connected in air flow communication with the dirty air inlet.

17. The surface cleaning apparatus of claim 16 wherein the accessory has a blocking portion which inhibits the lock engaging member moving to the disengaged position when the accessory is connected to the dirty air inlet.

18. The surface cleaning apparatus of claim 17 wherein the openable door lock includes a moveable portion which moves along a path from a first position when the lock engaging member is in the engaged position to a second position when the lock engaging member is in the disengaged position, the moveable portion has an abutment surface and the blocking portion is positioned in the path of the abutment surface when the accessory is connected to the dirty air inlet.

19. The surface cleaning apparatus of claim 18 wherein the moveable portion is part of a drive member drivingly connecting the door release actuator to the lock engaging member.

20. A surface cleaning apparatus comprising:

(a) an air flow path from a dirty air inlet to a clean air outlet and including a suction motor;

(b) an air treatment member comprising a dirt collection region having an openable door;

(c) an accessory removably connectable in air flow communication with the dirty air inlet; and,

(d) a lock deactivation member and the accessory has a blocking portion which activates the lock deactivation member when the accessory is connected in air flow communication with the dirty air inlet.

21. The surface cleaning apparatus of claim 20 wherein the lock deactivation member includes a moveable portion which moves along a path from a first position when the lock engaging member is in the engaged position to a second position when the lock engaging member is in the disengaged position, the moveable portion has an abutment surface and the blocking portion is positioned in the path of the abutment surface when the accessory is connected to the dirty air inlet.

22. A surface cleaning apparatus comprising:

(a) an air flow path from a dirty air inlet to a clean air outlet and including a suction motor;

(b) an air treatment member comprising a dirt collection region having an openable door;

(c) an accessory removably connectable in air flow communication with the dirty air inlet wherein, when the accessory is connected to the dirty air inlet, the accessory physically inhibits the door from opening.

23. The surface cleaning apparatus of claim 22 wherein, when the accessory is connected in air flow communication with the dirty air inlet, the accessory overlies a portion of the openable door.

24. The surface cleaning apparatus of claim 23 wherein, when the accessory is connected in air flow communication with the dirty air inlet, the accessory abuts a portion of the openable door.

25. The surface cleaning apparatus of claim 22 wherein the openable door has first and second opposed sides, the first side having a hinge for the openable door and, when the accessory is connected in air flow communication with the dirty air inlet, the accessory interacts with the second opposed side thereby inhibiting the openable door from opening.

ABSTRACT

A surface cleaning apparatus has a dirty air inlet and an air treatment member. The air treatment member includes a dirt collection region having an openable door. When an accessory is connected to the dirty air inlet, the openable door is inhibited from opening.

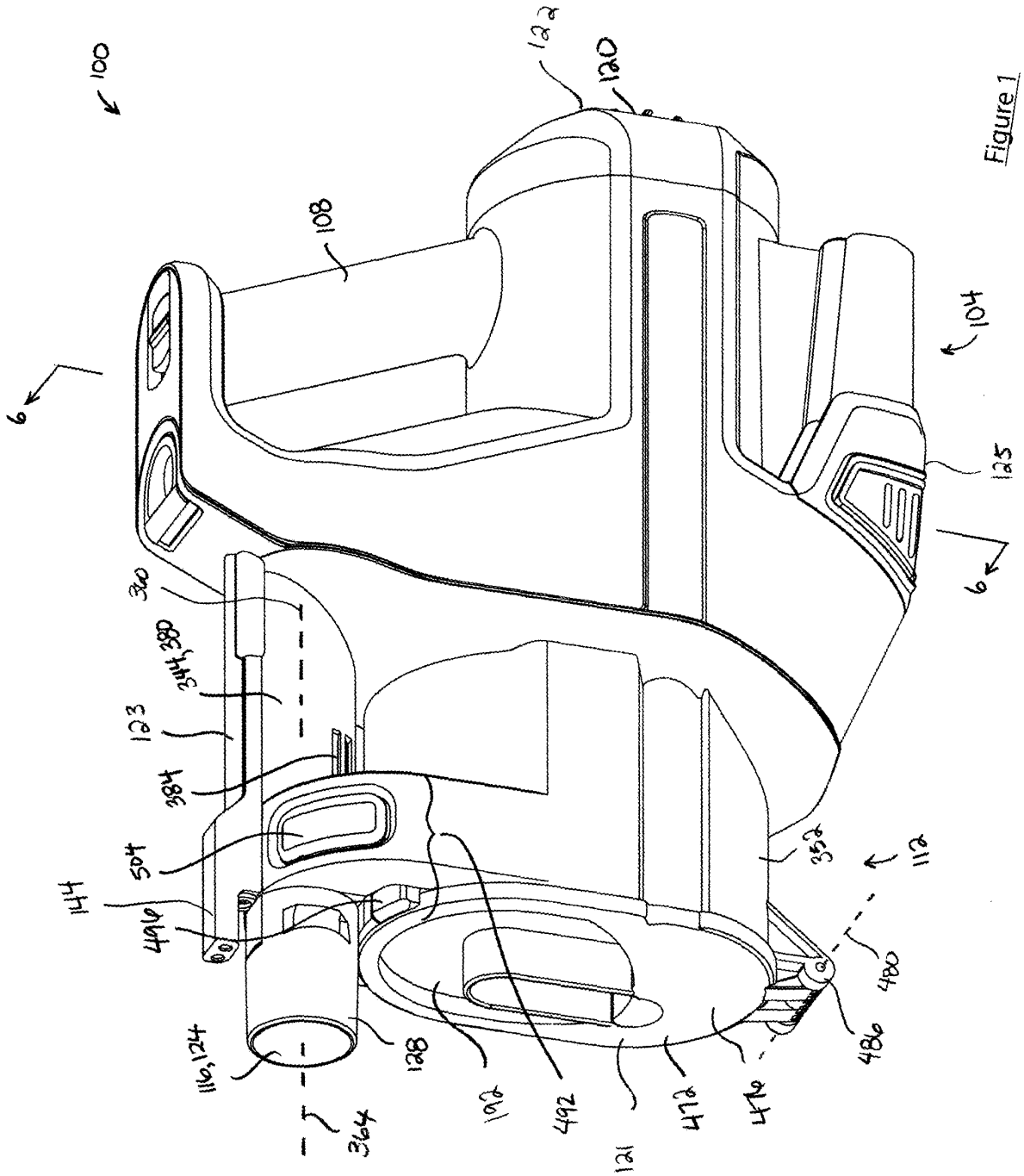

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Figure 1

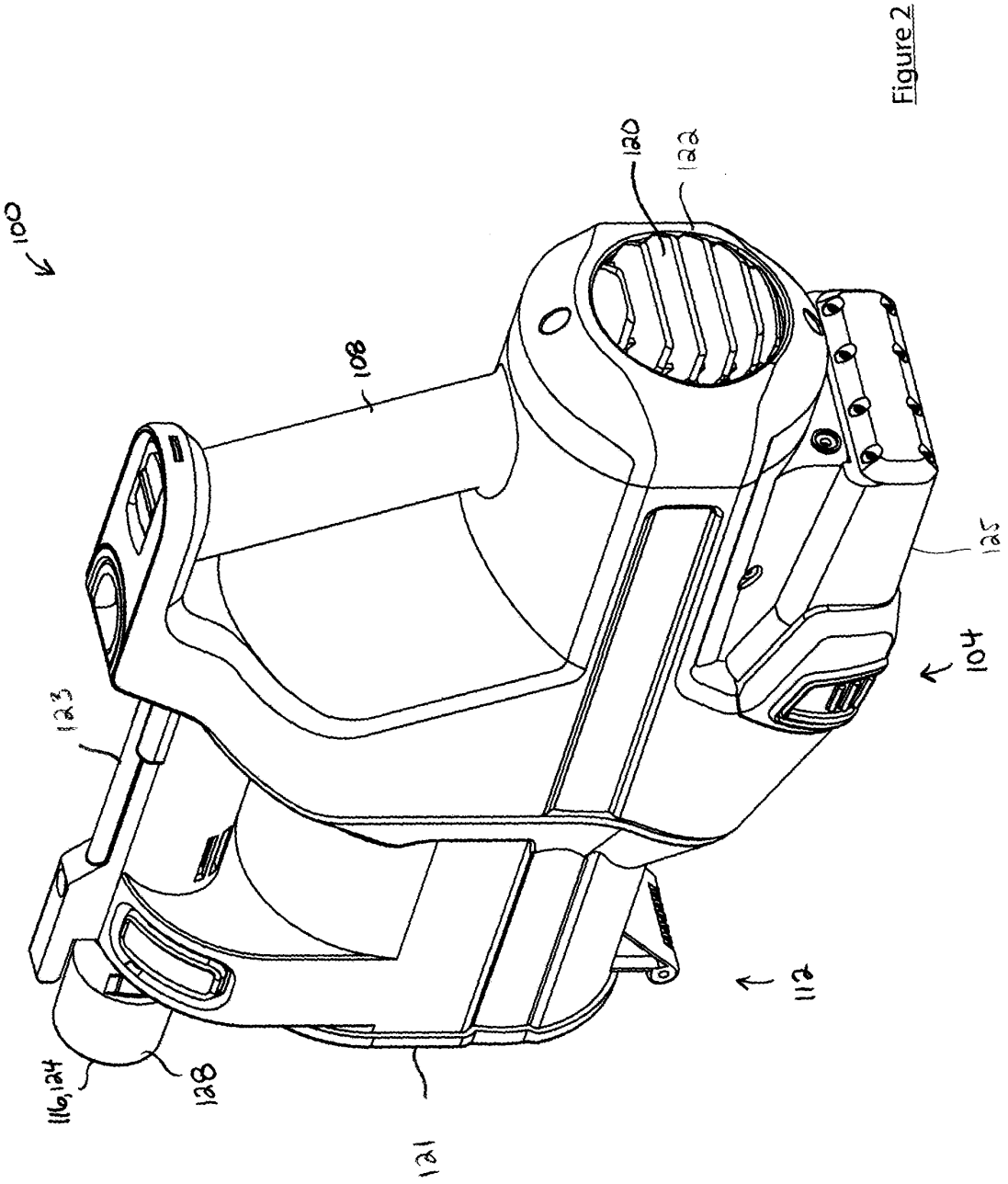


Figure 2

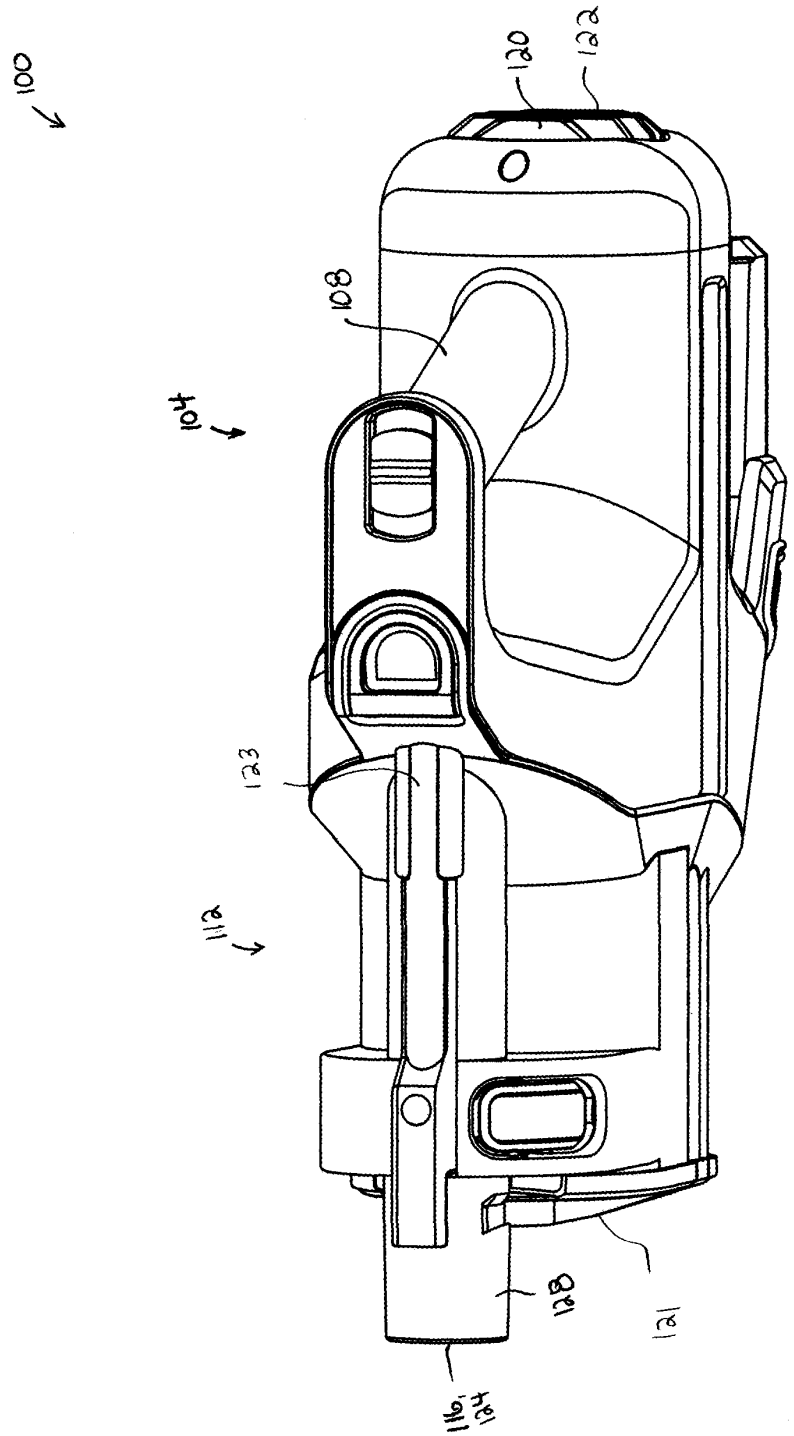


Figure 3

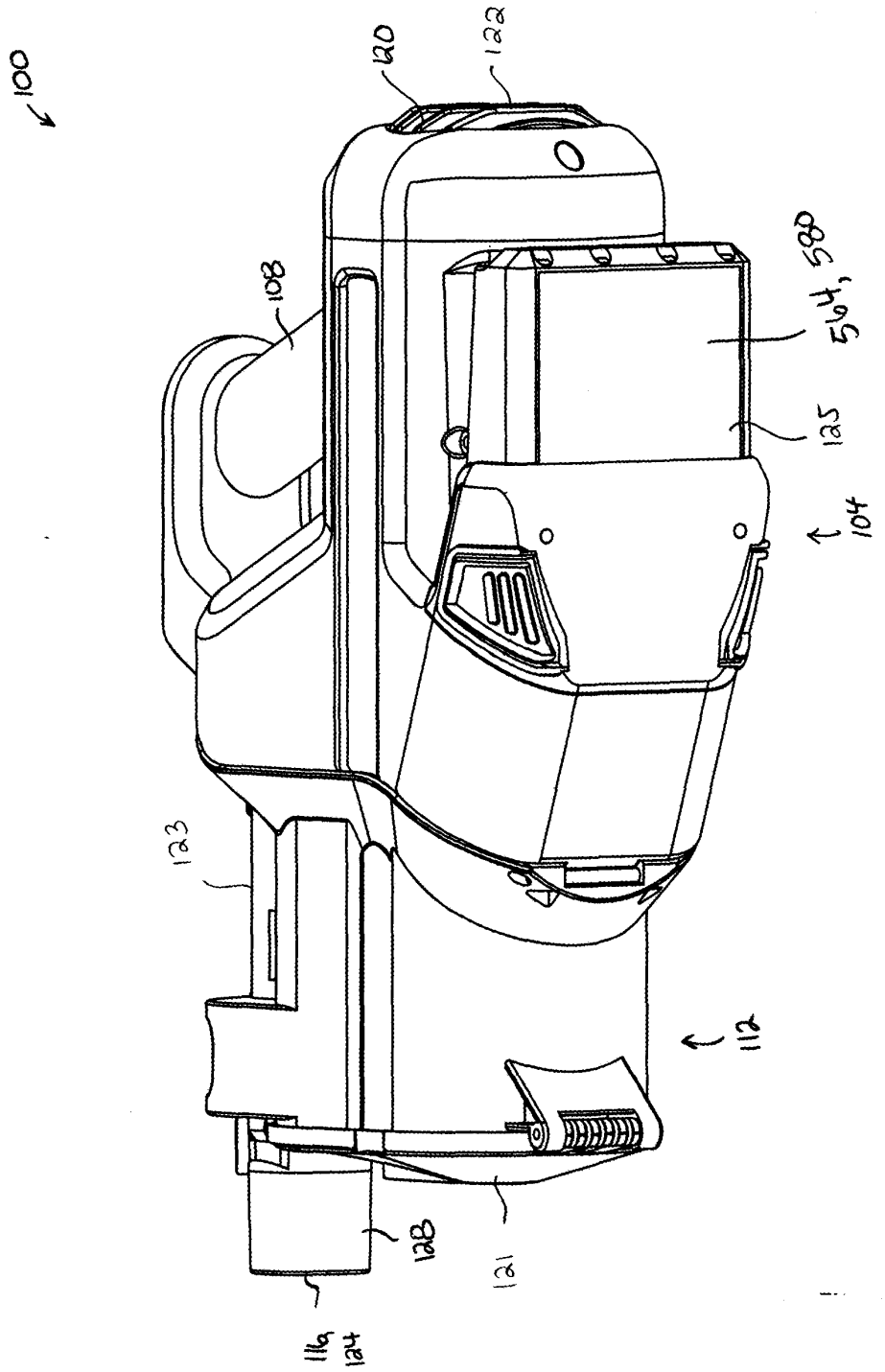


Figure 4

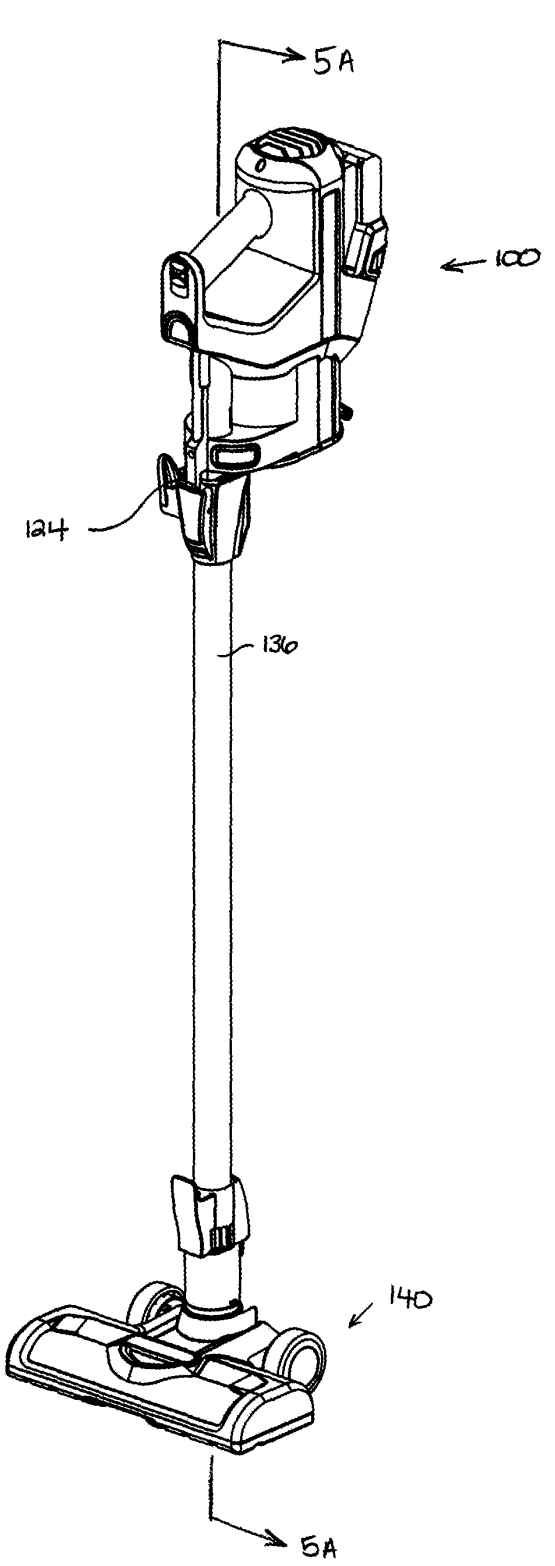


Figure 5

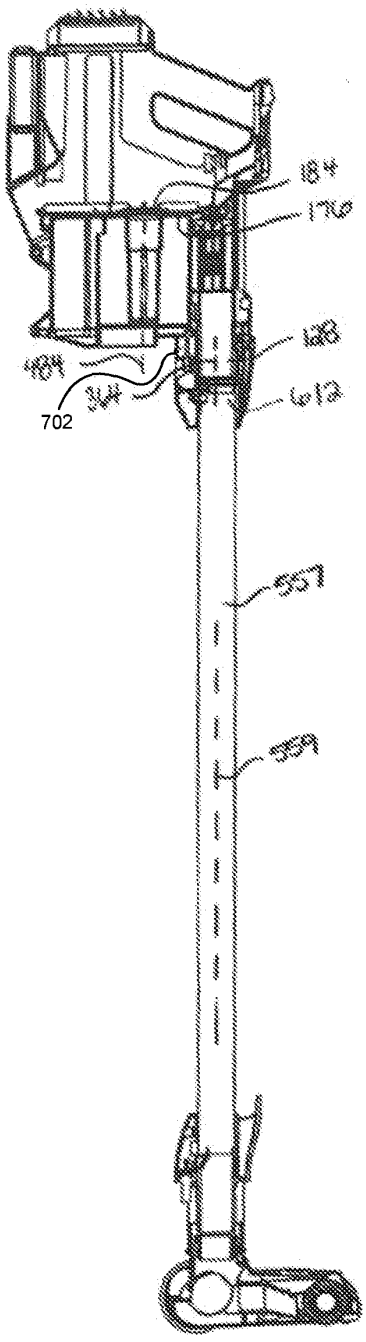


Figure 5A

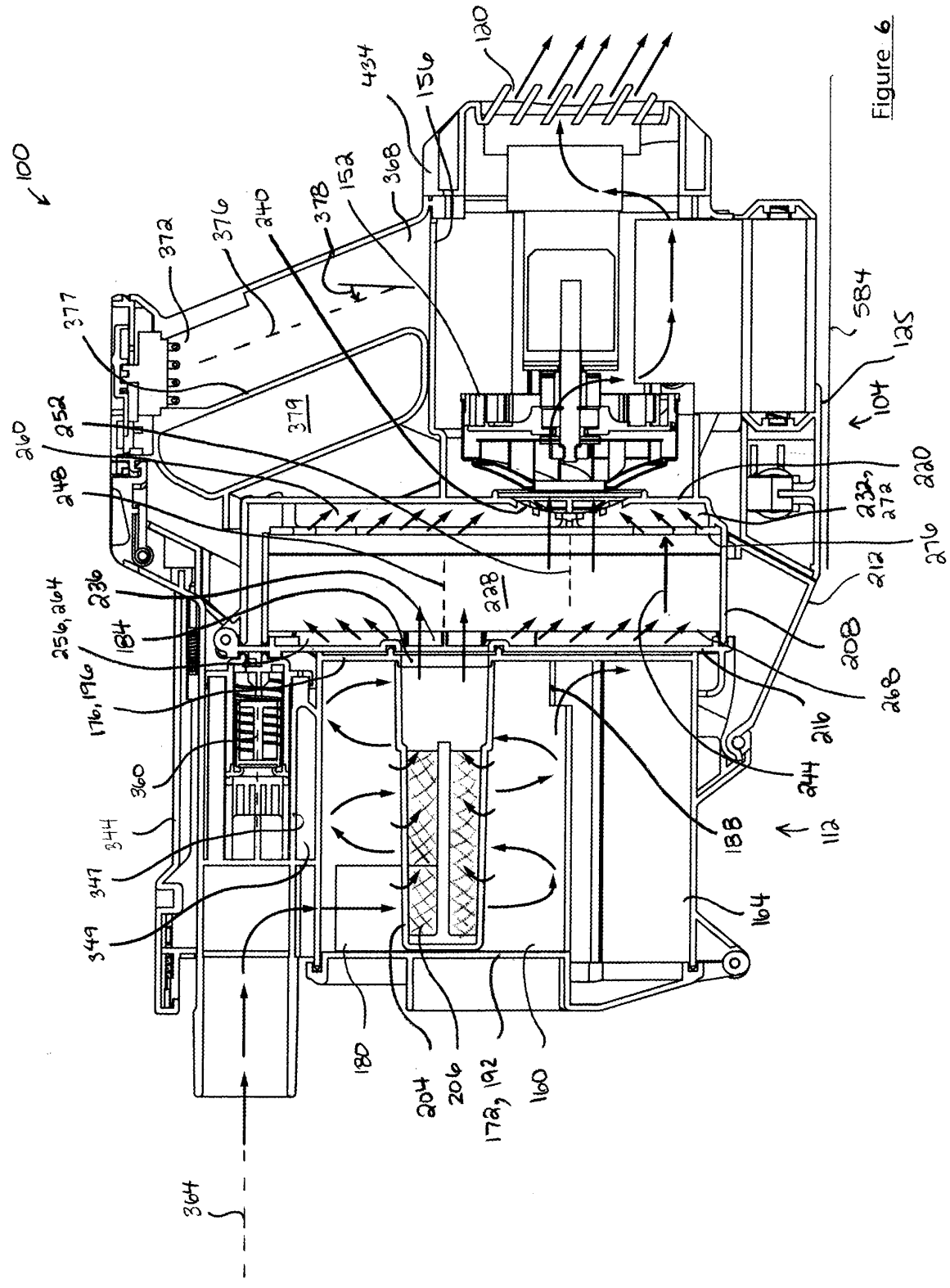

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Figure 6

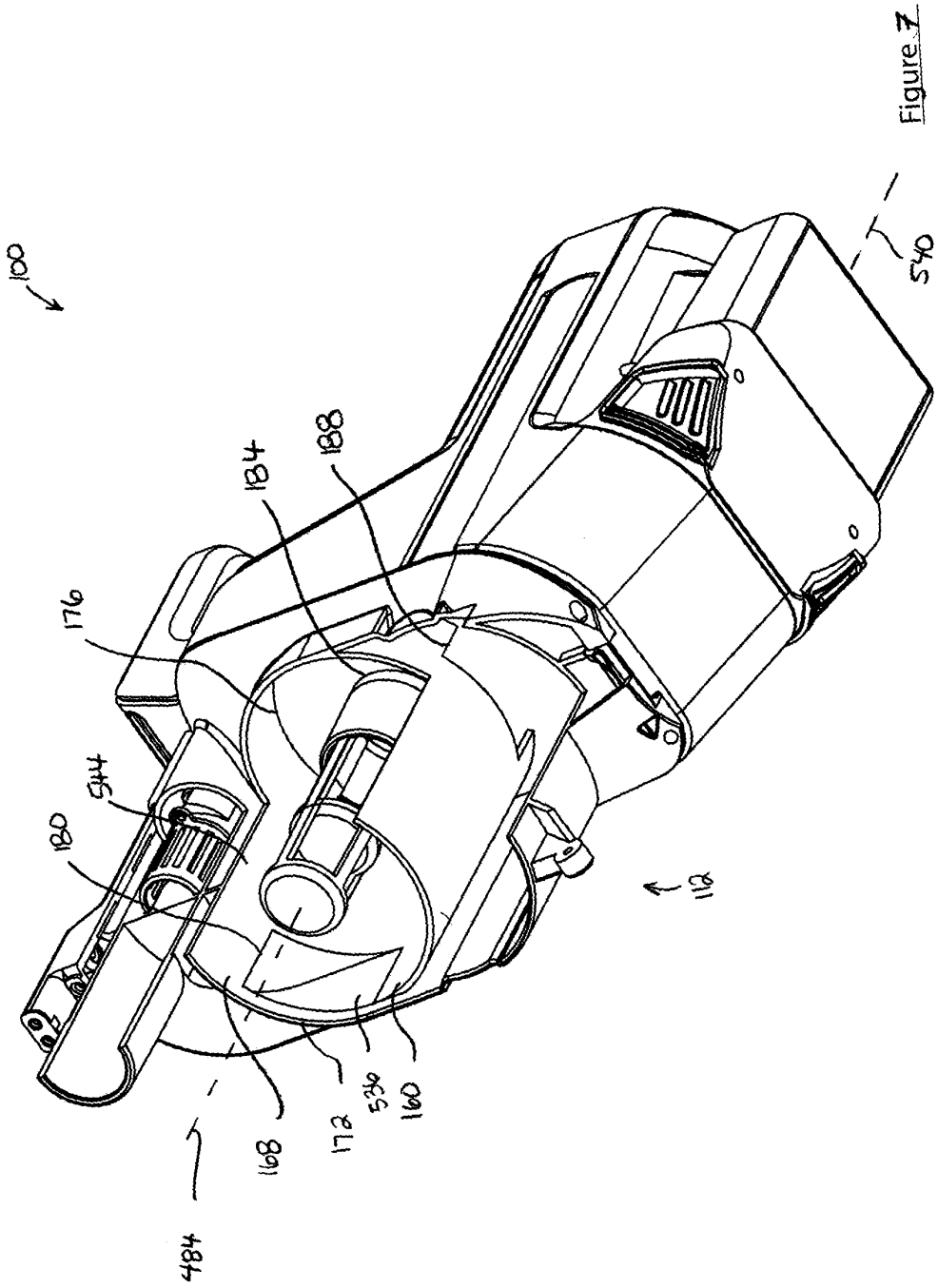


Figure 7

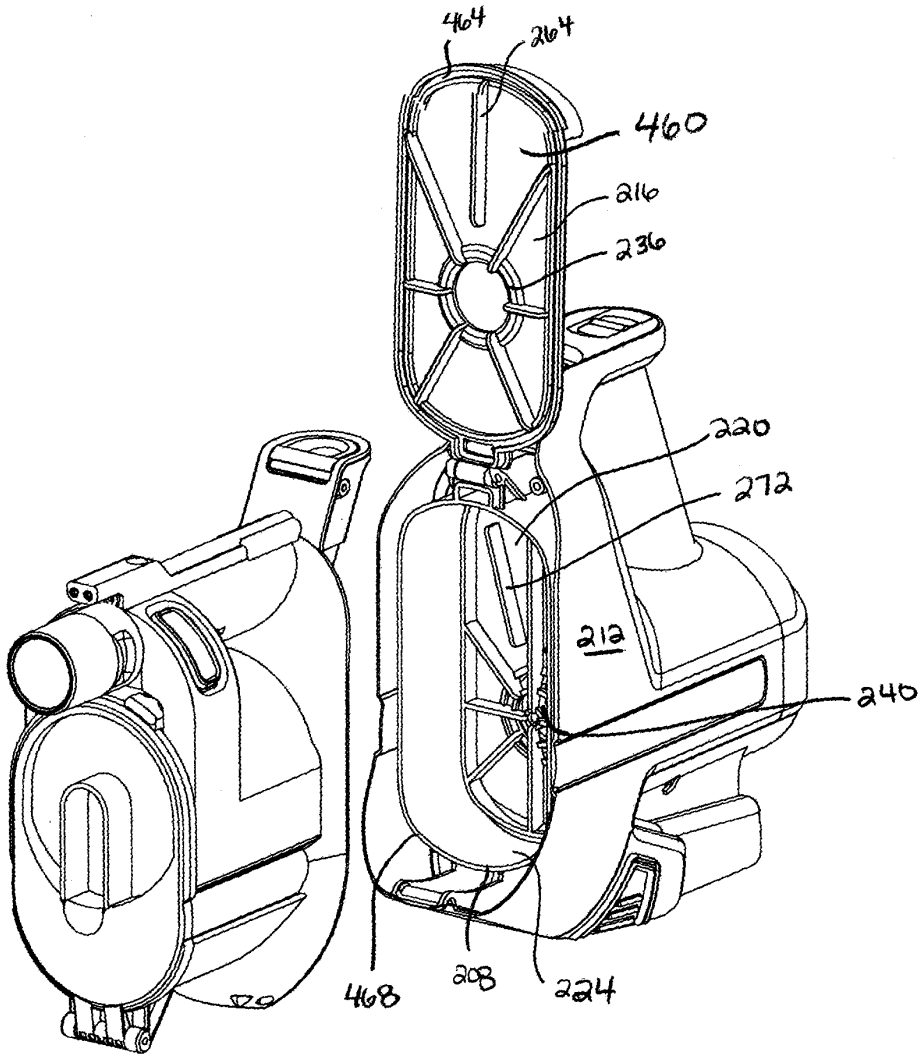


Figure 8

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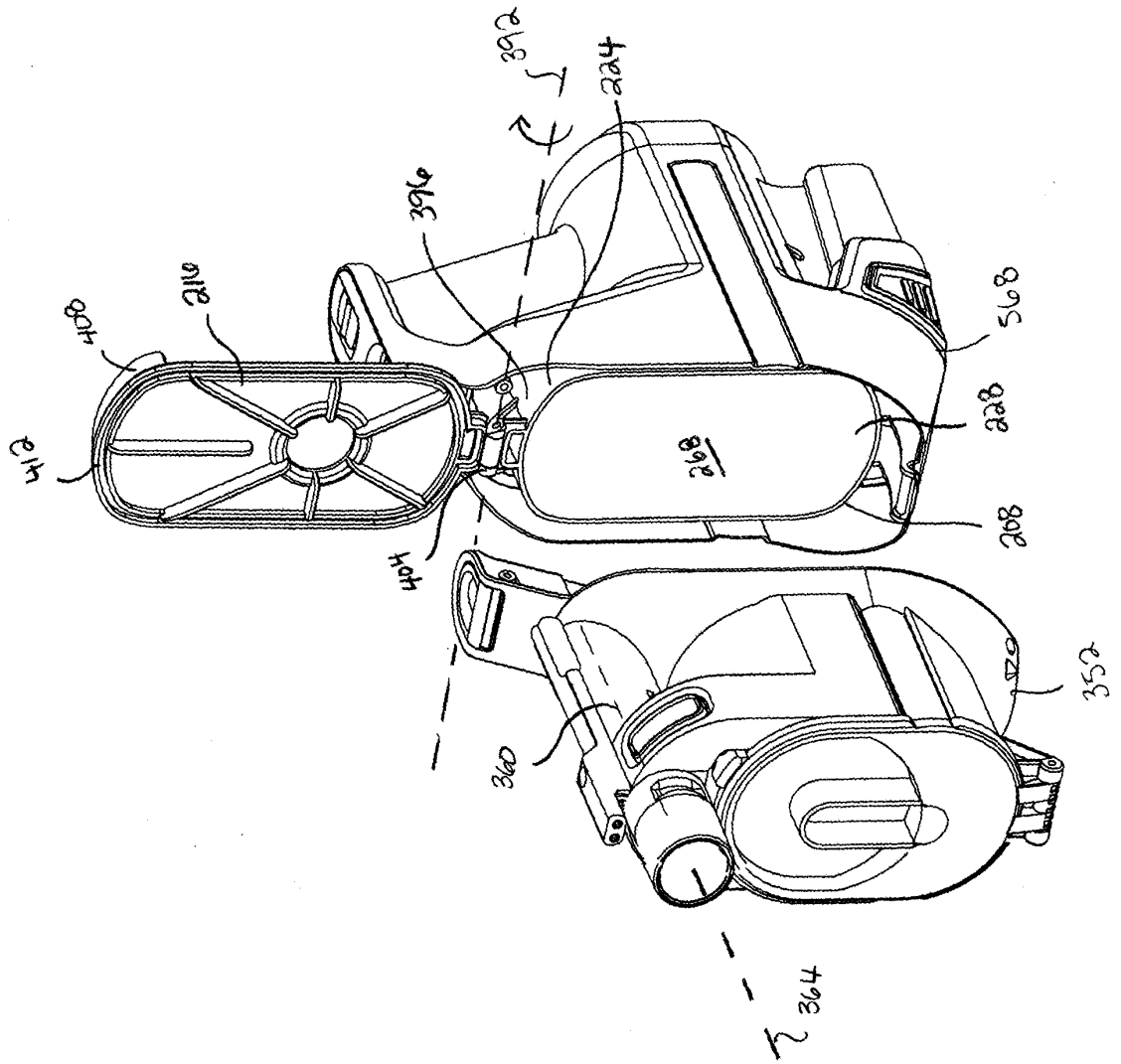


Figure 8A

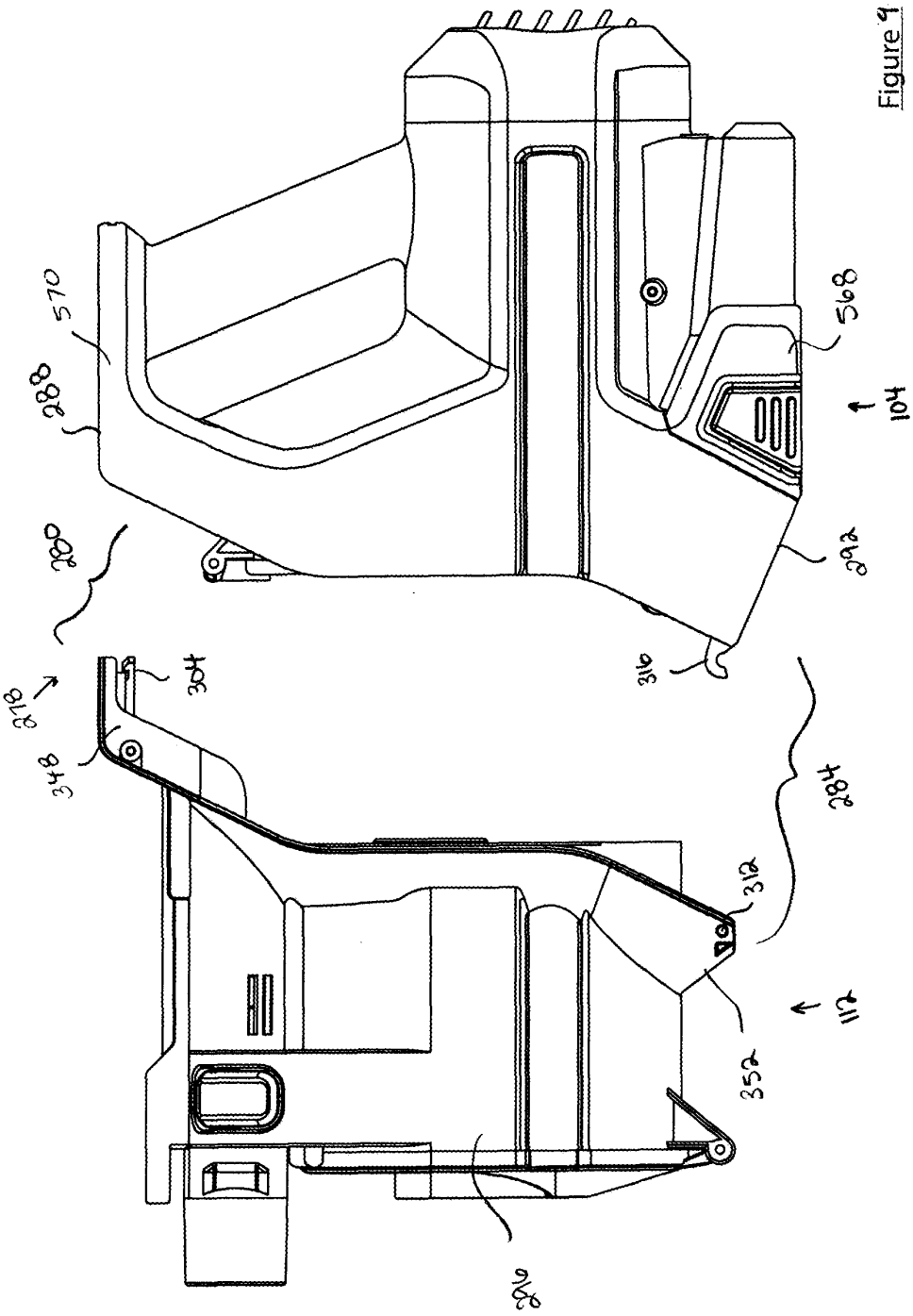


Figure 9

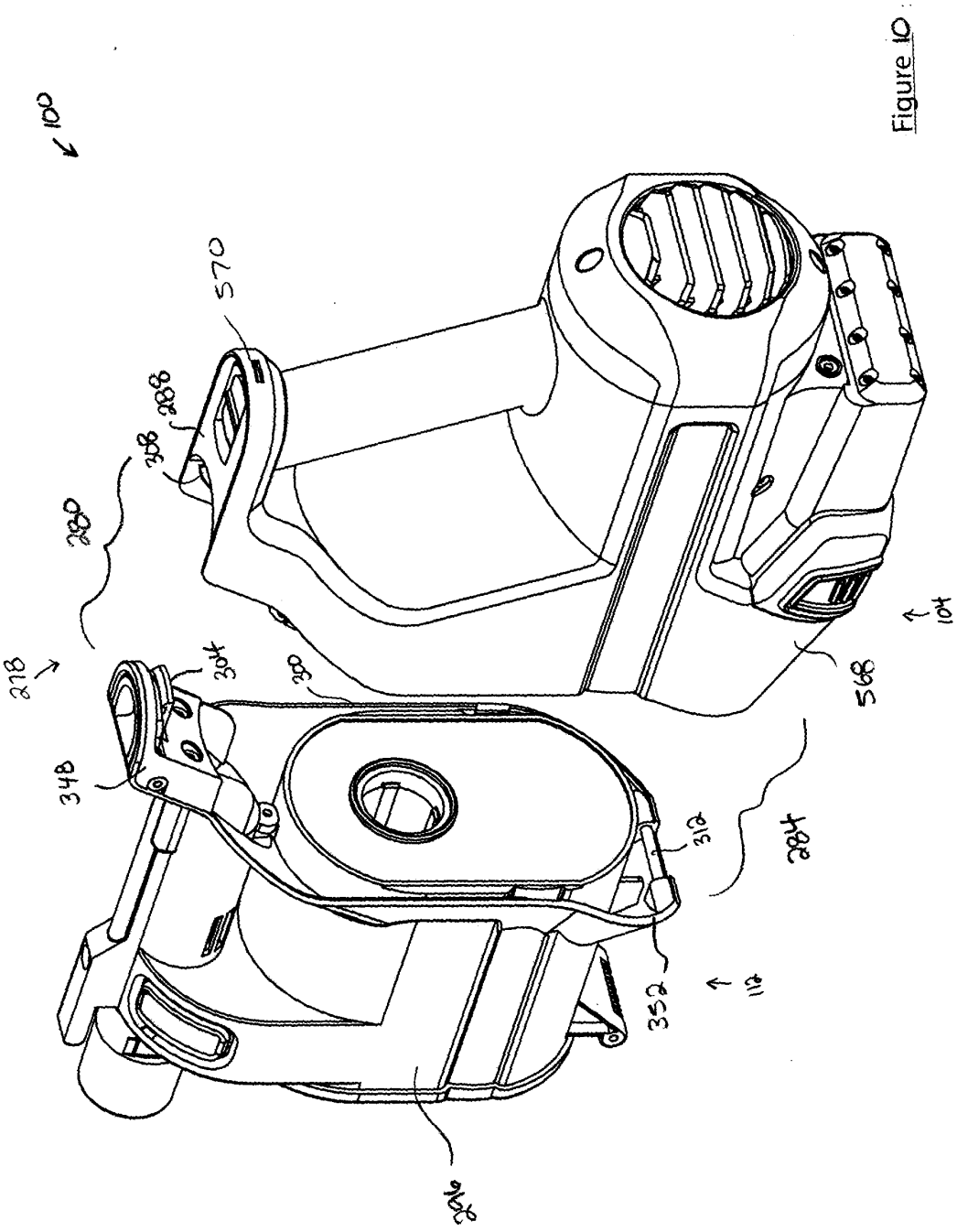


Figure 10

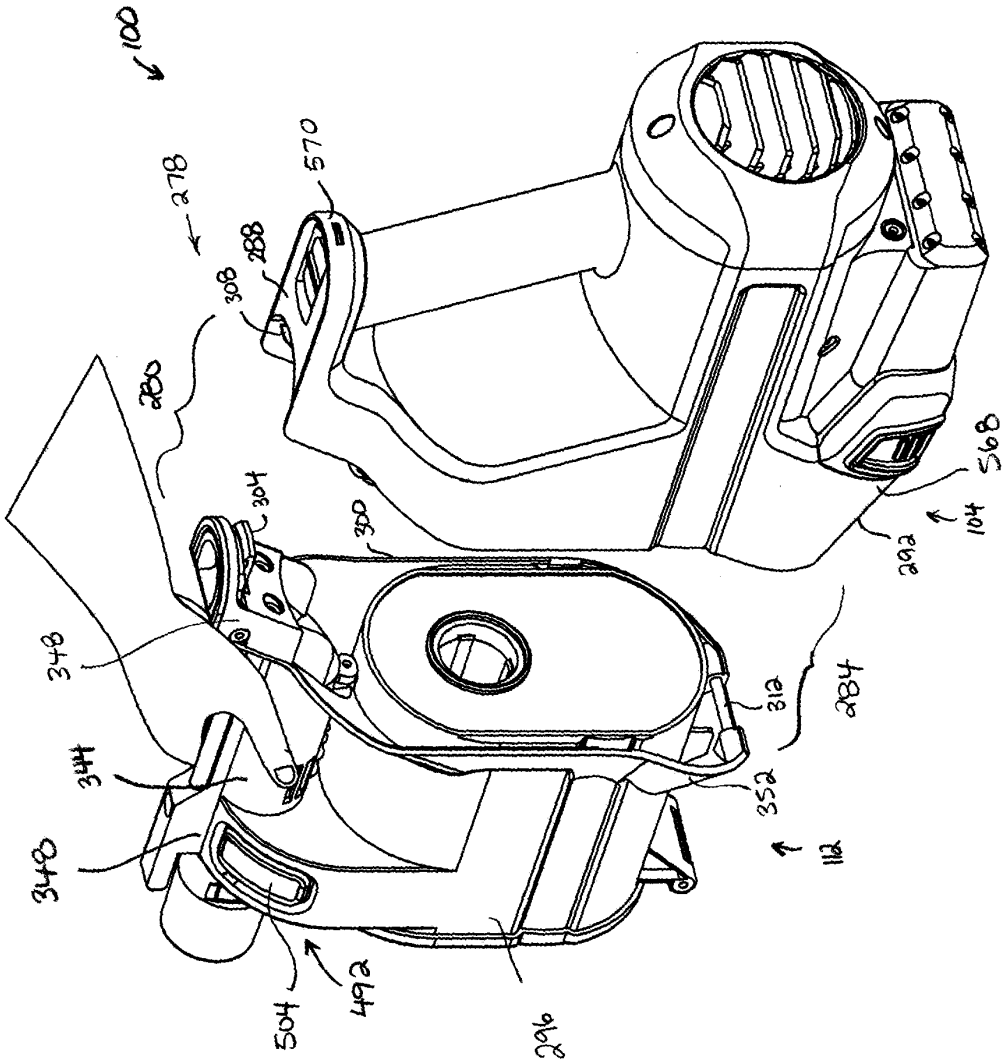

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Figure 10A

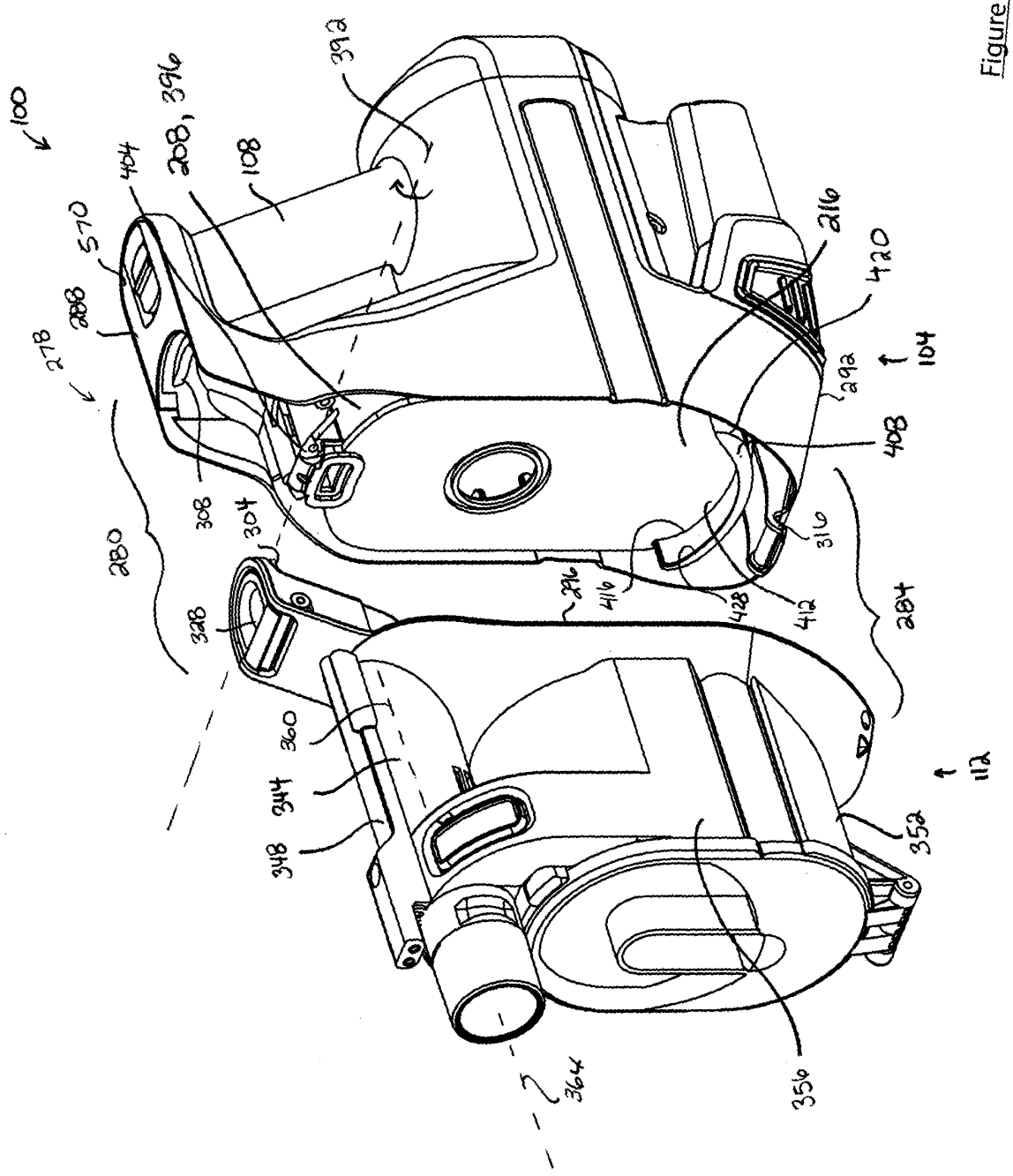

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Figure 11

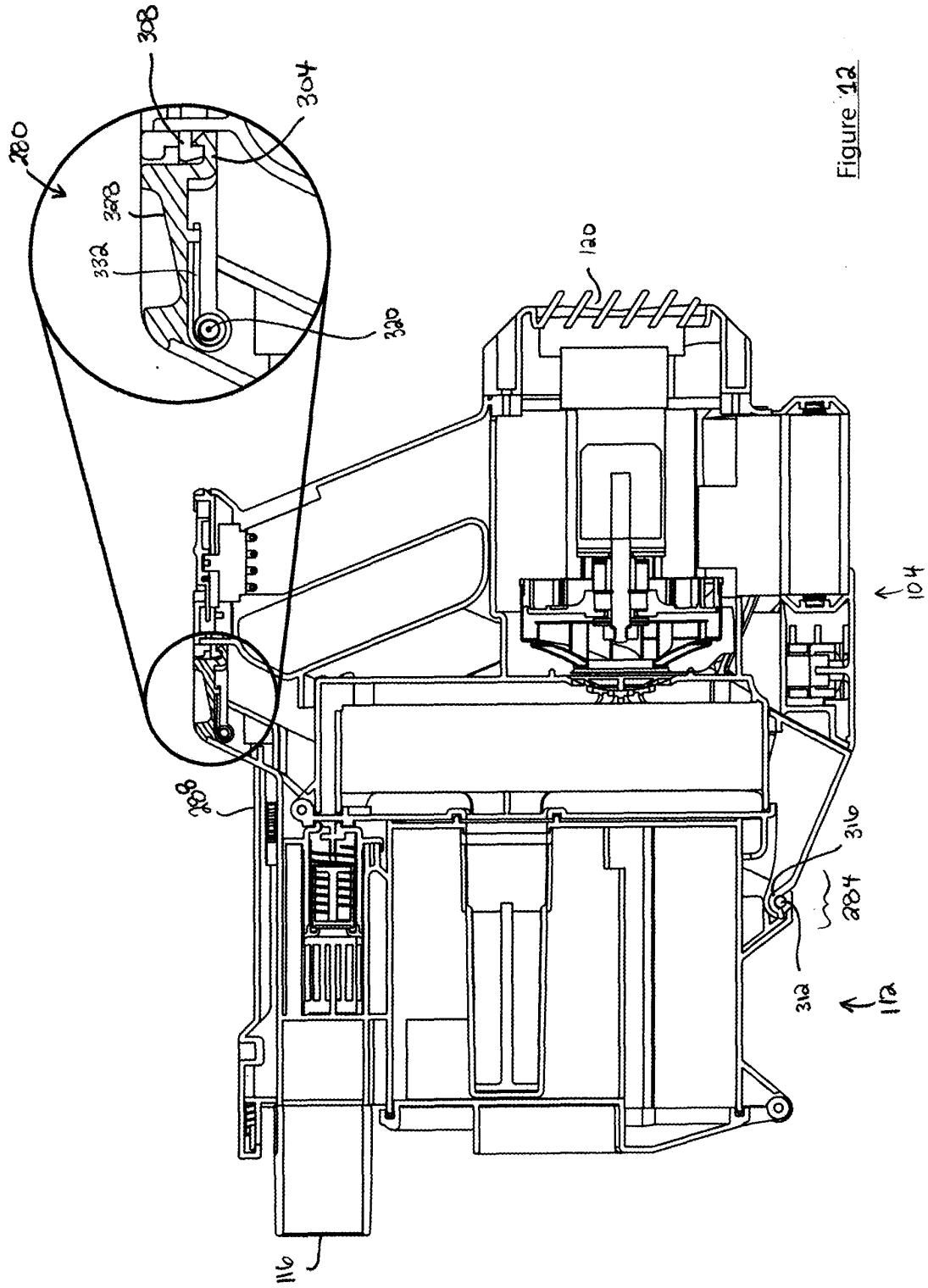


Figure 12

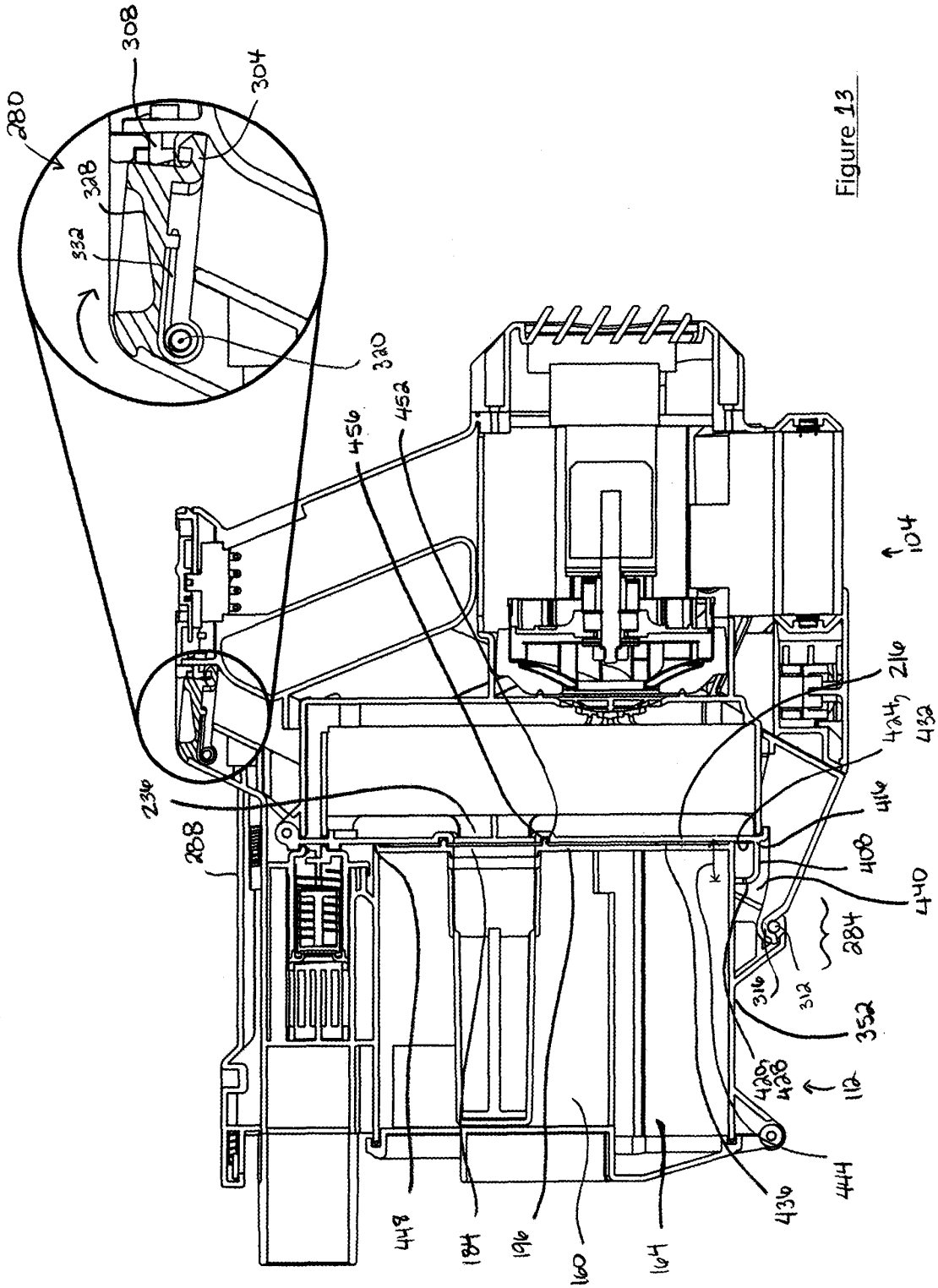

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Figure 13

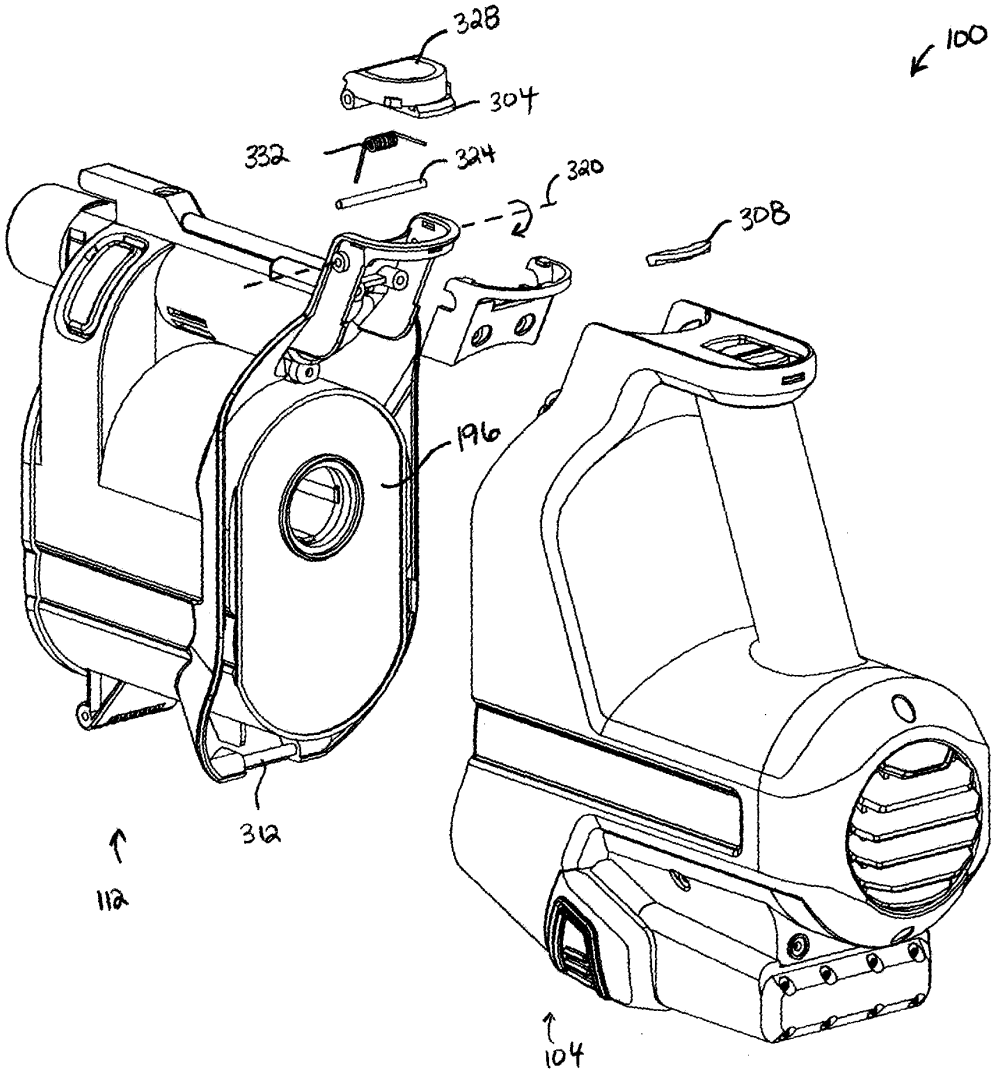


Figure 14

Dyson Ex1004
Page 111

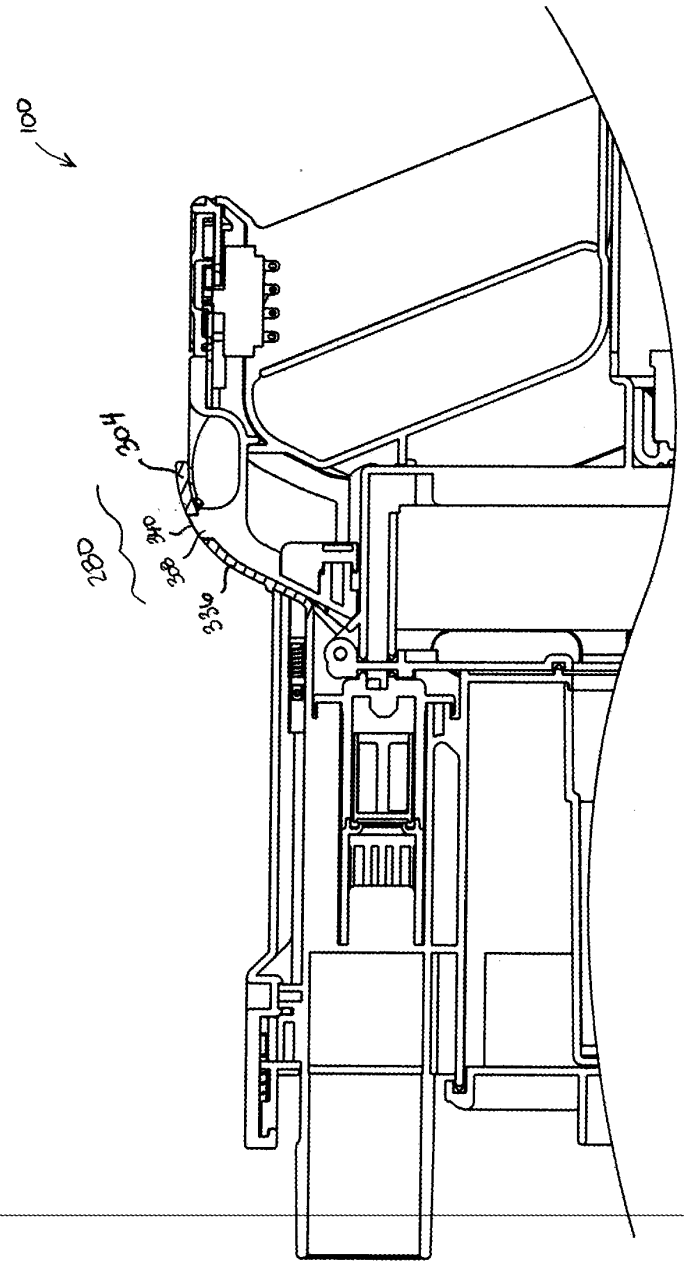


Figure 15

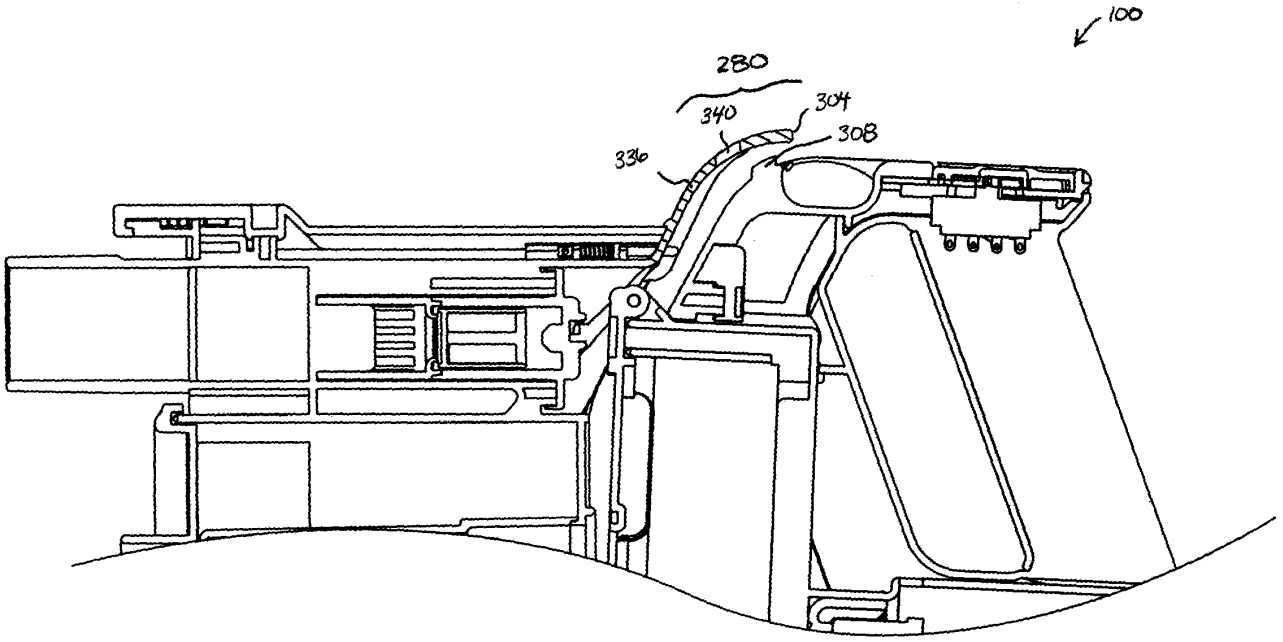


Figure 16

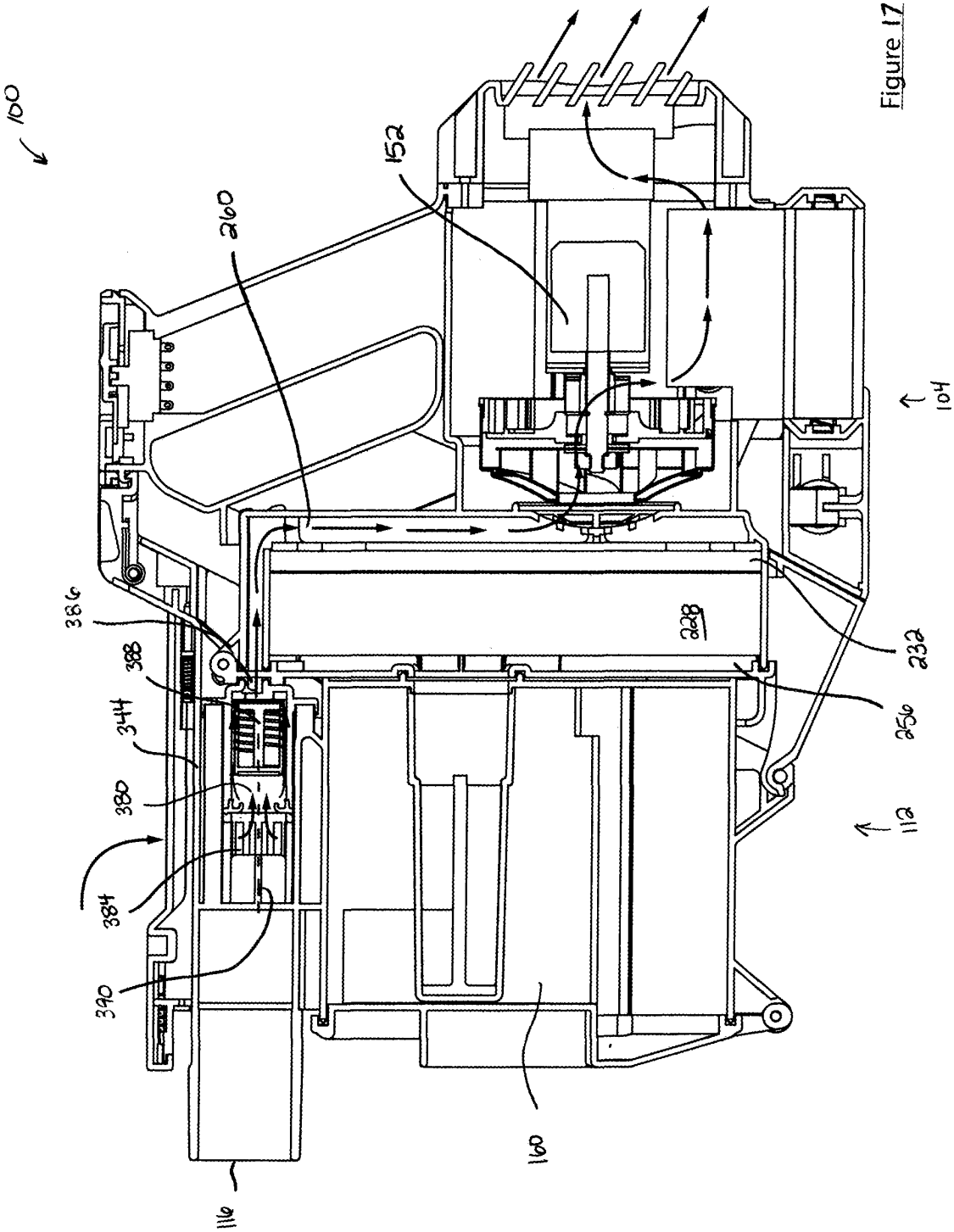


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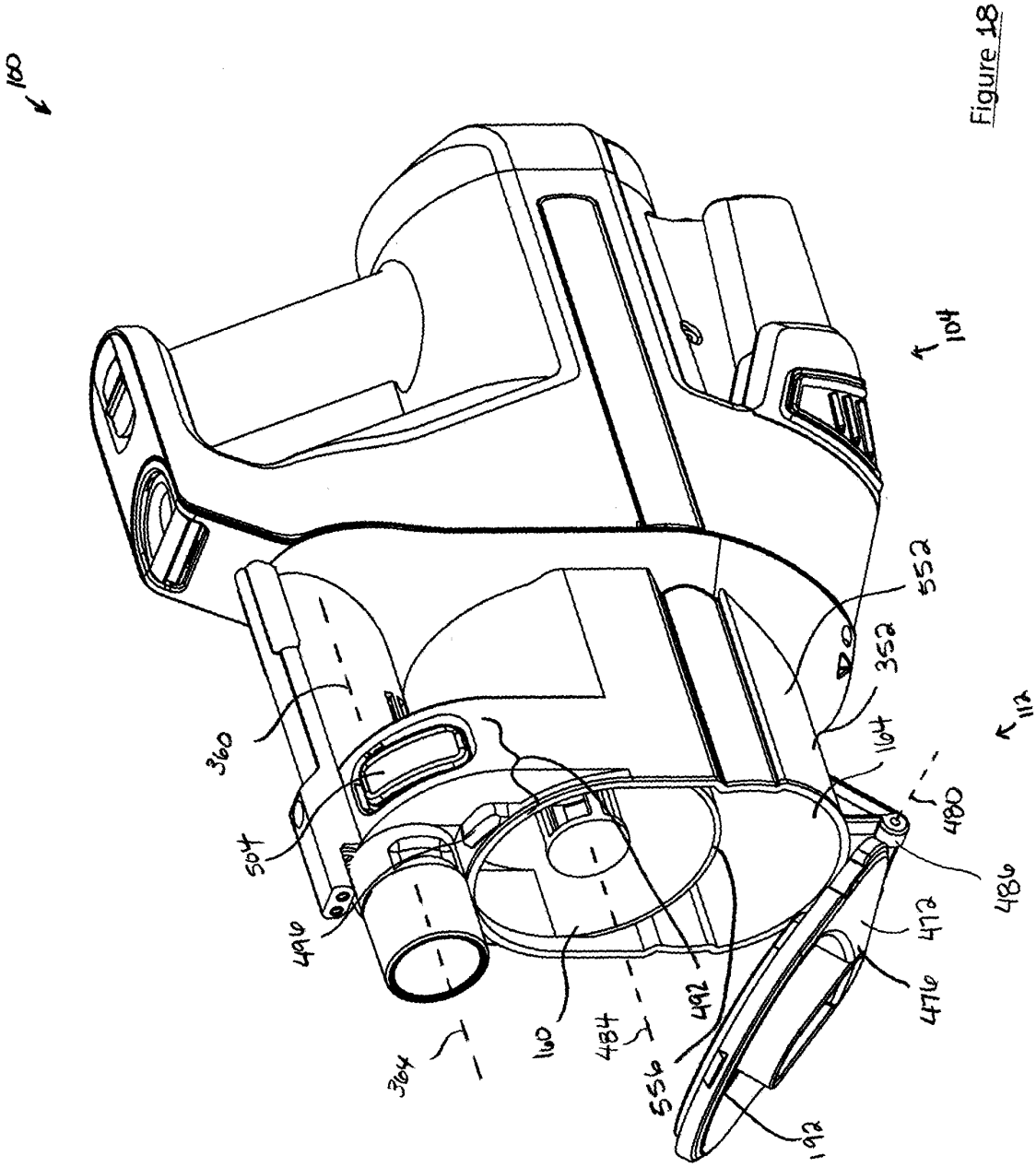

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Figure 18

Figure 19

Figure 20

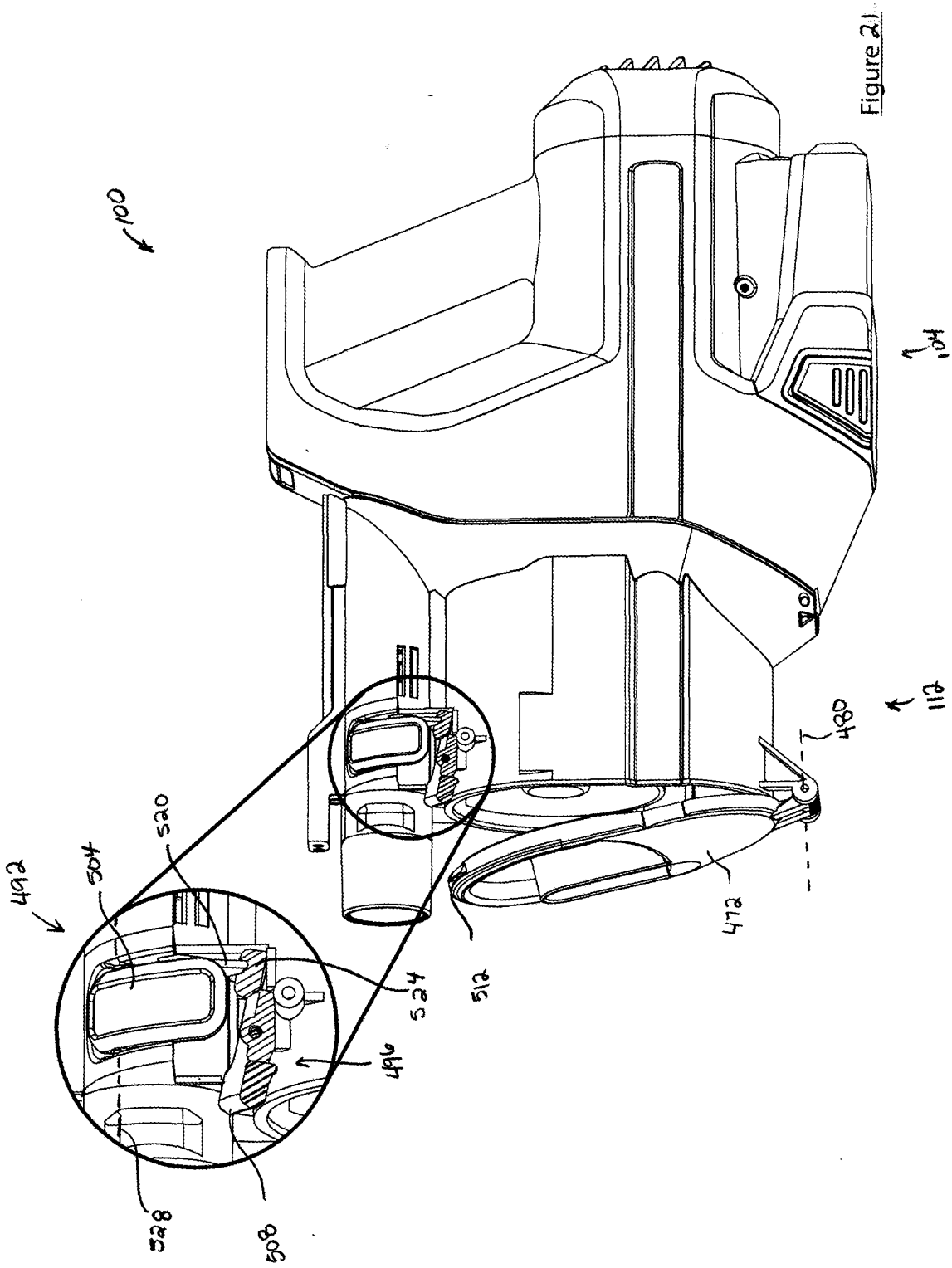


Figure 21

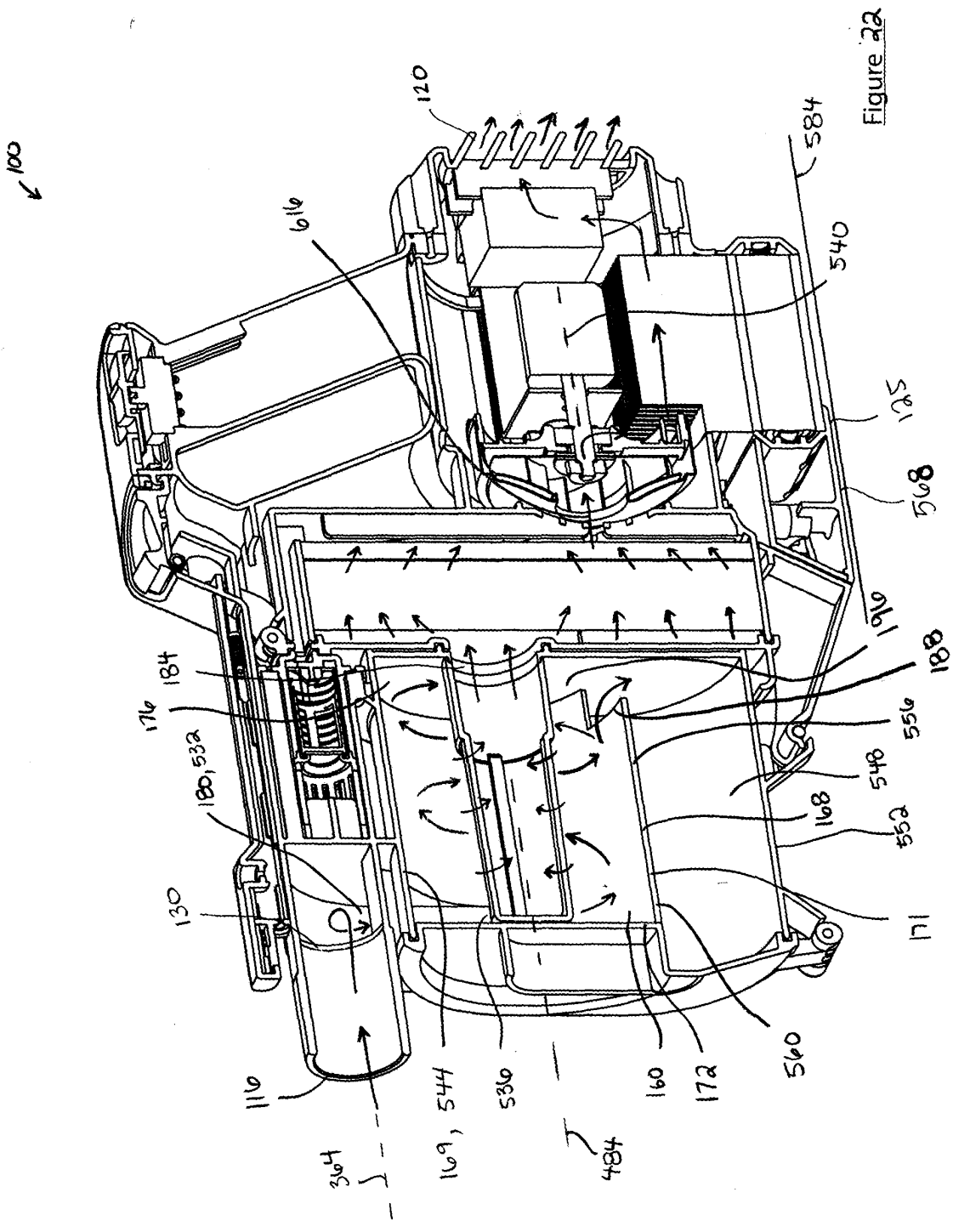

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Figure 22

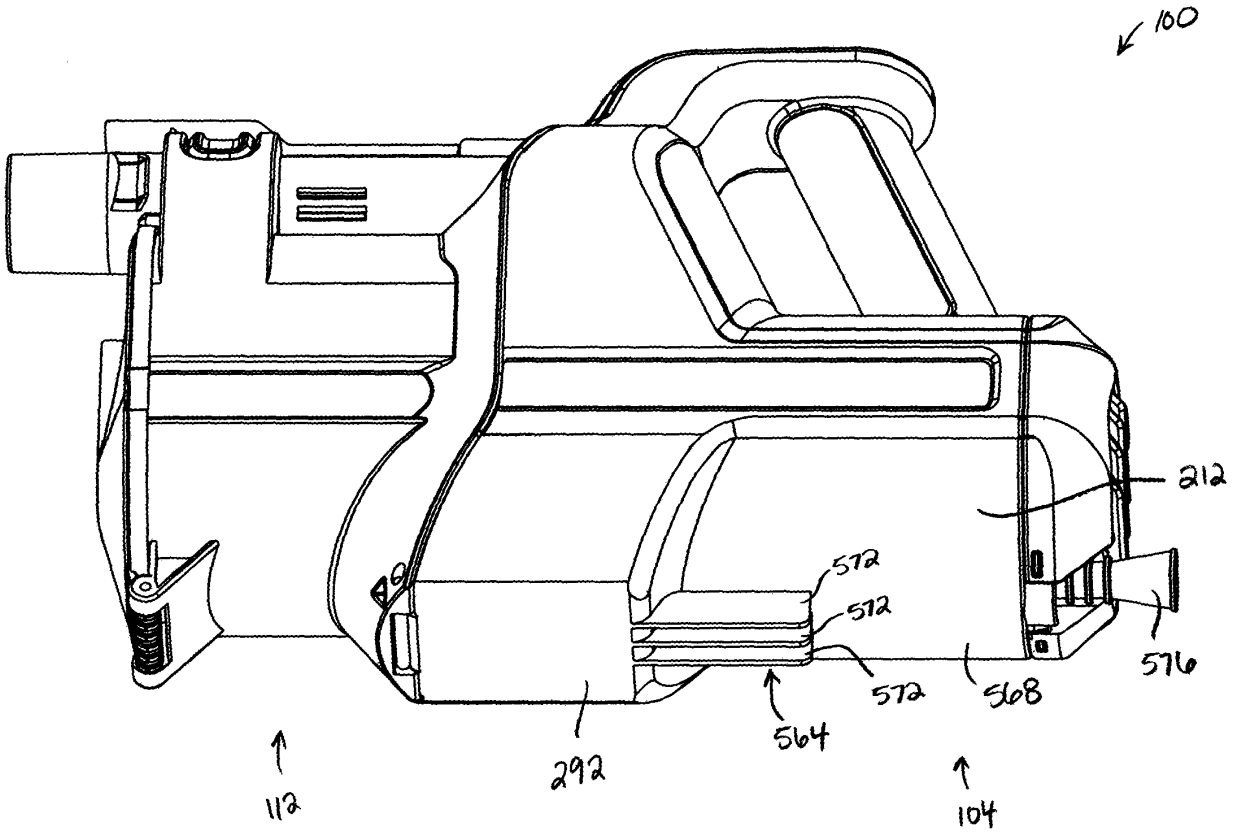


Figure 23

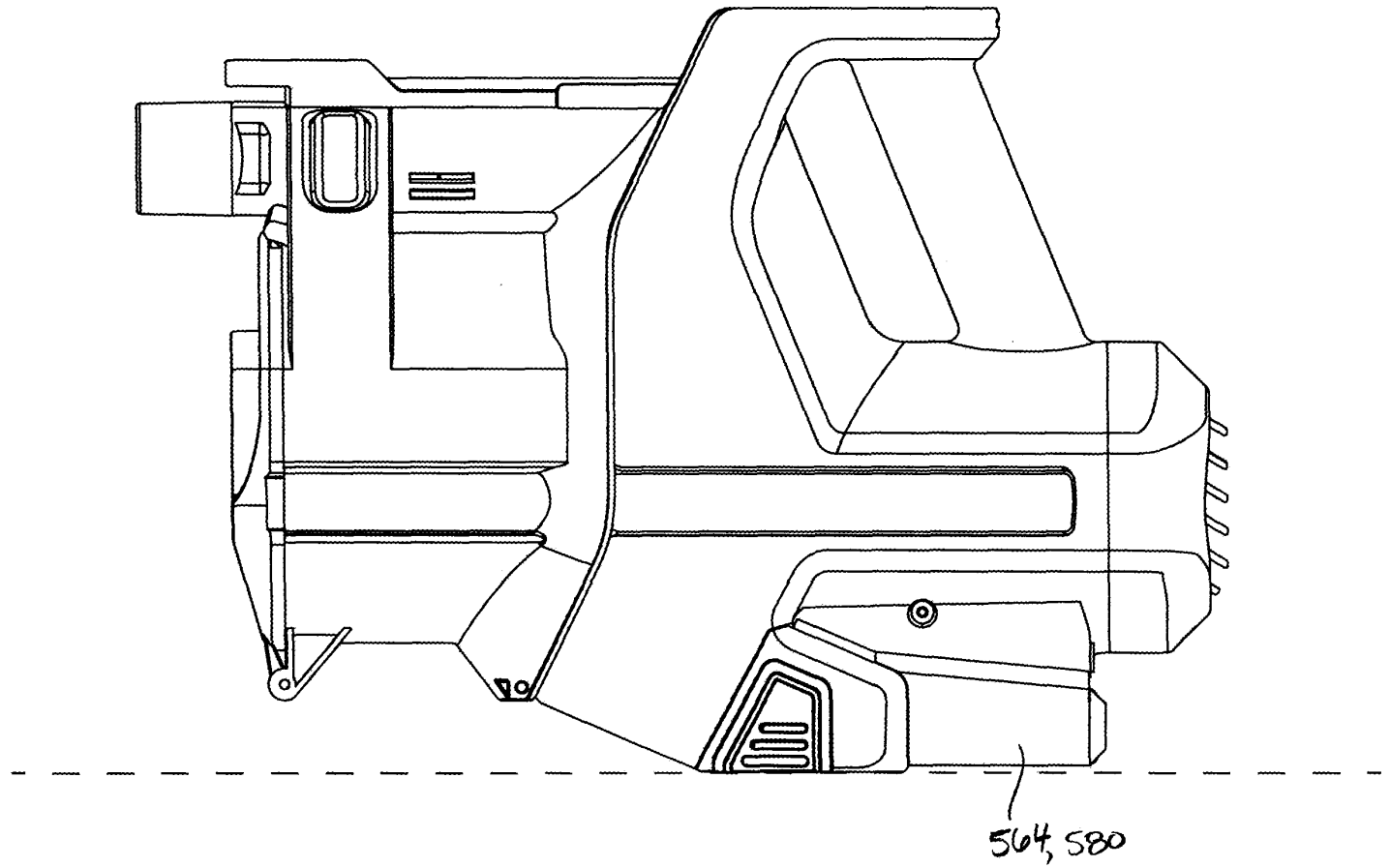


Figure 24

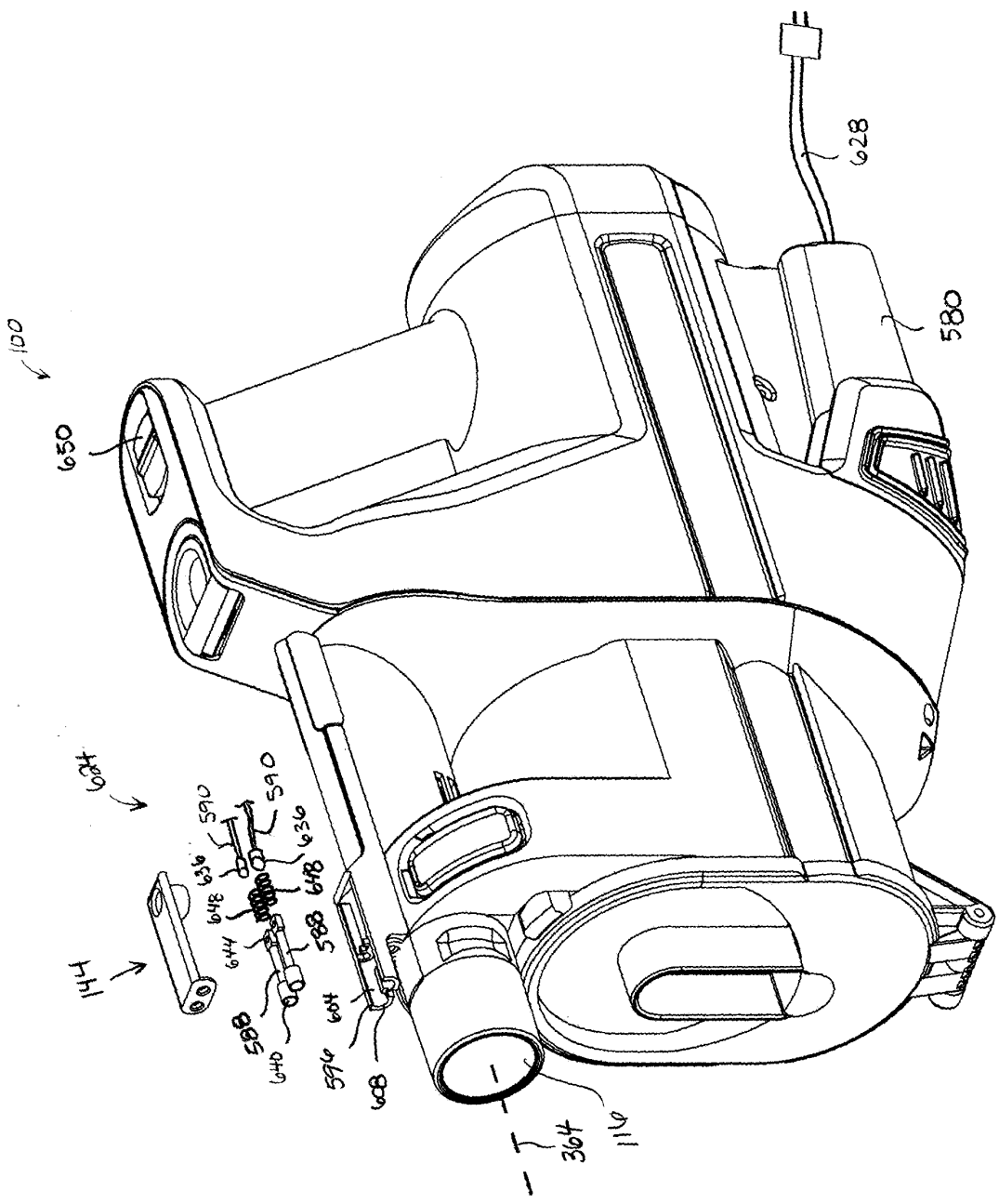

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Figure 25

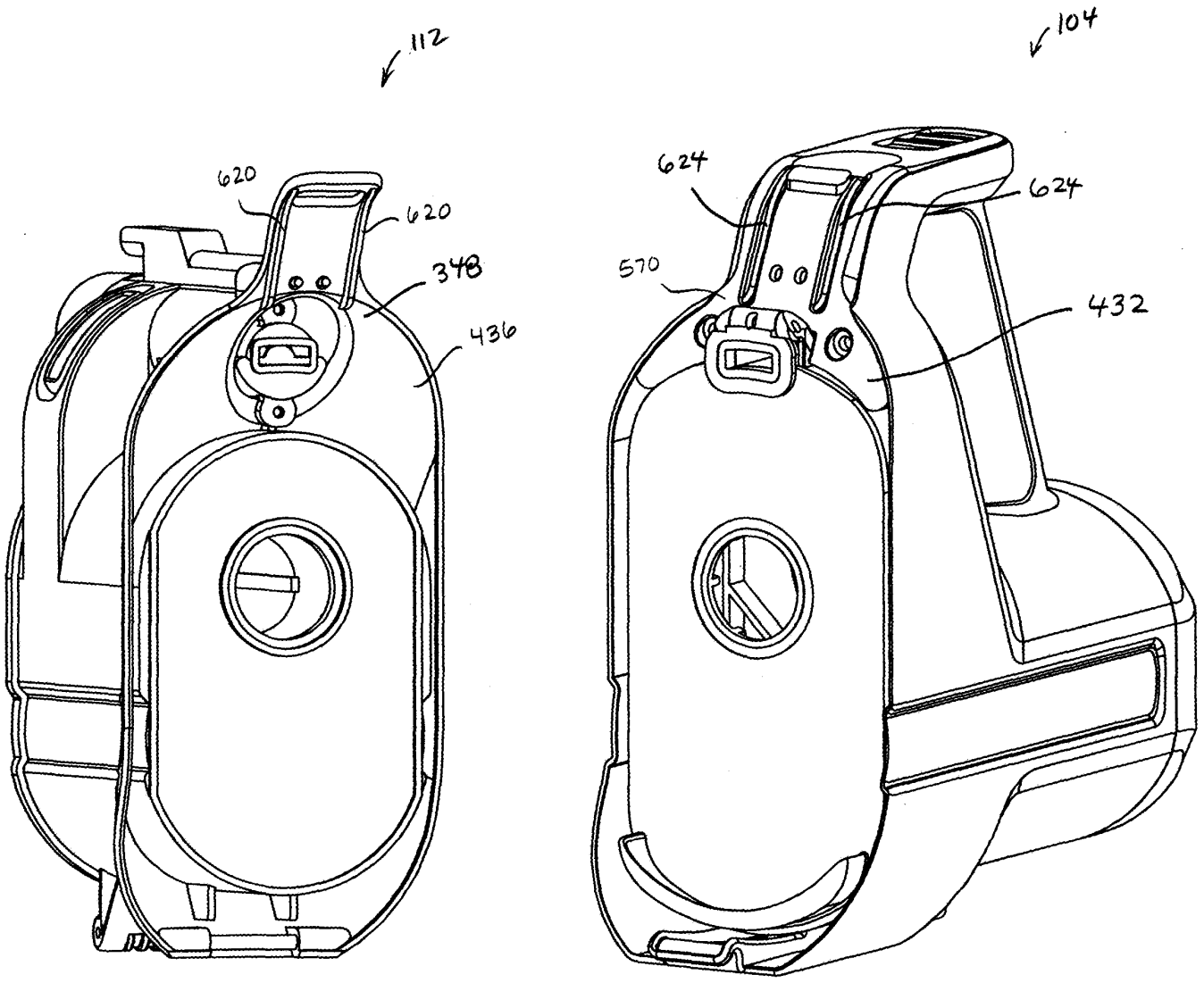


Figure 26

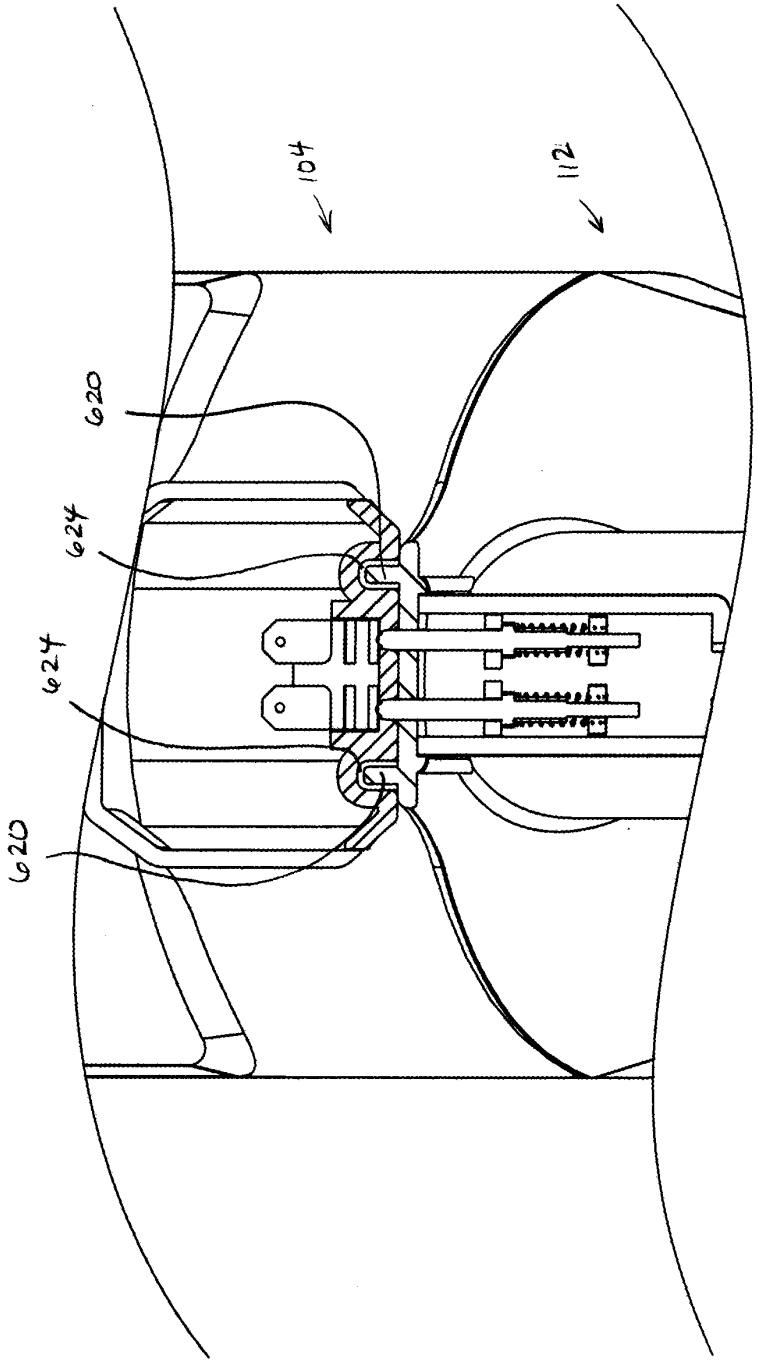


Figure 27

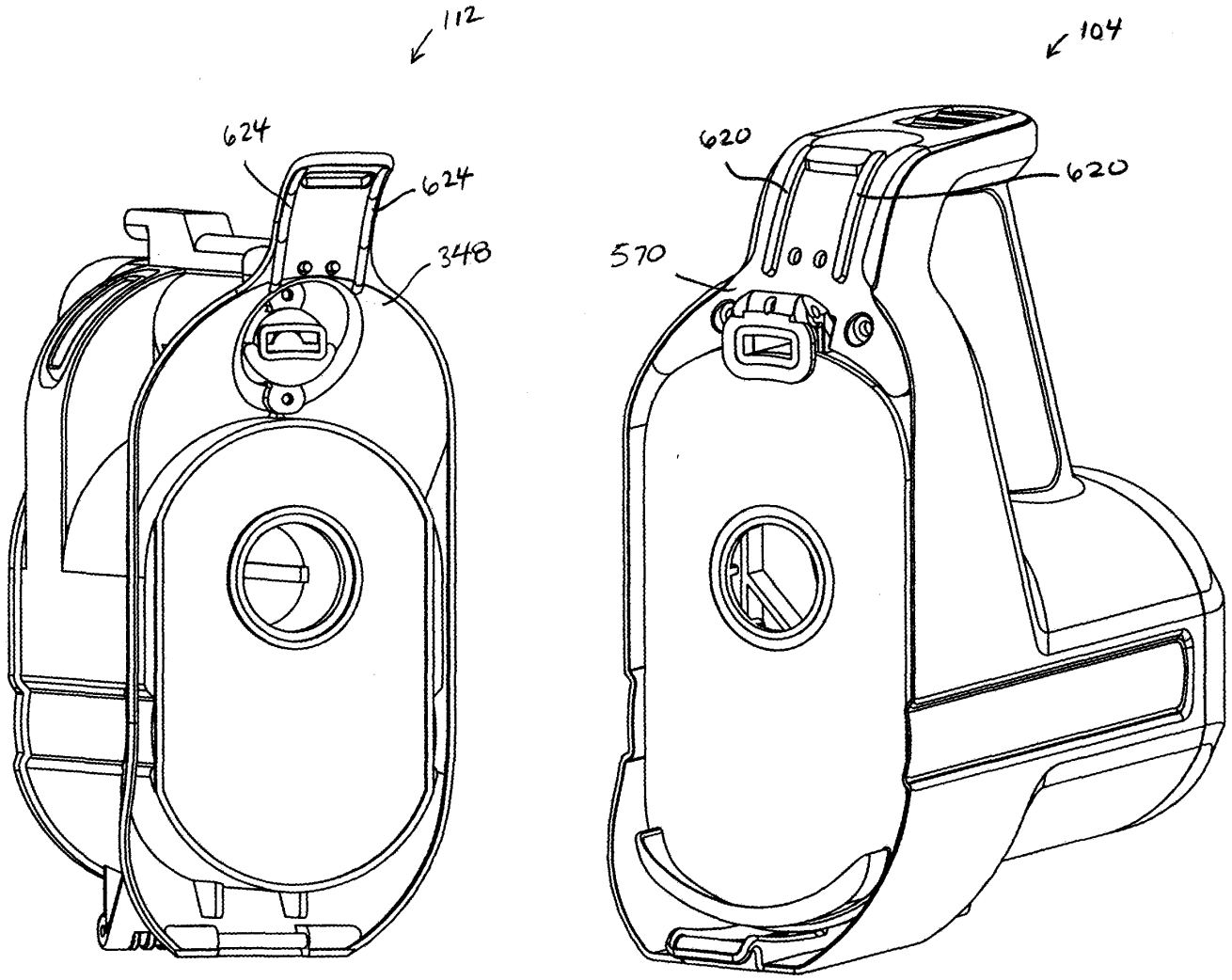


Figure 28

Figure 29

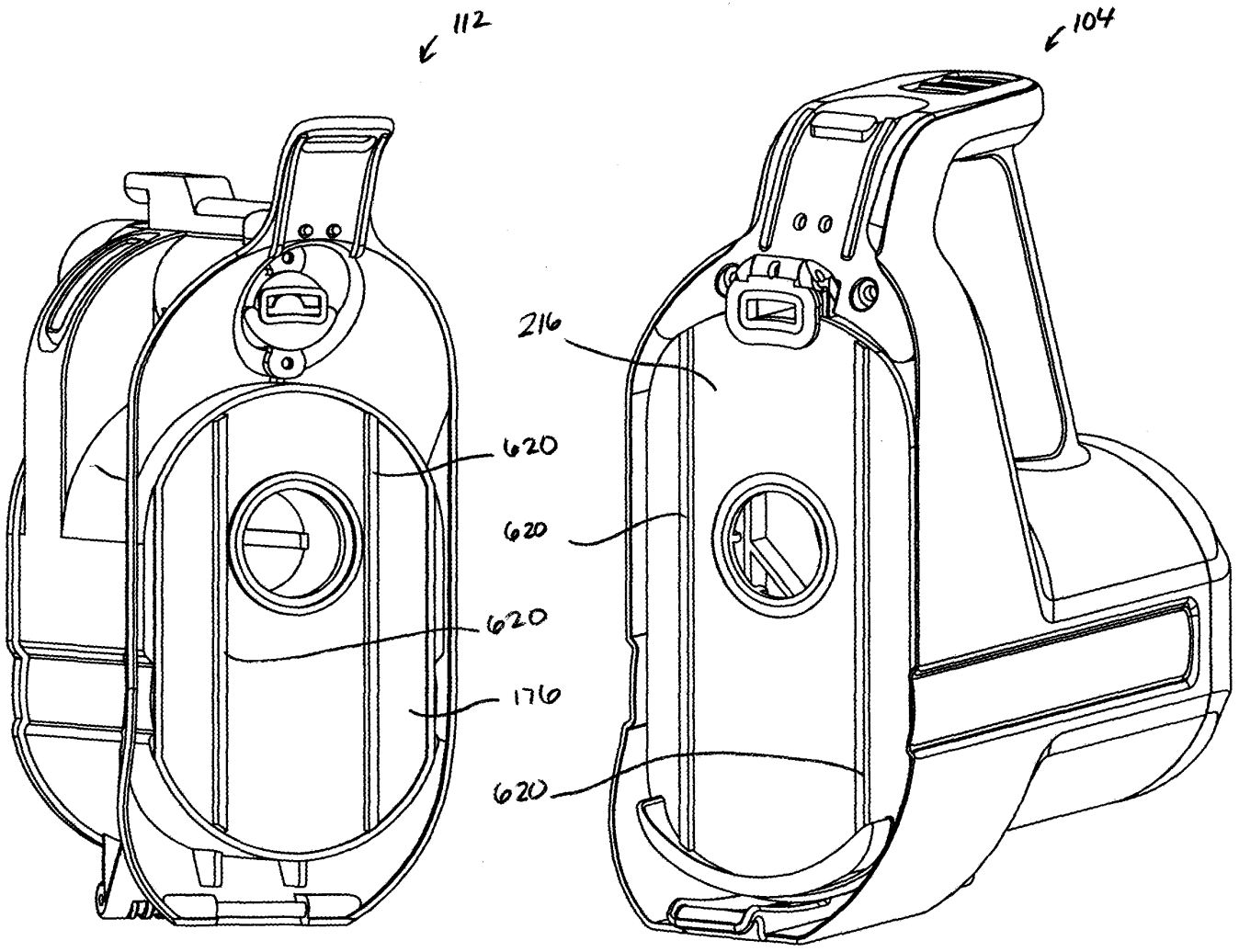


Figure 30

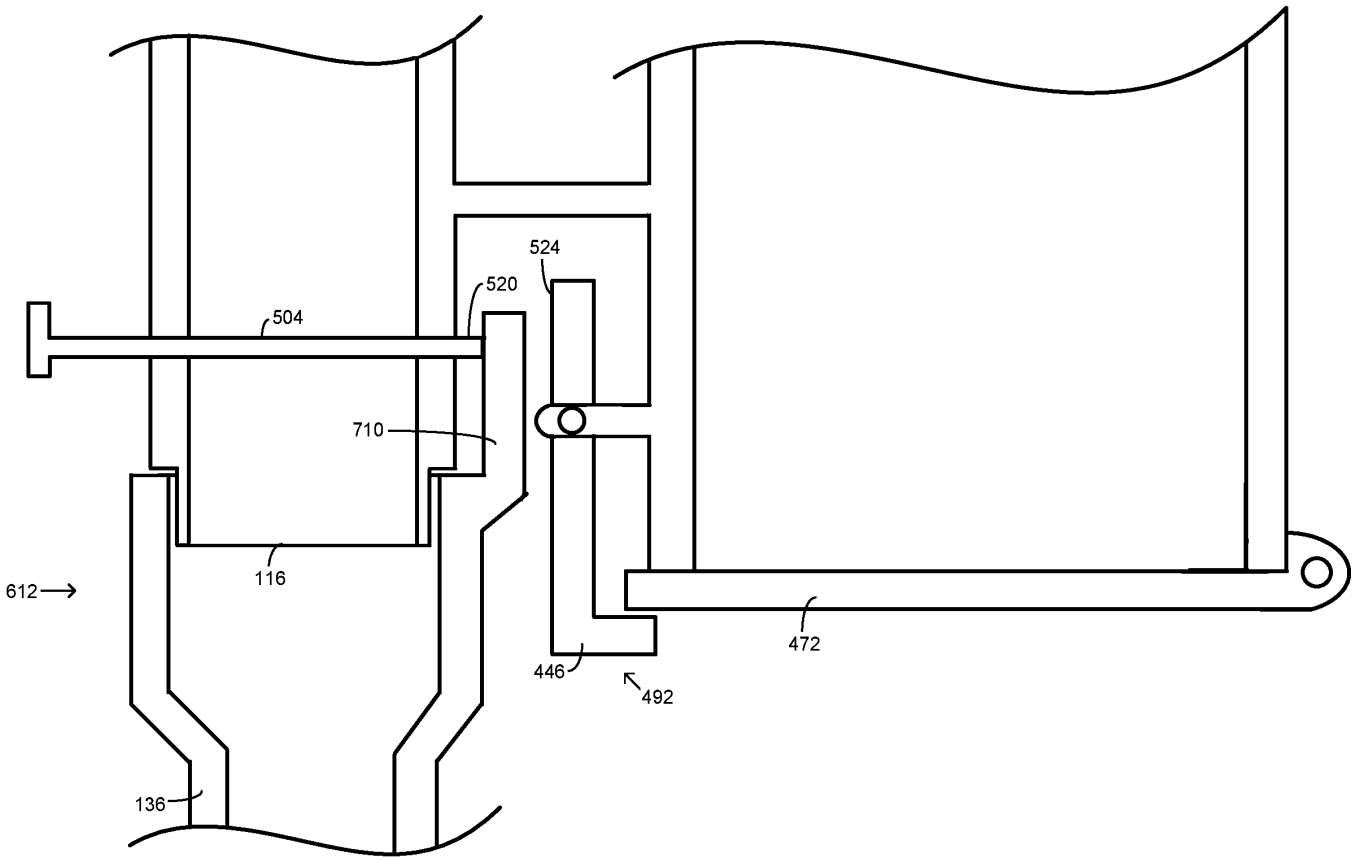


Figure 31

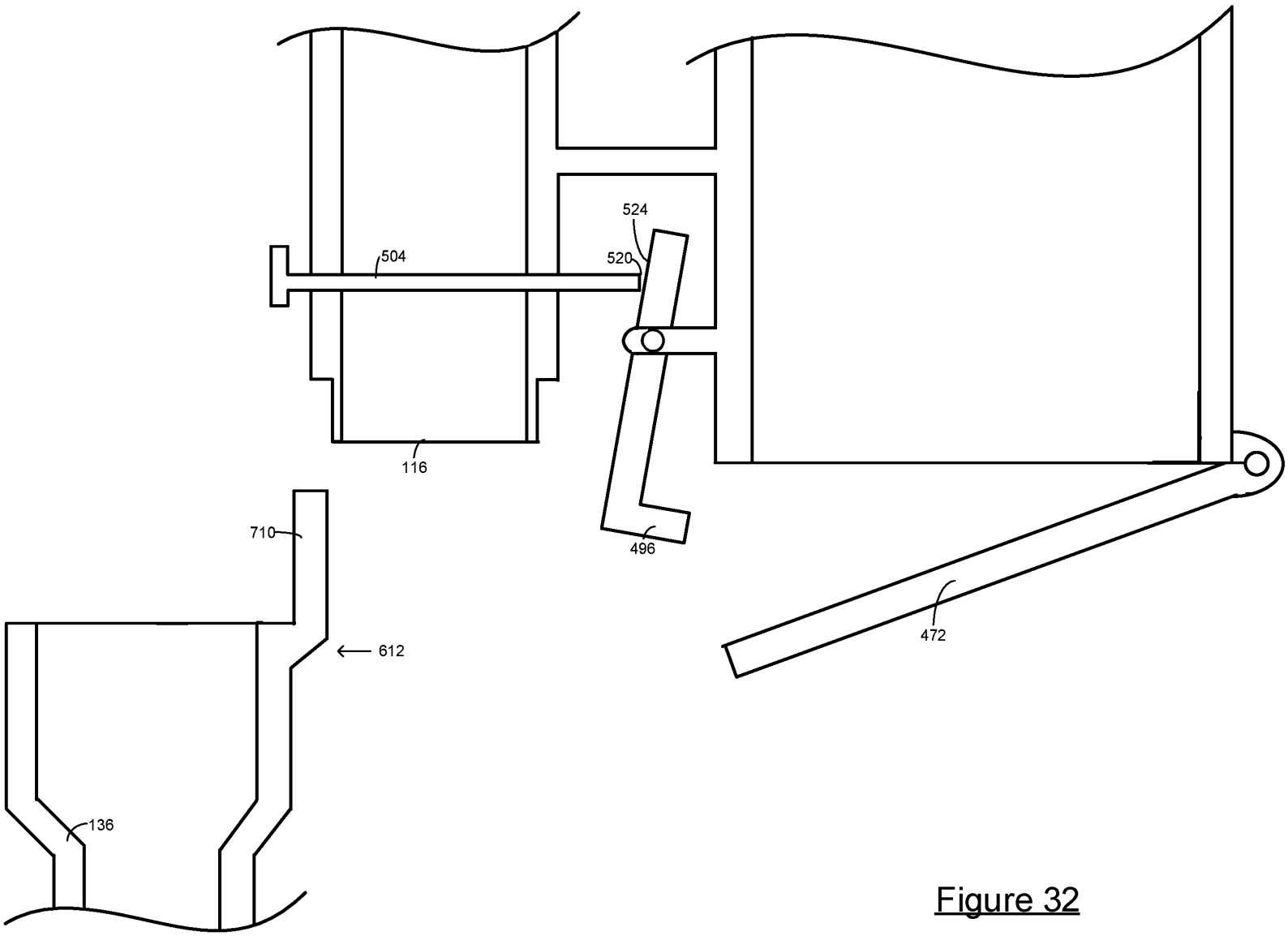


Figure 32

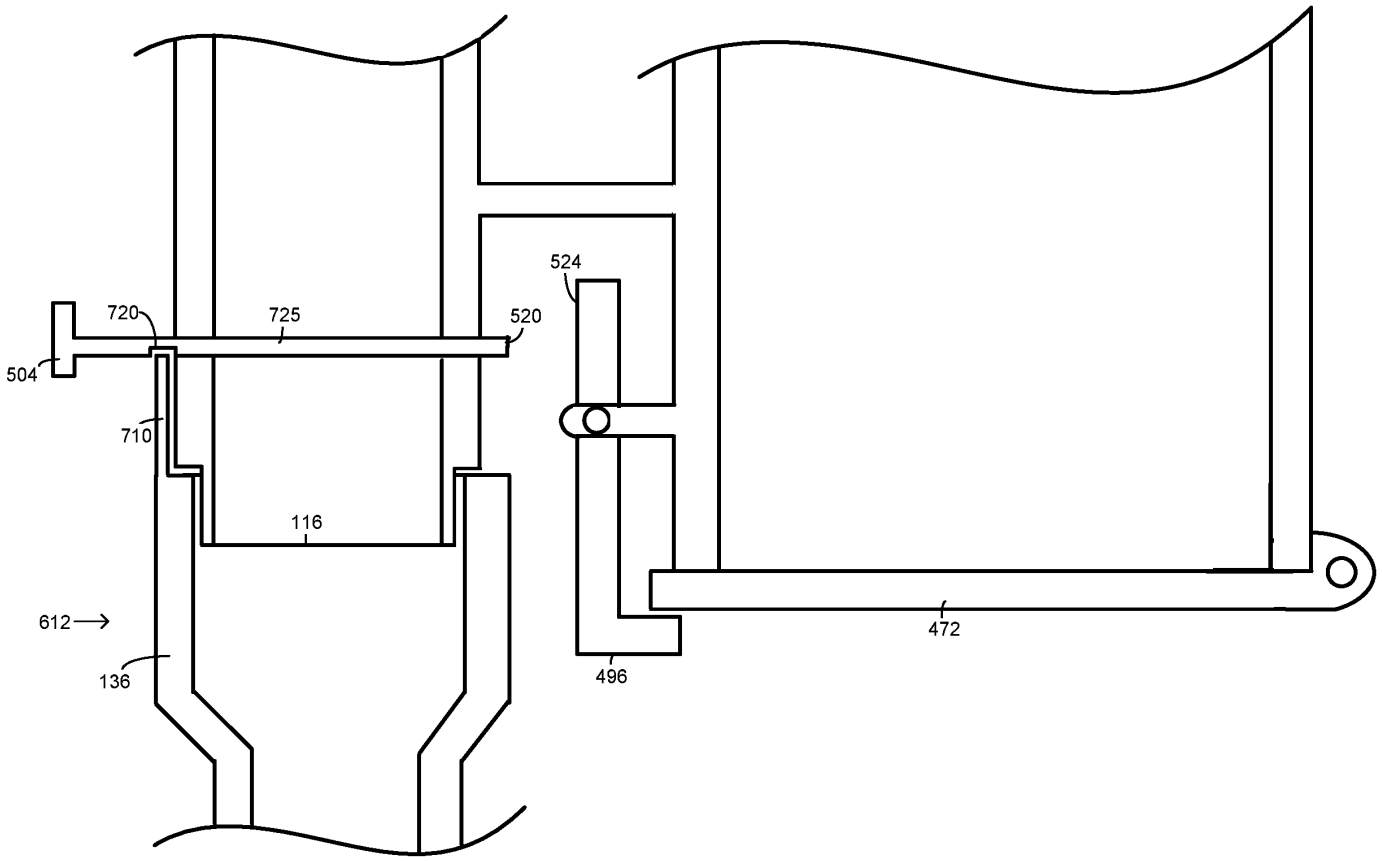


Figure 33

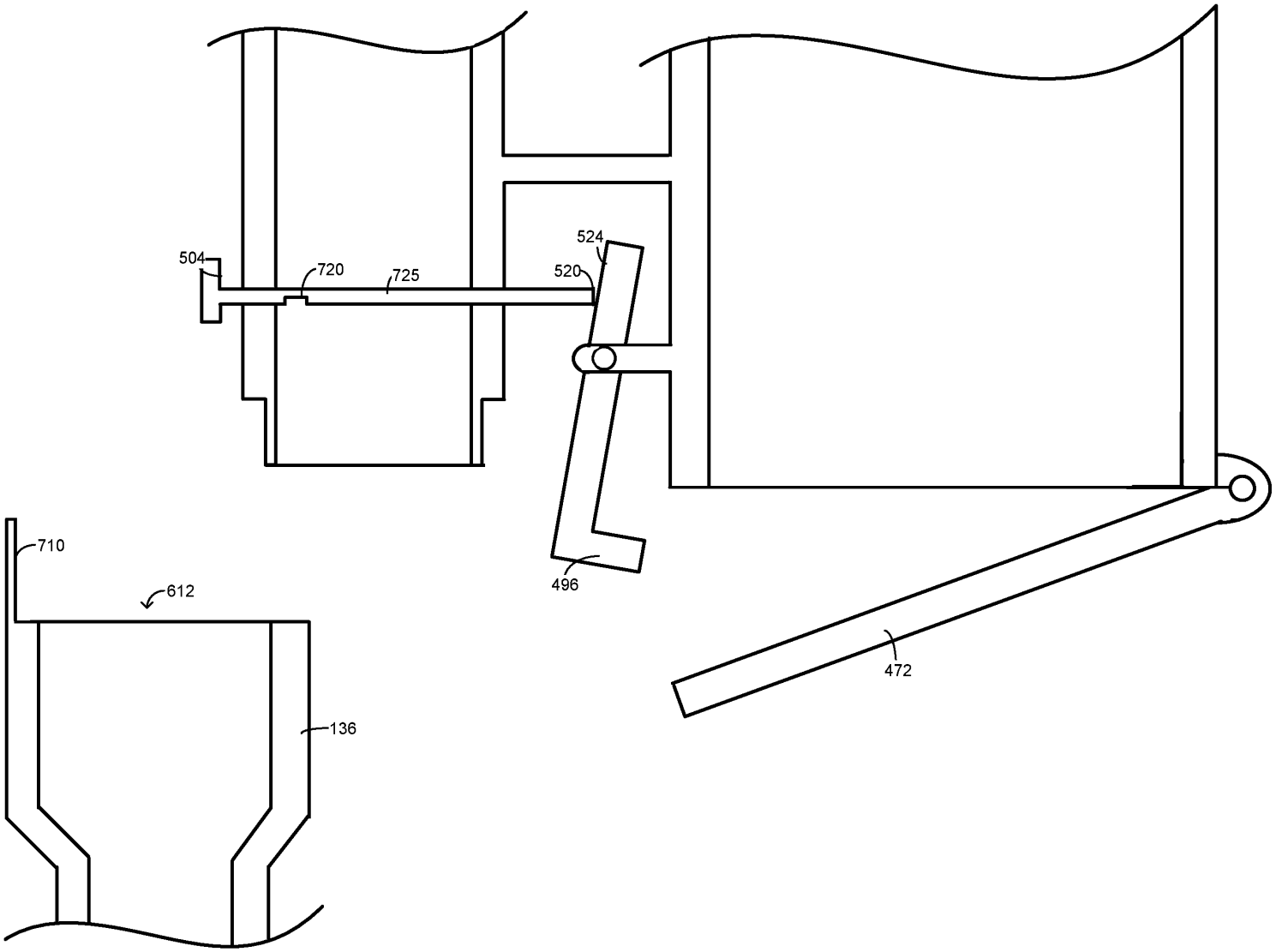


Figure 34

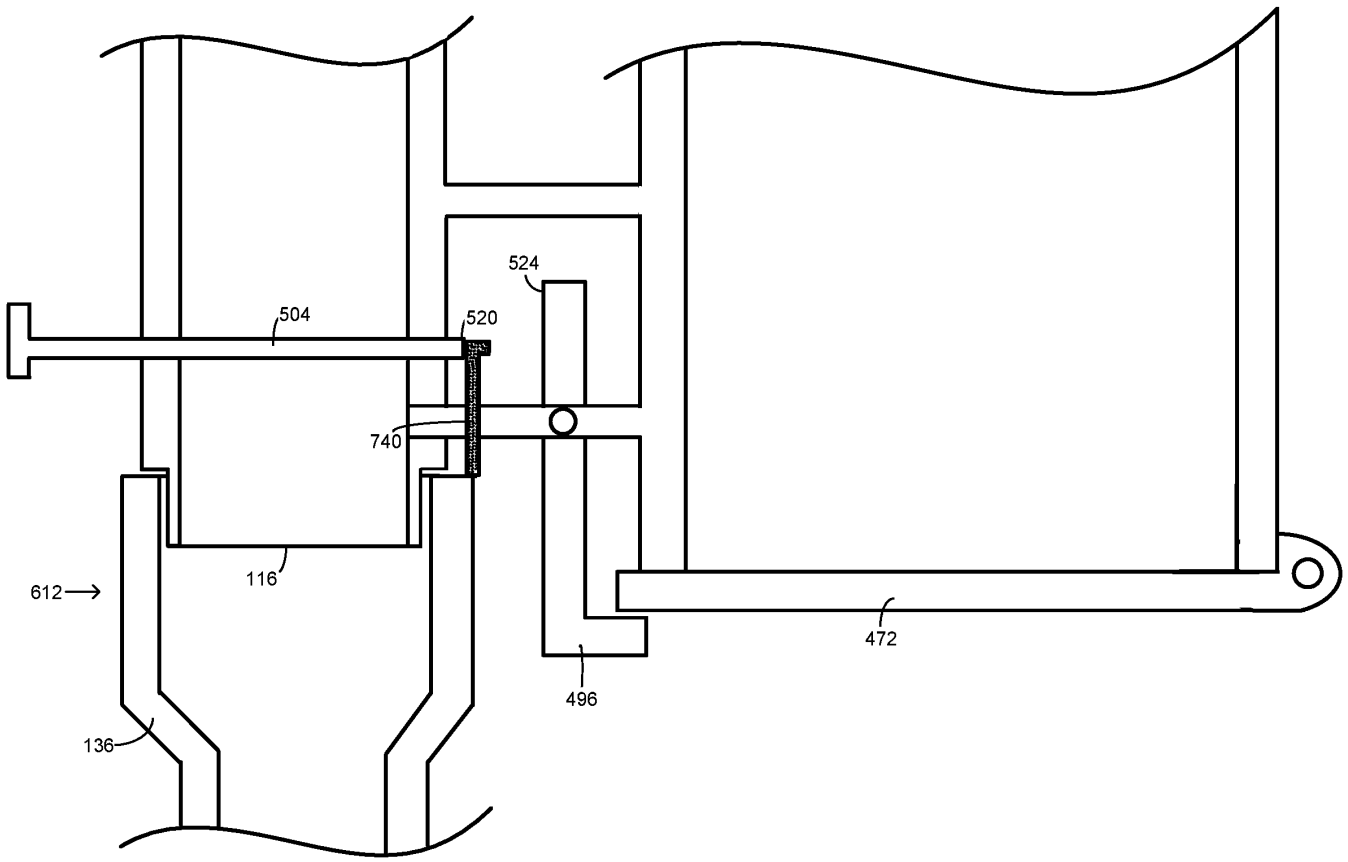


Figure 35

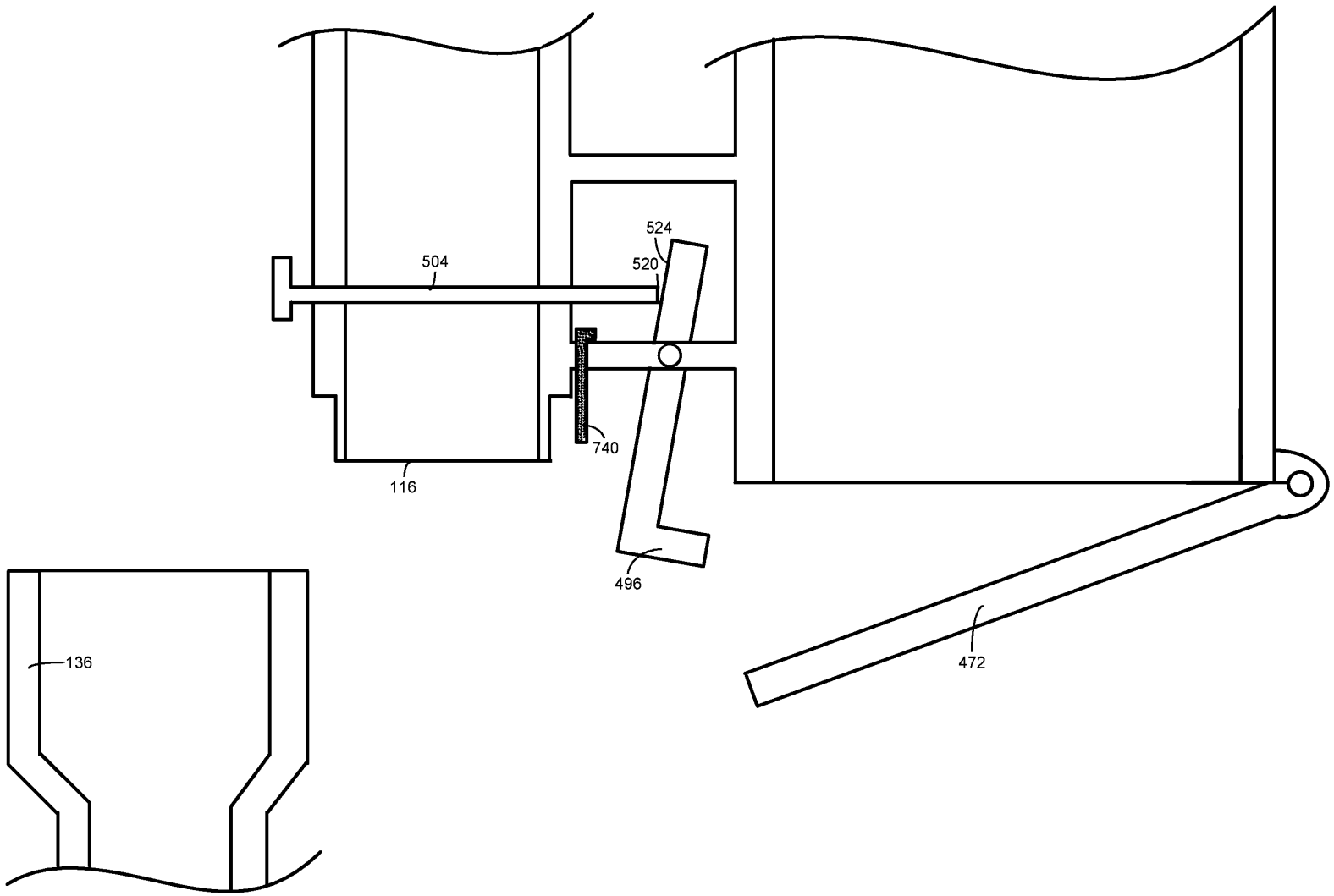


Figure 36

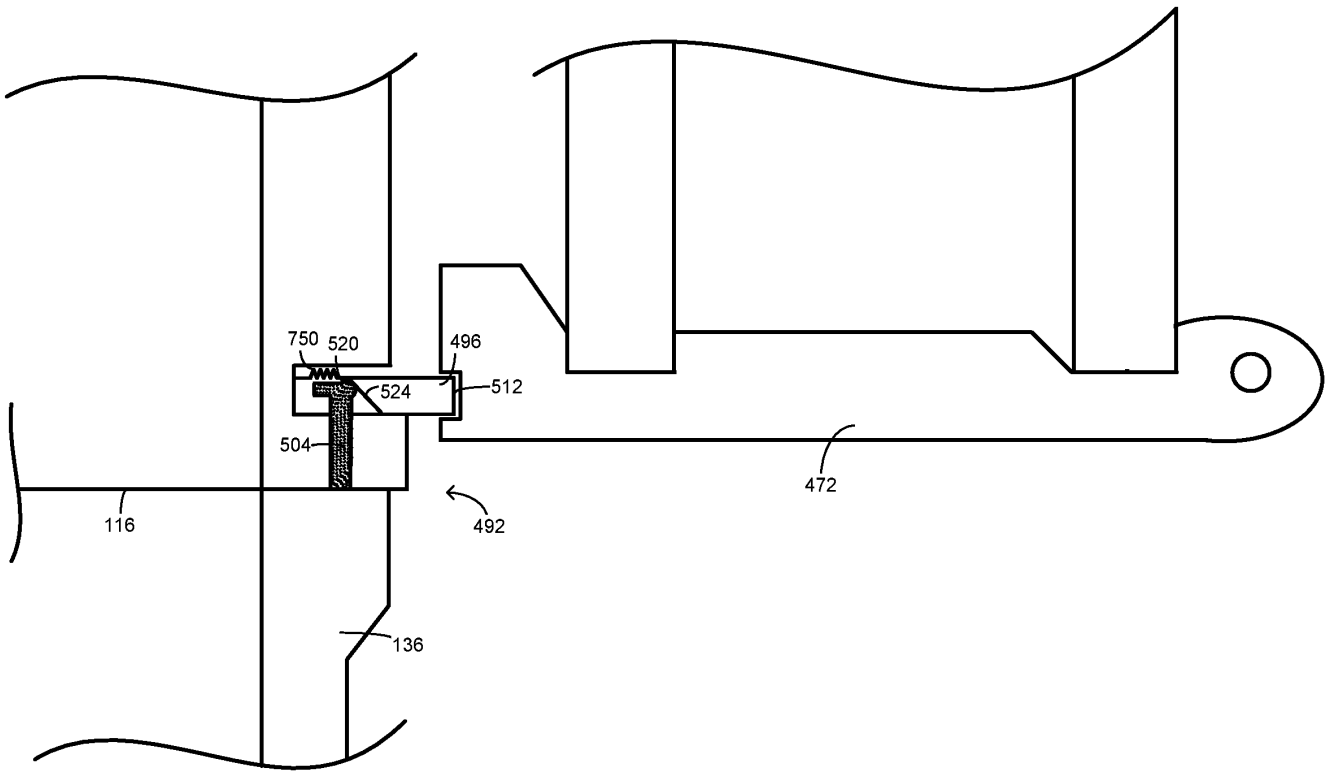


Figure 37

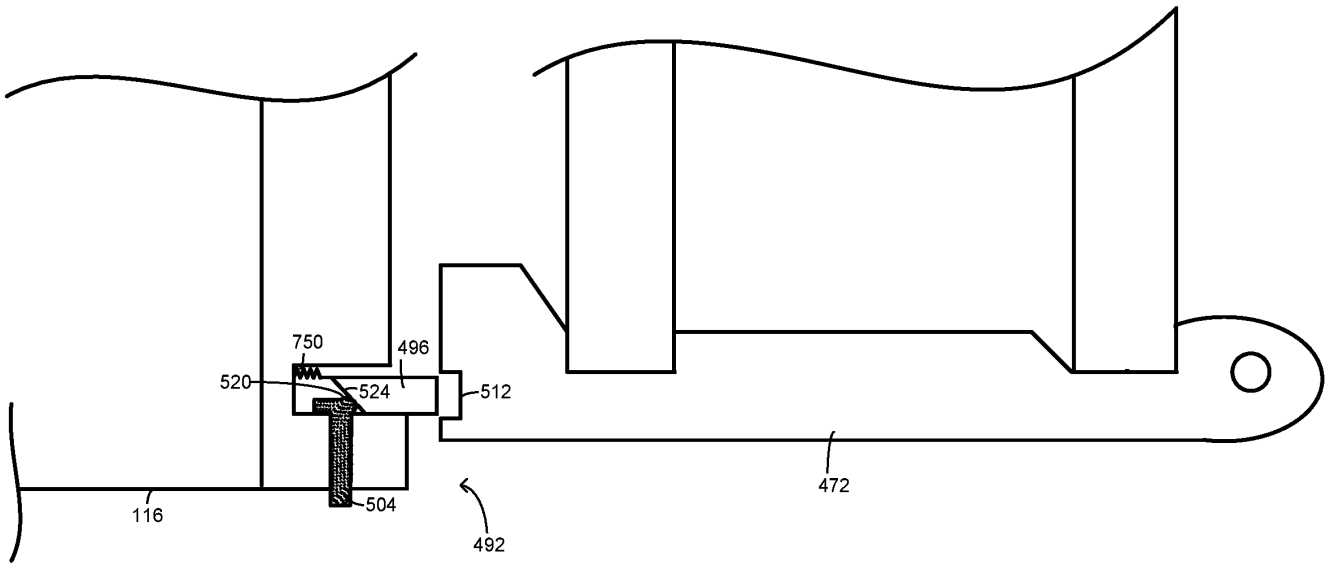


Figure 38

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 NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
15/685,962	08/24/2017	3723	2420	10452-P49931US06	25	4

CONFIRMATION NO. 3872

1059
BERESKIN & PARR LLP/S.E.N.C.R.L., s.r.l.
40 KING STREET WEST
40th Floor
TORONTO, ON M5H 3Y2
CANADA

FILING RECEIPT



Date Mailed: 08/30/2017

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

Wayne Ernest Conrad, Hampton, CANADA;

Applicant(s)

Omachron Intellectual Property Inc., Hampton, CANADA;

Power of Attorney: The patent practitioners associated with Customer Number 01059

Domestic Priority data as claimed by applicant

This application is a CIP of 15/095,714 04/11/2016

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 08/29/2017
The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 15/685,962**
Projected Publication Date: To Be Determined - pending completion of Corrected Papers

Non-Publication Request: No

Early Publication Request: No

Title

SURFACE CLEANING APPARATUS

Preliminary Class

015

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign AssetsControl, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

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PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 15/685,962

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY FEE($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	280
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	600
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	720
TOTAL CLAIMS (37 CFR 1.16(i))	25 minus 20 =	* 5			OR	x 80 =	400
INDEPENDENT CLAIMS (37 CFR 1.16(h))	4 minus 3 =	* 1				x 420 =	420
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						0.00
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							0.00
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	2420

APPLICATION AS AMENDED - PART II

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

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

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
15/685,962	08/24/2017	Wayne Ernest Conrad	10452-P49931US06

CONFIRMATION NO. 3872

1059
BERESKIN & PARR LLP/S.E.N.C.R.L., s.r.l.
40 KING STREET WEST
40th Floor
TORONTO, ON M5H 3Y2
CANADA

FORMALITIES LETTER

OC000000093773041

Date Mailed: 08/30/2017

NOTICE TO FILE CORRECTED APPLICATION PAPERS

Filing Date Granted

An application number and filing date have been accorded to this application. The application is informal since it does not comply with the regulations for the reason(s) indicated below. Applicant is given TWO MONTHS from the date of this Notice within which to correct the informalities indicated below. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

The required item(s) identified below must be timely submitted to avoid abandonment:

- Replacement drawings in compliance with 37 CFR 1.84 and 37 CFR 1.121(d) are required. The drawings submitted are not acceptable because:
  - The drawings must be reasonably free from erasures and must be free from alterations, overwriting, interlineations, folds, and copy marks. See Figure(s) 15, 29.

Applicant is cautioned that correction of the above items may cause the specification and drawings page count to exceed 100 pages. If the specification and drawings exceed 100 pages, applicant will need to submit the required application size fee.

Replies must be received in the USPTO within the set time period or must include a proper Certificate of Mailing or Transmission under 37 CFR 1.8 with a mailing or transmission date within the set time period. For more information and a suggested format, see Form PTO/SB/92 and MPEP 512.

Replies should be mailed to:

Mail Stop Missing Parts
Commissioner for Patents
P.O. Box 1450
Alexandria VA 22313-1450

Registered users of EFS-Web may alternatively submit their reply to this notice via EFS-Web, including a copy of this Notice and selecting the document description "Applicant response to Pre-Exam Formalities Notice". https://sportal.uspto.gov/authenticate/AuthenticateUserLocalEPF.html

For more information about EFS-Web please call the USPTO Electronic Business Center at 1-866-217-9197 or visit our website at http://www.uspto.gov/ebc.

If you are not using EFS-Web to submit your reply, you must include a copy of this notice.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/kung/

Appl. No	:	15/685,962	Confirmation No.:	3872
Applicant	:	Omachron Intellectual Property Inc.		
Filed	:	August 24, 2017		
Title	:	SURFACE CLEANING APPARATUS		
TC./A.U.	:	3723		
Examiner	:	N/A		
Docket No.	:	10452-P49931US06		
Customer No.	:	001059		

Honorable Commissioner for Patents
P. O. Box 1450
Alexandria, Virginia 22313–1450

October 30, 2017

RESPONSE TO NOTICE TO FILE CORRECTED APPLICATION PAPERS

Sir:

In response to the Notice to File Corrected Application Papers, please amend the above-identified application as follows:

Amendments to the Drawings begin on page 2 of this paper..

Remarks/Arguments begin on page 3 of this paper.

-

Amendments to the Drawings:

The attached sheets of drawings include changes to Fig. 1-38. These sheets, which include Figures 1-38, replace the original 41 sheets including Fig. 1-38.

Attachment: Replacement Sheets

REMARKS/ARGUMENTS

This is in response to the Notice to File Corrected Application Papers dated August 30, 2017. Accordingly, this response is timely filed.

The Applicant submits that the formal drawings enclosed herewith are of reasonable quality such that all details in the drawings are reproducible in black and white in the printed patent publication. Each view of the drawings is numbered in consecutive Arabic numerals, free of overwriting and copy marks. Accordingly, it is respectfully submitted that the drawings as submitted herewith comply with 37 CFR 1.84(u)(1) and 37 CFR 1.121(d). The Applicant respectfully submits that no new matter has been added by the means of this amendment.

Please replace the drawings as filed with the enclosed replacement sheets of drawings.

Favourable examination of the application is respectfully requested.

Respectfully submitted,

BERESKIN & PARR LLP/
S.E.N.C.R.L., s.r.l.

/Philip C. Mendes da Costa/

Philip C. Mendes da Costa
Reg. No. 33,106
Tel: 416-957-1695

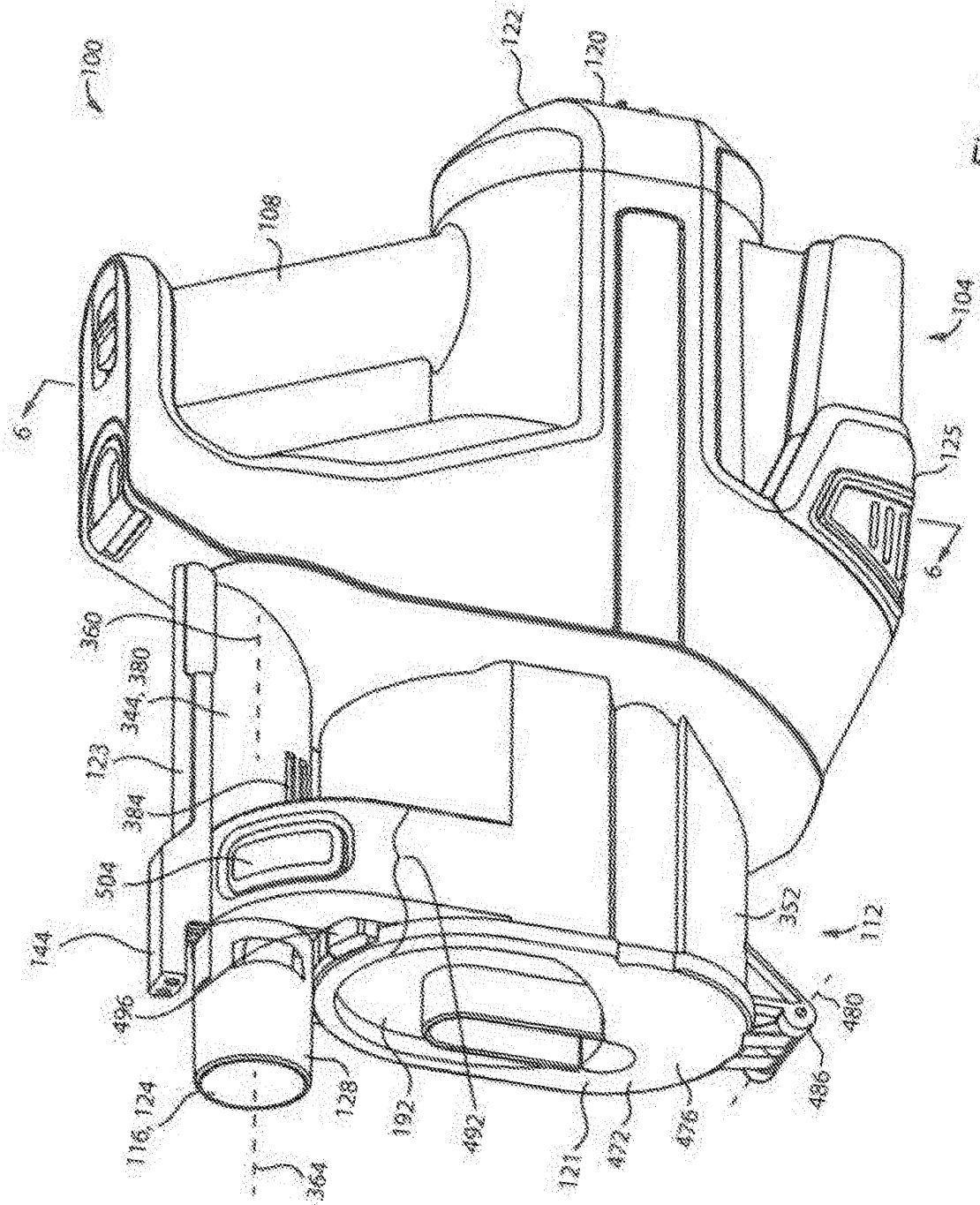

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Fig. 1

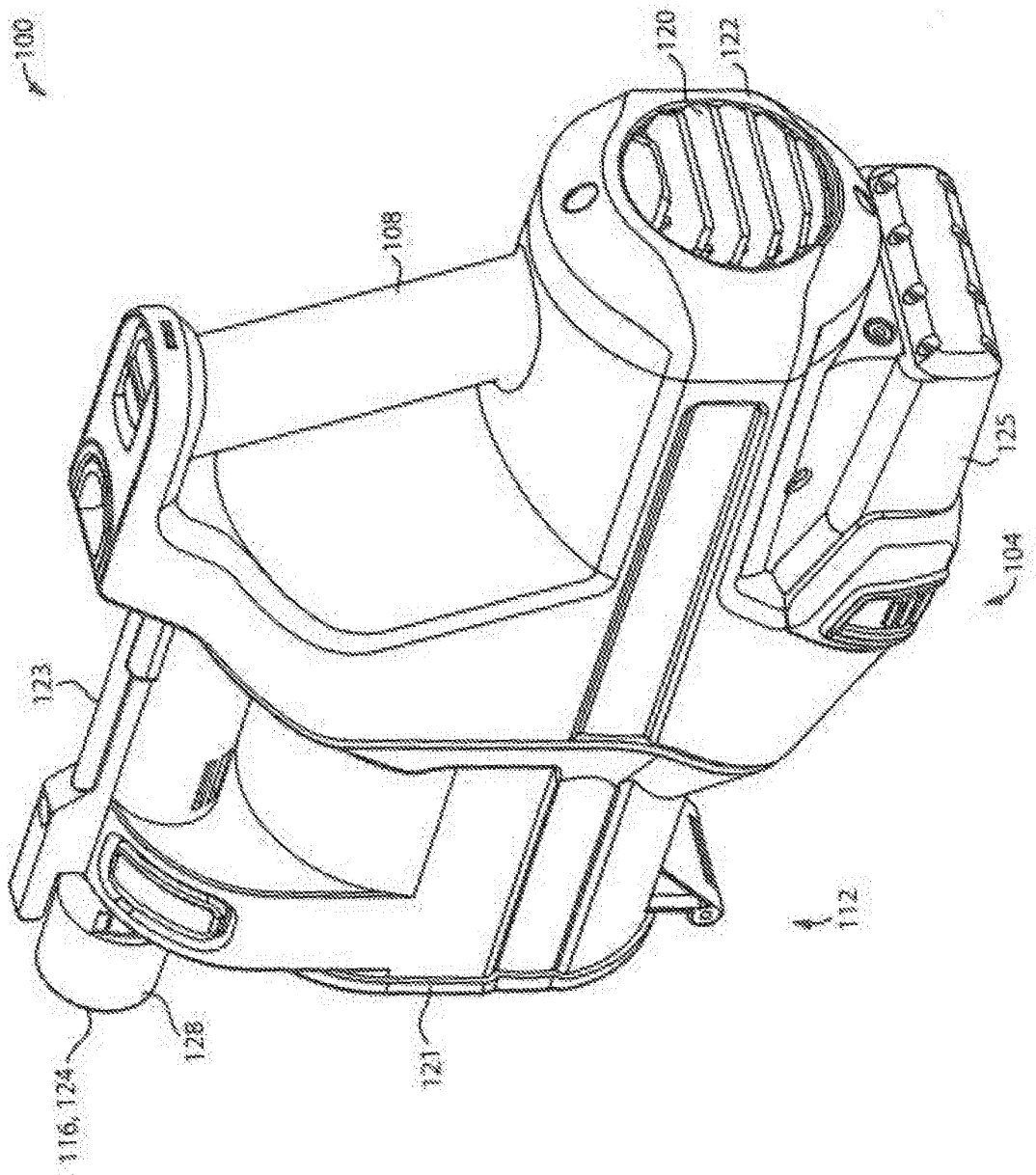


Fig. 2

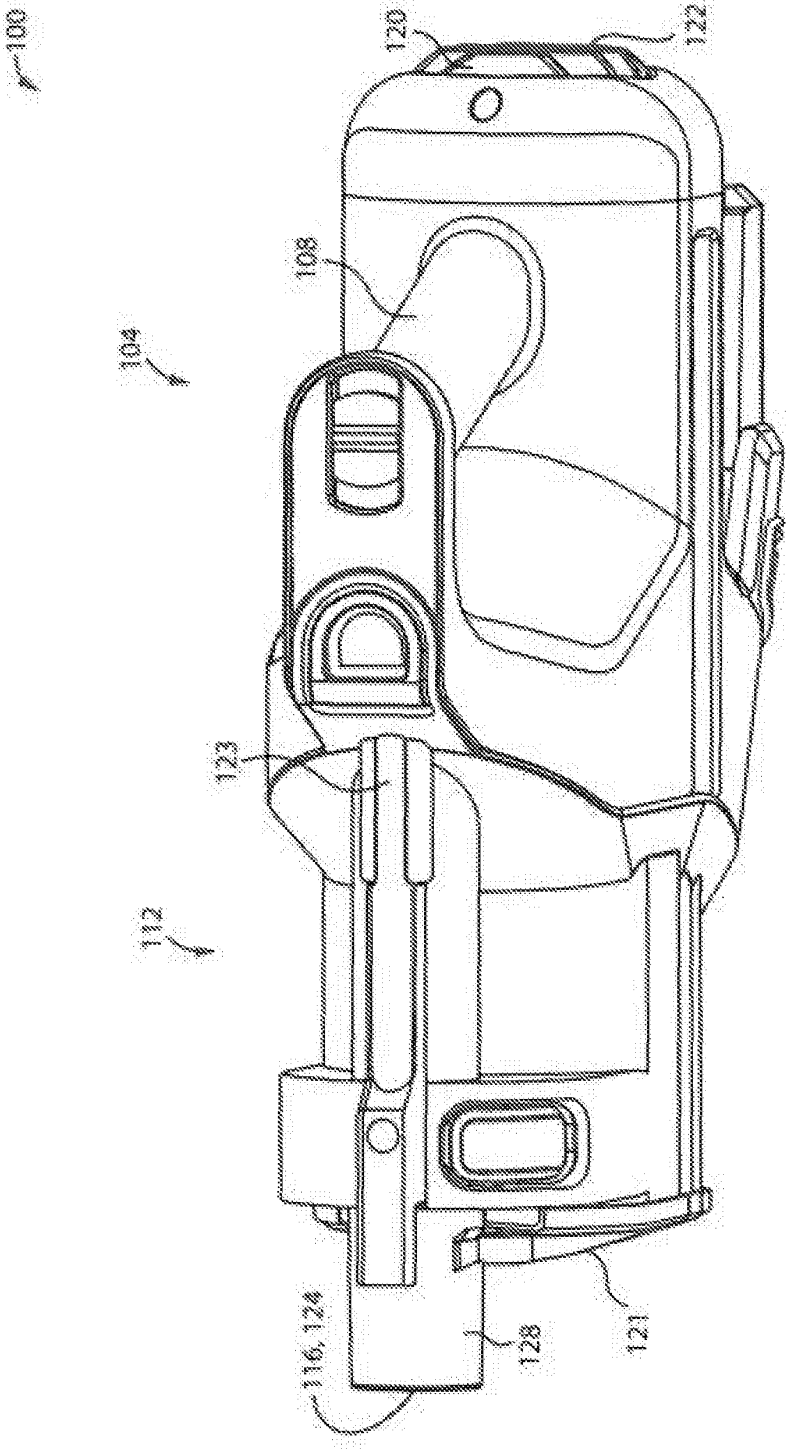


Fig. 3

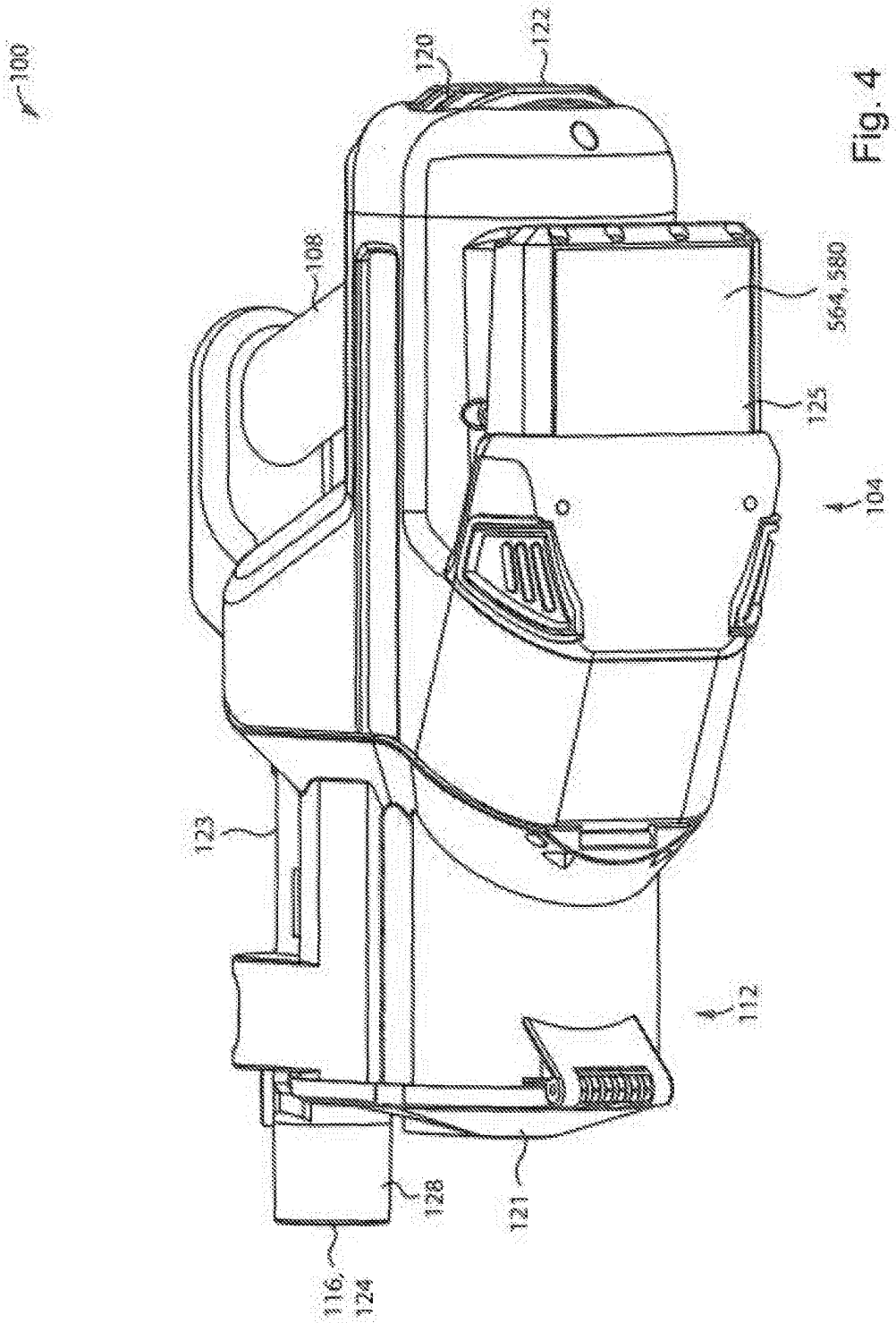


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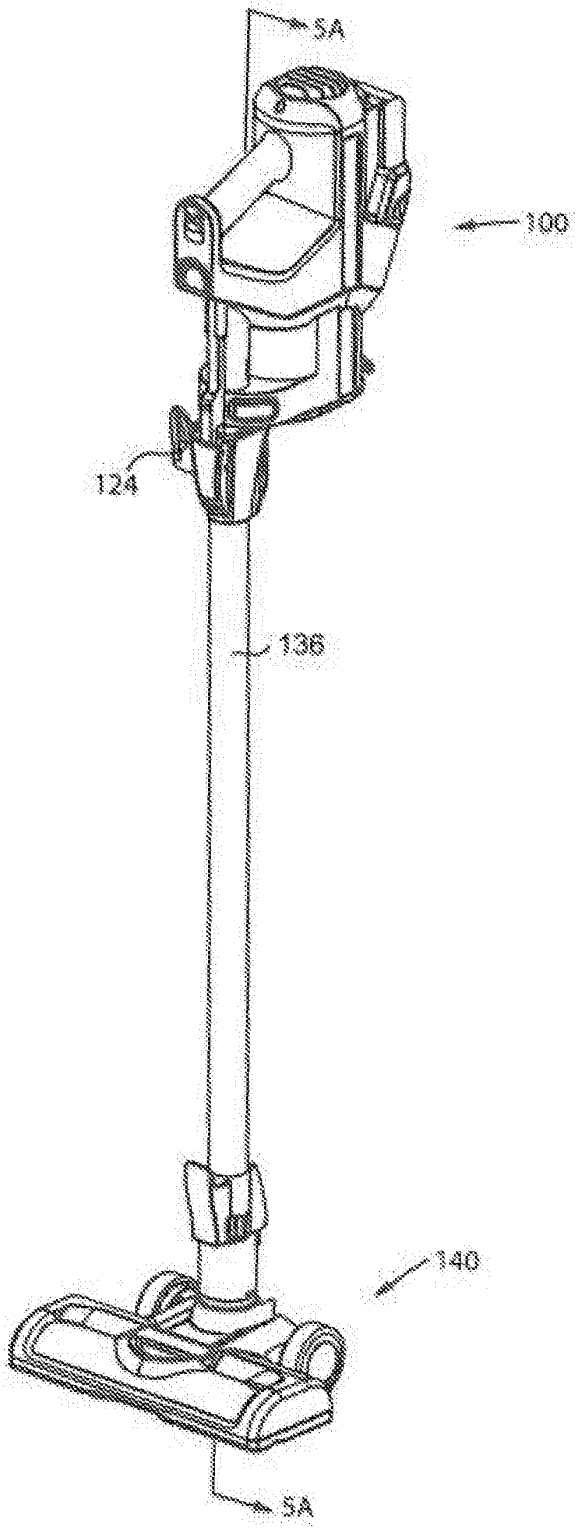


Fig. 5

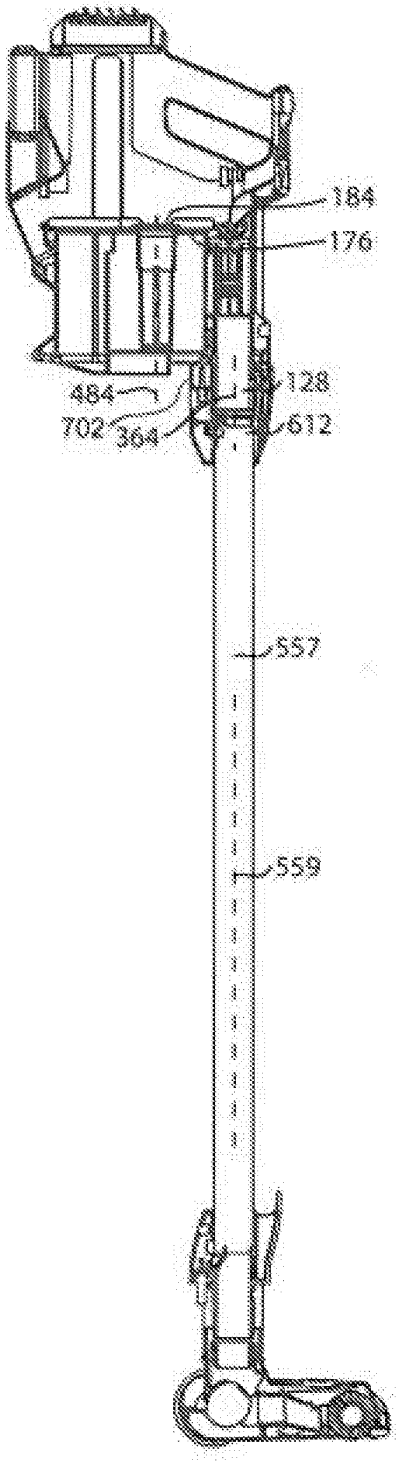


Fig. 5A

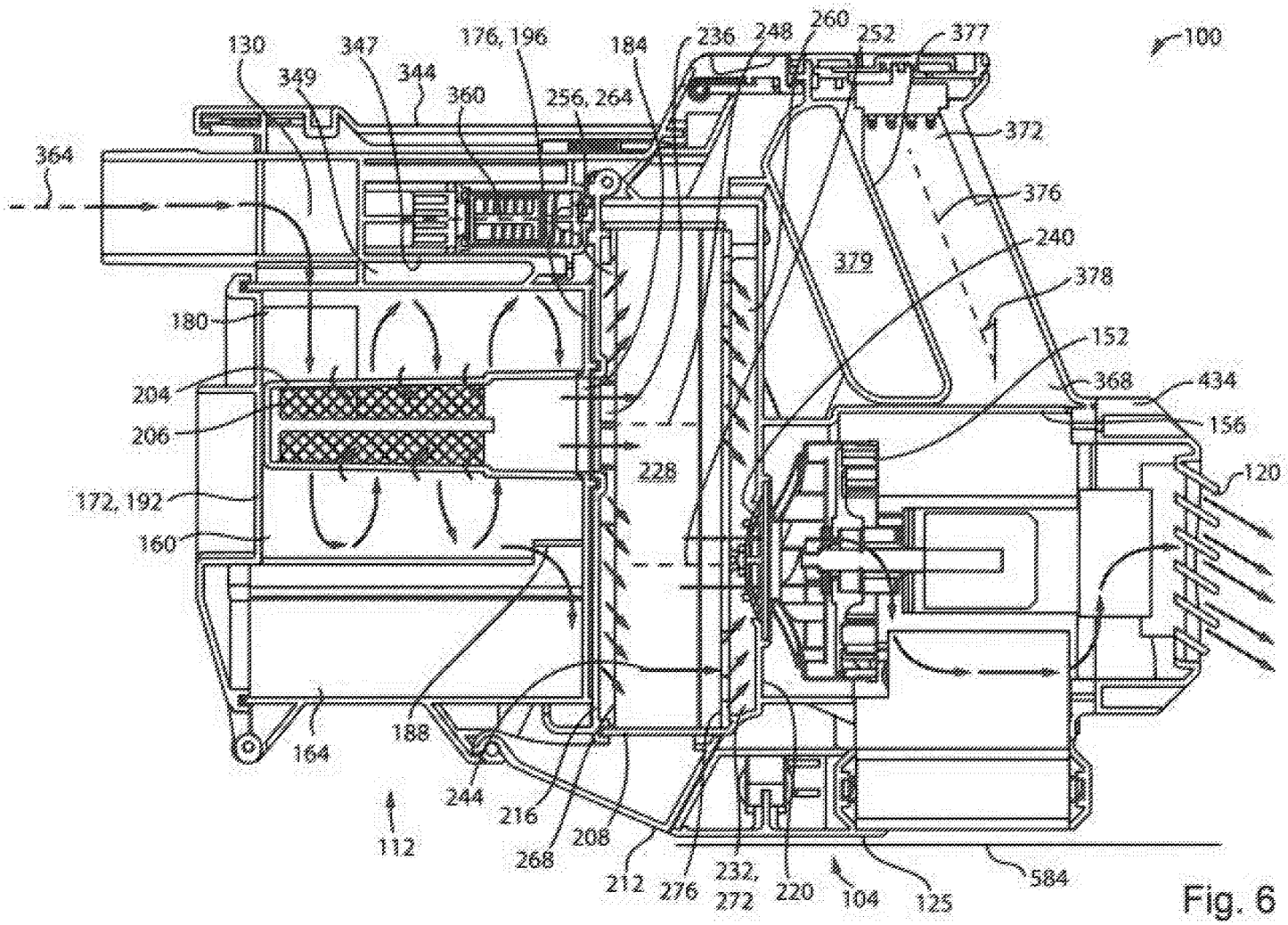


Fig. 6

REPLACEMENT SHEET

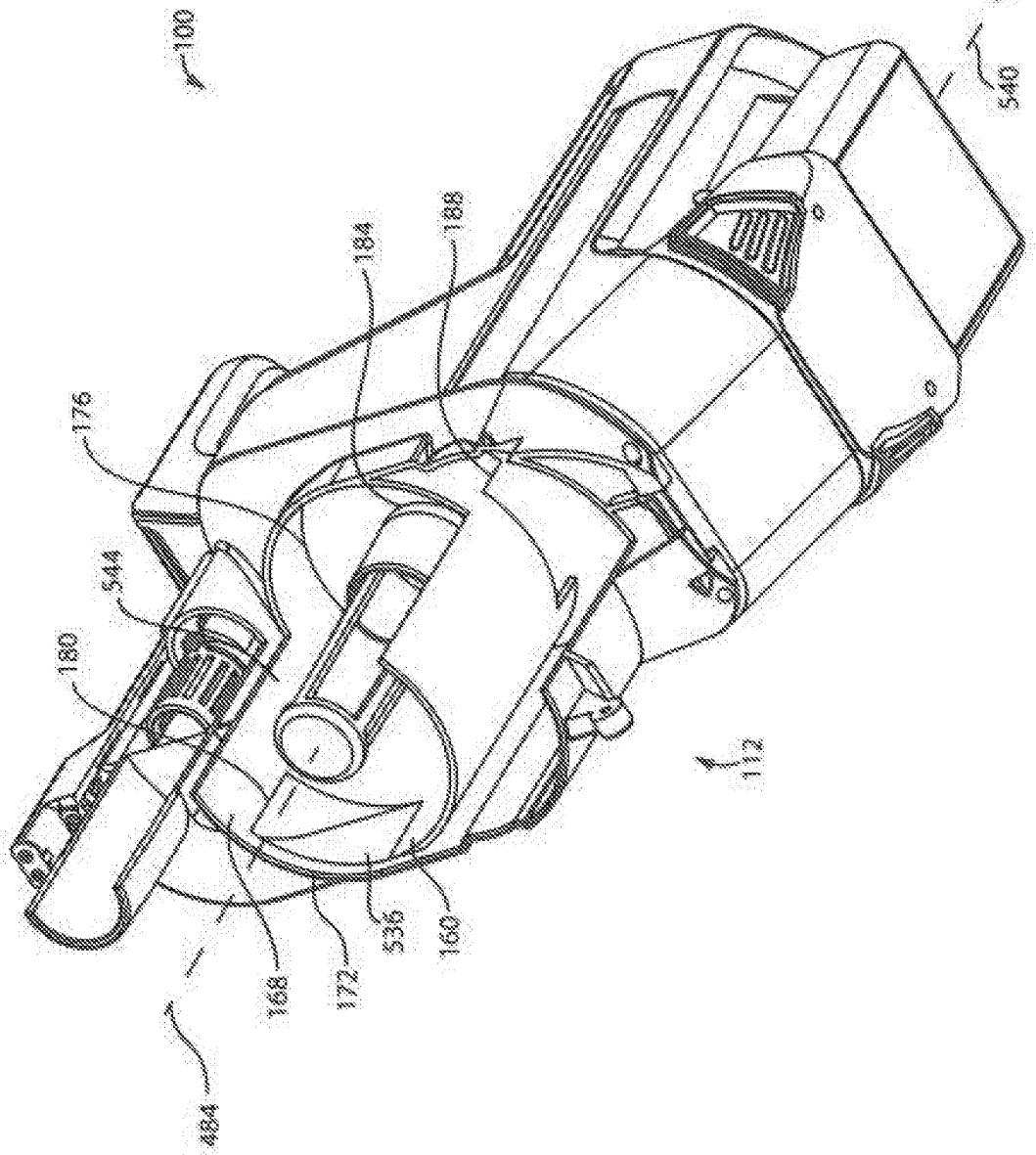


Fig. 7

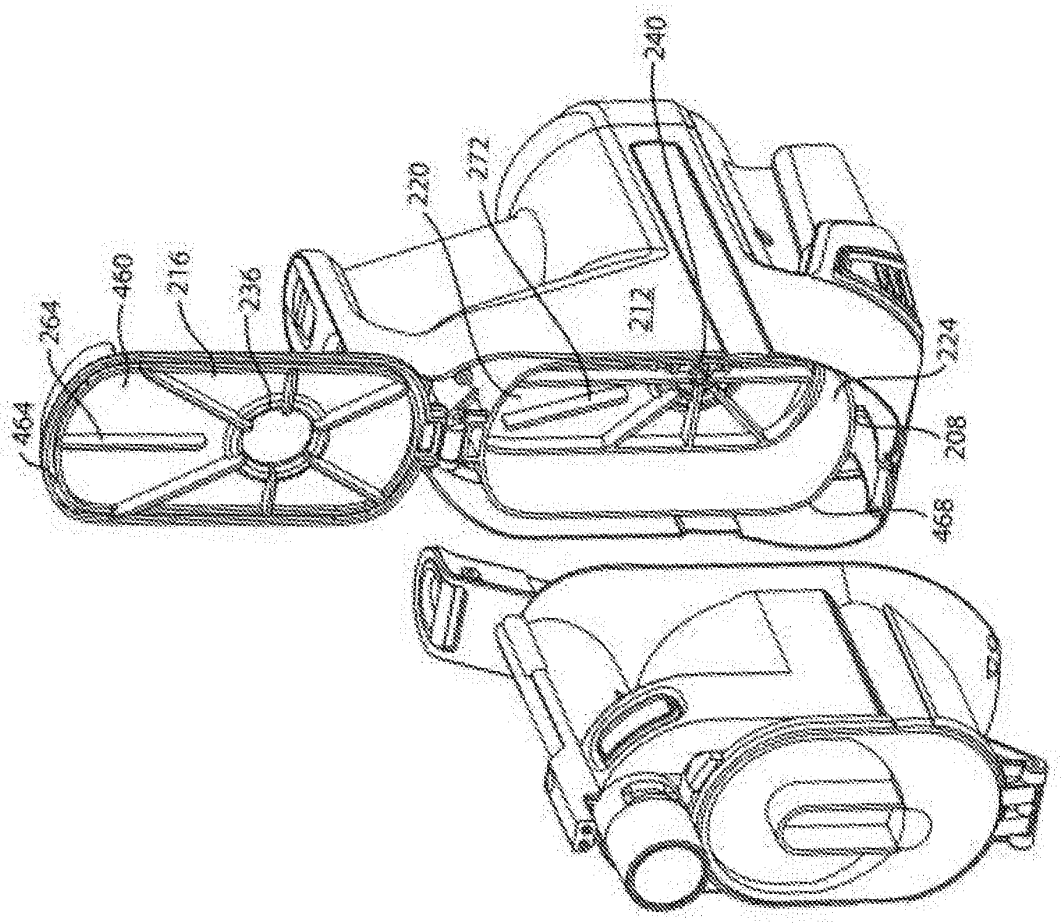


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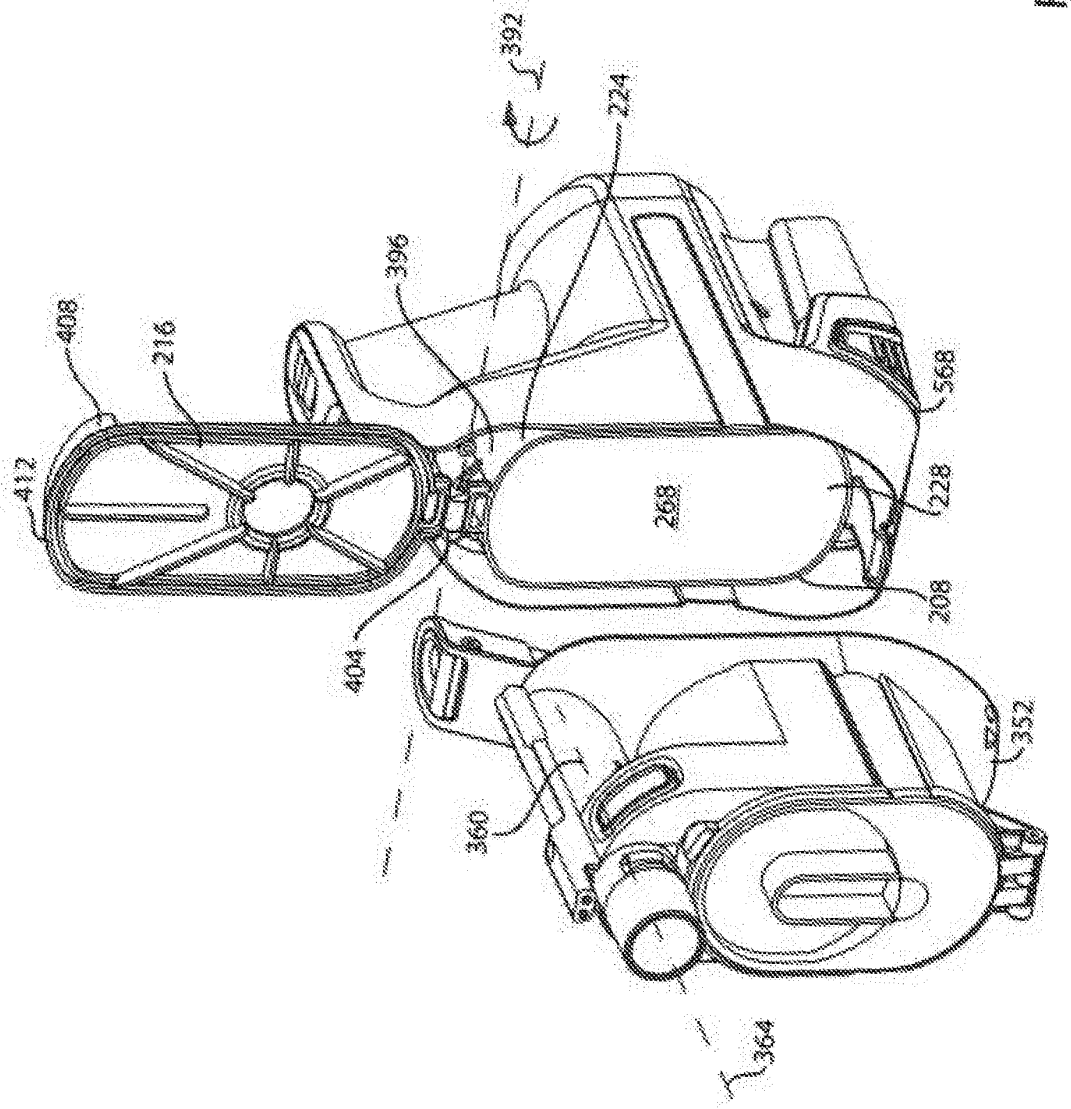


Fig. 8A

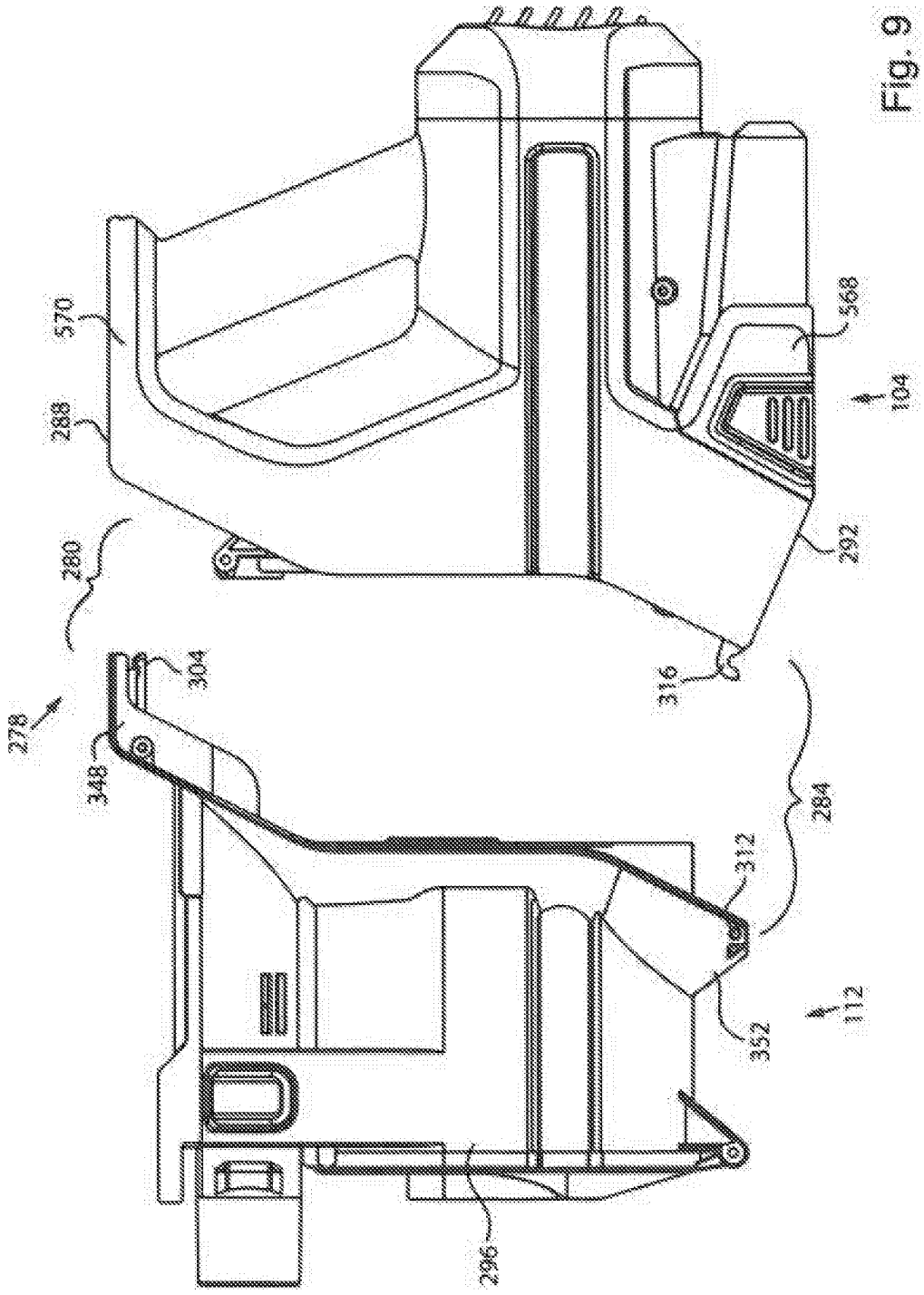


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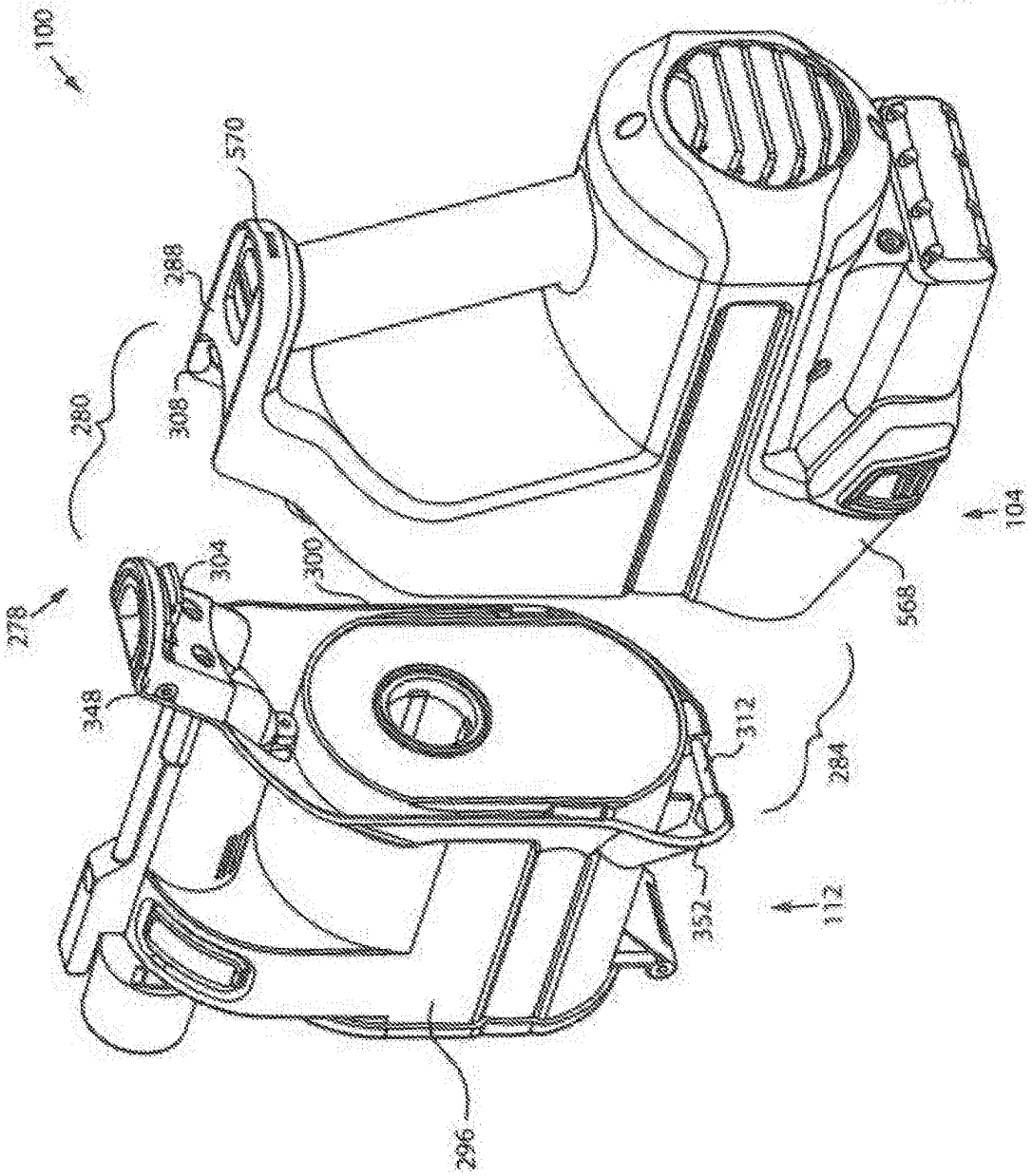


Fig. 10

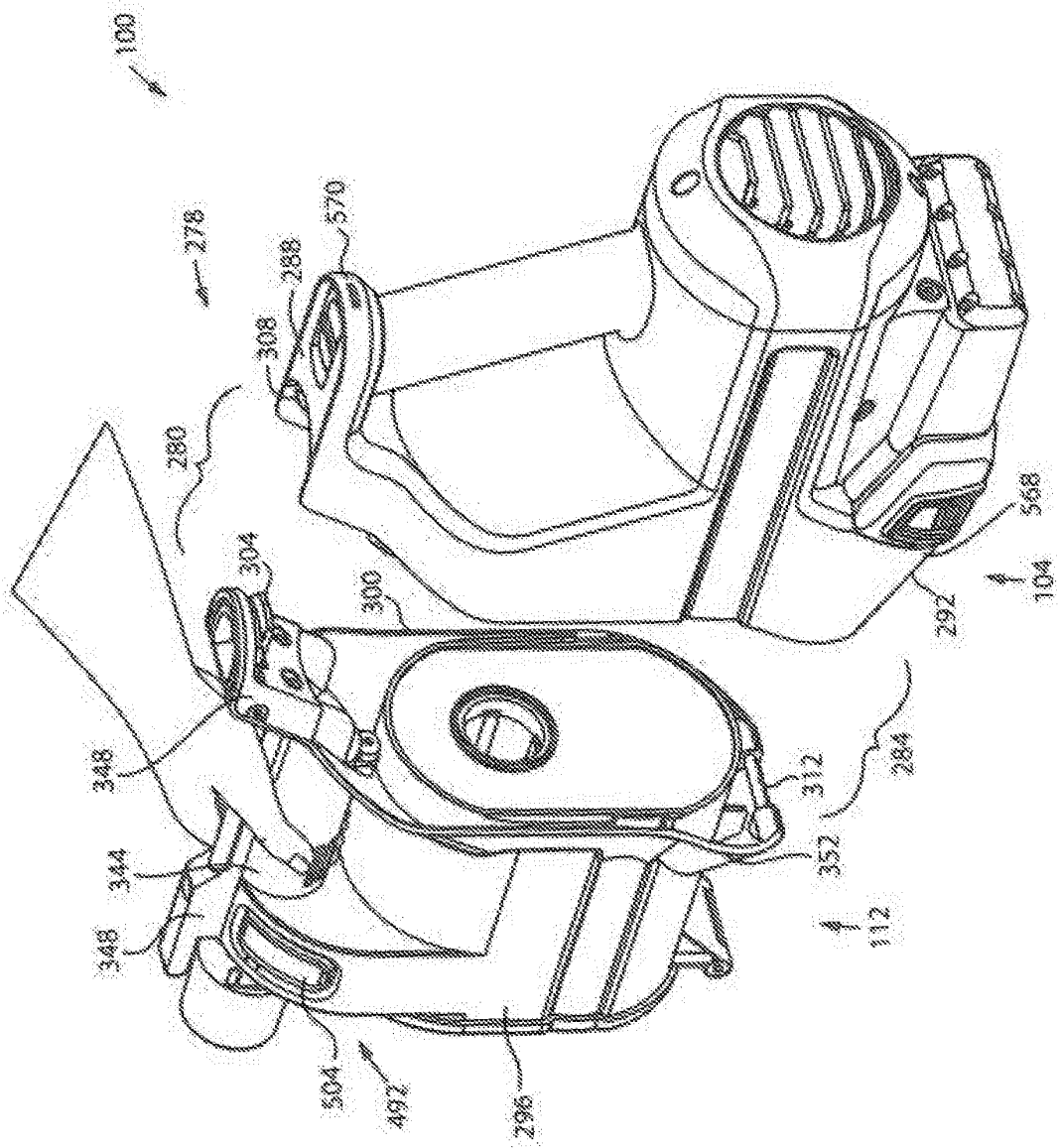

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Fig. 10A

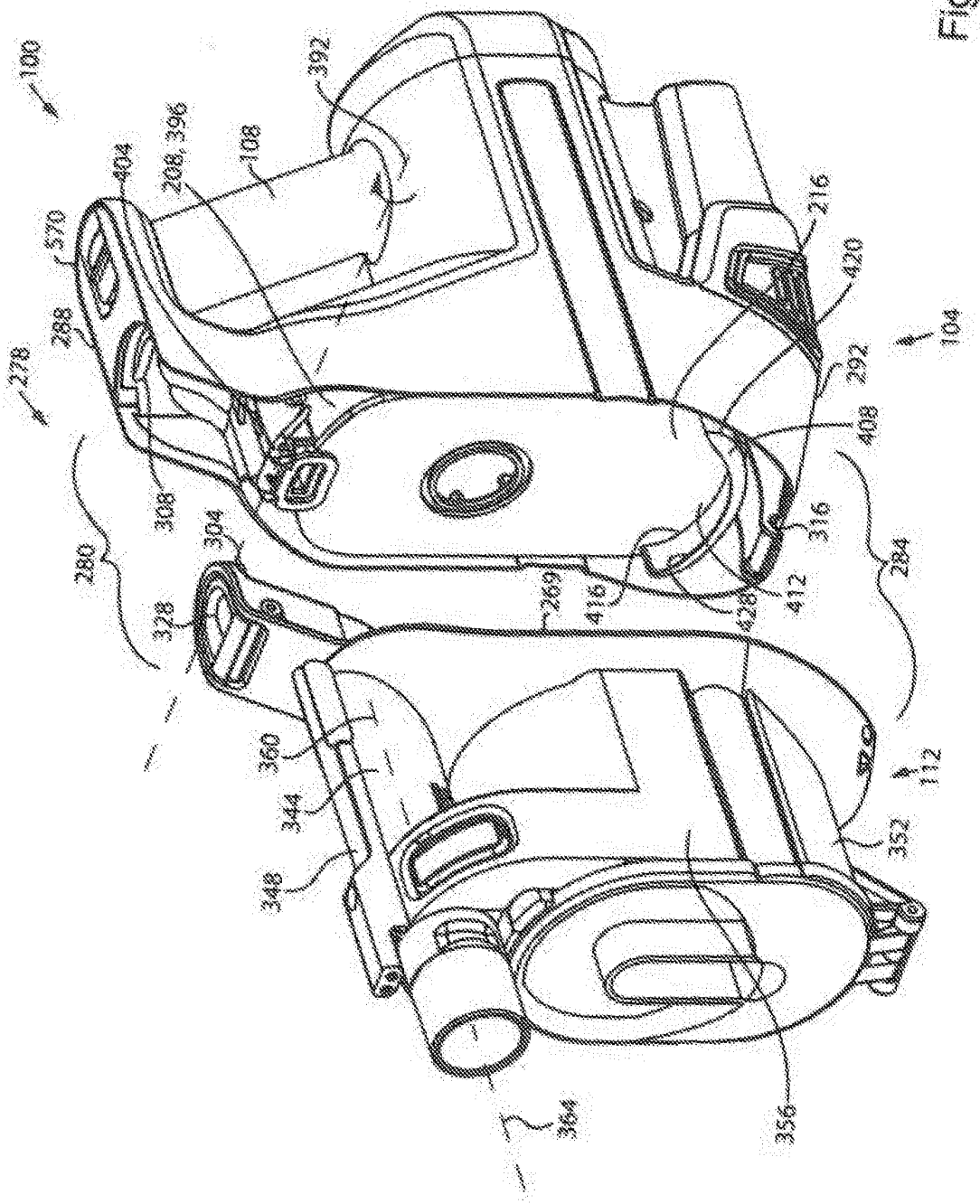

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Fig. 11

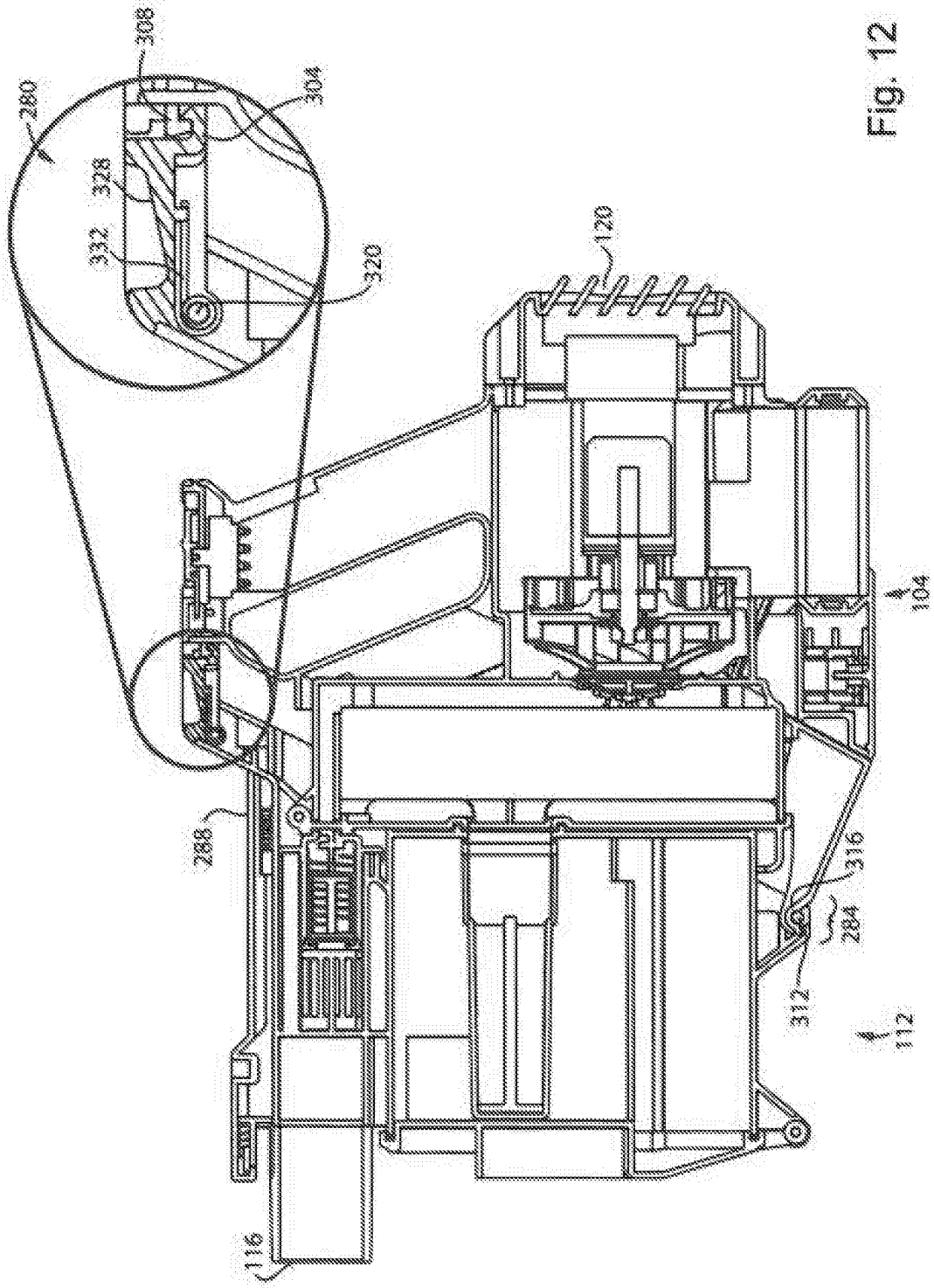


Fig. 12

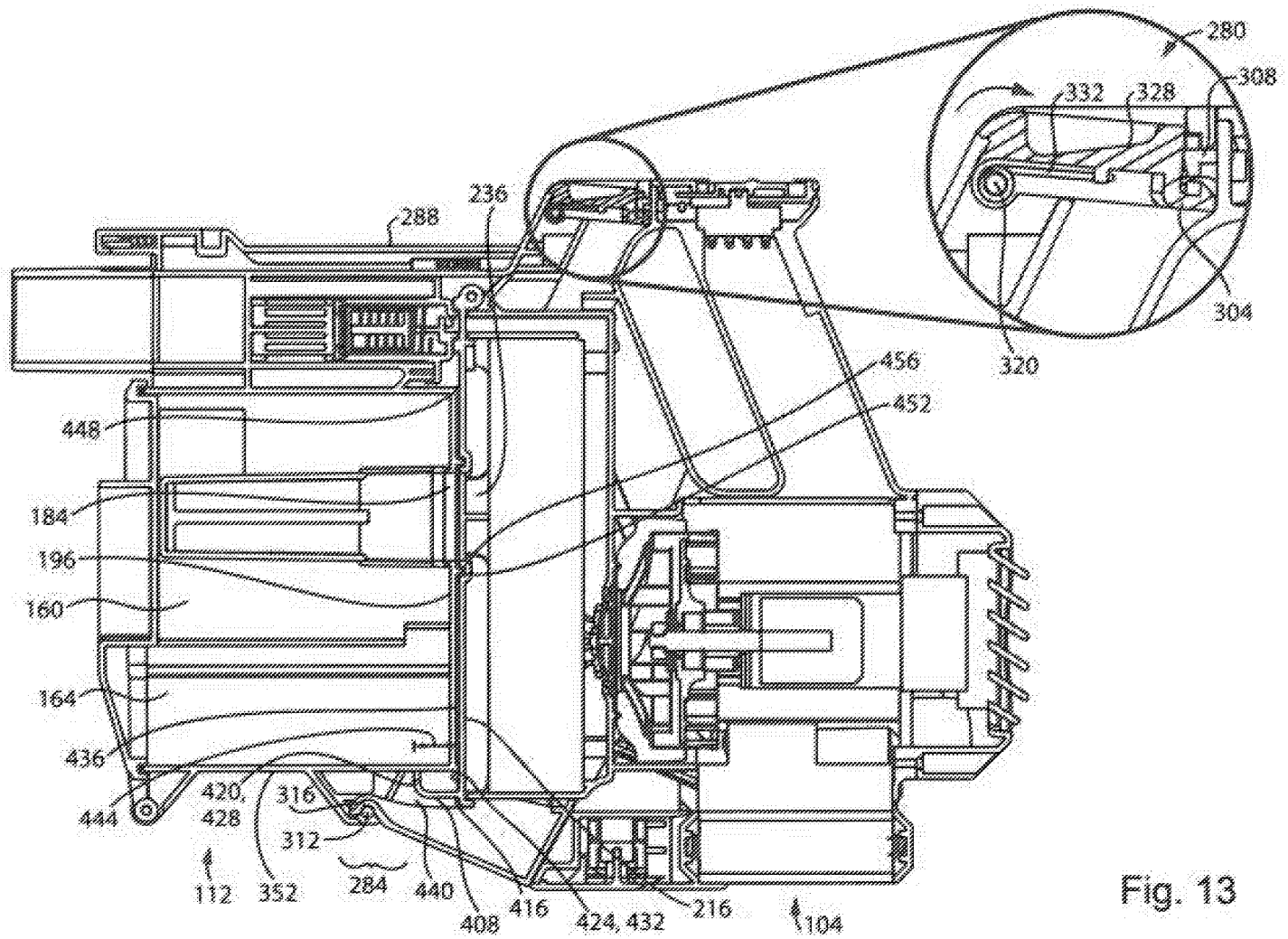


Fig. 13

REPLACEMENT SHEET

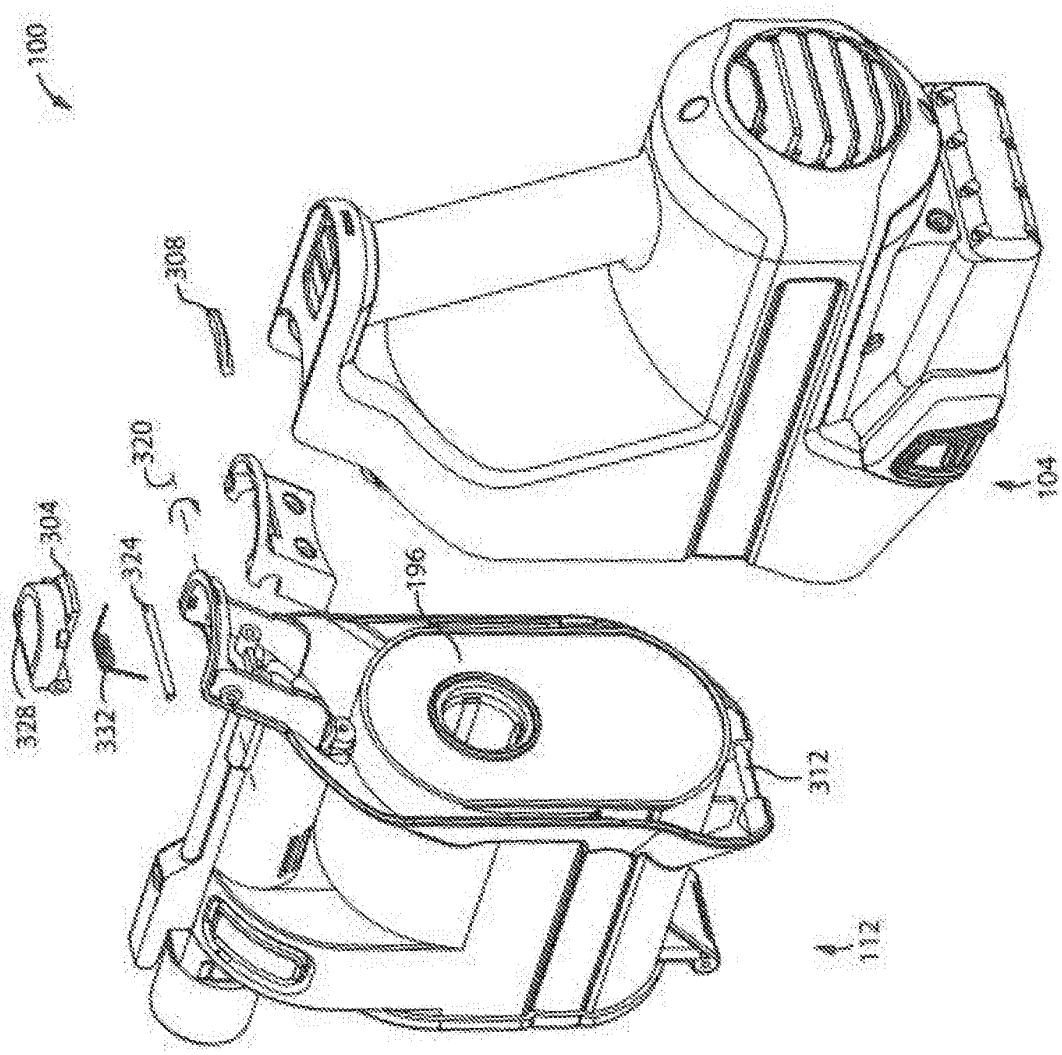


Fig. 14

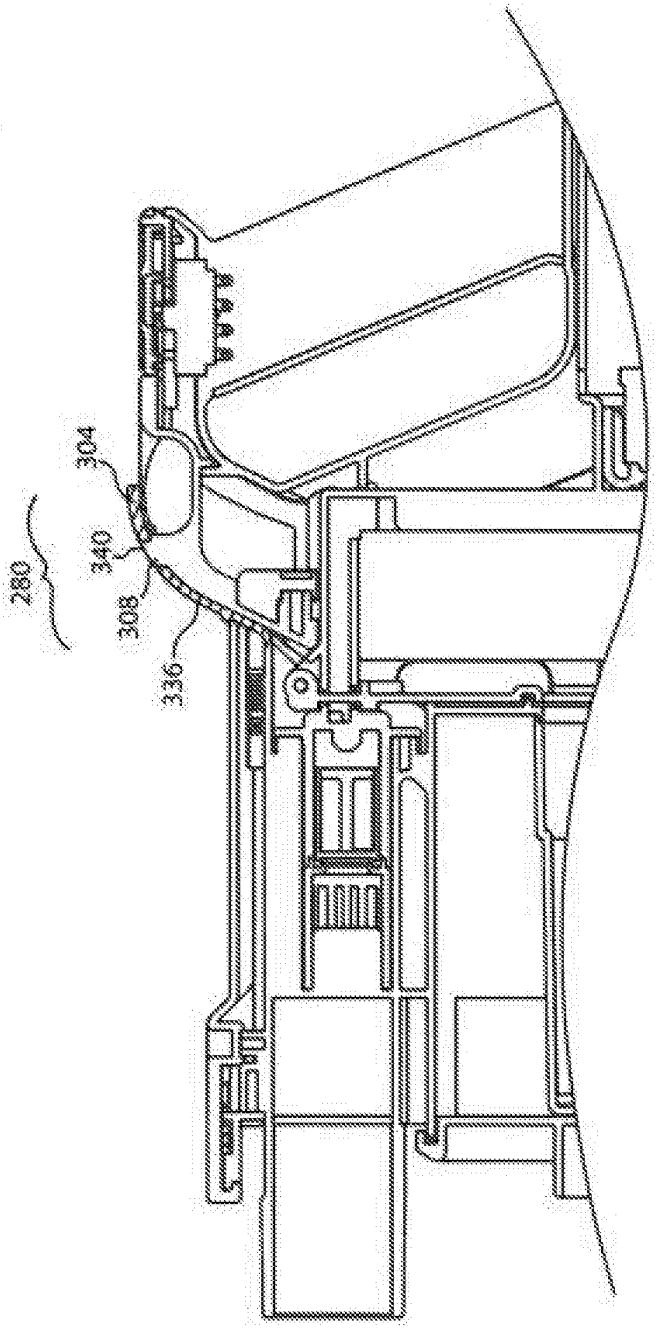


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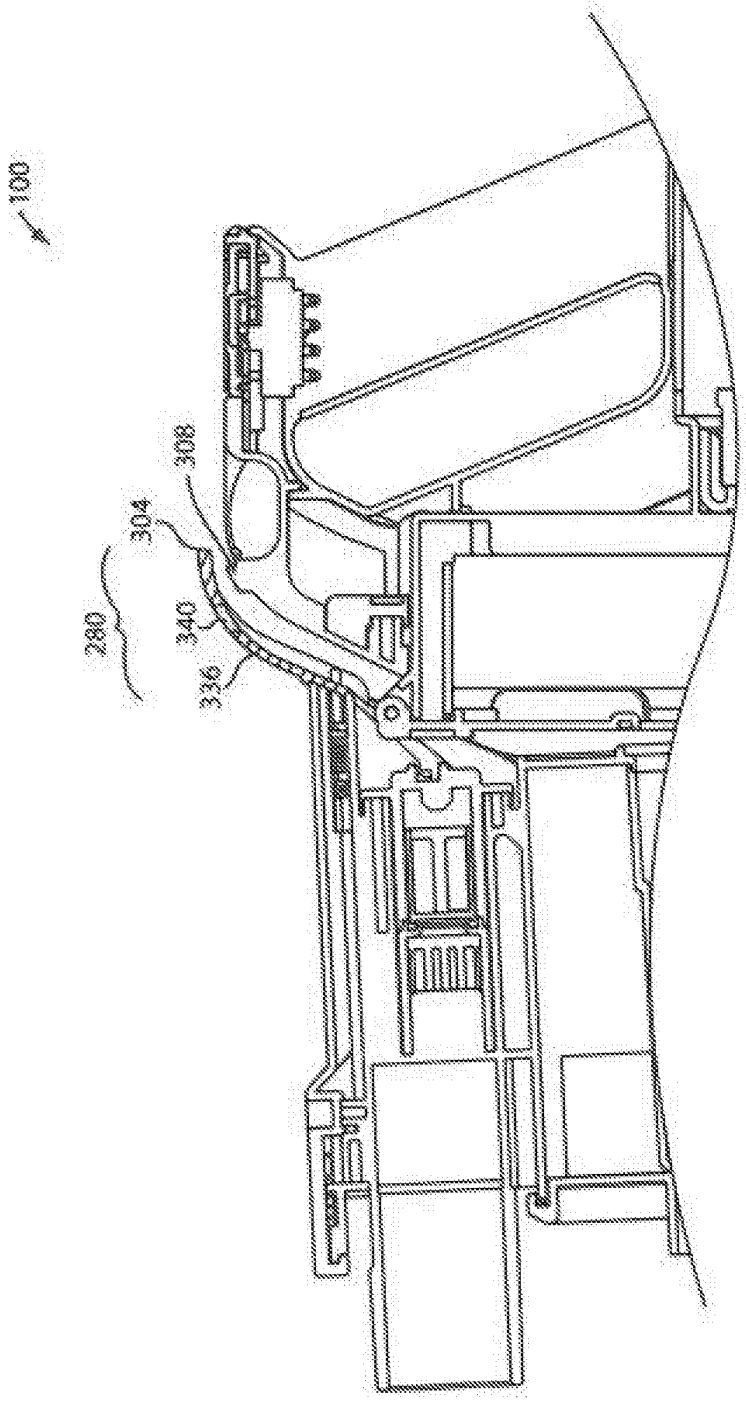


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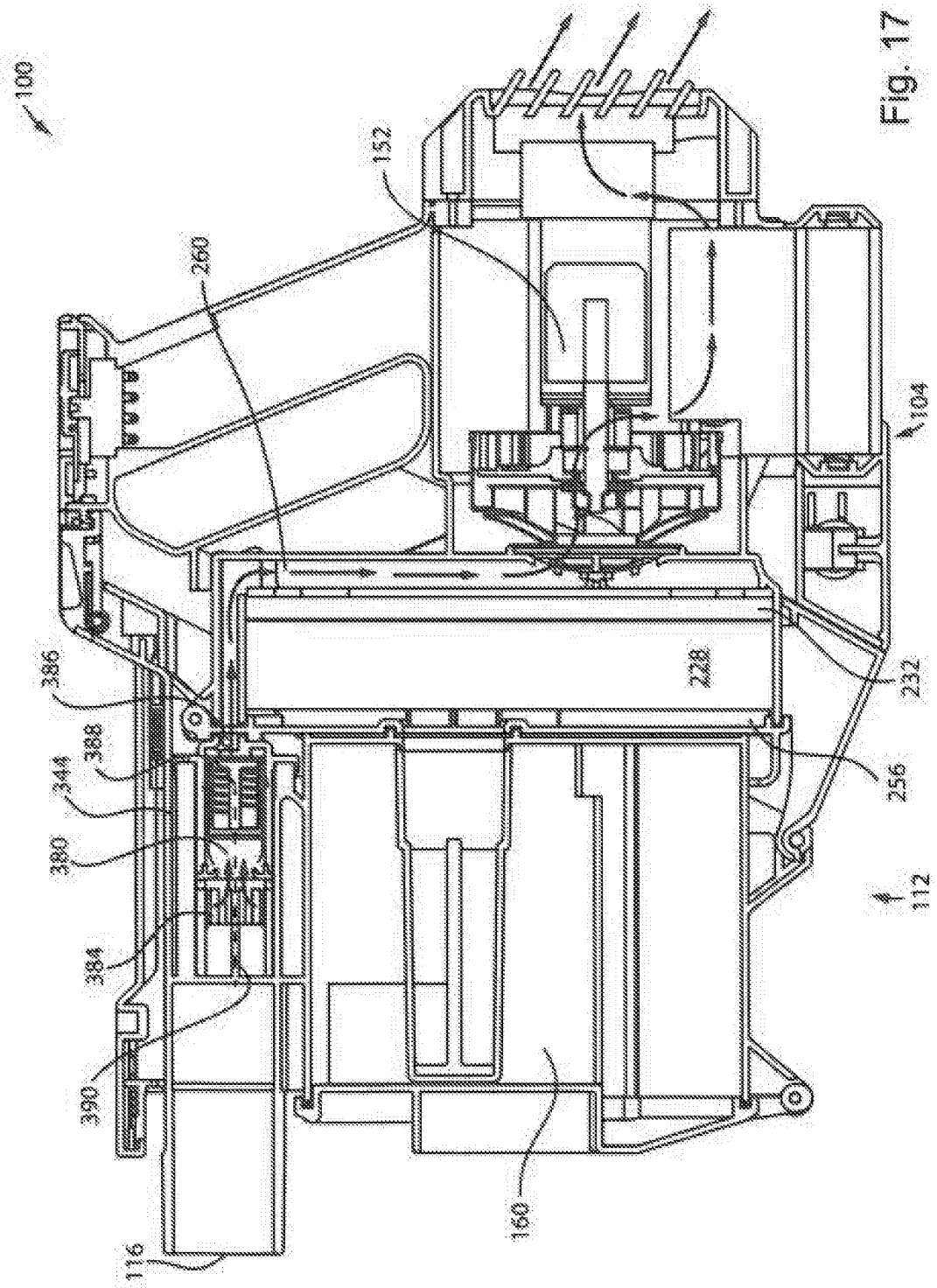


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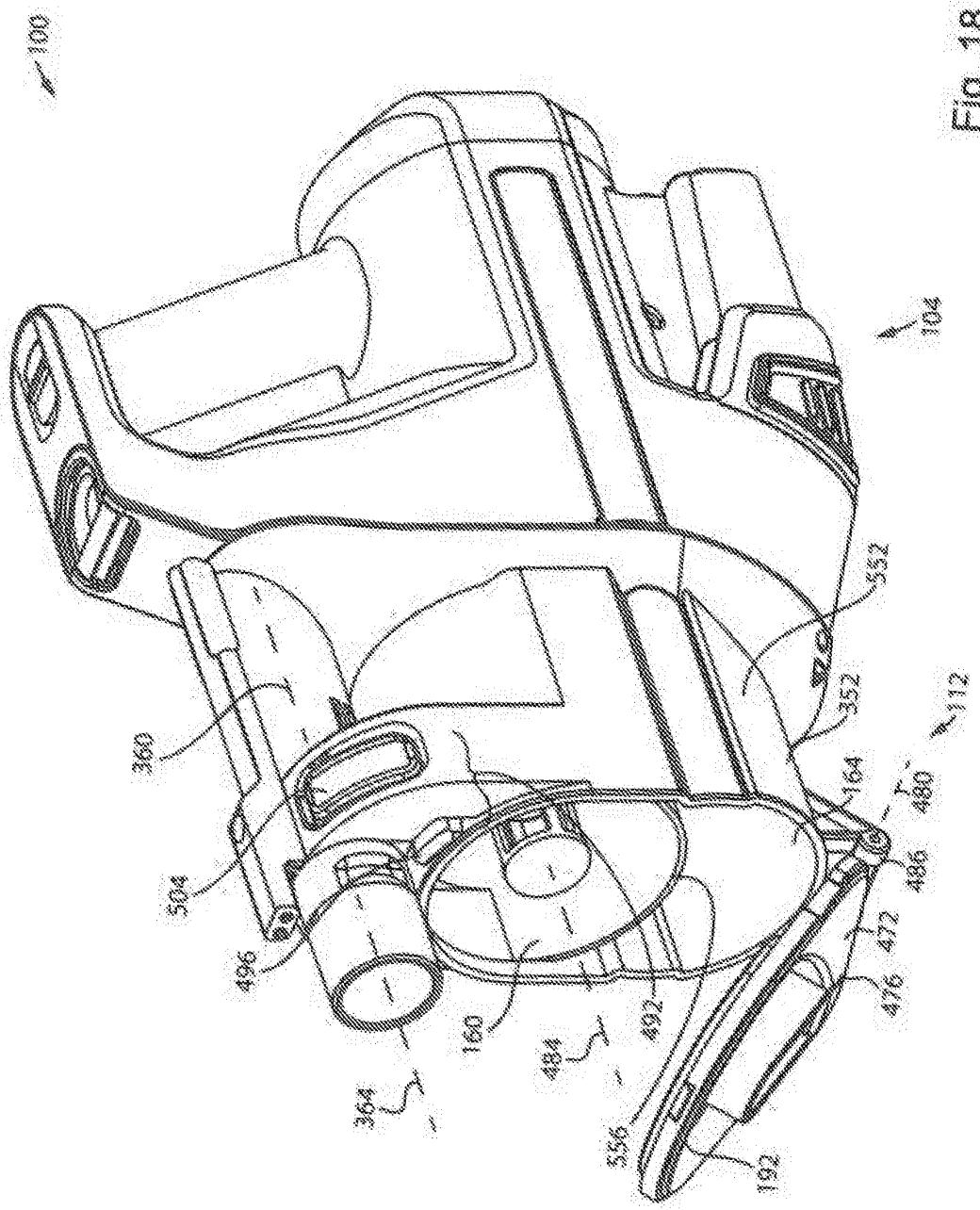

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Fig. 18

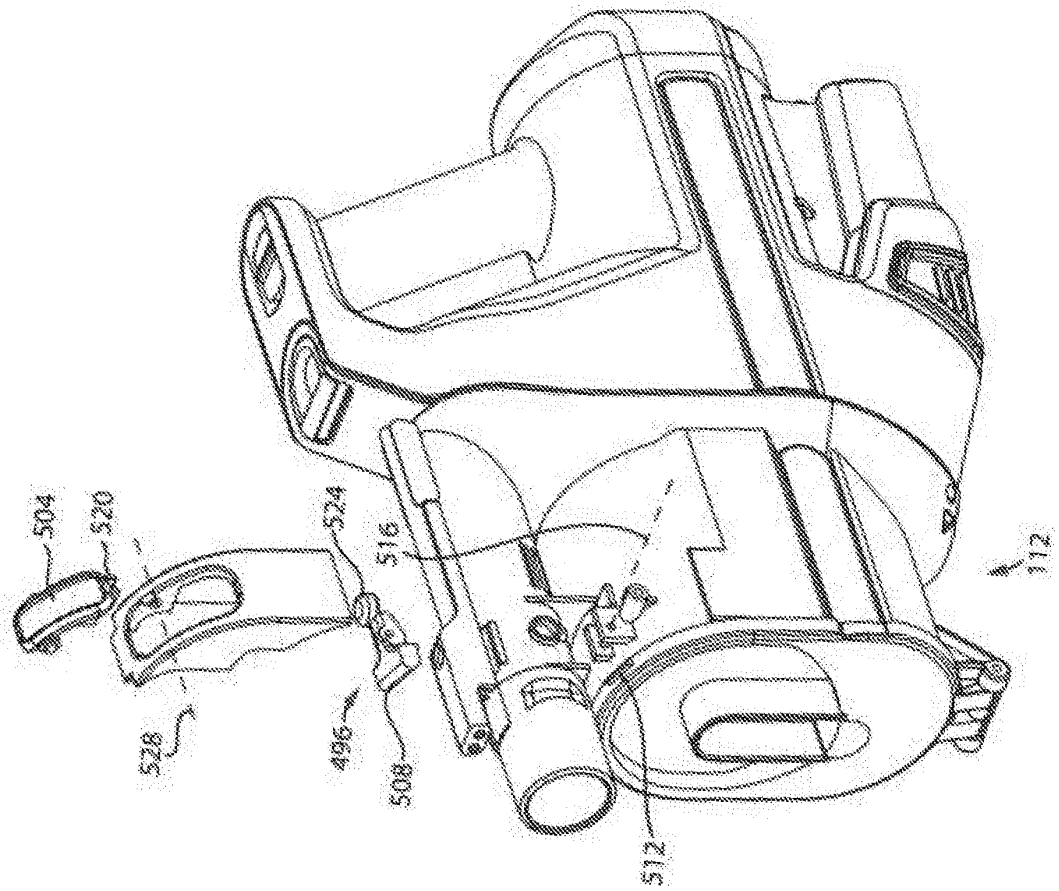


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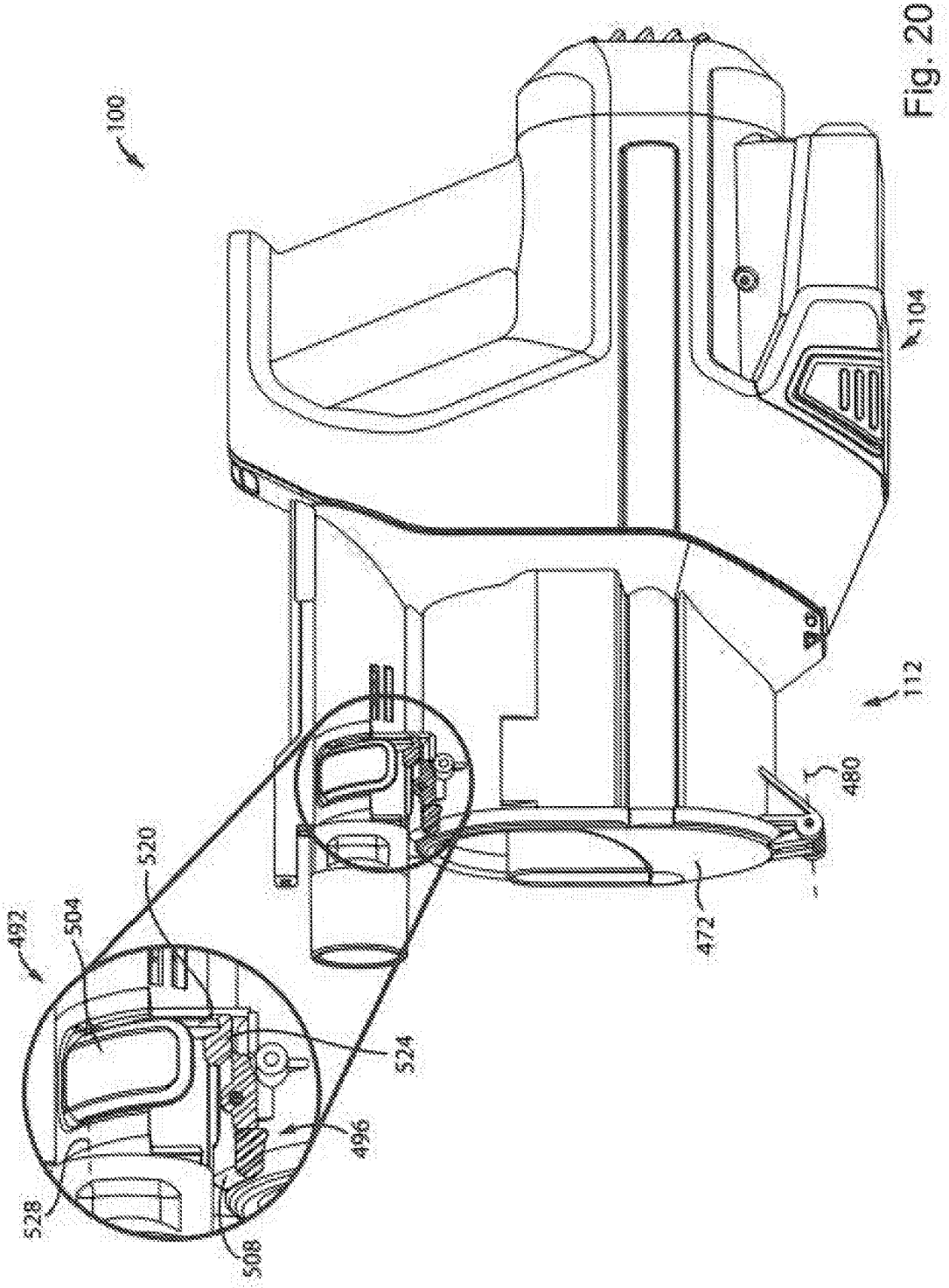


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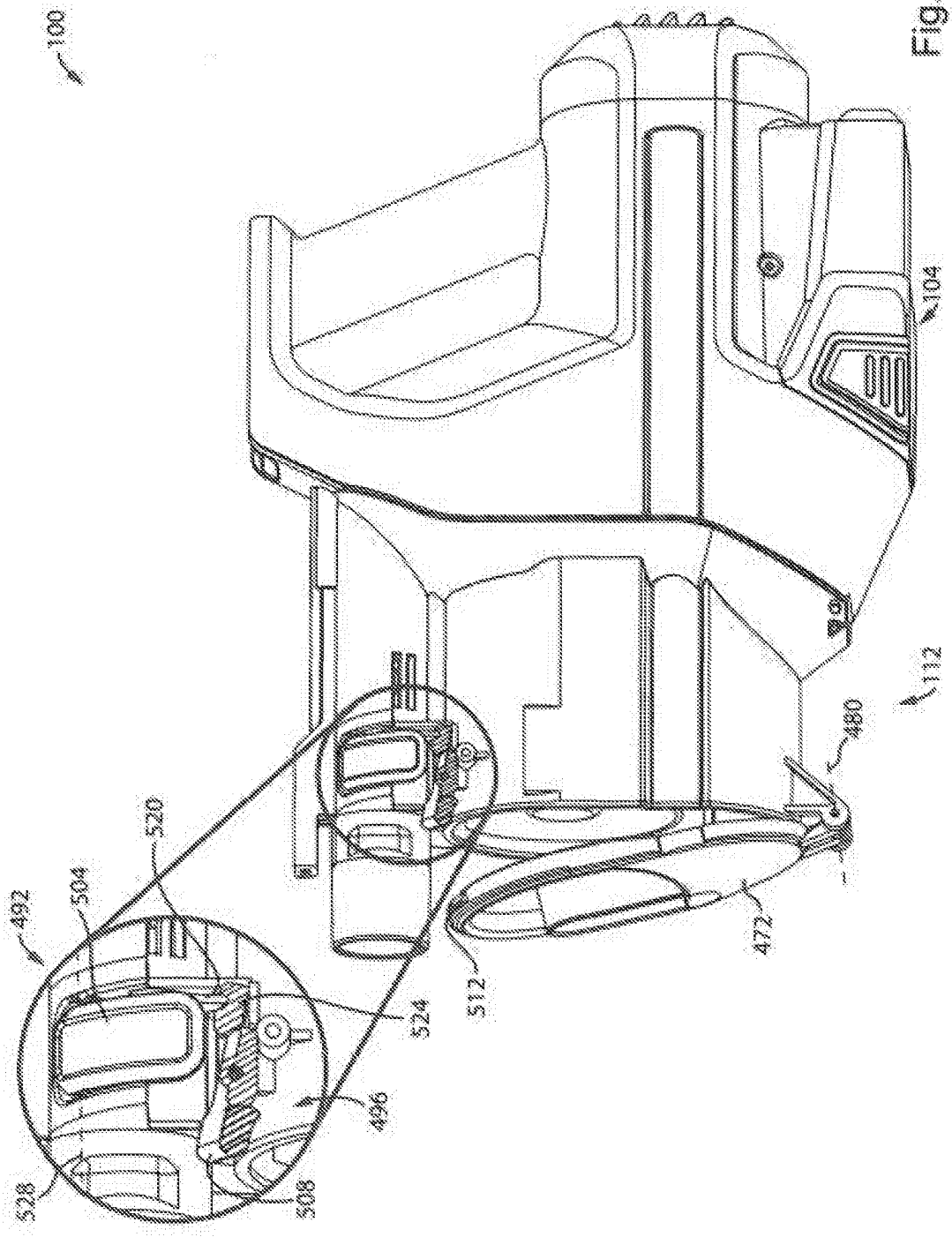


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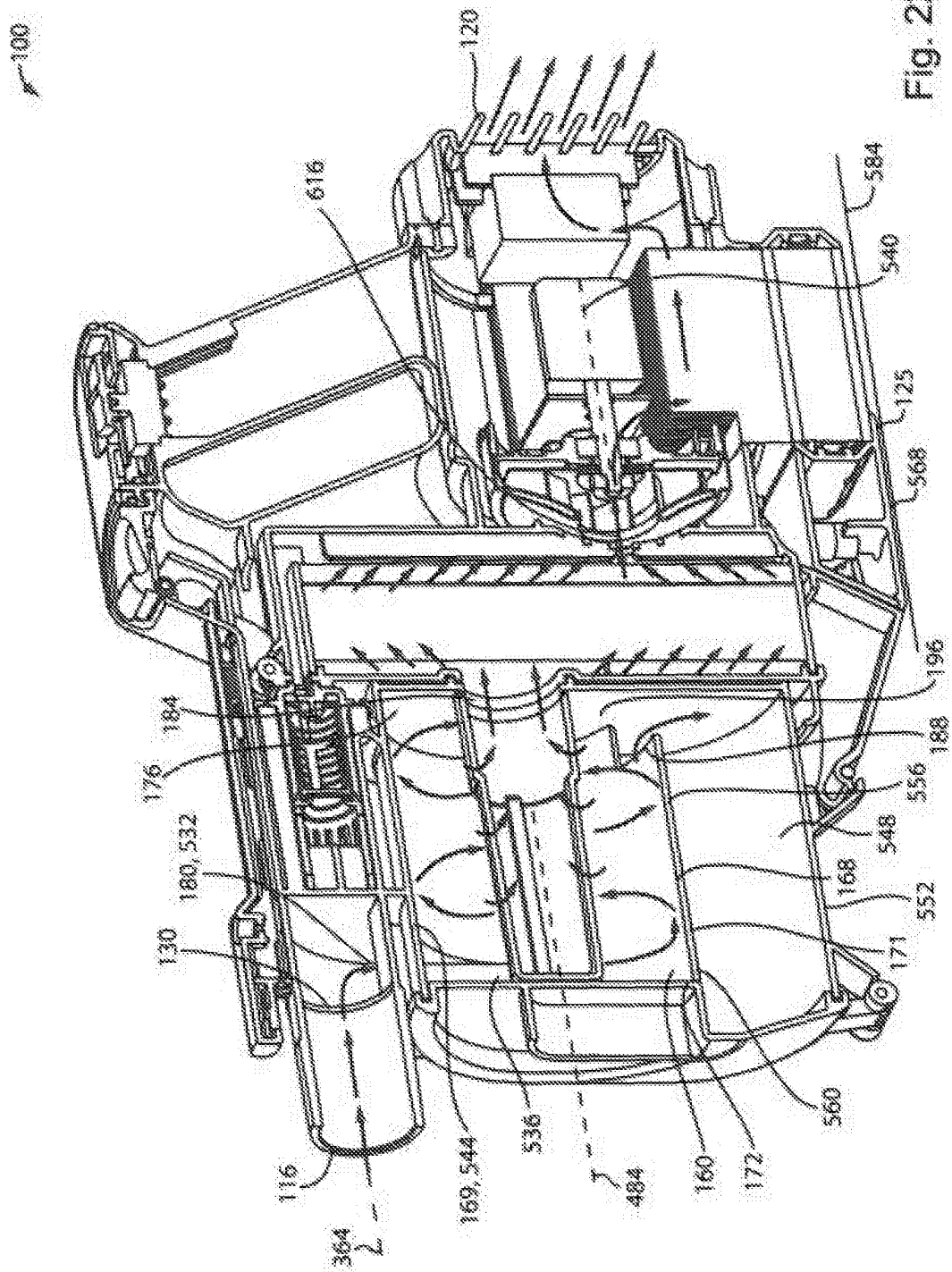

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Fig. 22

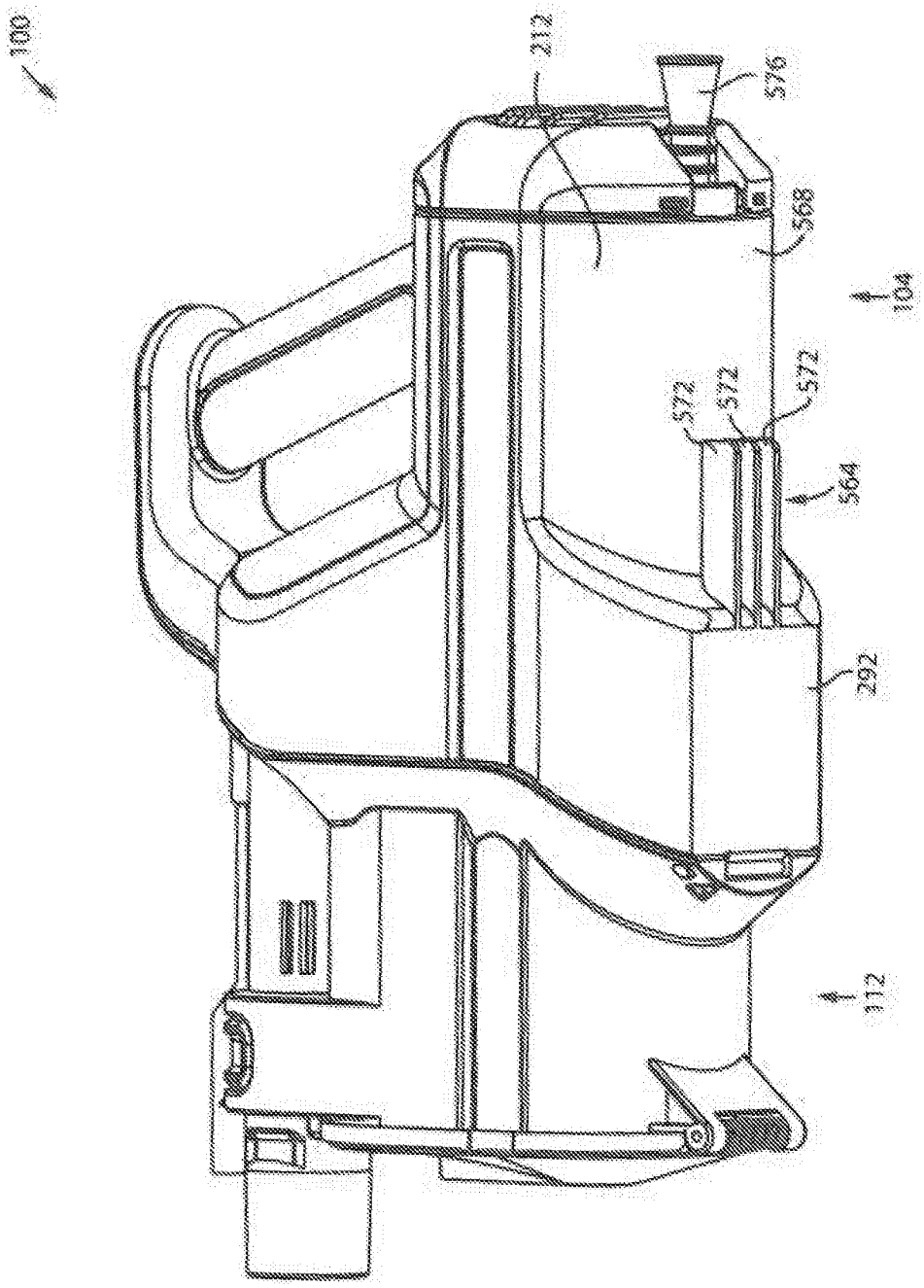


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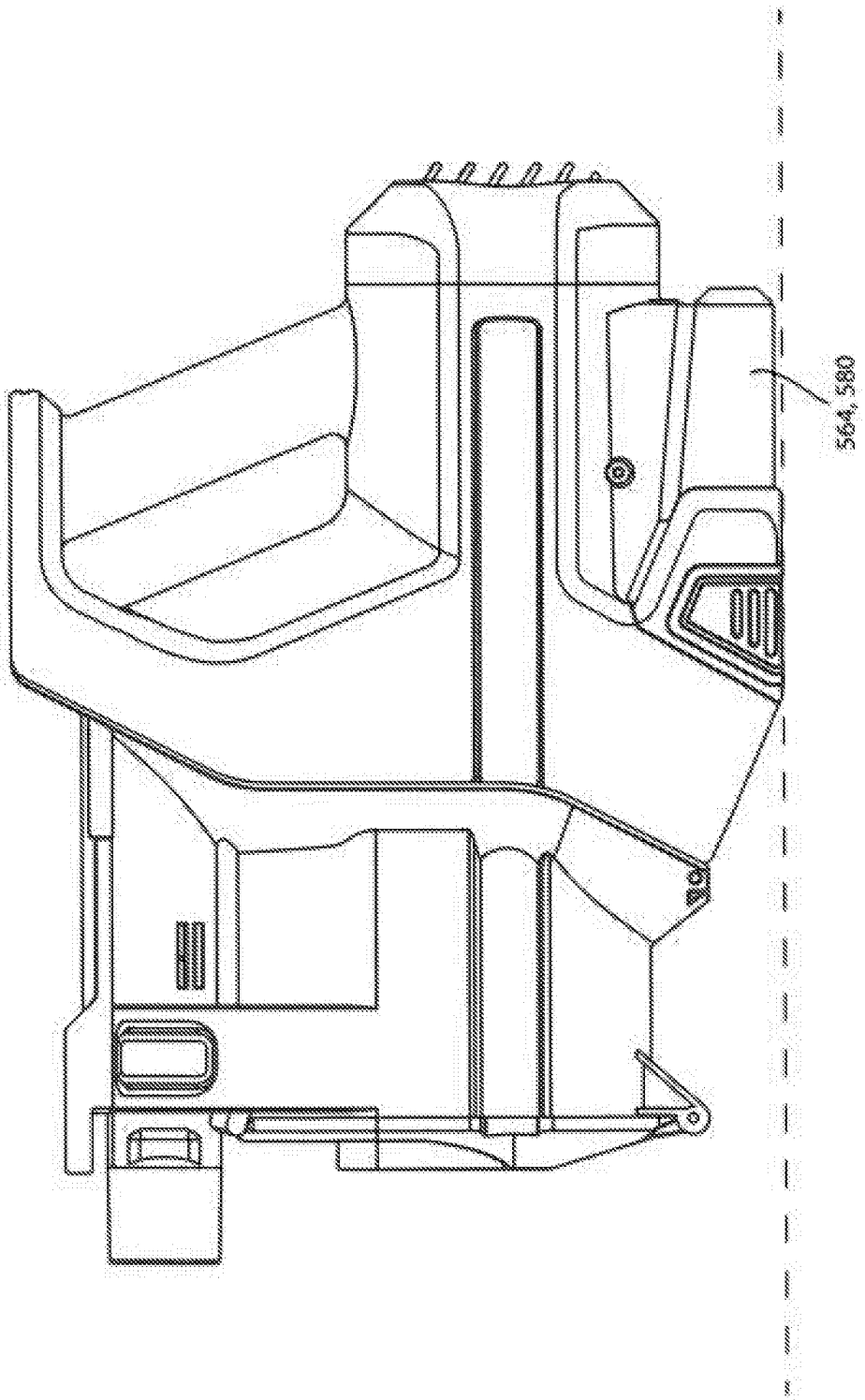


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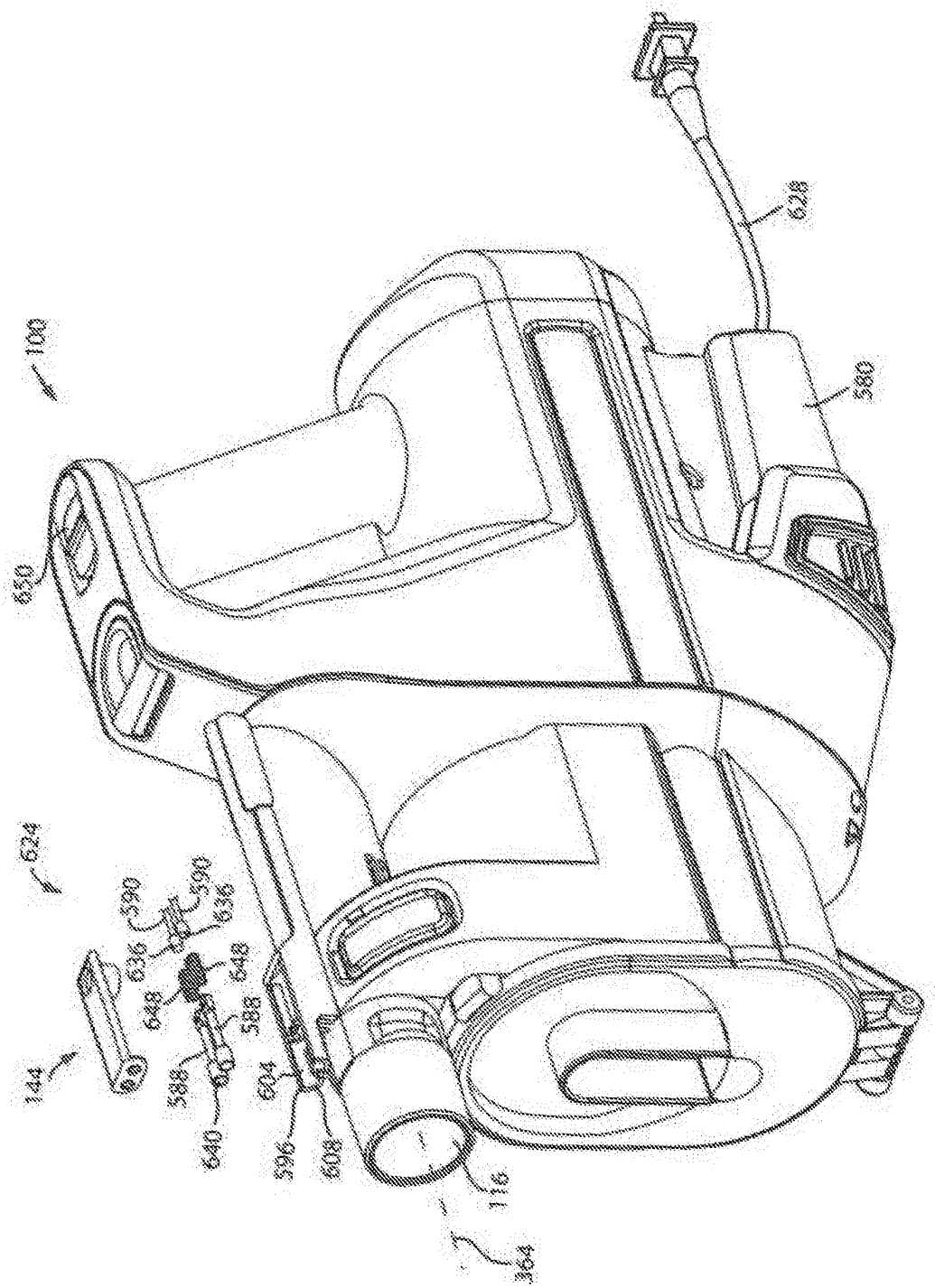

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Fig. 25

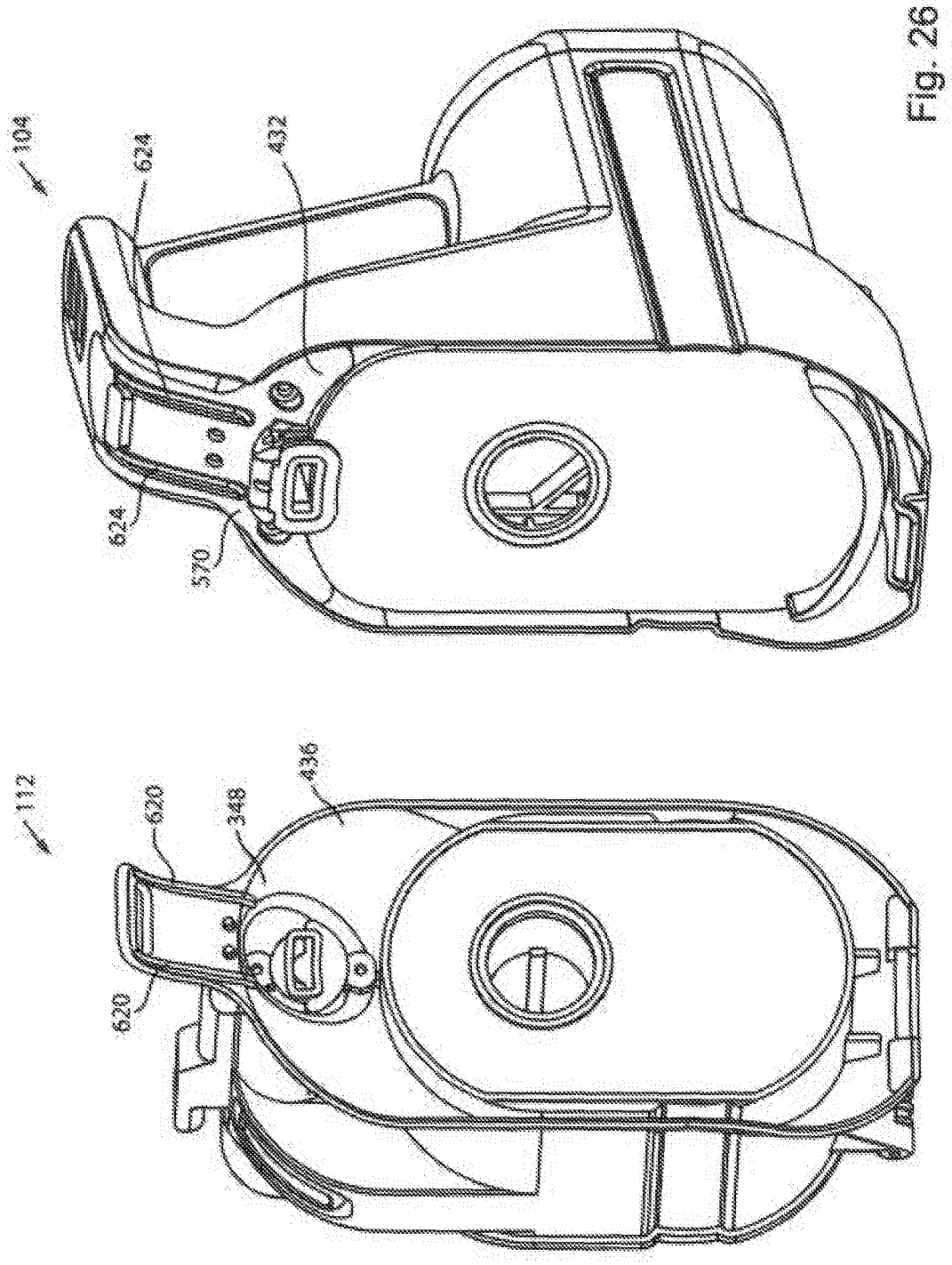


Fig. 26

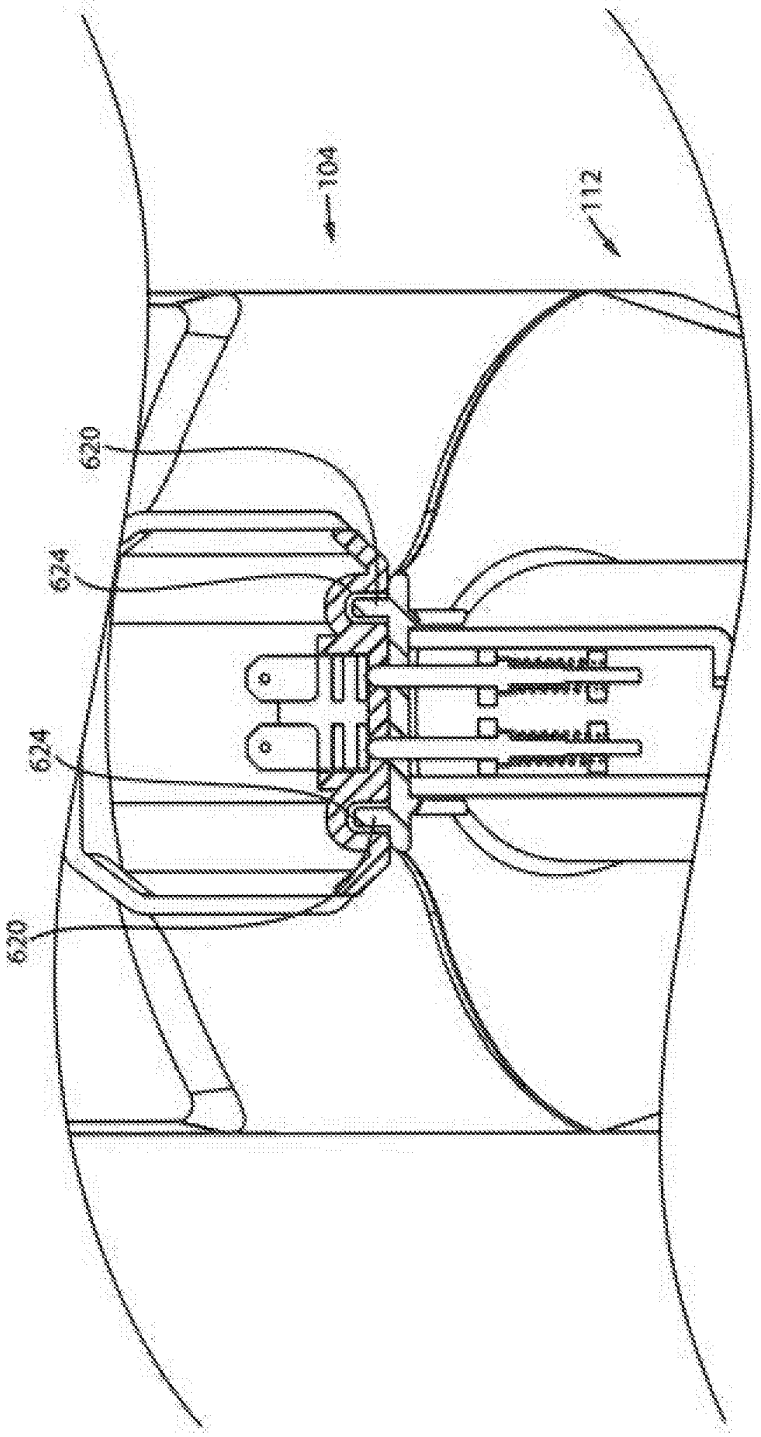


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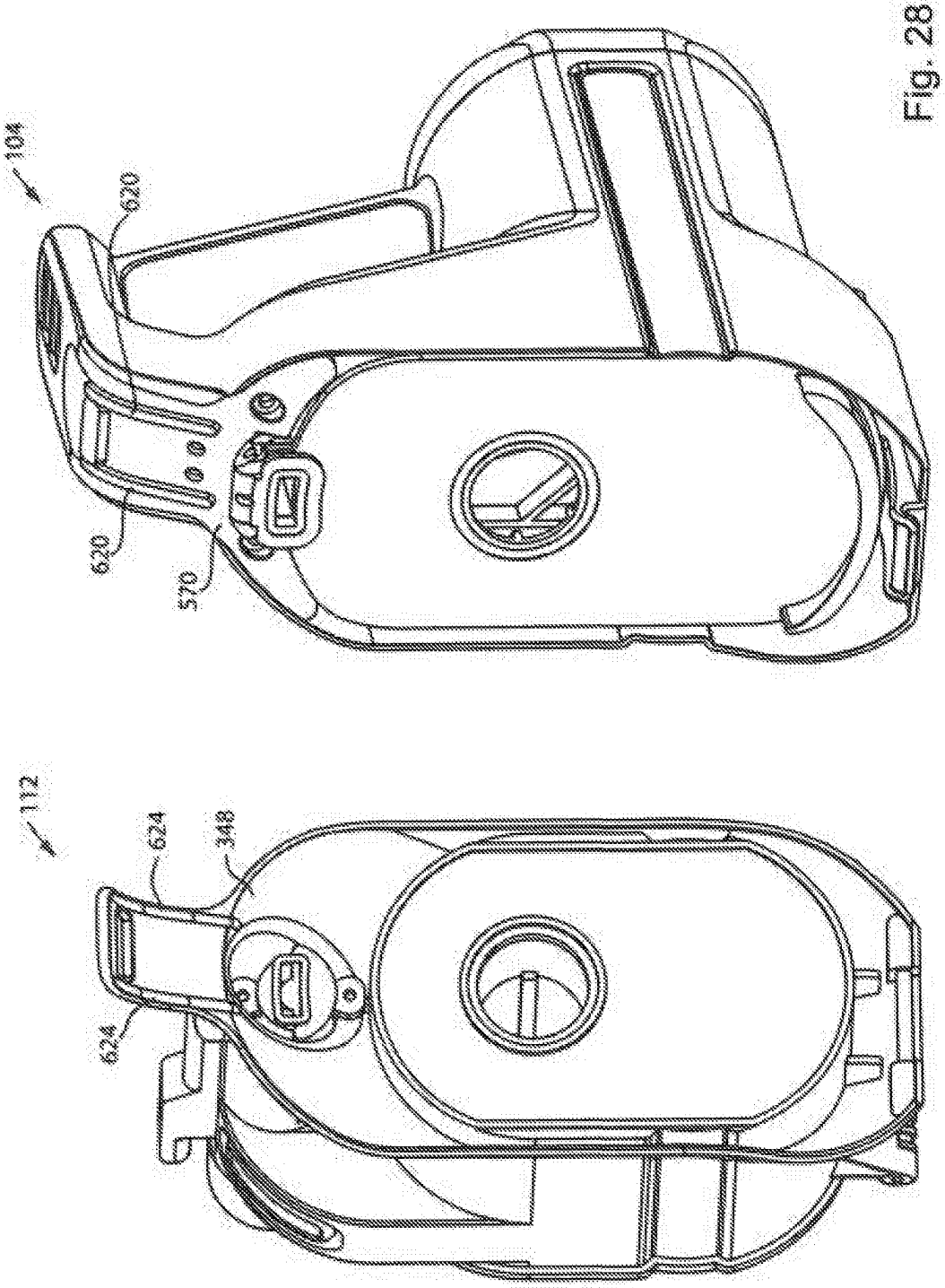


Fig. 28

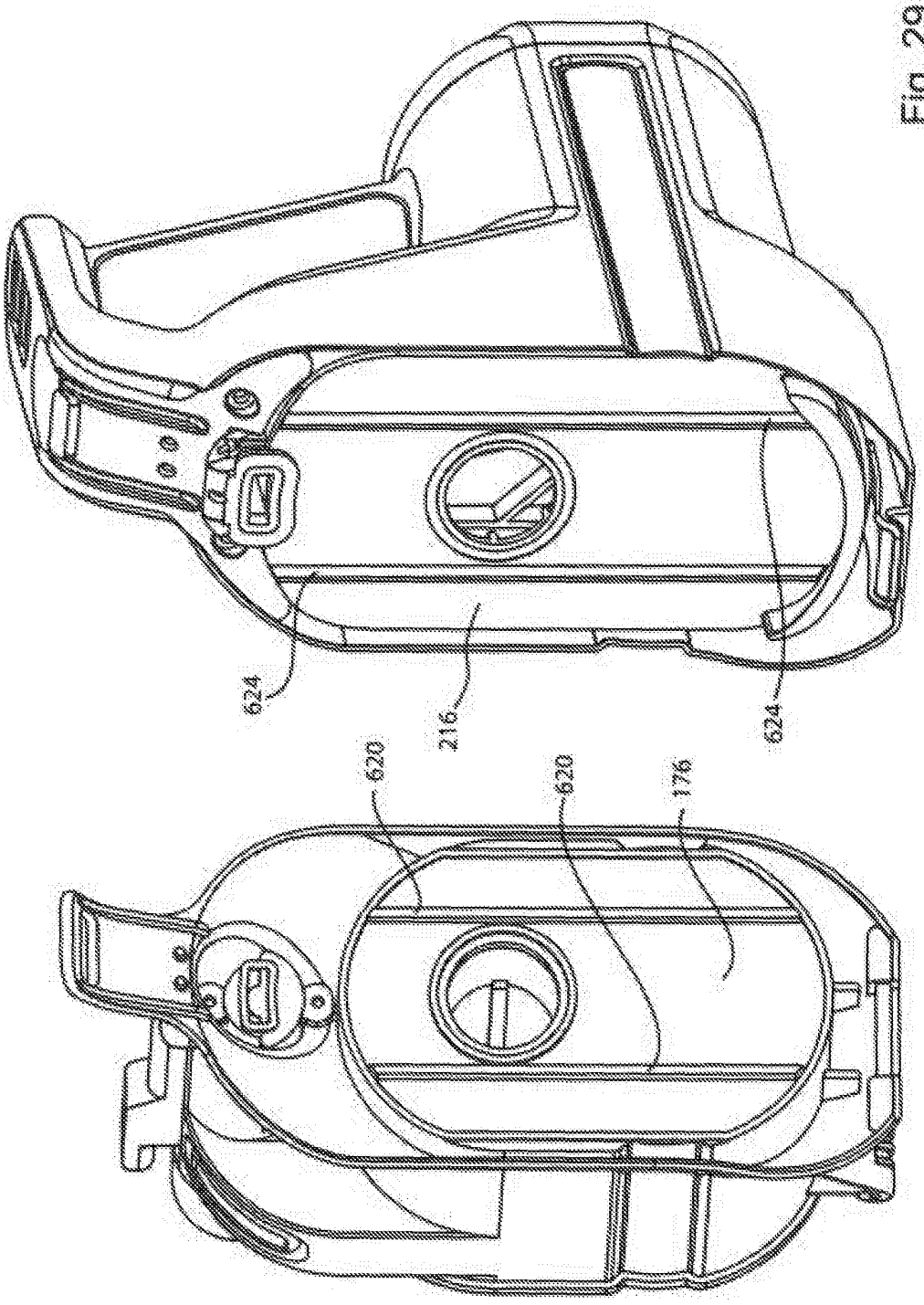


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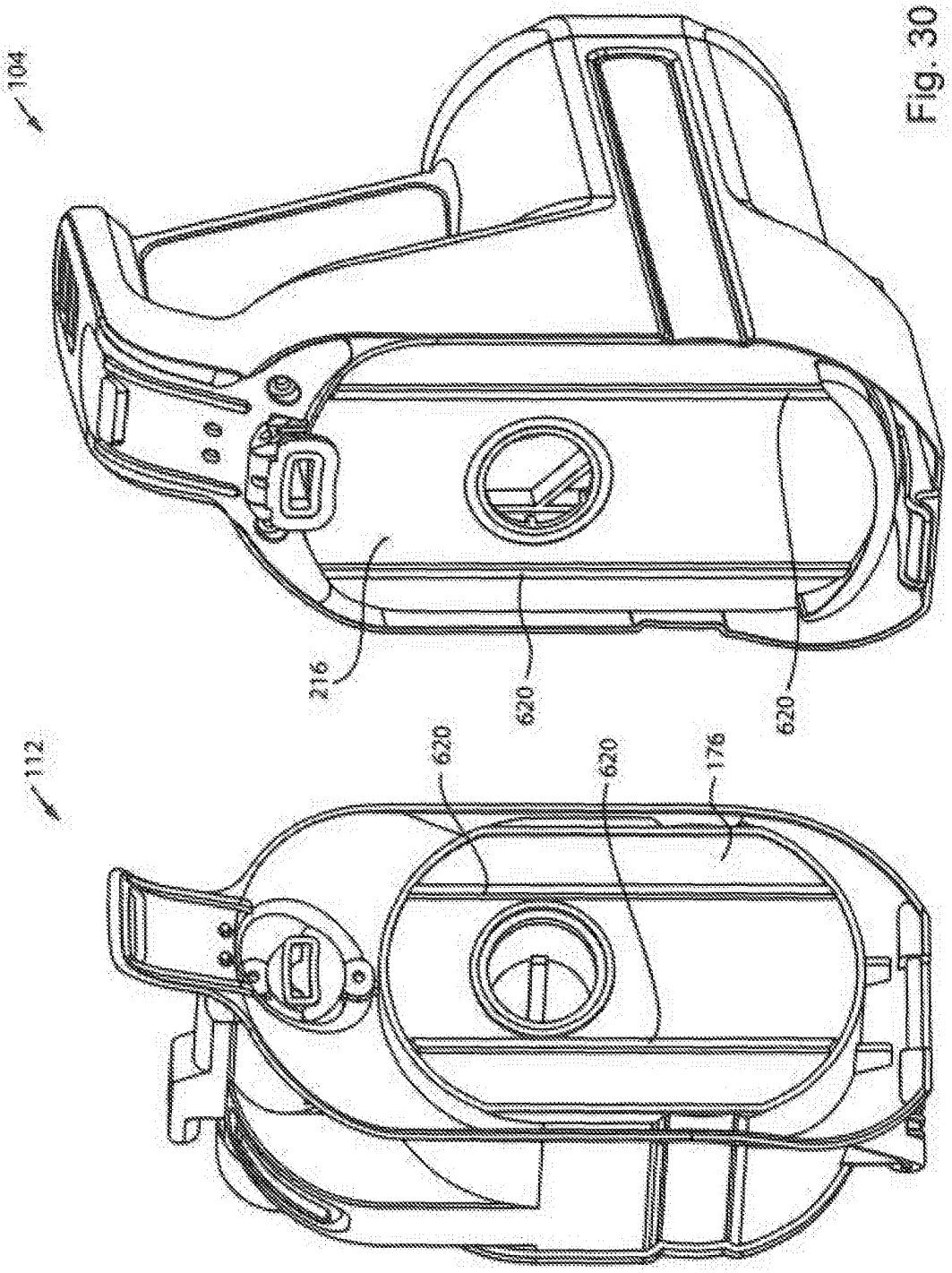


Fig. 30

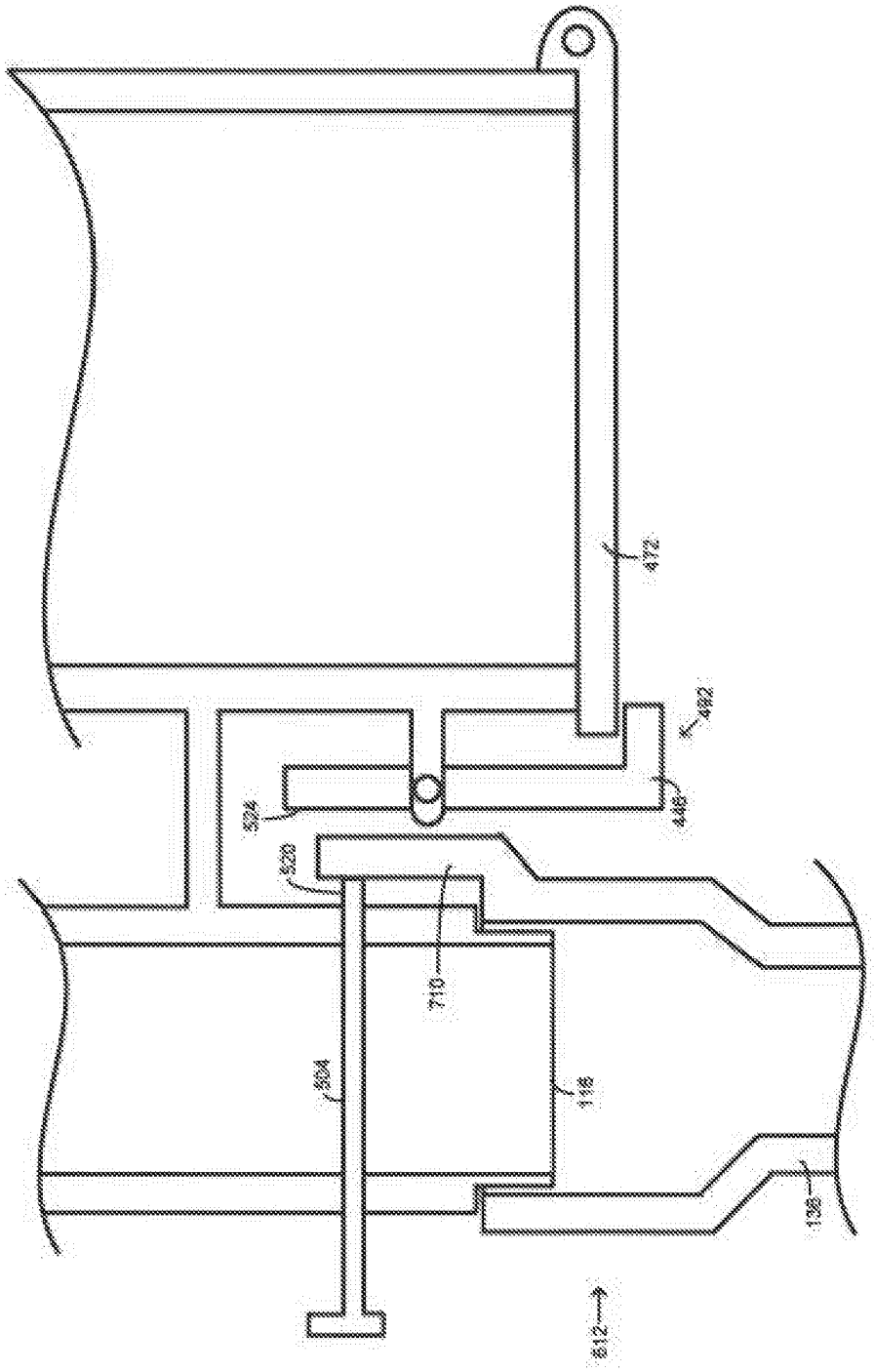


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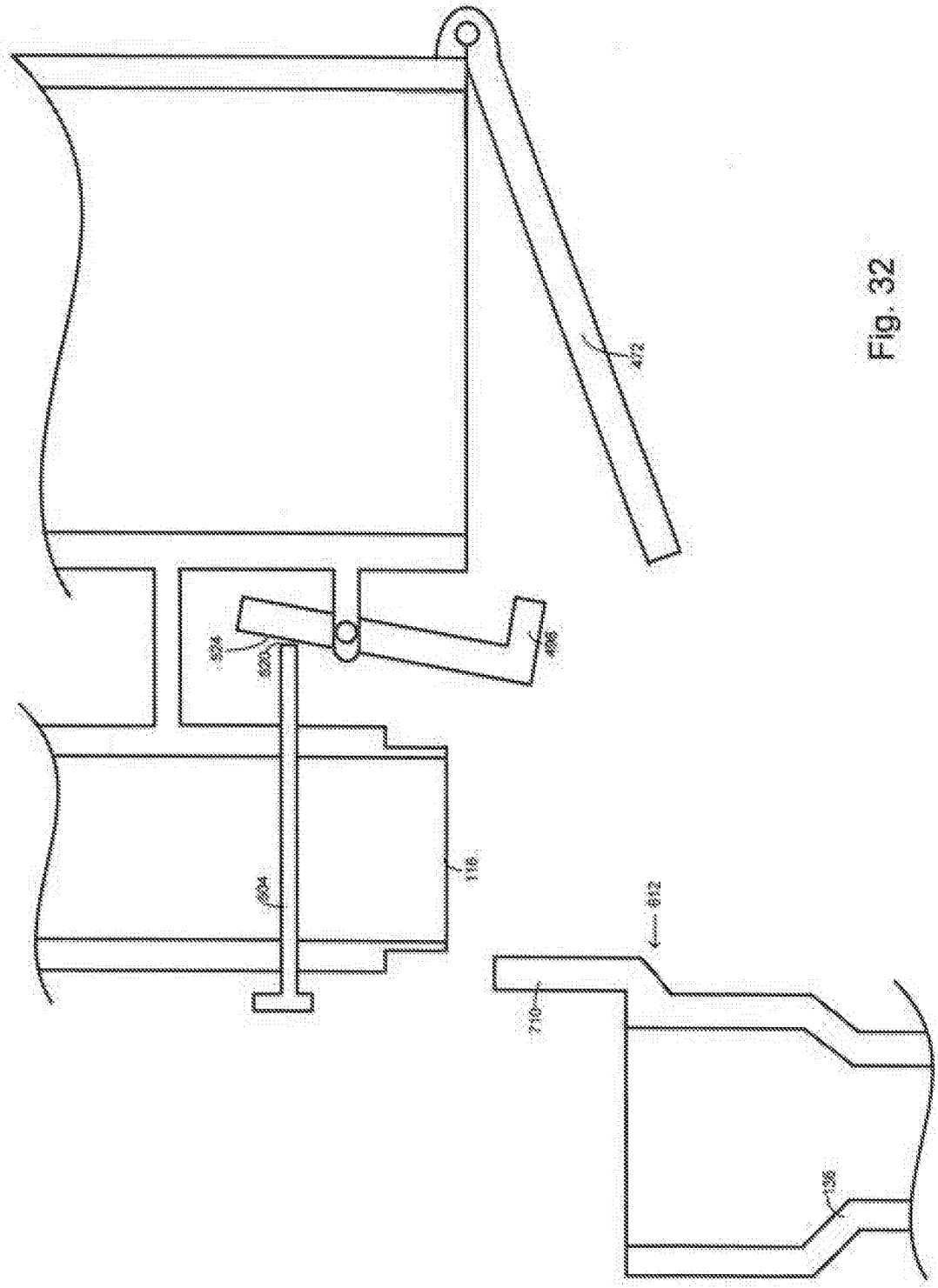


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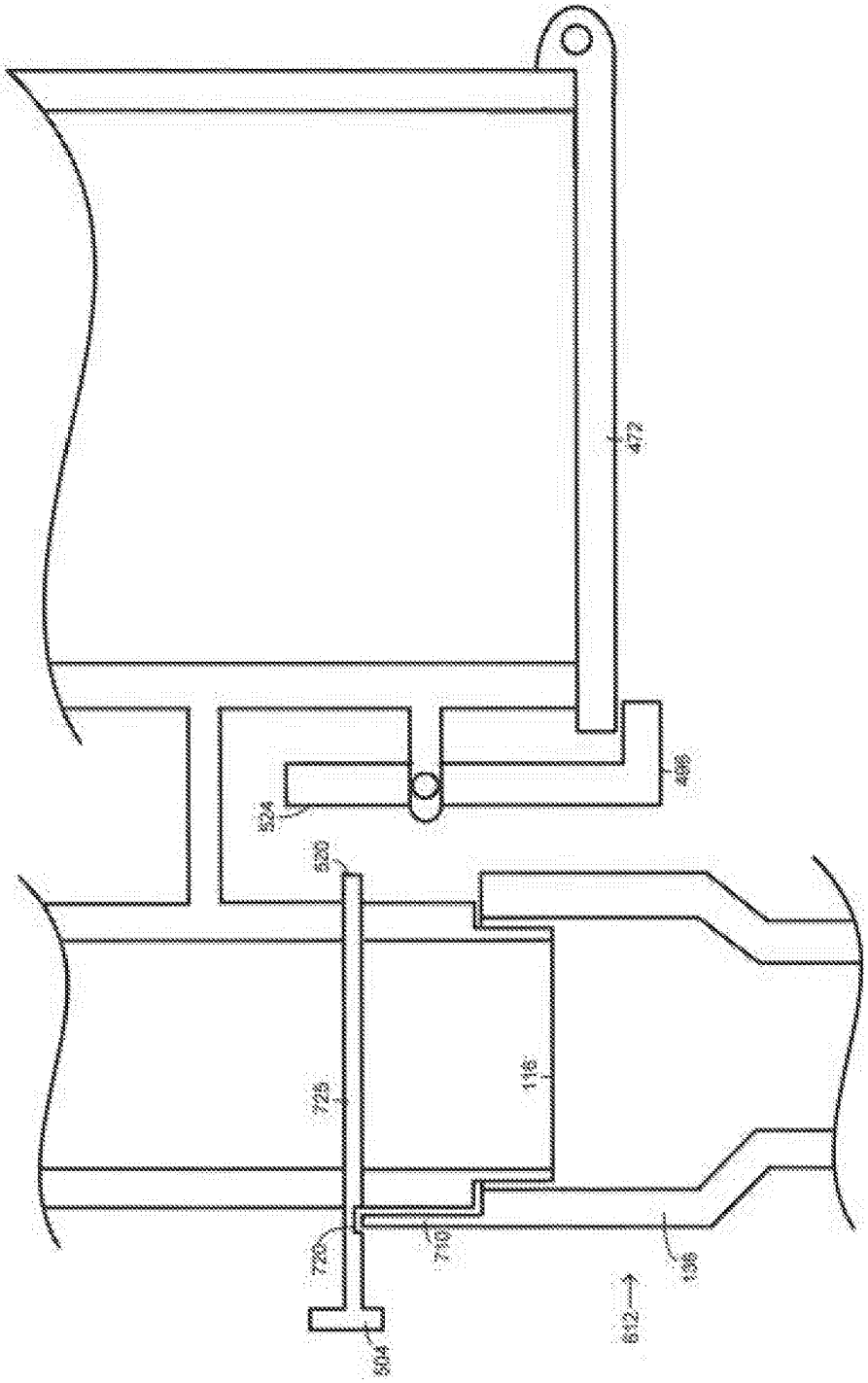


Fig. 33

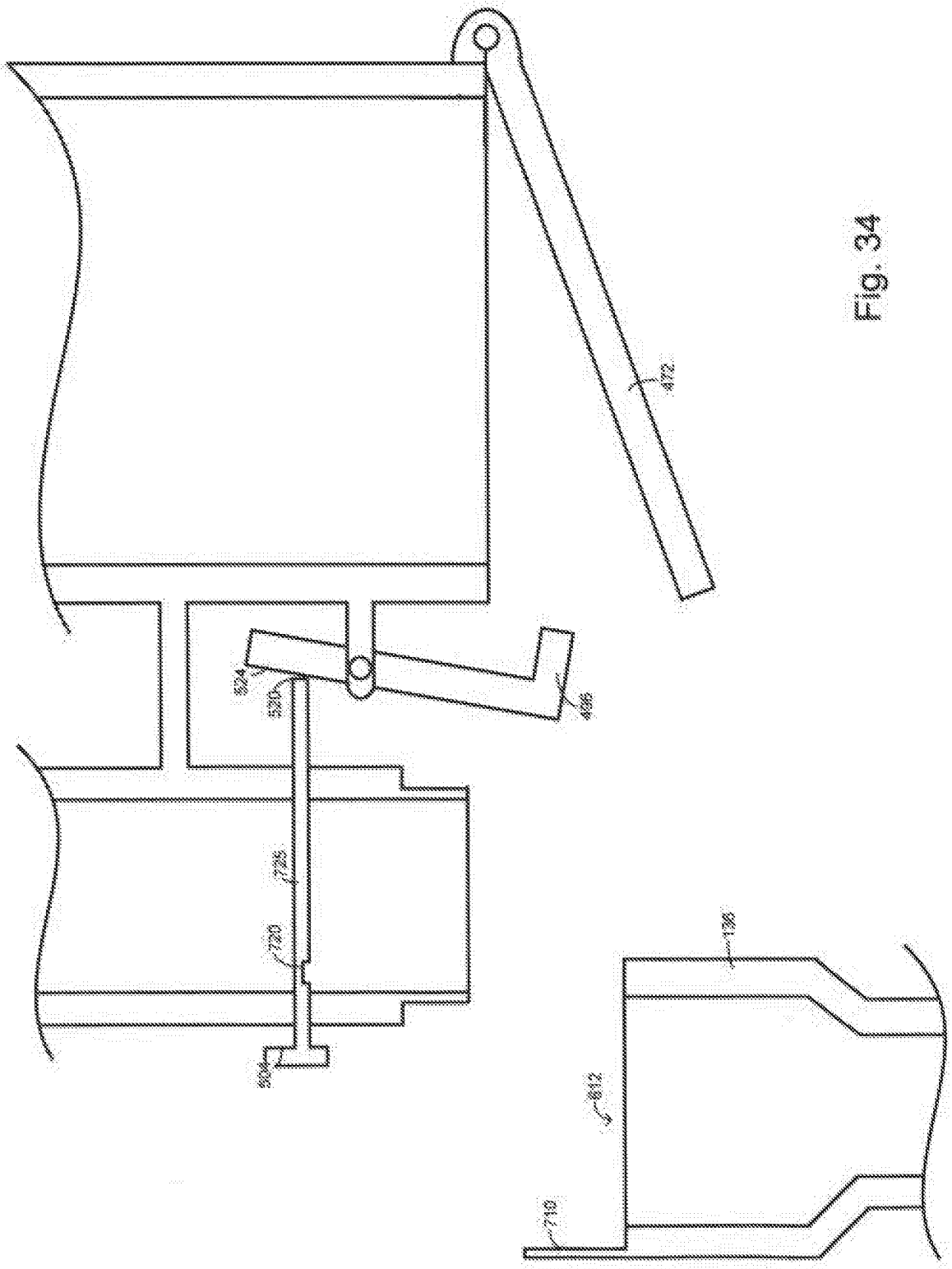
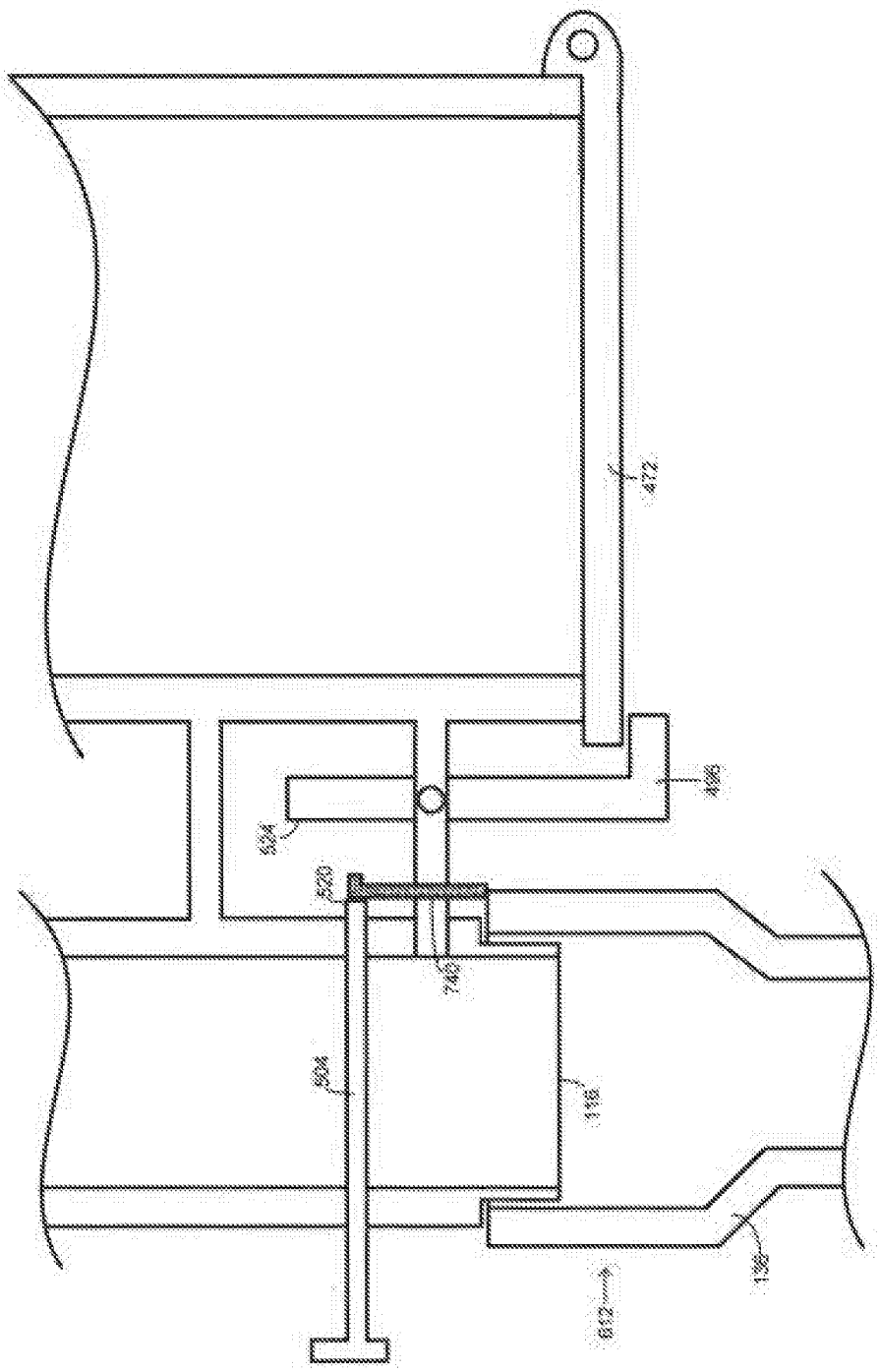


Fig. 34

Fig. 35



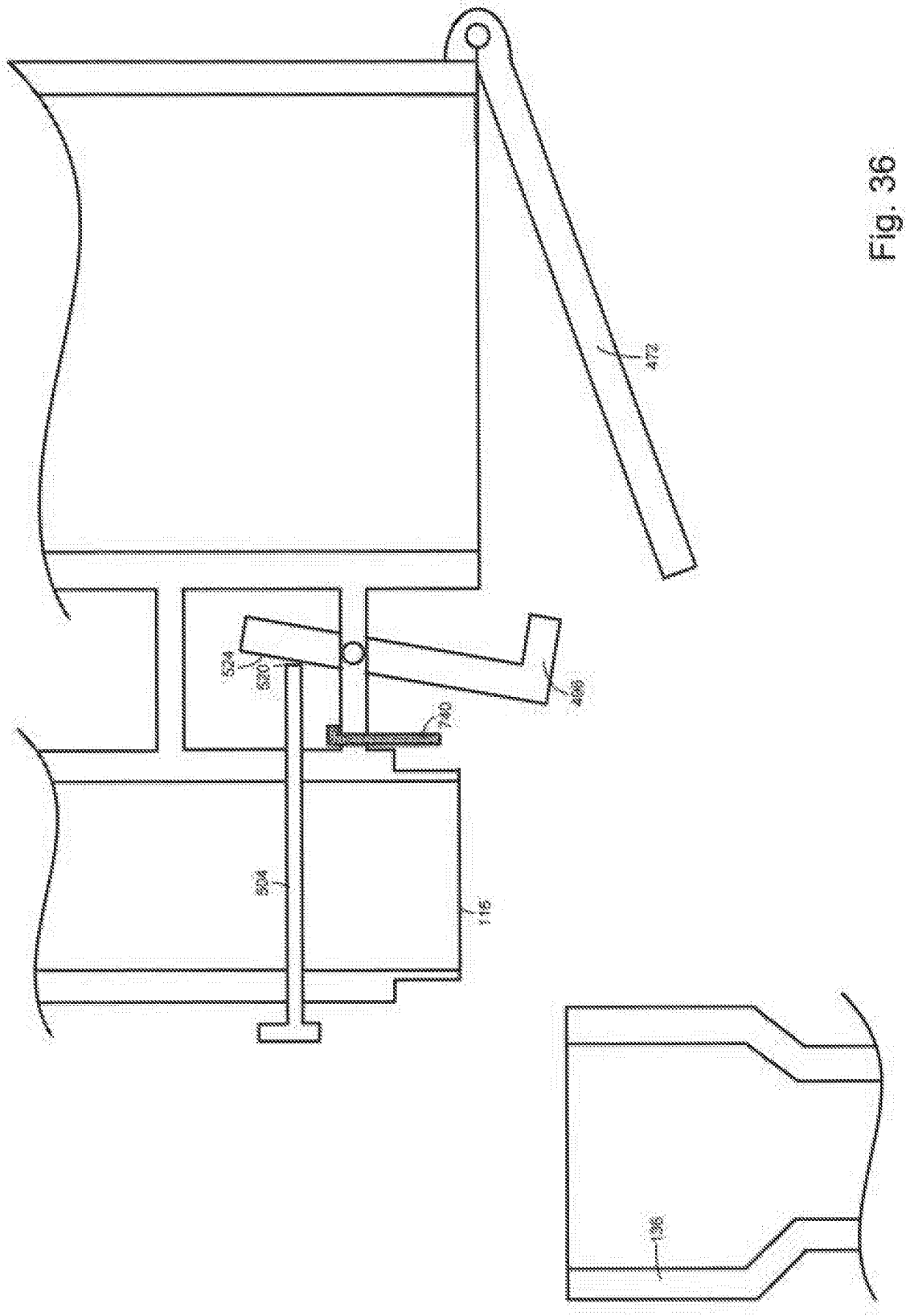


Fig. 36

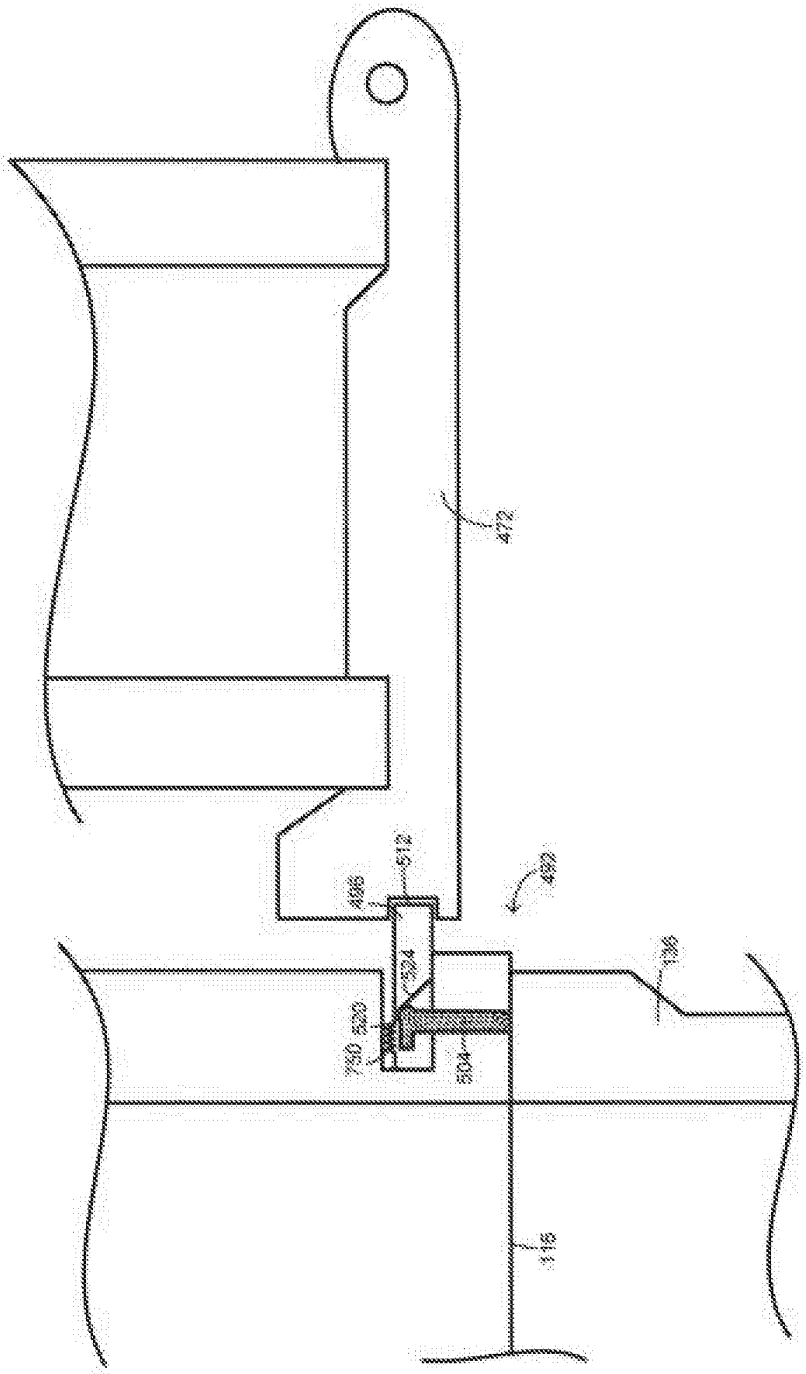


Fig. 37

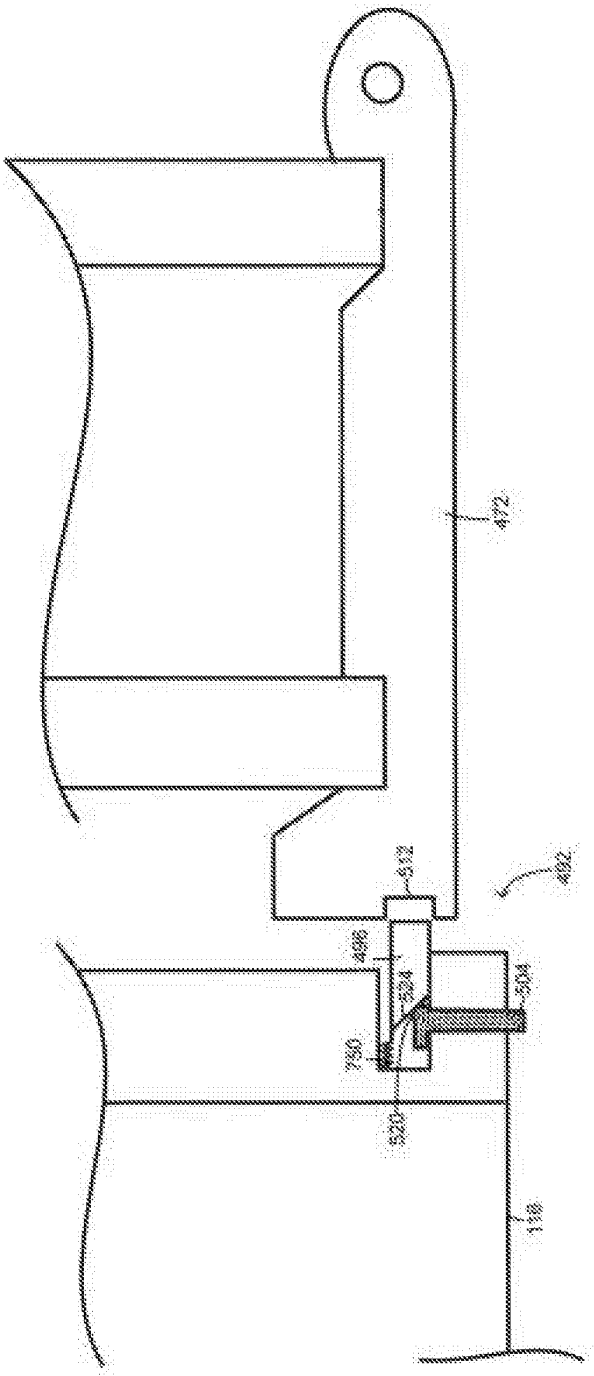


Fig. 38

Electronic Acknowledgement Receipt

EFS ID:	30806260
Application Number:	15685962
International Application Number:	
Confirmation Number:	3872
Title of Invention:	SURFACE CLEANING APPARATUS
First Named Inventor/Applicant Name:	Wayne Ernest Conrad
Customer Number:	1059
Filer:	Philip C. Mendes da Costa/Snezana Lisowsky
Filer Authorized By:	Philip C. Mendes da Costa
Attorney Docket Number:	10452-P49931US06
Receipt Date:	30-OCT-2017
Filing Date:	24-AUG-2017
Time Stamp:	20:47:20
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Applicant Response to Pre-Exam Formalities Notice	P49931US06_NTFCAP_Response_2017_10_30.pdf	127293 9cafc8e1d448b58b4aceed29935023ce4576a9d6	no	3

Warnings:

Information:					
2	Drawings-only black and white line drawings	P49931US06_ReplacementDrawings_2017_10_30_Primo.pdf	1486388 f5305d27fa782d8d55da929462c35dd6dede9e2a	no	41
Warnings:					
Information:					
			Total Files Size (in bytes):	1613681	

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

New Applications Under 35 U.S.C. 111

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

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

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

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

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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P.O. Box 1450
Alexandria, Virginia 22313-1450
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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
15/685,962	08/24/2017	Wayne Ernest Conrad	10452-P49931US06

CONFIRMATION NO. 3872

1059
BERESKIN & PARR LLP/S.E.N.C.R.L., s.r.l.
40 KING STREET WEST
40th Floor
TORONTO, ON M5H 3Y2
CANADA

FORMALITIES LETTER

OC000000095144515

Date Mailed: 11/01/2017

NOTICE OF INCOMPLETE REPLY (NONPROVISIONAL)

Filing Date Granted

The U.S. Patent and Trademark Office has received your reply on 10/30/2017 to the Notice to File Missing Parts (Notice) mailed 08/30/2017 and it has been entered into the nonprovisional application. The reply, however, does not include the following items required in the Notice. A complete reply must be timely filed to prevent ABANDONMENT of the above-identified application. Replies should be mailed to: Mail Stop Missing Parts, Commissioner for Patents, P.O. Box 1450, Alexandria VA 22313-1450.

Applicant is given **TWO MONTHS** from the date of the Notice to File Missing Parts (Notice) mailed 08/30/2017 within which to file all required items and pay any fees required below to avoid abandonment. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

Items Required to Avoid Abandonment:

The required items noted below SHOULD be filed along with any items required above. The filing date of this nonprovisional application will be the date of receipt of the items required above.

The application is informal since it does not comply with the regulations for the reason(s) indicated below.

The required item(s) identified below must be timely submitted to avoid abandonment:

- Replacement drawings in compliance with 37 CFR 1.84 and 37 CFR 1.121(d) are required. The drawings submitted are not acceptable because:
  - The drawings must be reasonably free from erasures and must be free from alterations, overwriting, interlineations, folds, and copy marks. See Figure(s) 15 , 29.

Applicant is cautioned that correction of the above items may cause the specification and drawings page count to exceed 100 pages. If the specification and drawings exceed 100 pages, applicant will need to submit the required application size fee.

Replies must be received in the USPTO within the set time period or must include a proper Certificate of Mailing or Transmission under 37 CFR 1.8 with a mailing or transmission date within the set time period. For more information and a suggested format, see Form PTO/SB/92 and MPEP 512.

Replies should be mailed to:

Mail Stop Missing Parts
Commissioner for Patents
P.O. Box 1450
Alexandria VA 22313-1450

Registered users of EFS-Web may alternatively submit their reply to this notice via EFS-Web, including a copy of this Notice and selecting the document description "Applicant response to Pre-Exam Formalities Notice". https://sportal.uspto.gov/authenticate/AuthenticateUserLocalEPF.html

For more information about EFS-Web please call the USPTO Electronic Business Center at 1-866-217-9197 or visit our website at http://www.uspto.gov/ebc.

If you are not using EFS-Web to submit your reply, you must include a copy of this notice.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/hkquach/

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 15/685,962

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY FEE($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	280
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	600
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	720
TOTAL CLAIMS (37 CFR 1.16(i))	25 minus 20 =	* 5			OR	x 80 =	400
INDEPENDENT CLAIMS (37 CFR 1.16(h))	4 minus 3 =	* 1				x 420 =	420
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						0.00
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							0.00
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	2420

APPLICATION AS AMENDED - PART II

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

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

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.

Bereskin & Parr
INTELLECTUAL PROPERTY LAW

Appl. No	:	15/685,962	Confirmation No.:	3872
Applicant	:	Omachron Intellectual Property Inc.		
Filed	:	August 24, 2017		
Title	:	SURFACE CLEANING APPARATUS		
TC./A.U.	:	3723		
Examiner	:	N/A		
Docket No.	:	10452-P49931US06		
Customer No.	:	001059		

Honorable Commissioner for Patents
P. O. Box 1450
Alexandria, Virginia 22313–1450

October 30, 2017

RESPONSE TO NOTICE OF INCOMPLETE REPLY

&

RESPONSE TO NOTICE TO FILE CORRECTED APPLICATION PAPERS

Sir:

In response to the Notice of Incomplete Reply and a Notice to File Corrected Application Papers, please amend the above-identified application as follows:

Amendments to the Drawings begin on page 2 of this paper..

Remarks/Arguments begin on page 3 of this paper.

Amendments to the Drawings:

The attached sheets of drawings include changes to Fig. 1-38. These sheets, which include Figures 1-38, replace the original 41 sheets including Fig. 1-38.

Attachment: Replacement Sheets

REMARKS/ARGUMENTS

This is in response to the Notice of Incomplete Reply which issued subsequent to Notice to File Corrected Application Papers of August 30, 2017. The Applicant submits herewith a requisite fee under 37 CFR 1.17(a)(1) for a one-month extension of time. Accordingly, this response is timely filed. The Applicant believes that no further additional fees are required for entry of this amendment; however, the Commissioner is authorized to credit any overpayment and to charge any deficiencies necessary for entry of this amendment from Deposit Account No. 022095.

The Applicant submits that the formal drawings enclosed herewith are of reasonable quality such that all details in the drawings are reproducible in black and white in the printed patent publication. It is respectfully submitted that Figures 15 and 29, as well as the remaining Figures, are fee of overwriting and copy marks. Each view of the drawings is numbered in consecutive Arabic numerals. Accordingly, it is respectfully submitted that the drawings as submitted herewith comply with 37 CFR 1.84 and 37 CFR 1.121(d). The Applicant respectfully submits that no new matter has been added by the means of this amendment.

Please replace the drawings as filed with the enclosed replacement sheets of drawings.

Favourable examination of the application is respectfully requested.

Respectfully submitted,

BERESKIN & PARR LLP/S.E.N.C.R.L., s.r.l.

/Philip C. Mendes da Costa/

Philip C. Mendes da Costa
Reg. No. 33,106
Tel: 416-957-1695

Electronic Patent Application Fee Transmittal

Application Number:	15685962
Filing Date:	24-Aug-2017
Title of Invention:	SURFACE CLEANING APPARATUS
First Named Inventor/Applicant Name:	Wayne Ernest Conrad
Filer:	Philip C. Mendes da Costa/Snezana Lisowsky
Attorney Docket Number:	10452-P49931US06

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

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

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension - 1 month with $0 paid	1251	1	200	200
Miscellaneous:				
		Total in USD ($)		**200**

Electronic Acknowledgement Receipt	
EFS ID:	30957710
Application Number:	15685962
International Application Number:	
Confirmation Number:	3872
Title of Invention:	SURFACE CLEANING APPARATUS
First Named Inventor/Applicant Name:	Wayne Ernest Conrad
Customer Number:	1059
Filer:	Philip C. Mendes da Costa/Snezana Lisowsky
Filer Authorized By:	Philip C. Mendes da Costa
Attorney Docket Number:	10452-P49931US06
Receipt Date:	15-NOV-2017
Filing Date:	24-AUG-2017
Time Stamp:	13:52:59
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$200
RAM confirmation Number	111617INTEFSW00000135022095
Deposit Account	022095
Authorized User	Snezana Lisowsky
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.16 (National application filing, search, and examination fees) 37 CFR 1.17 (Patent application and reexamination processing fees)	

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Drawings-only black and white line drawings	P49931US06_ReplacementSheets_PART1_2017_11_15.pdf	5130447 9e114cfe9e9ab37449dcc098a6486595384b8565	no	33
Warnings:					
Information:					
2	Drawings-only black and white line drawings	P49931US06_ReplacementSheets_PART2R2_2017_11_15.pdf	94543 9022e1d4919b1e63f38f6d89b796e5d648d53b51	no	8
Warnings:					
Information:					
3	Applicant Response to Pre-Exam Formalities Notice	P49931US06_NTFCAP_Response_2017_11_15.pdf	127479 fa038f317beb673cb61dd0e964f09eff7704af4b	no	3
Warnings:					
Information:					
4	Fee Worksheet (SB06)	fee-info.pdf	30711 d78c5b39662c3f4c4b29481f326e9448152af7d5	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	5383180		

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.

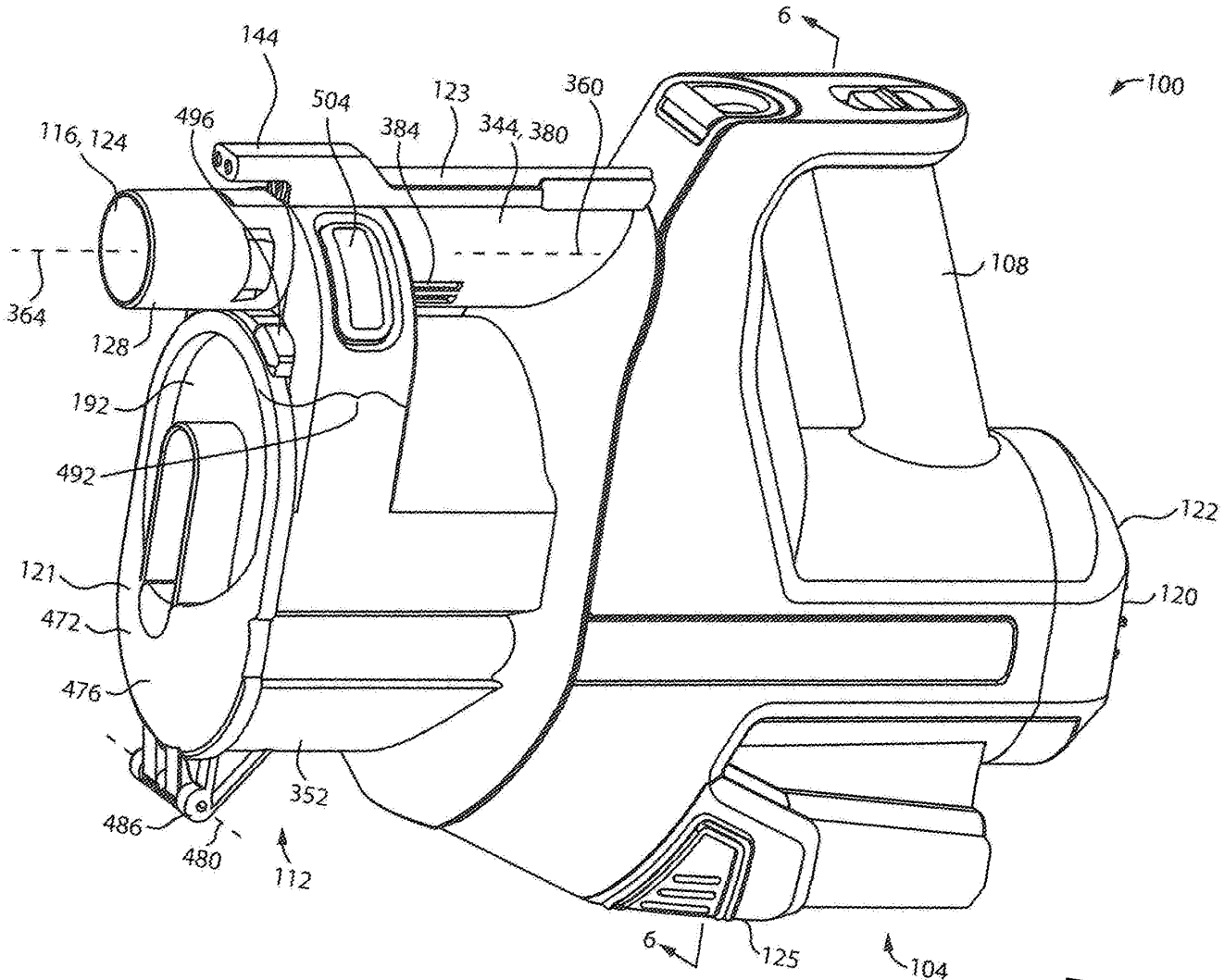


Fig. 1

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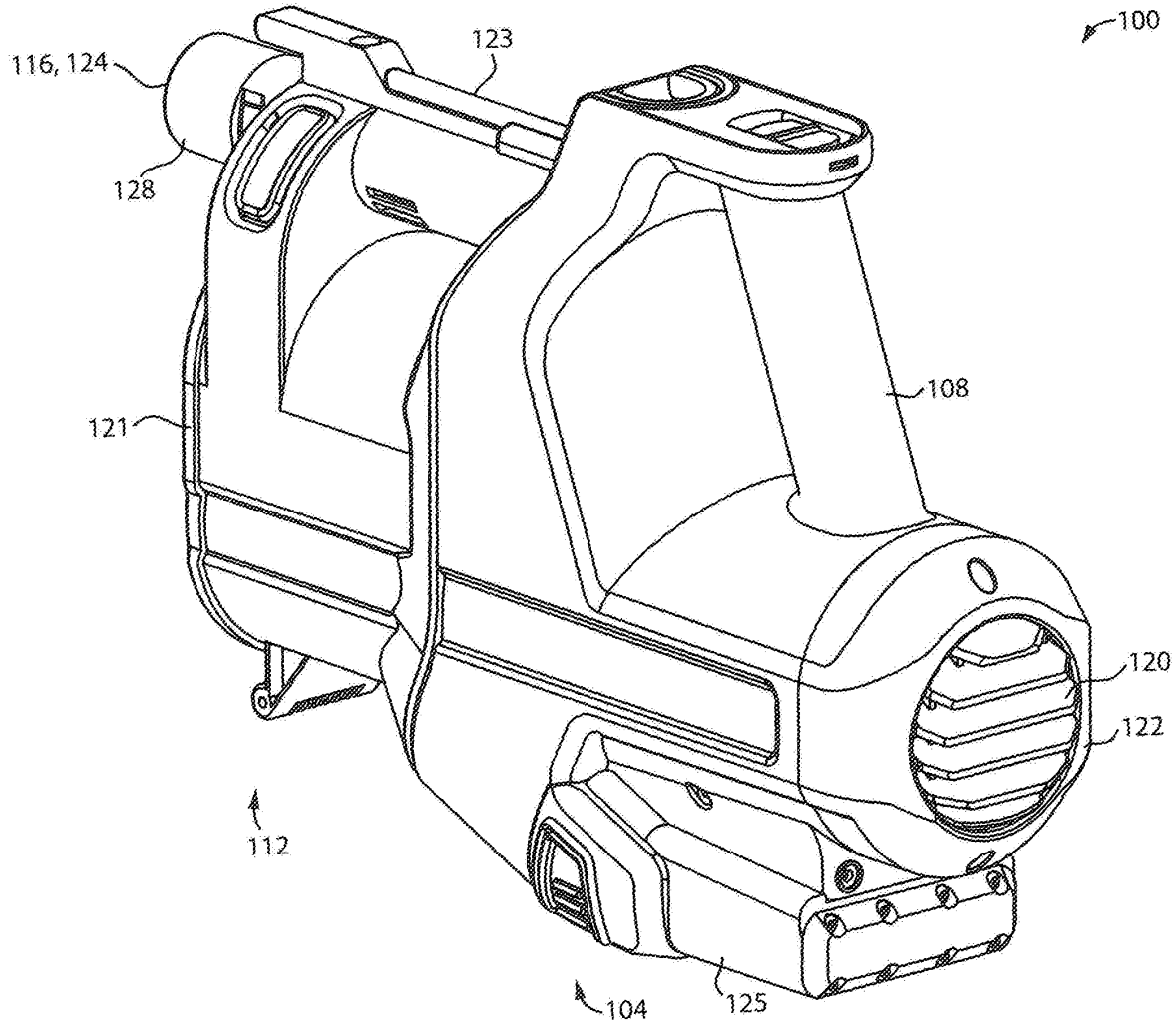


Fig. 2

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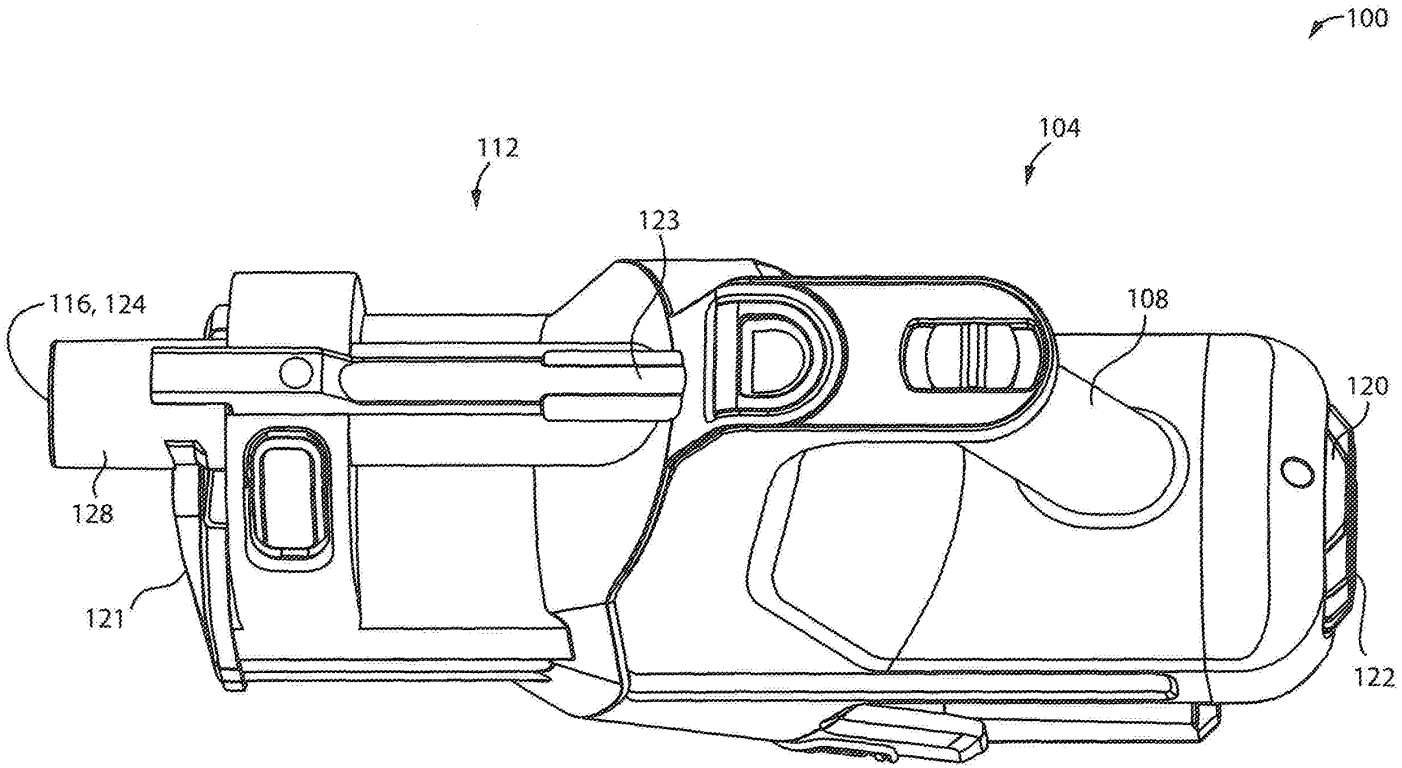


Fig. 3

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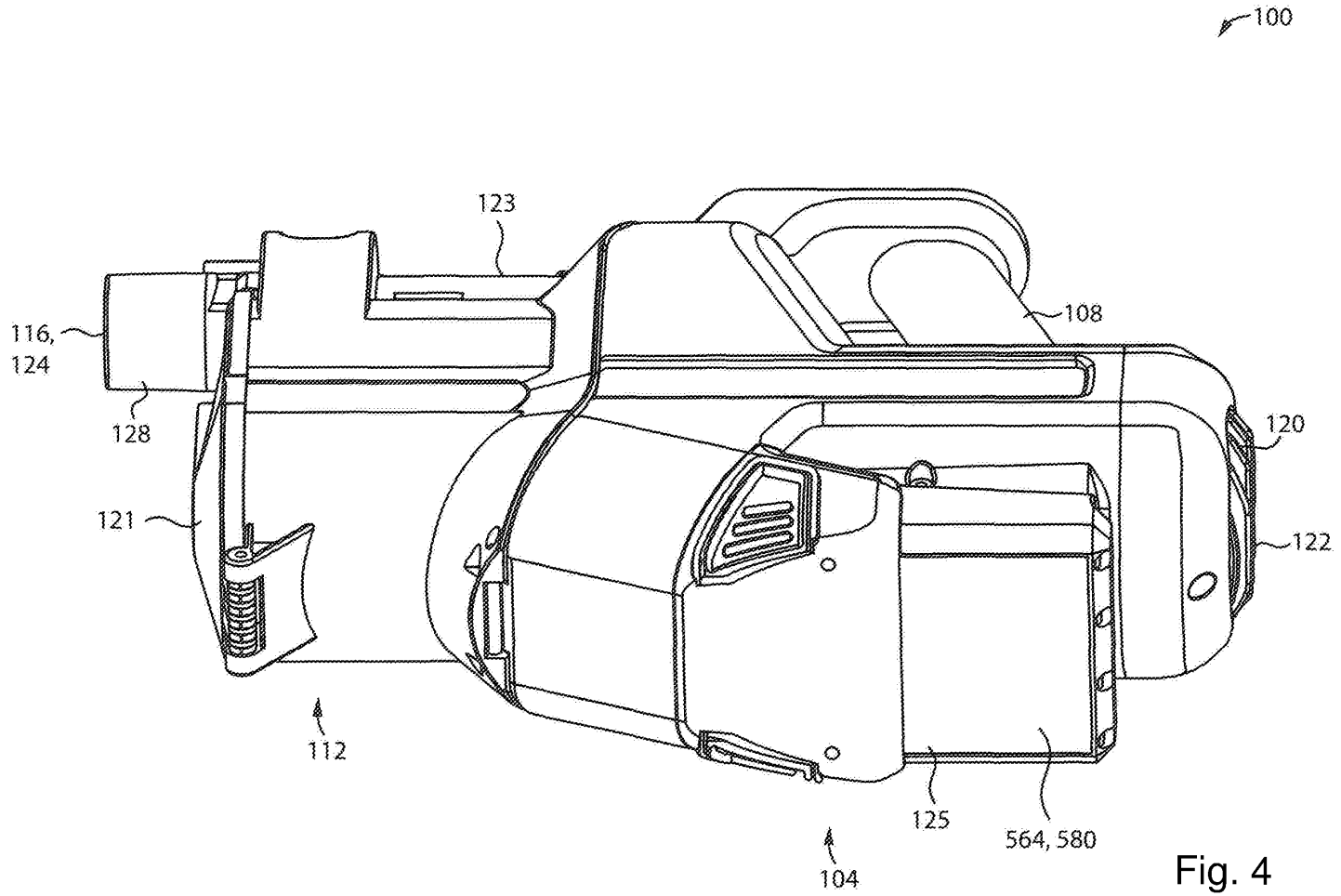


Fig. 4

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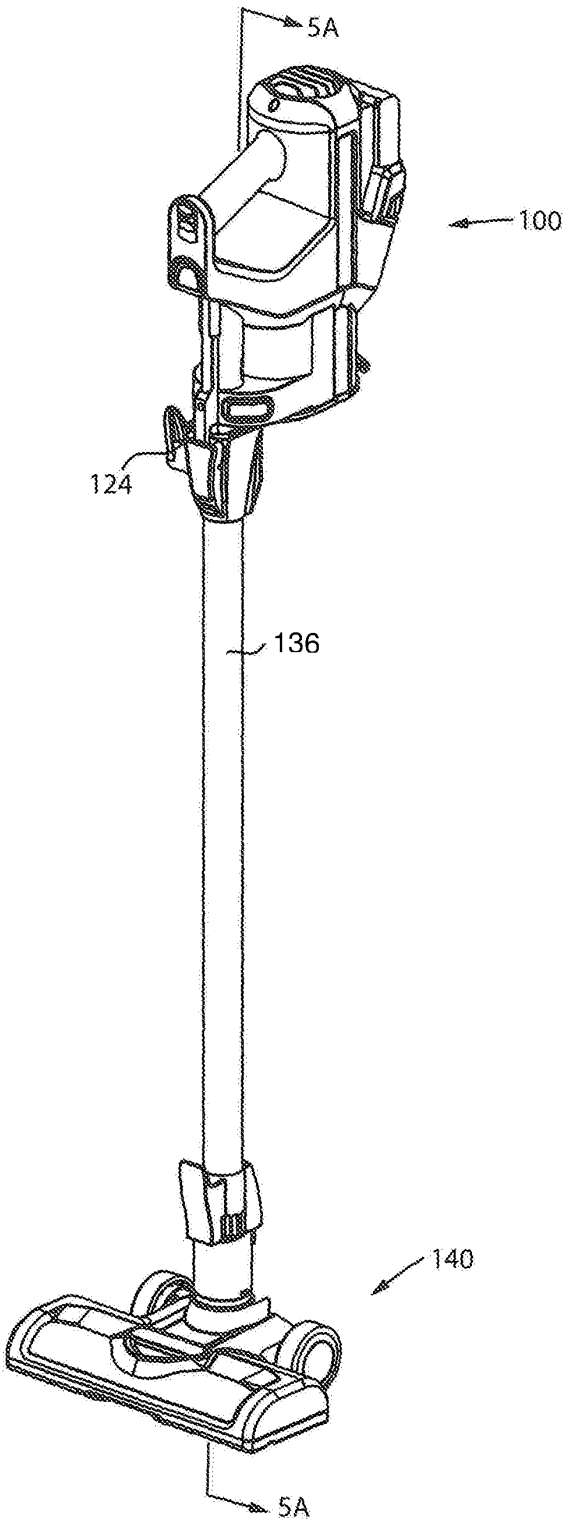


Fig. 5

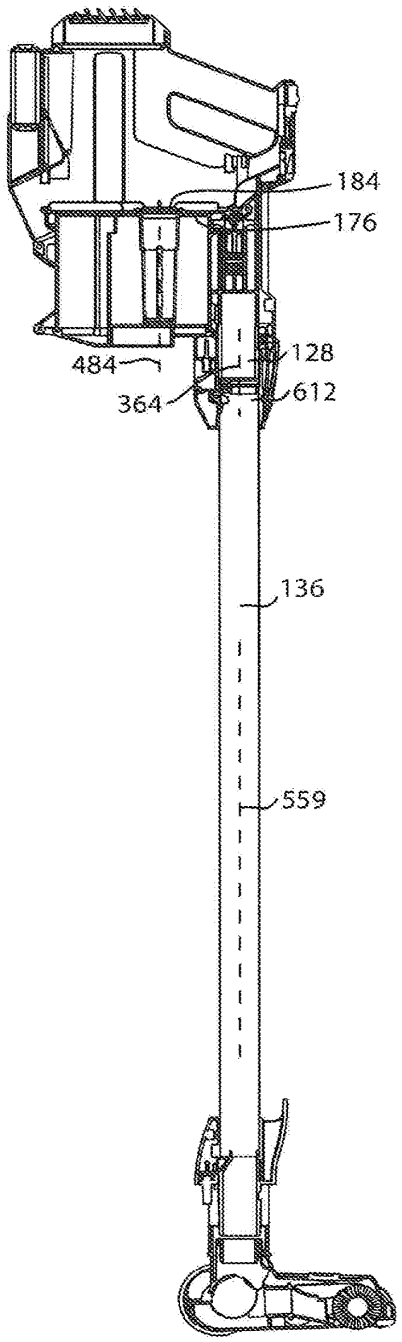


Fig. 5A

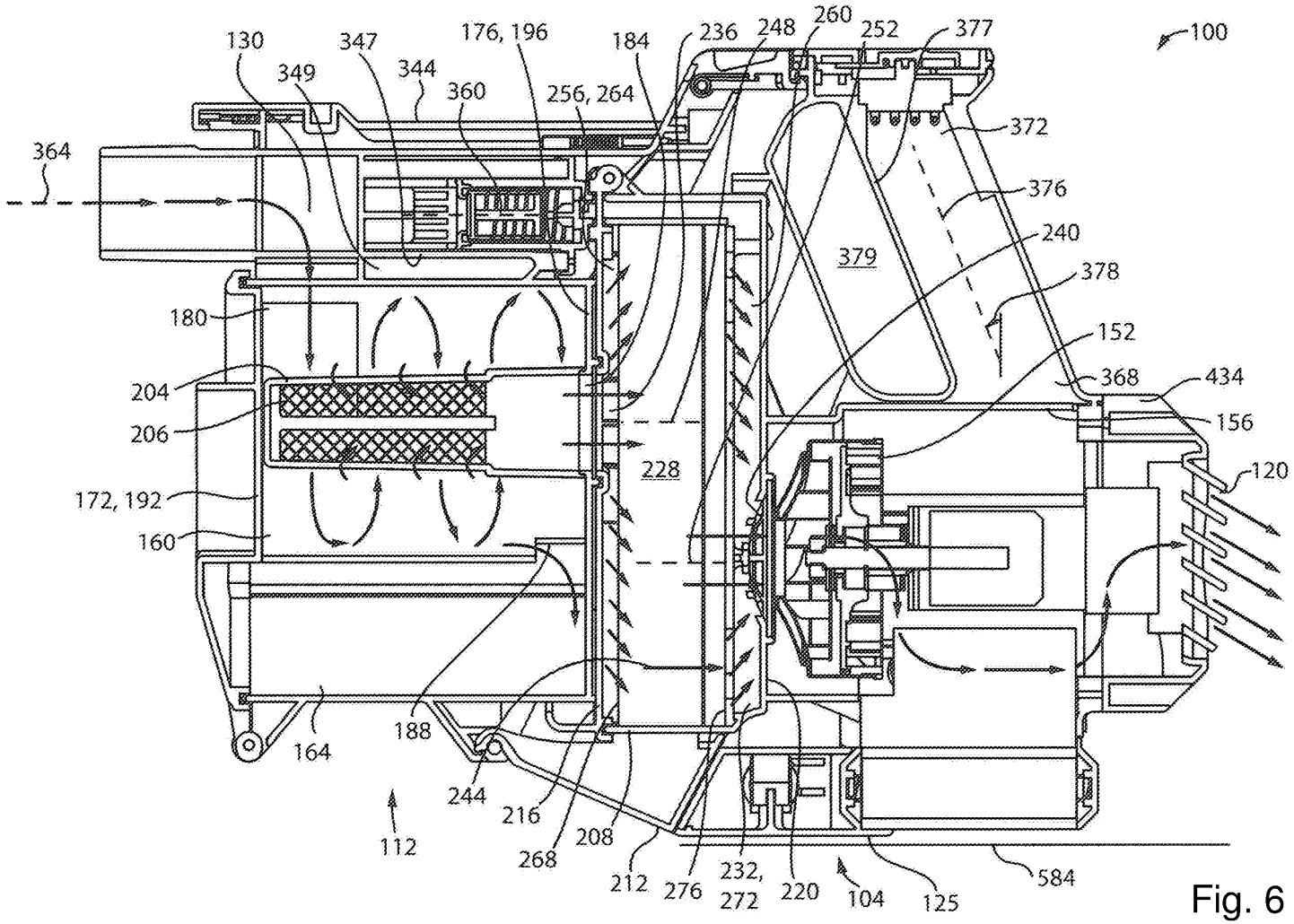


Fig. 6

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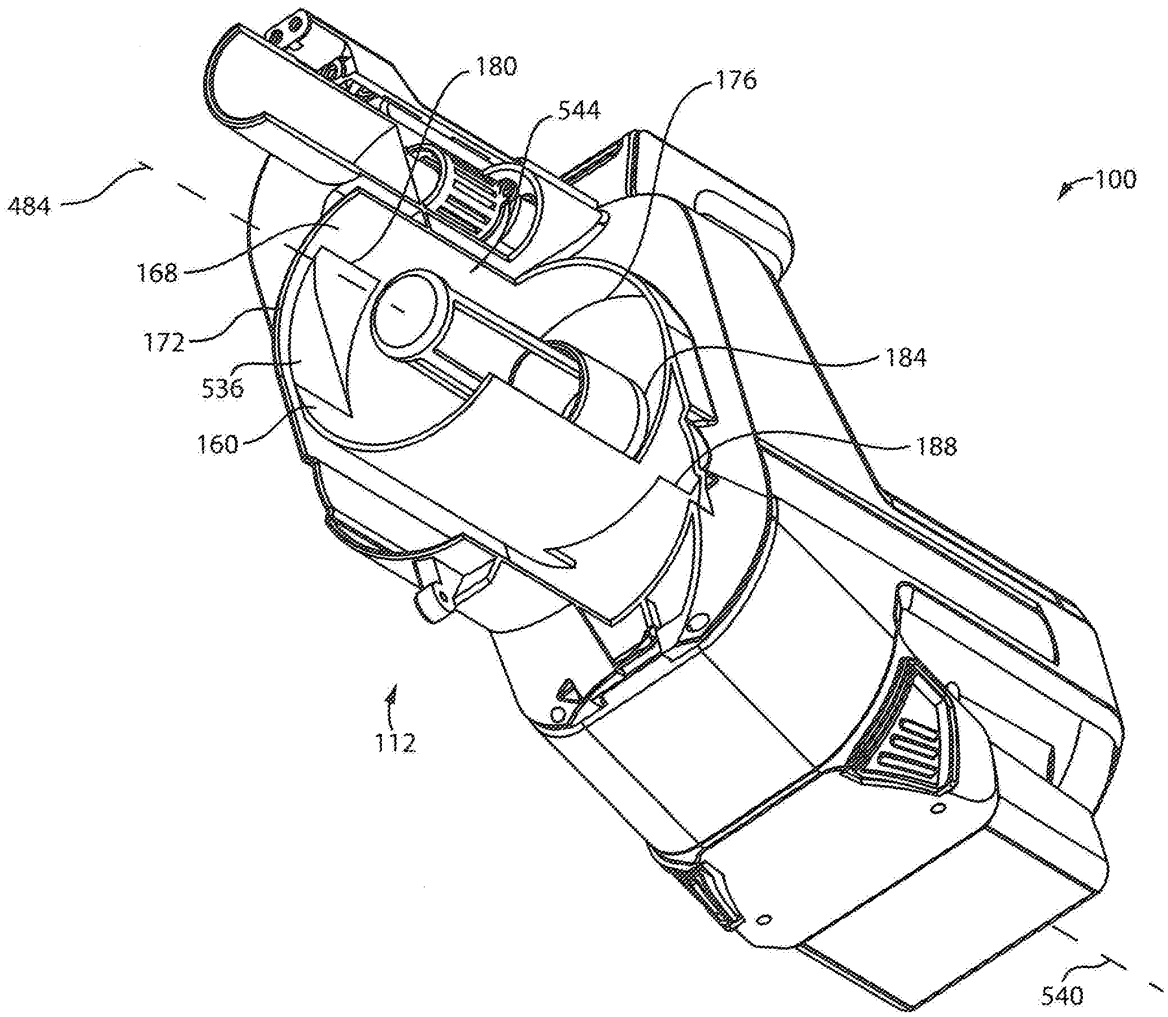


Fig. 7

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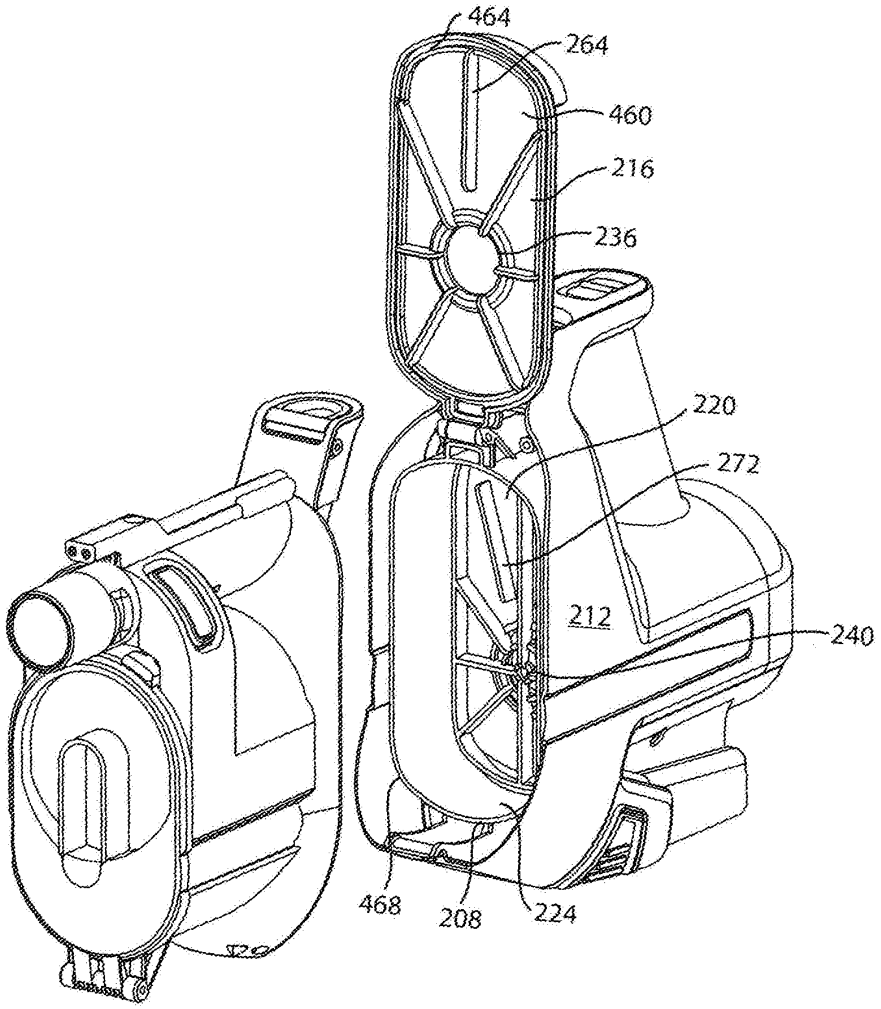


Fig. 8

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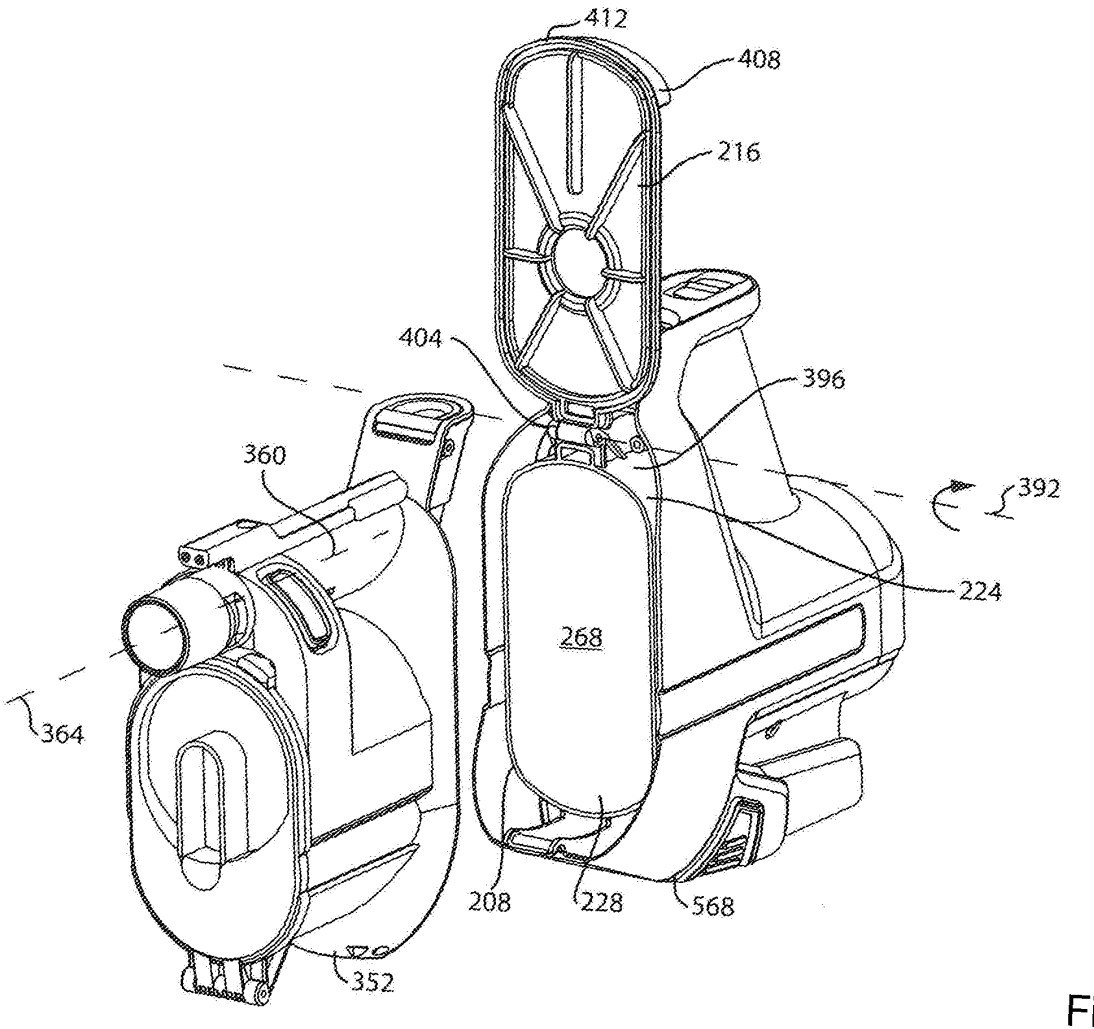


Fig. 8A

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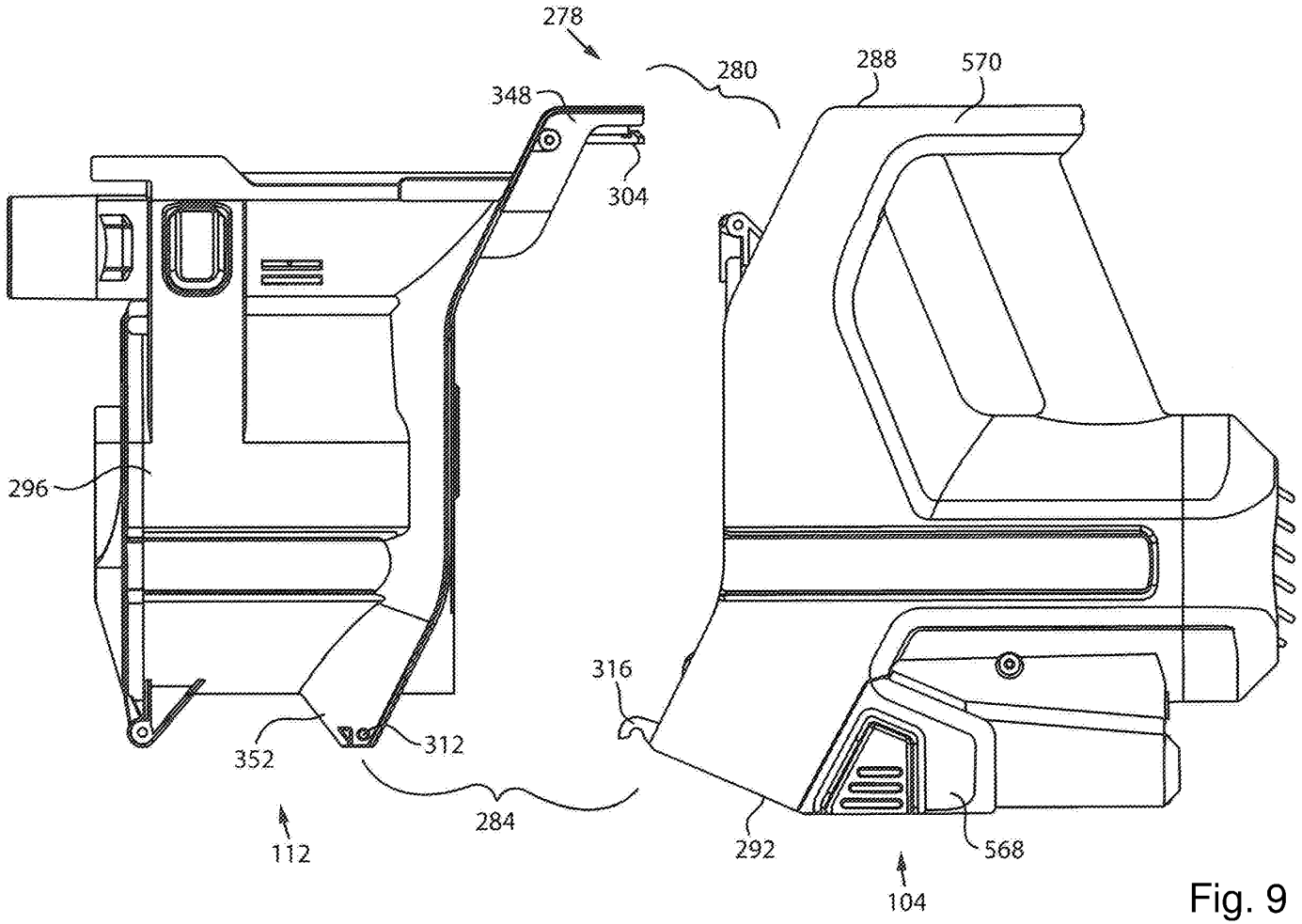


Fig. 9

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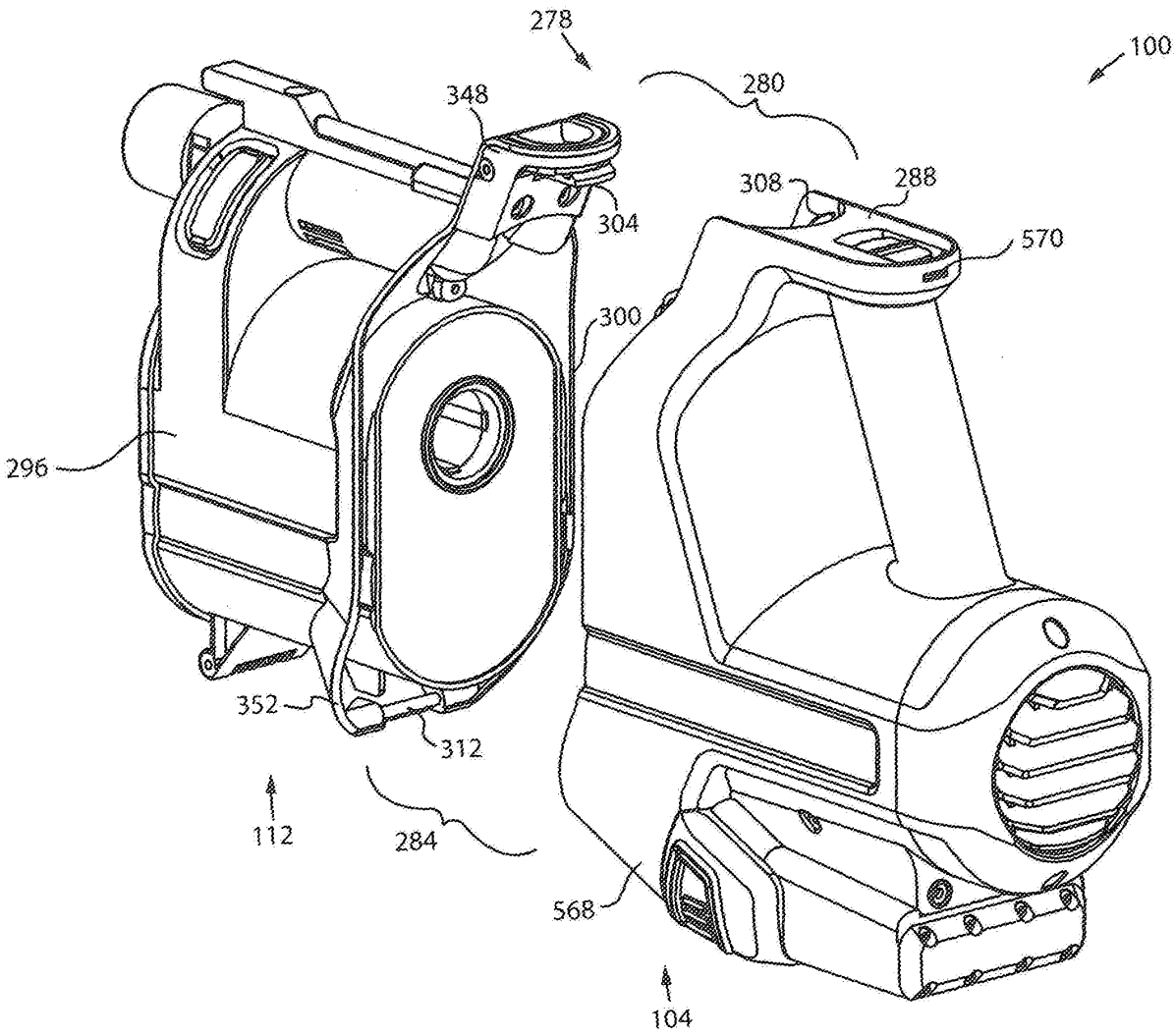


Fig. 10

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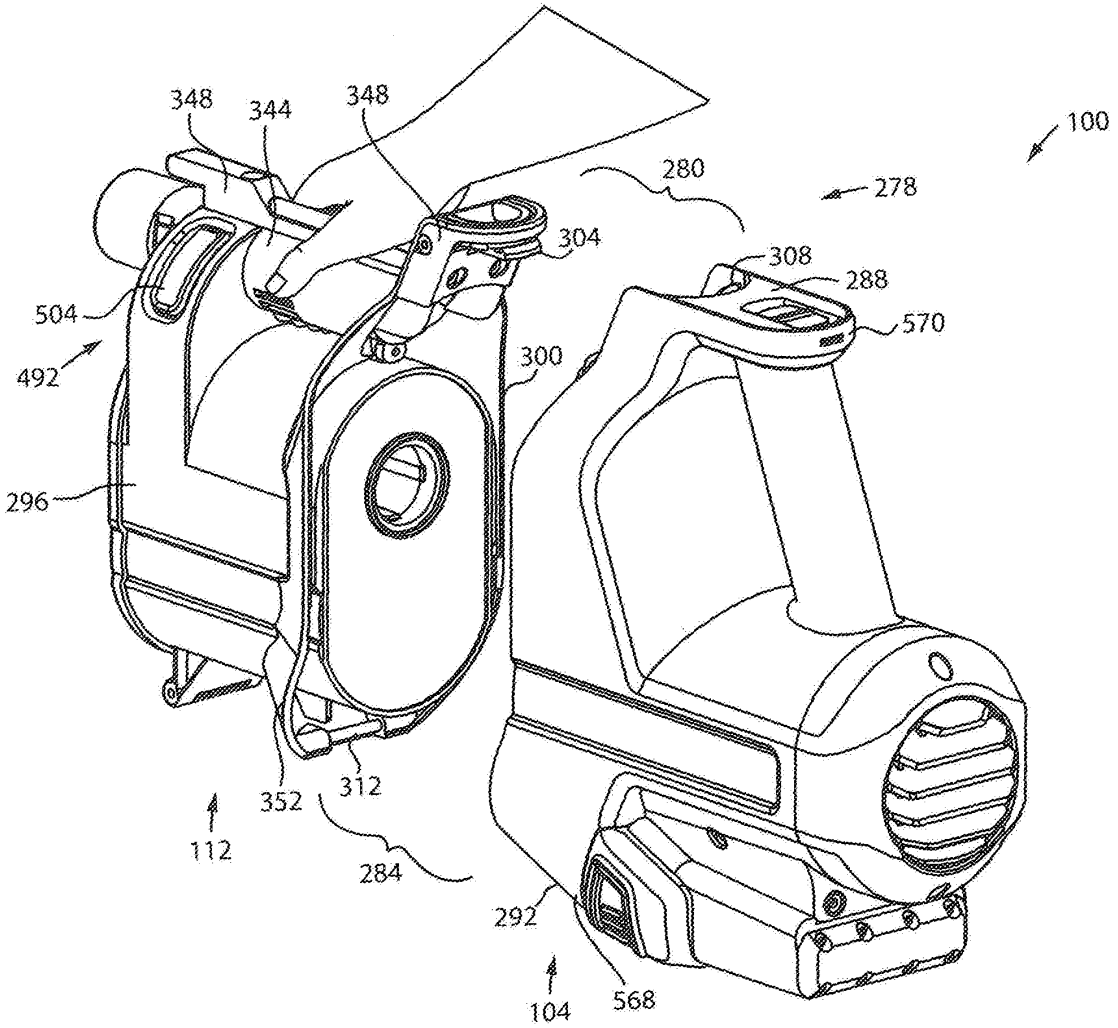


Fig. 10A

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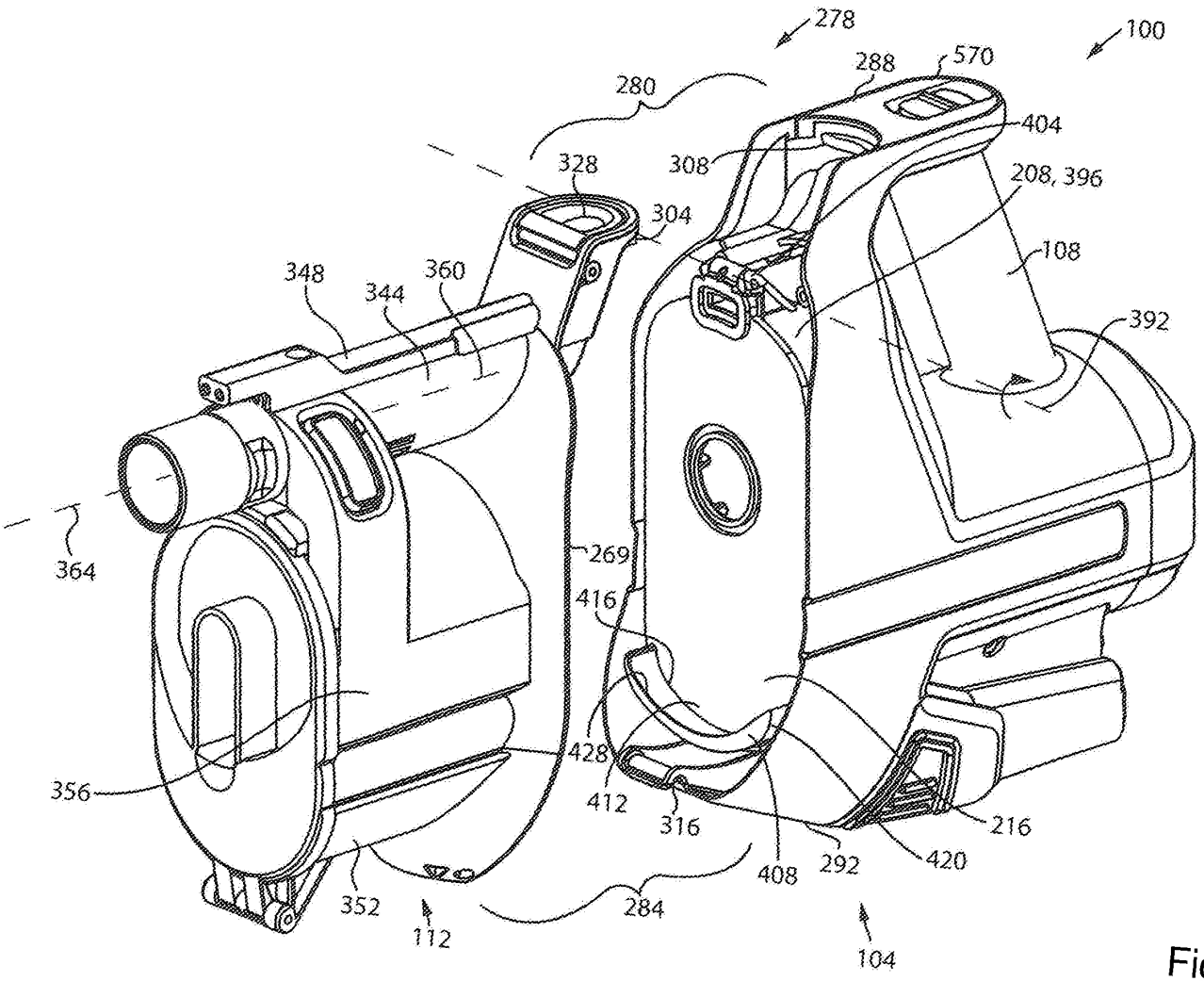


Fig. 11

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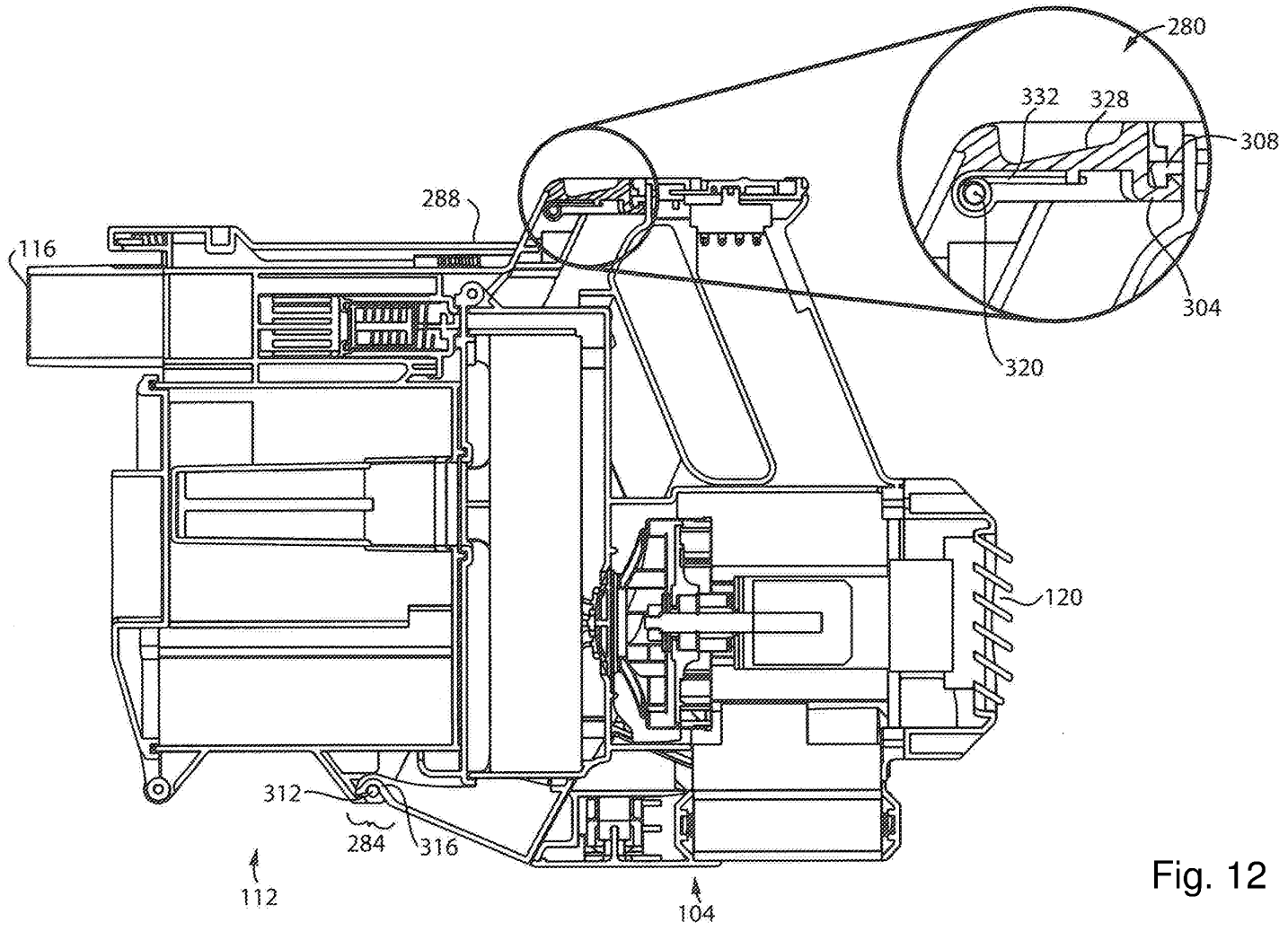


Fig. 12

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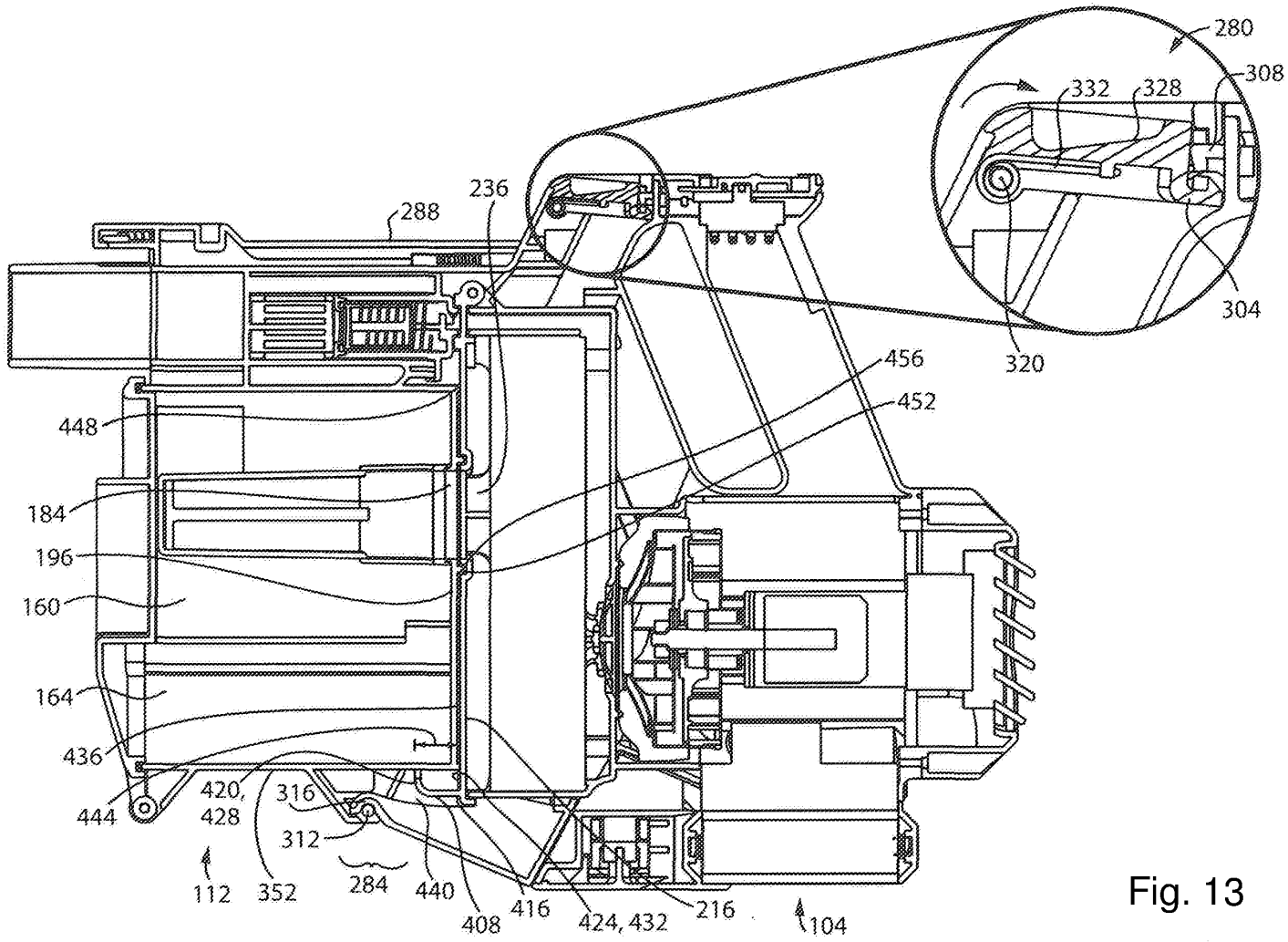


Fig. 13

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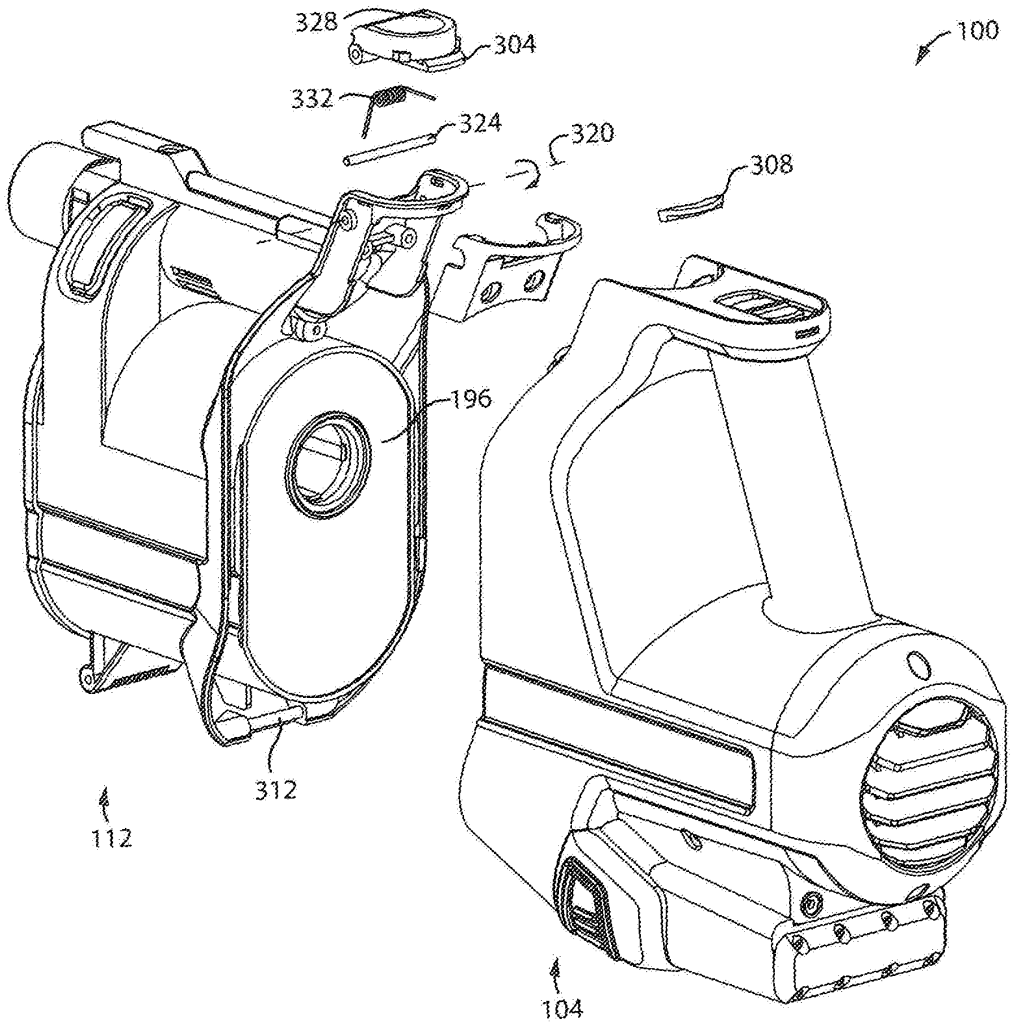


Fig. 14

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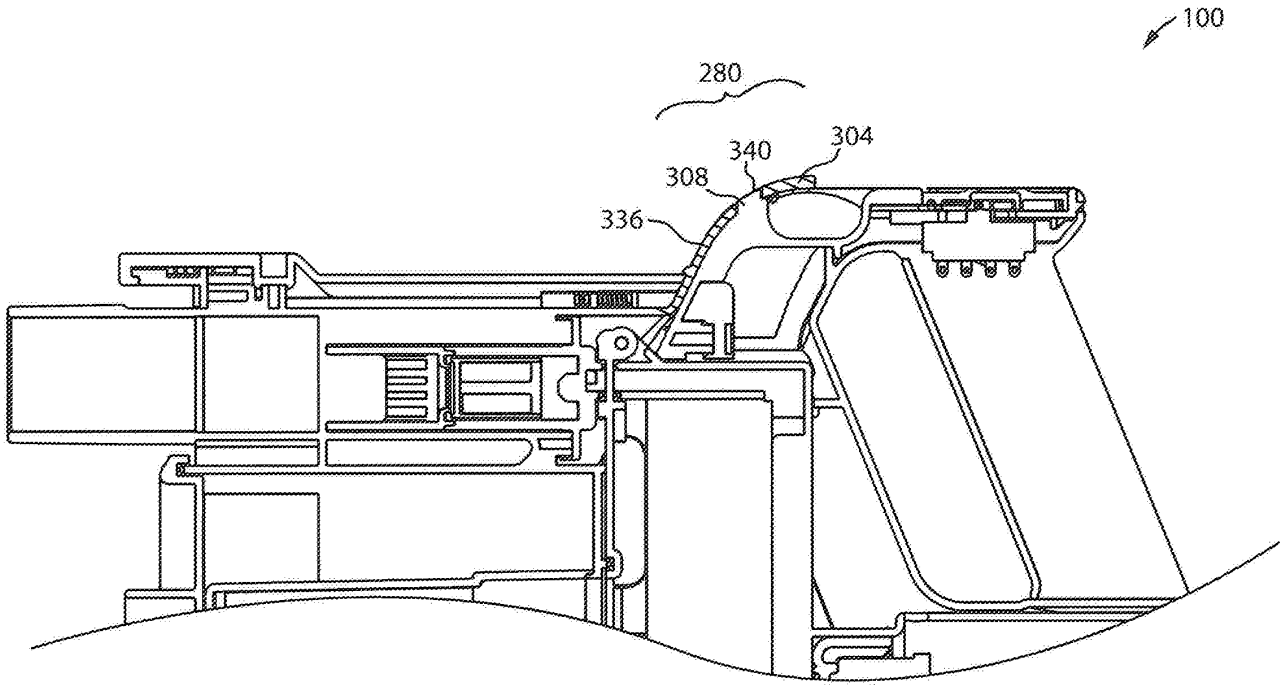


Fig. 15

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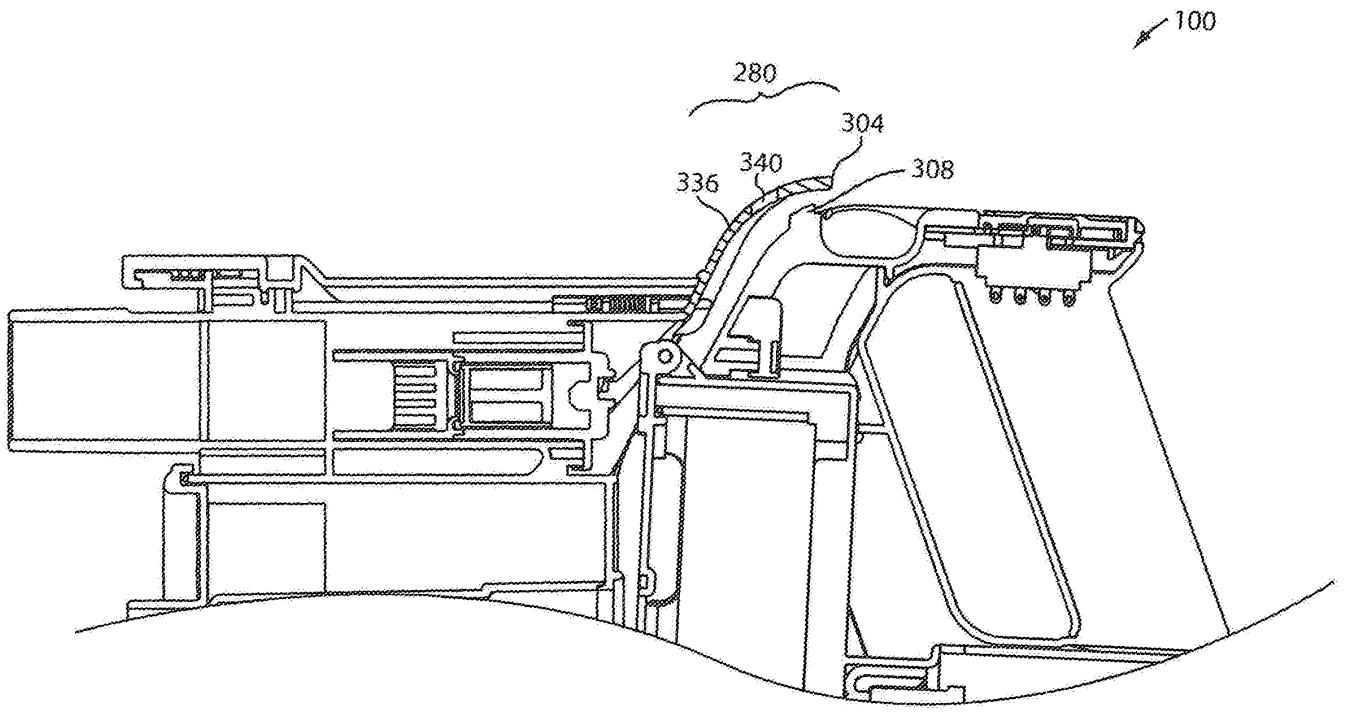


Fig. 16

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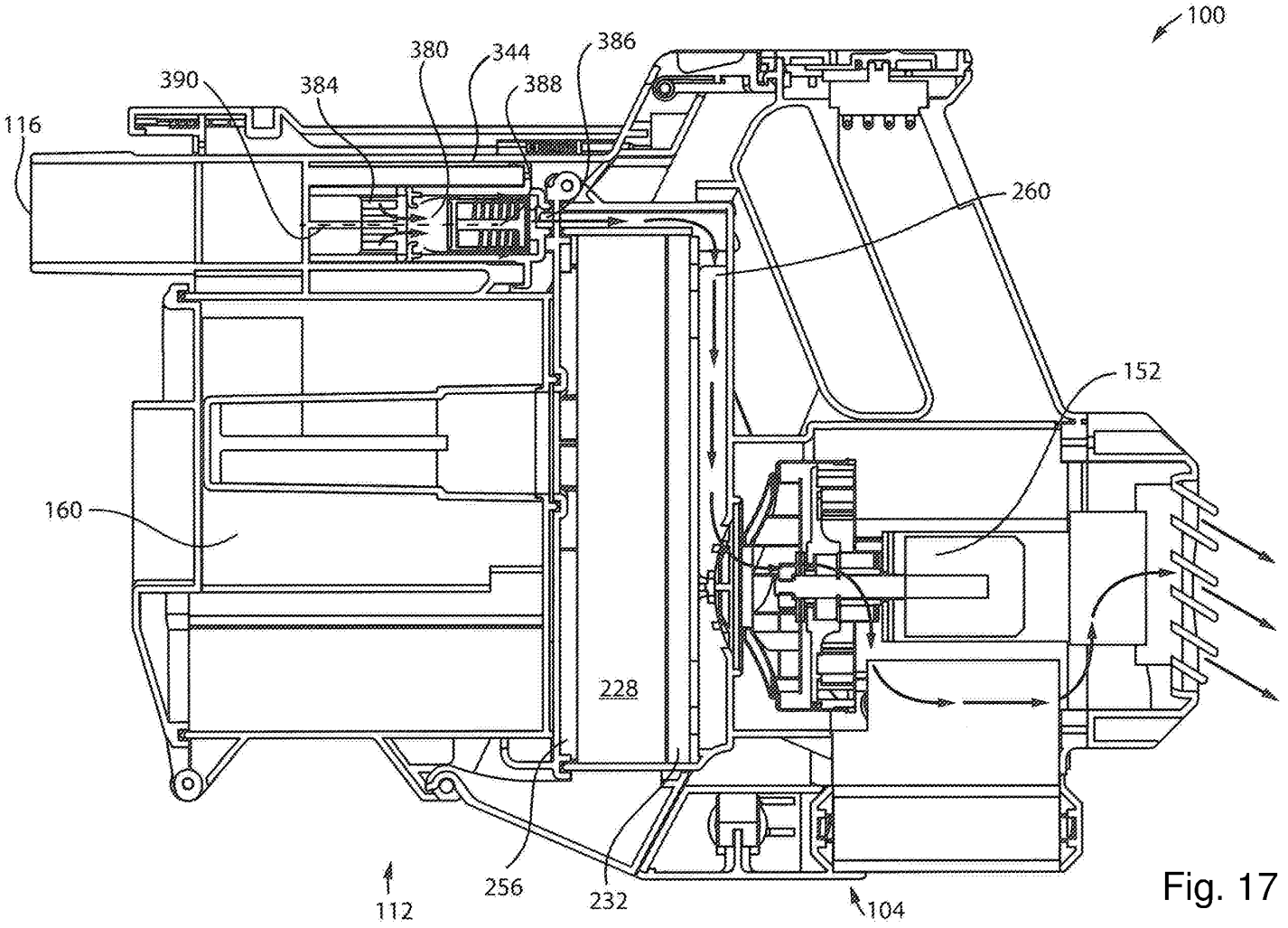


Fig. 17

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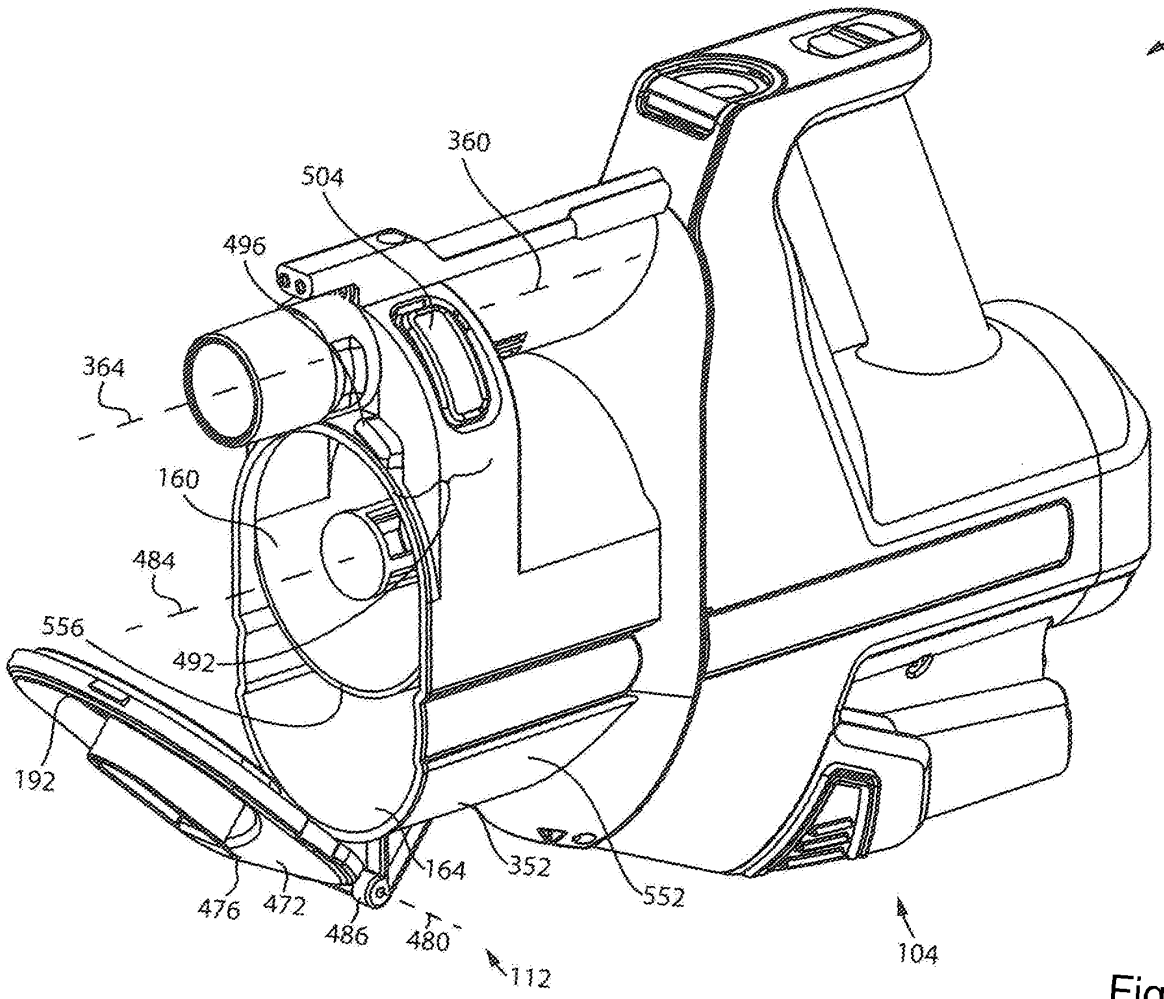


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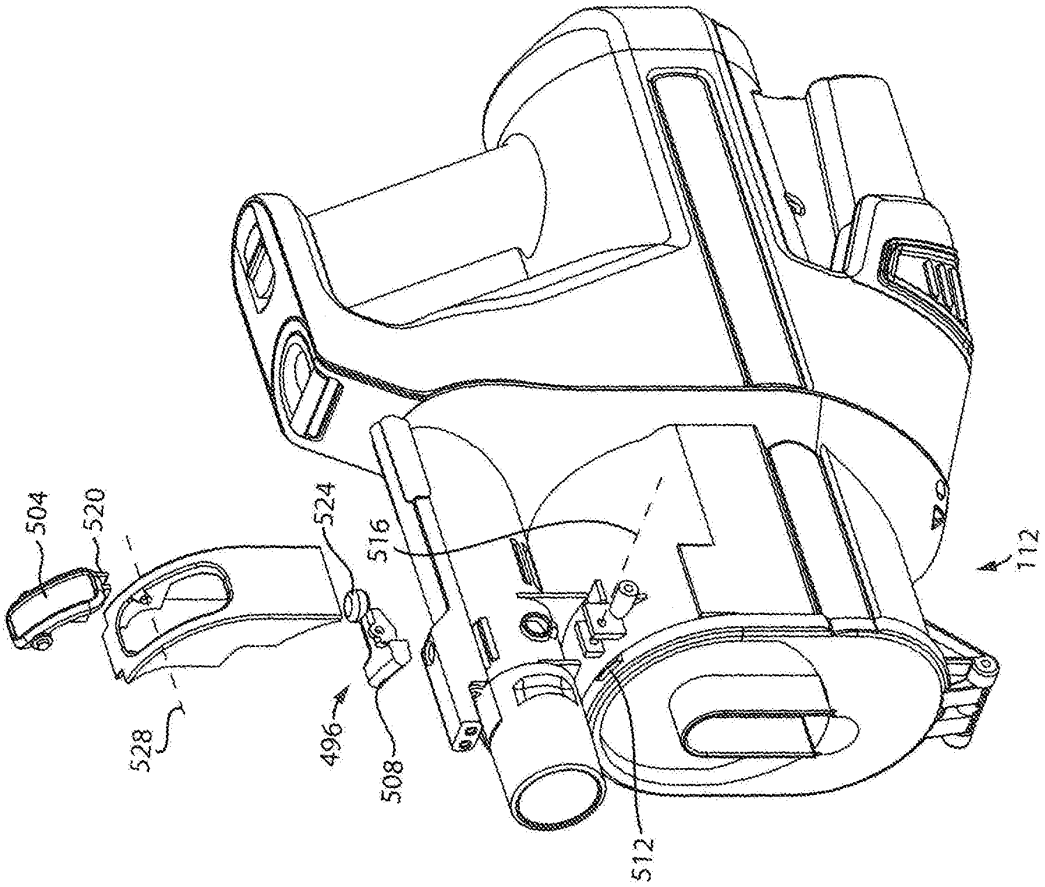


Fig. 19

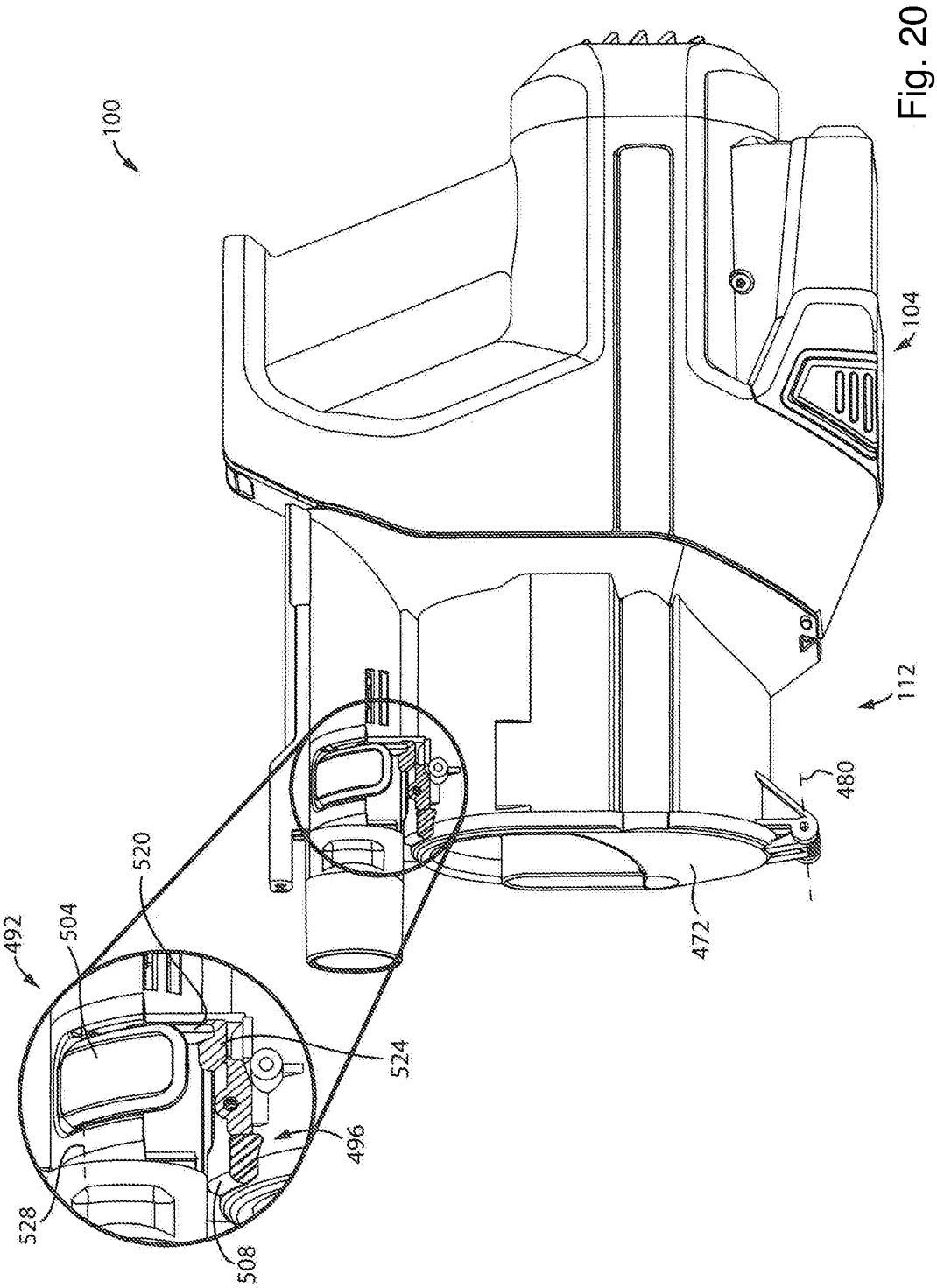


Fig. 20

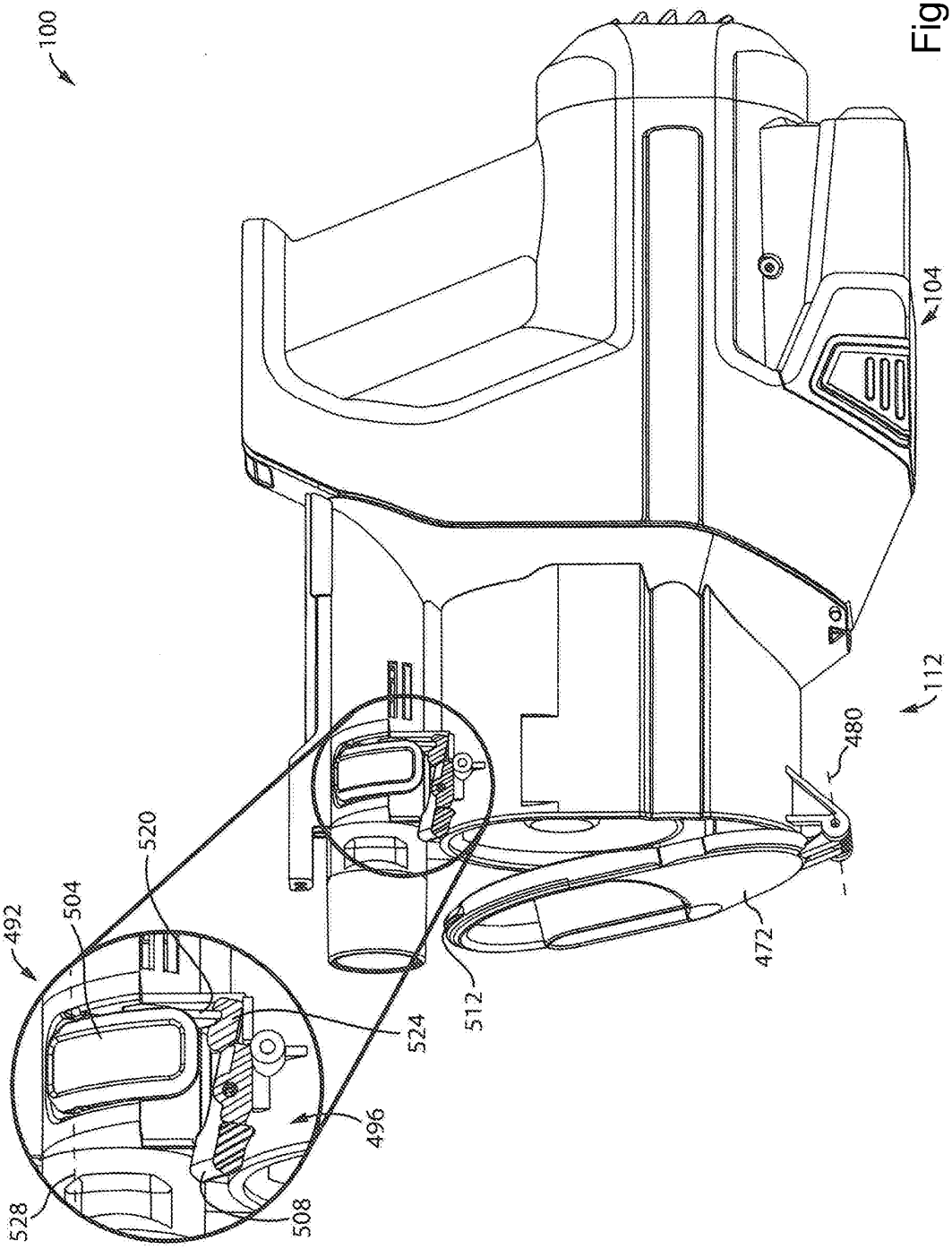


Fig. 21

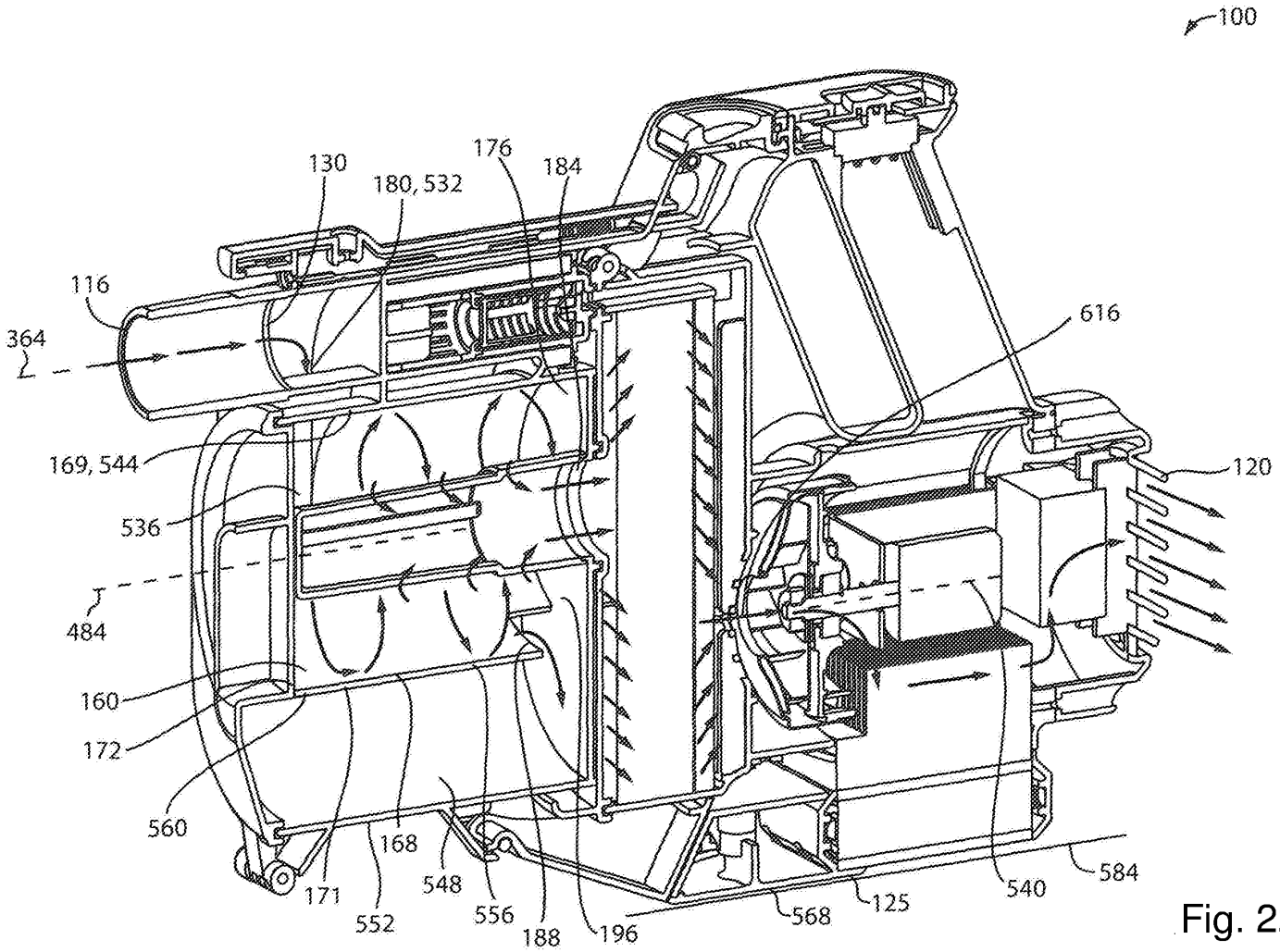


Fig. 22

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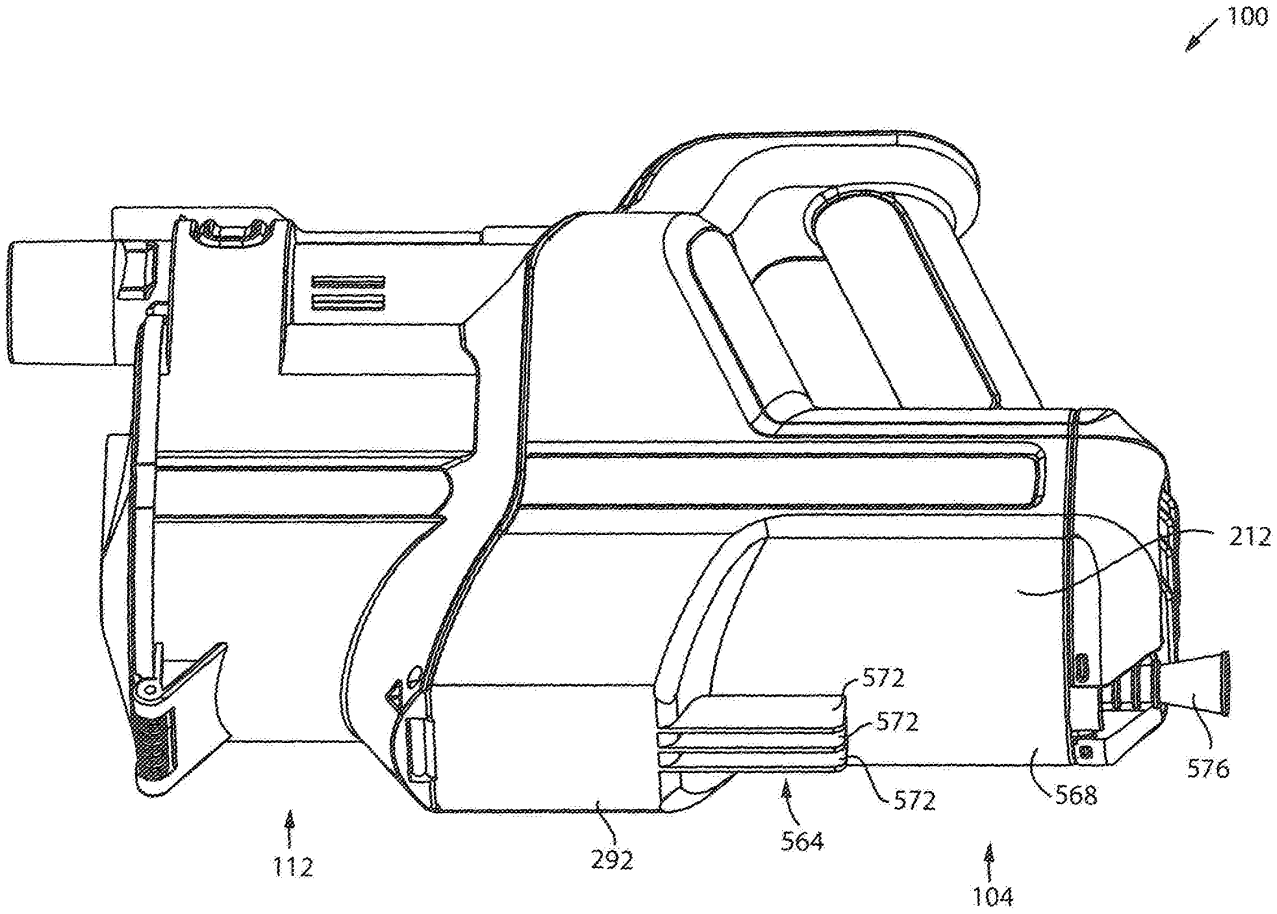


Fig. 23

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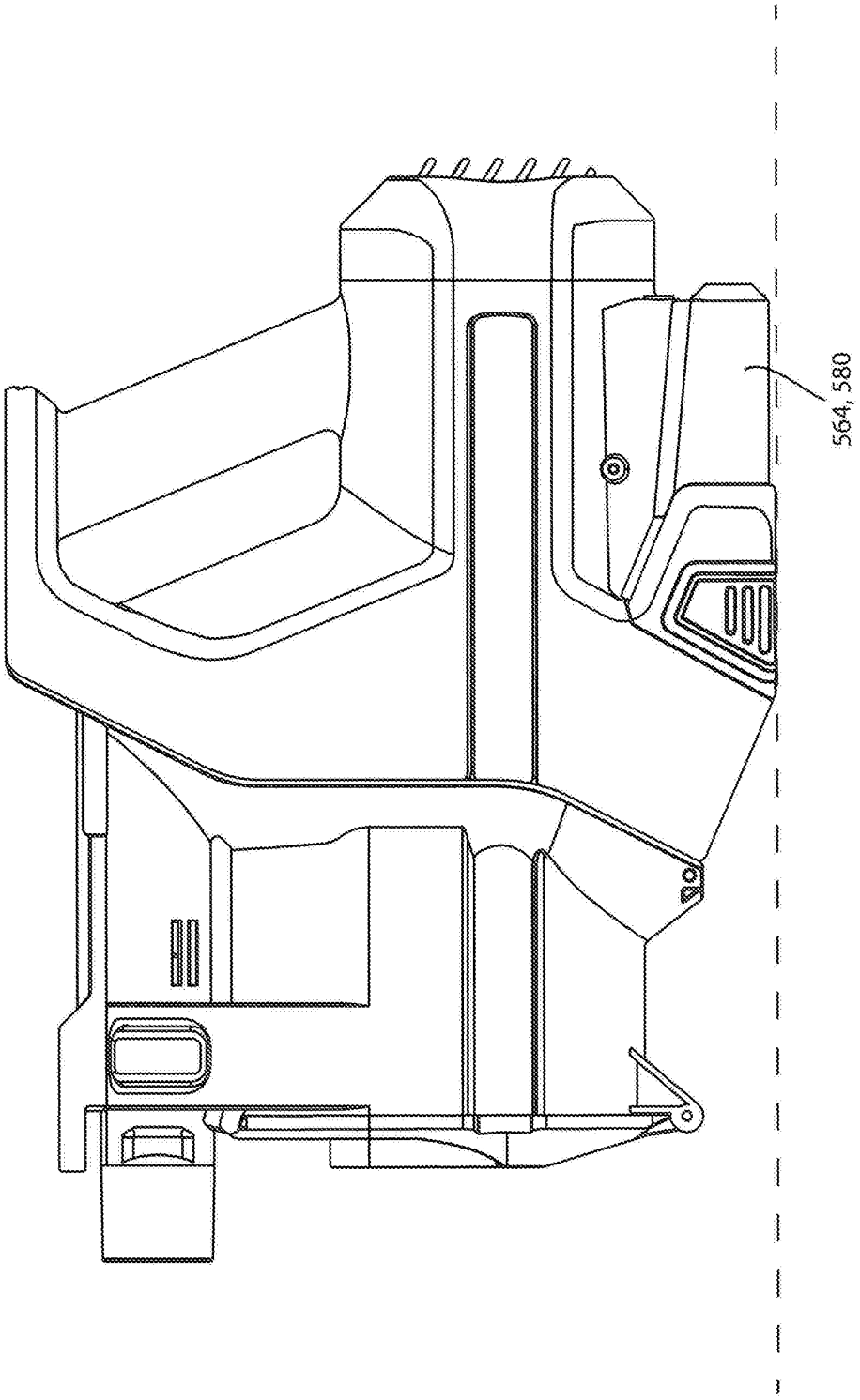


Fig. 24

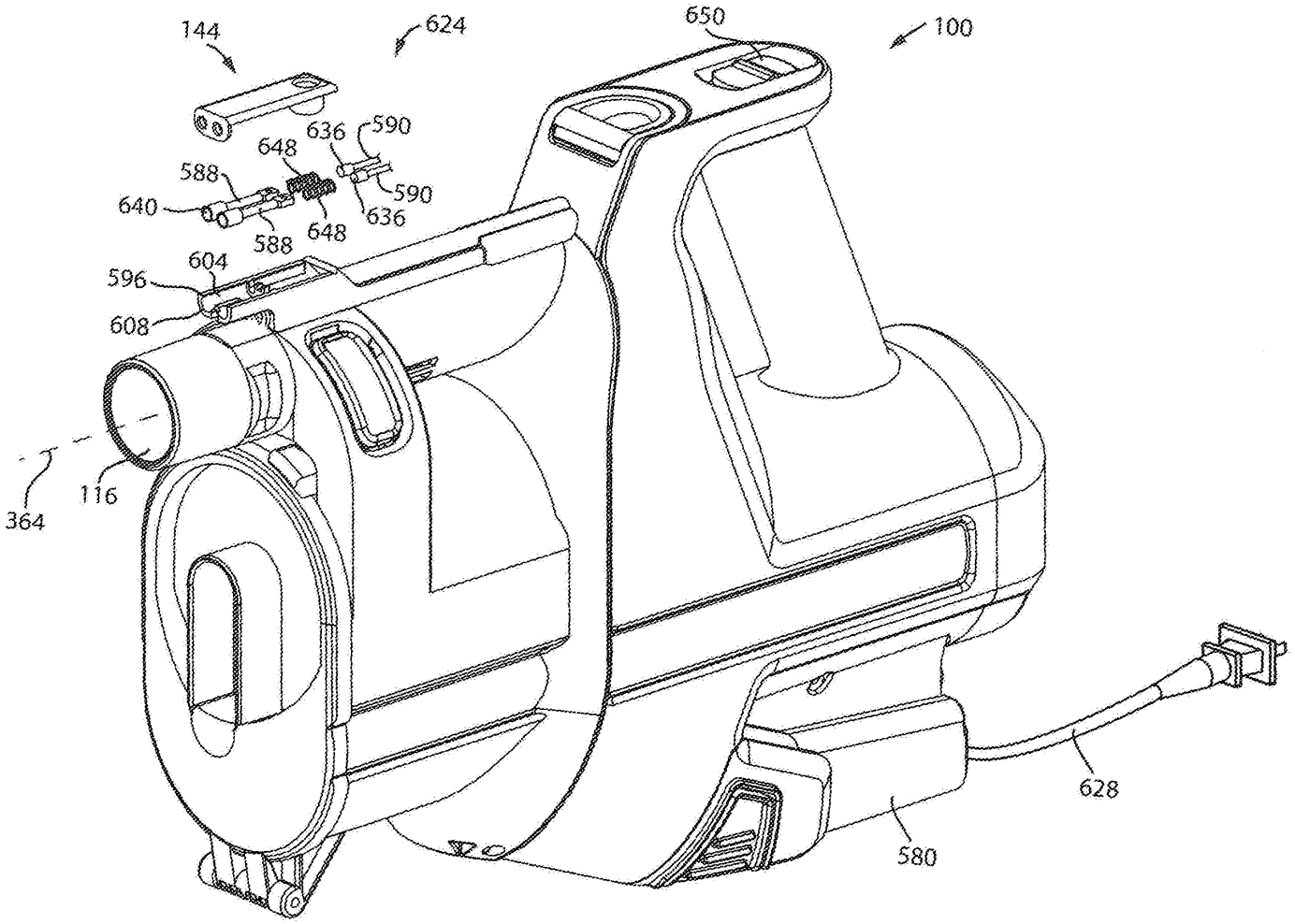


Fig. 25

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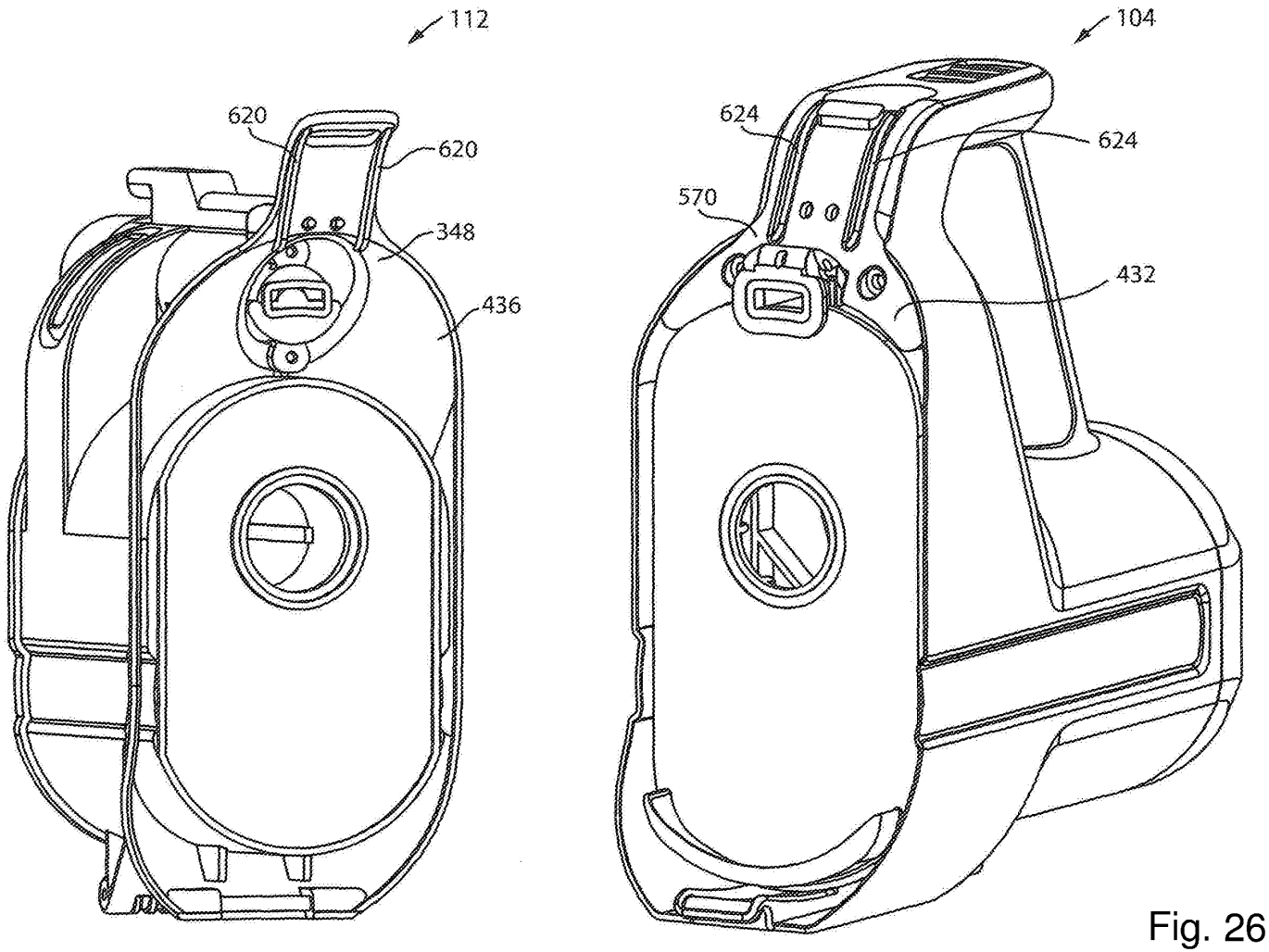


Fig. 26

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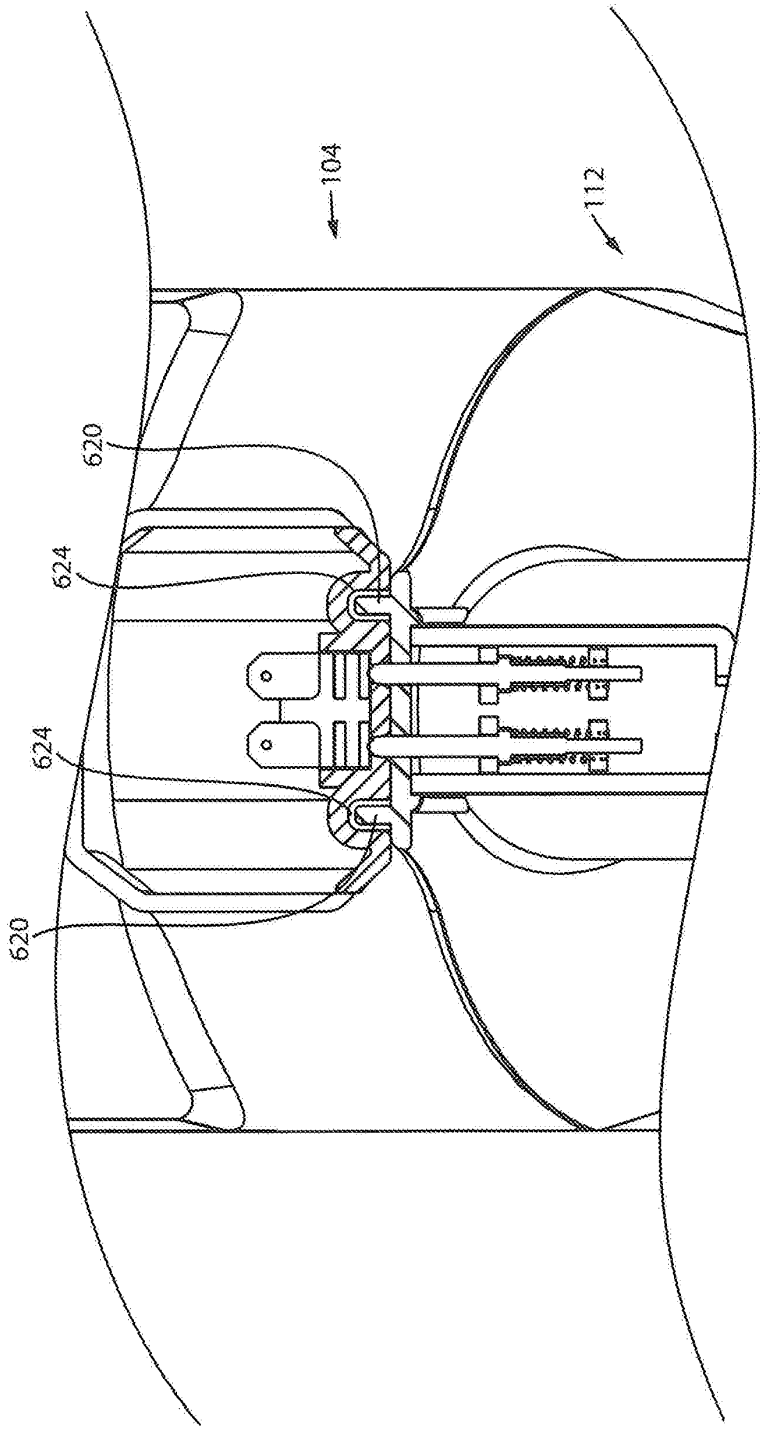


Fig. 27

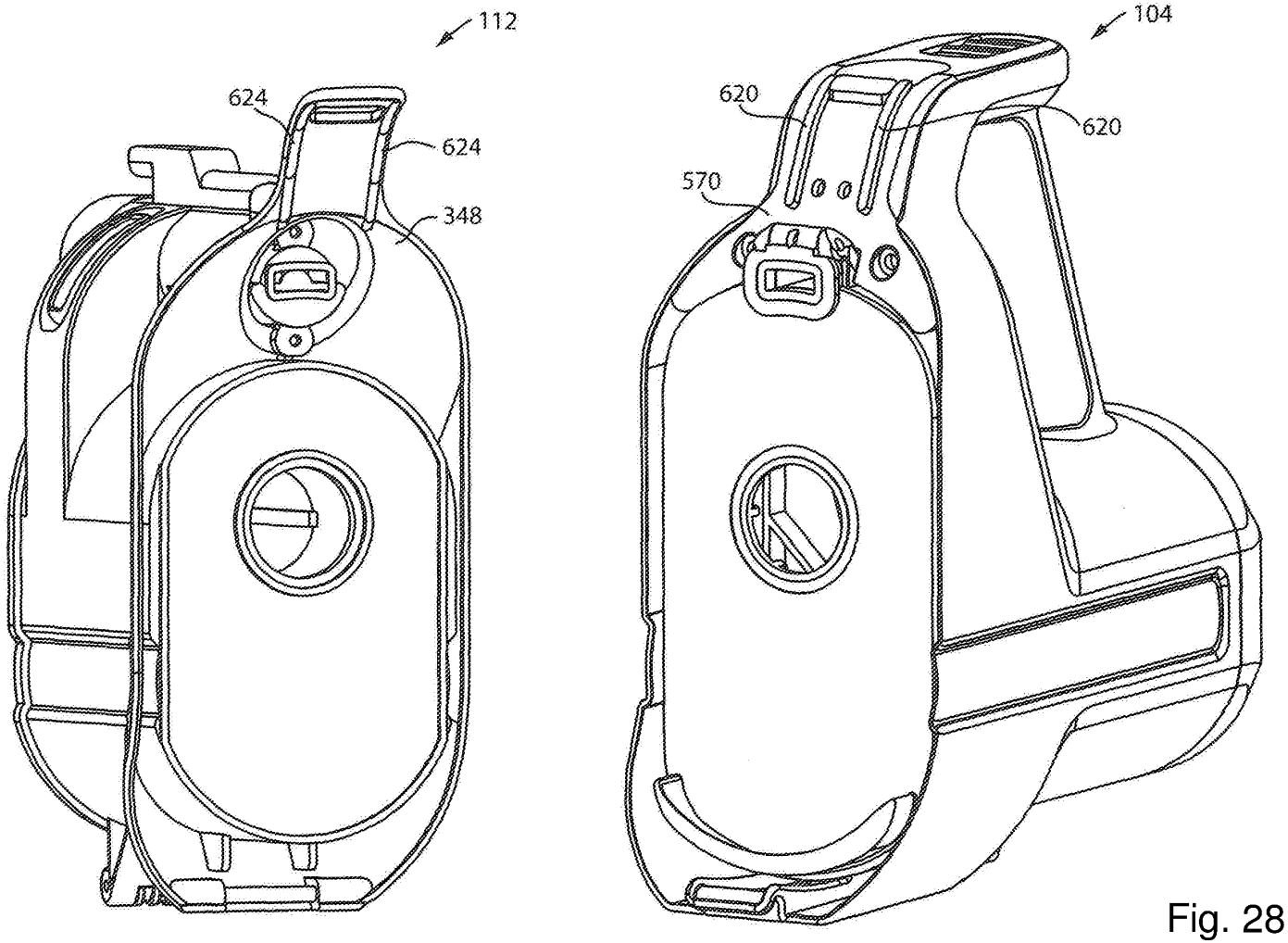


Fig. 28

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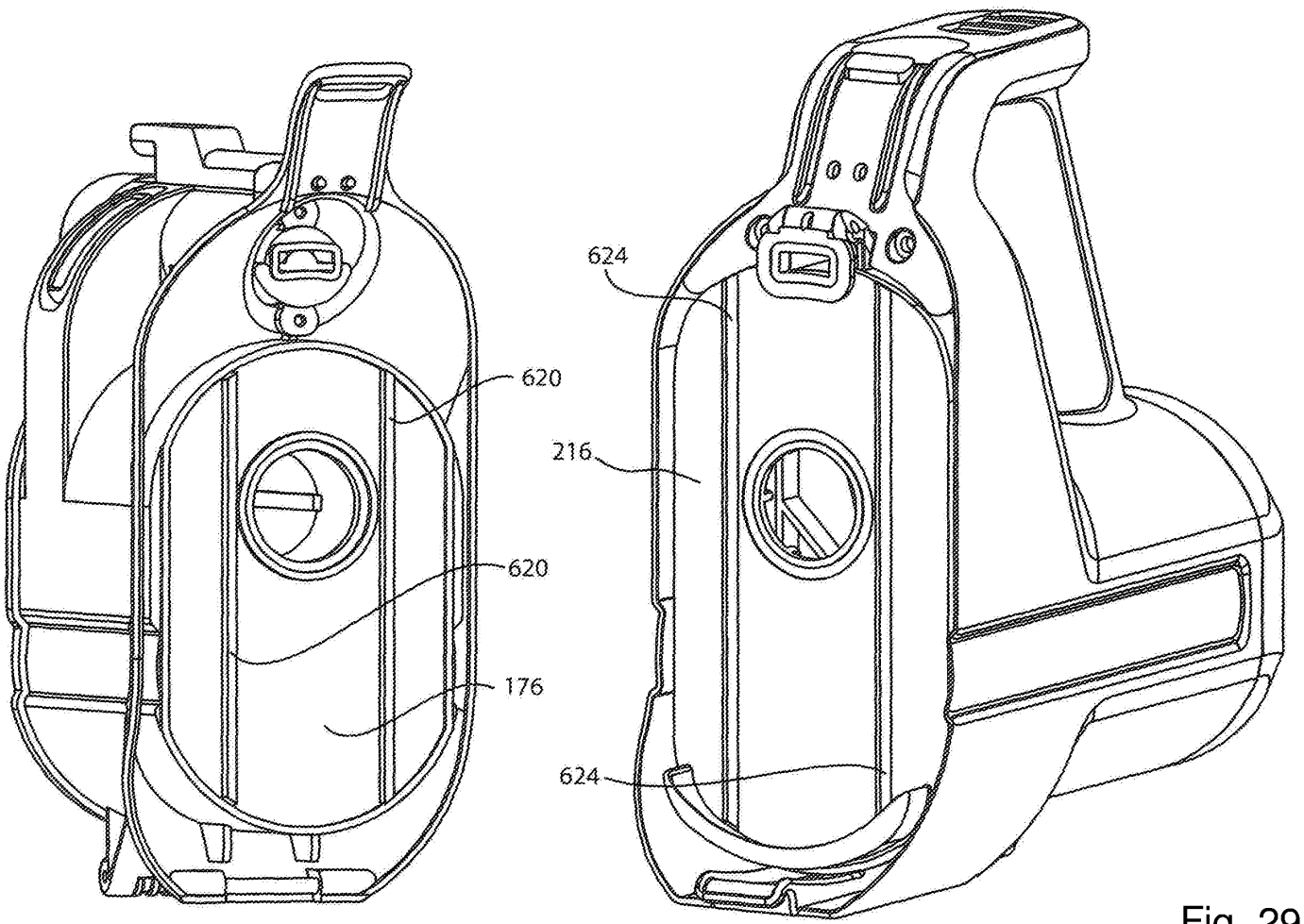


Fig. 29

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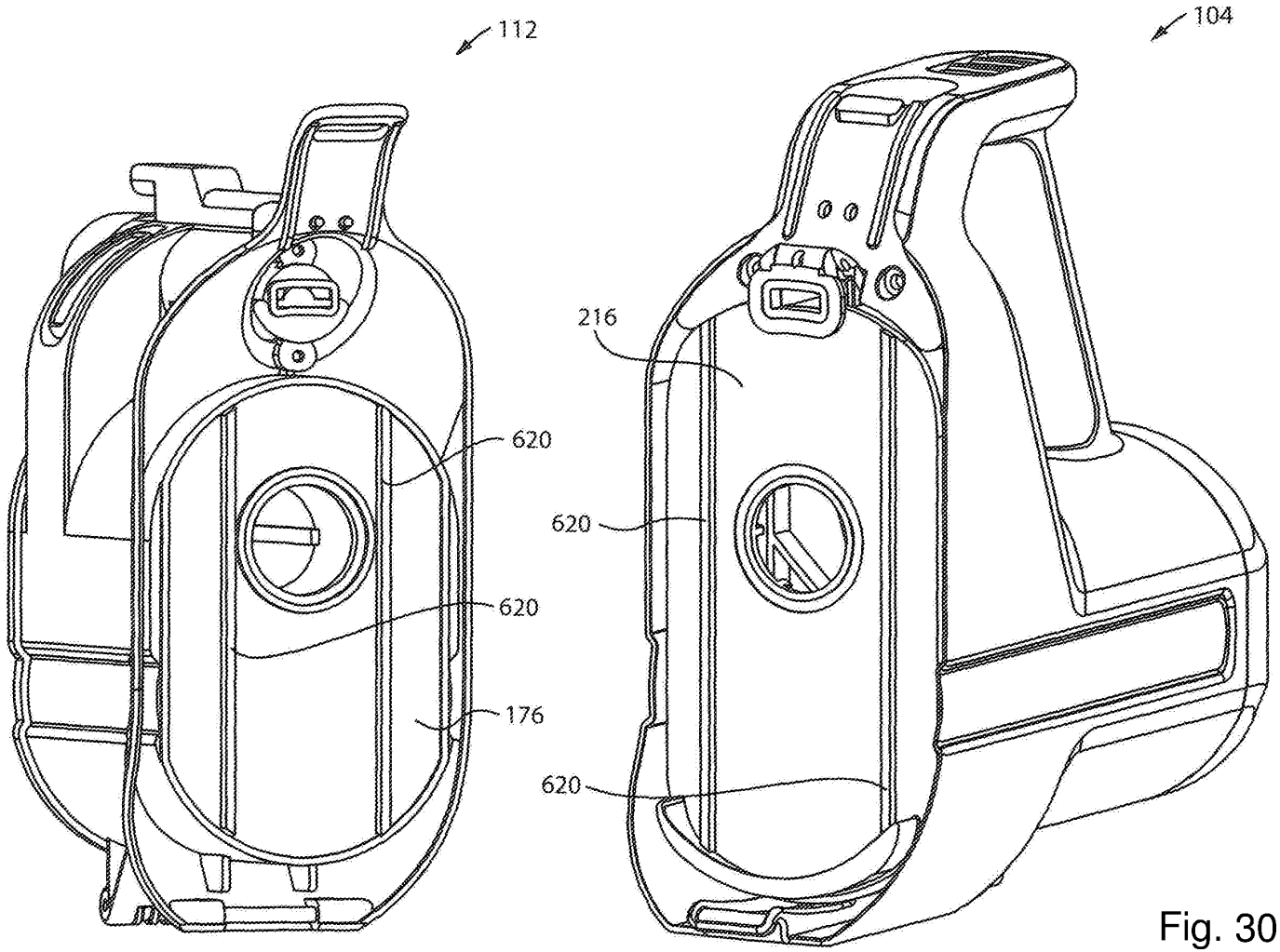


Fig. 30

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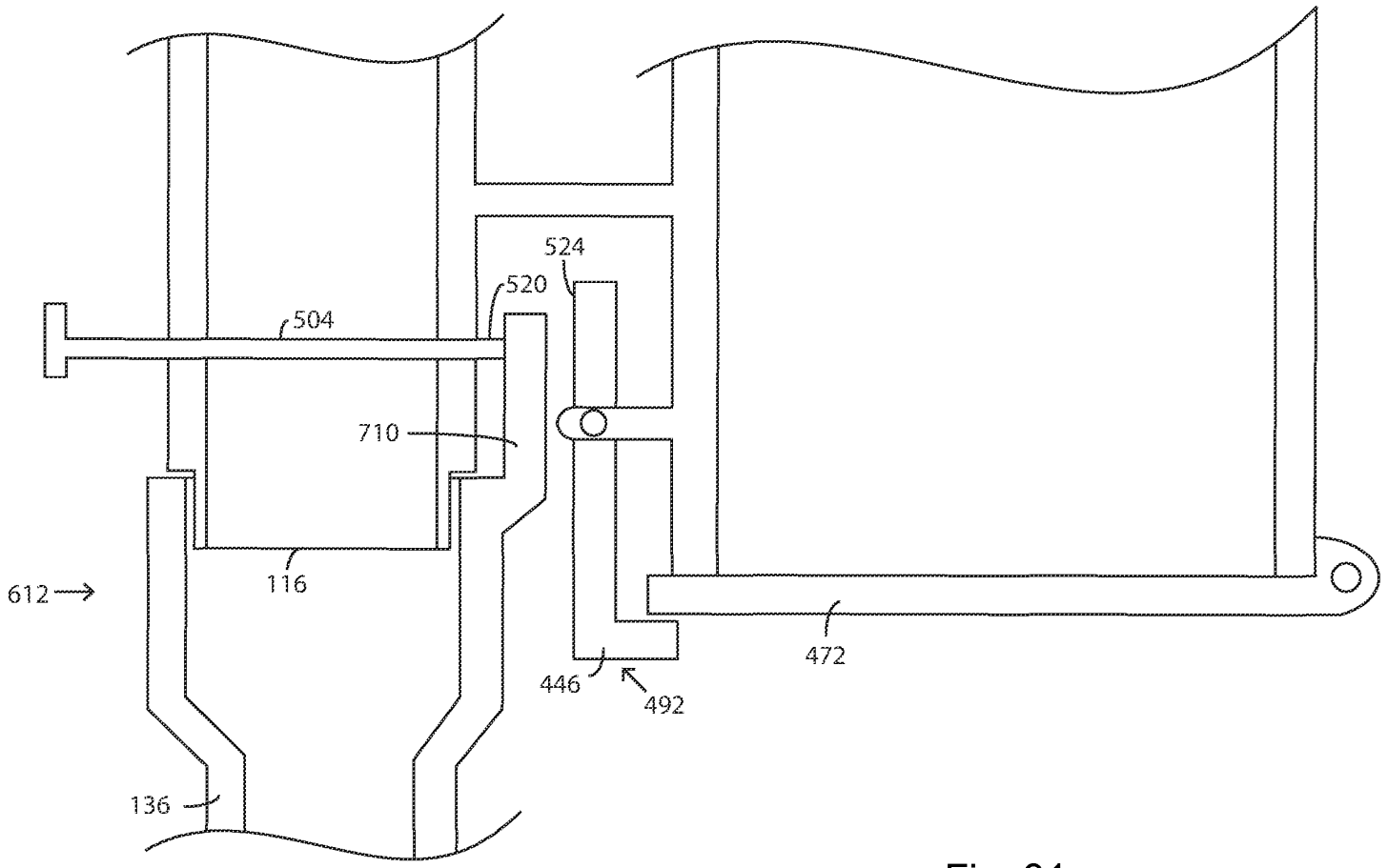


Fig. 31

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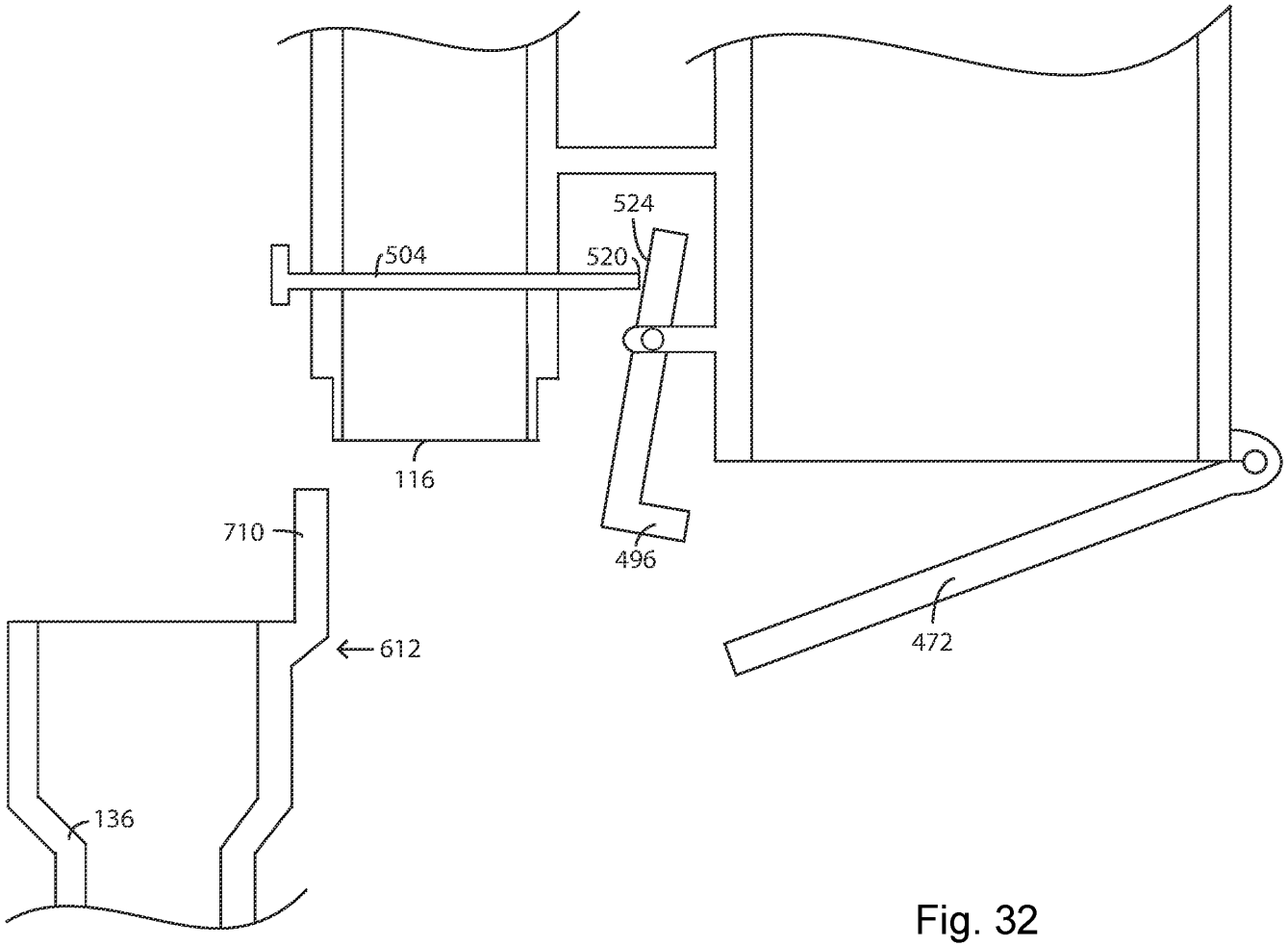


Fig. 32

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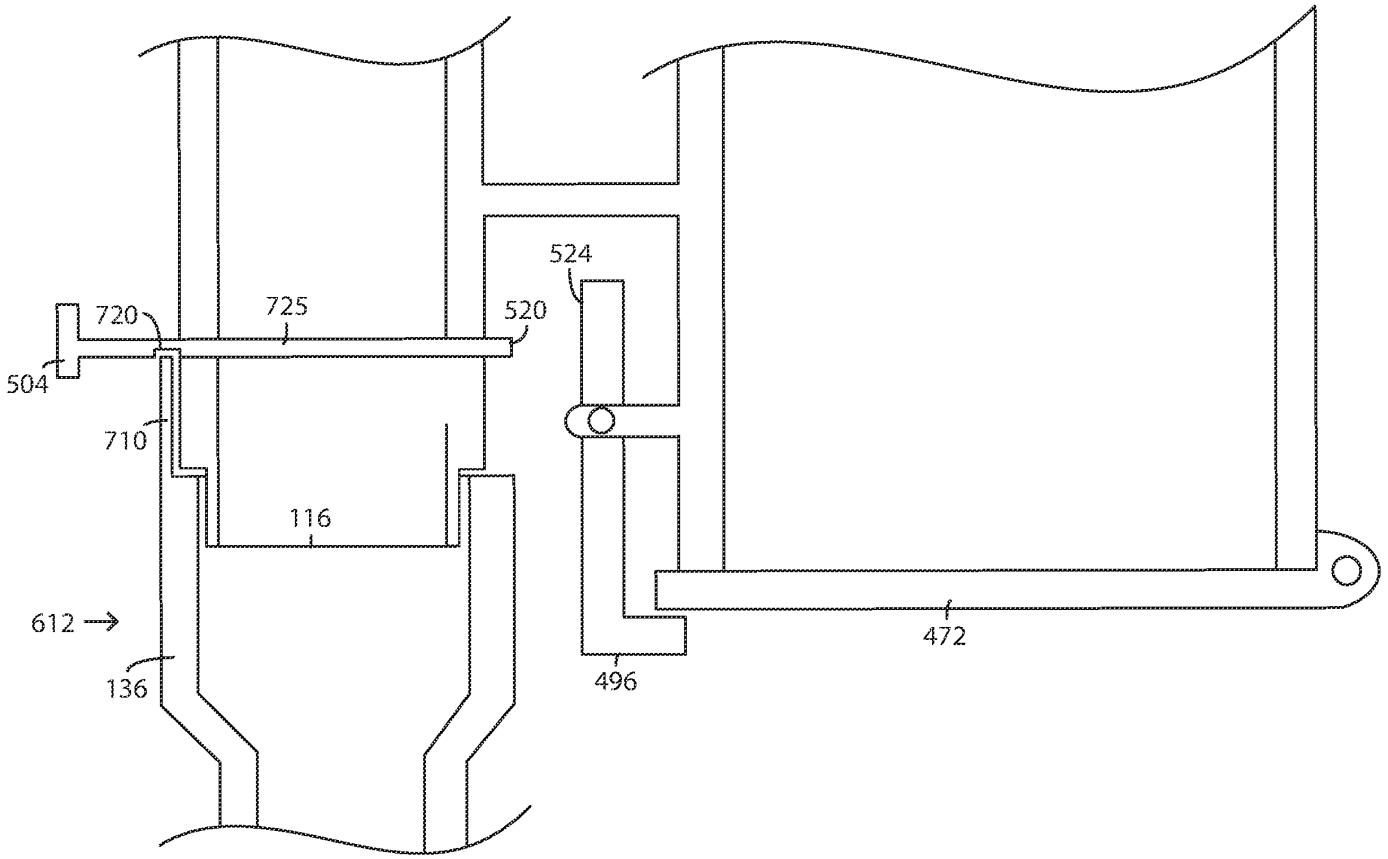


Fig. 33

REPLACEMENT SHEET

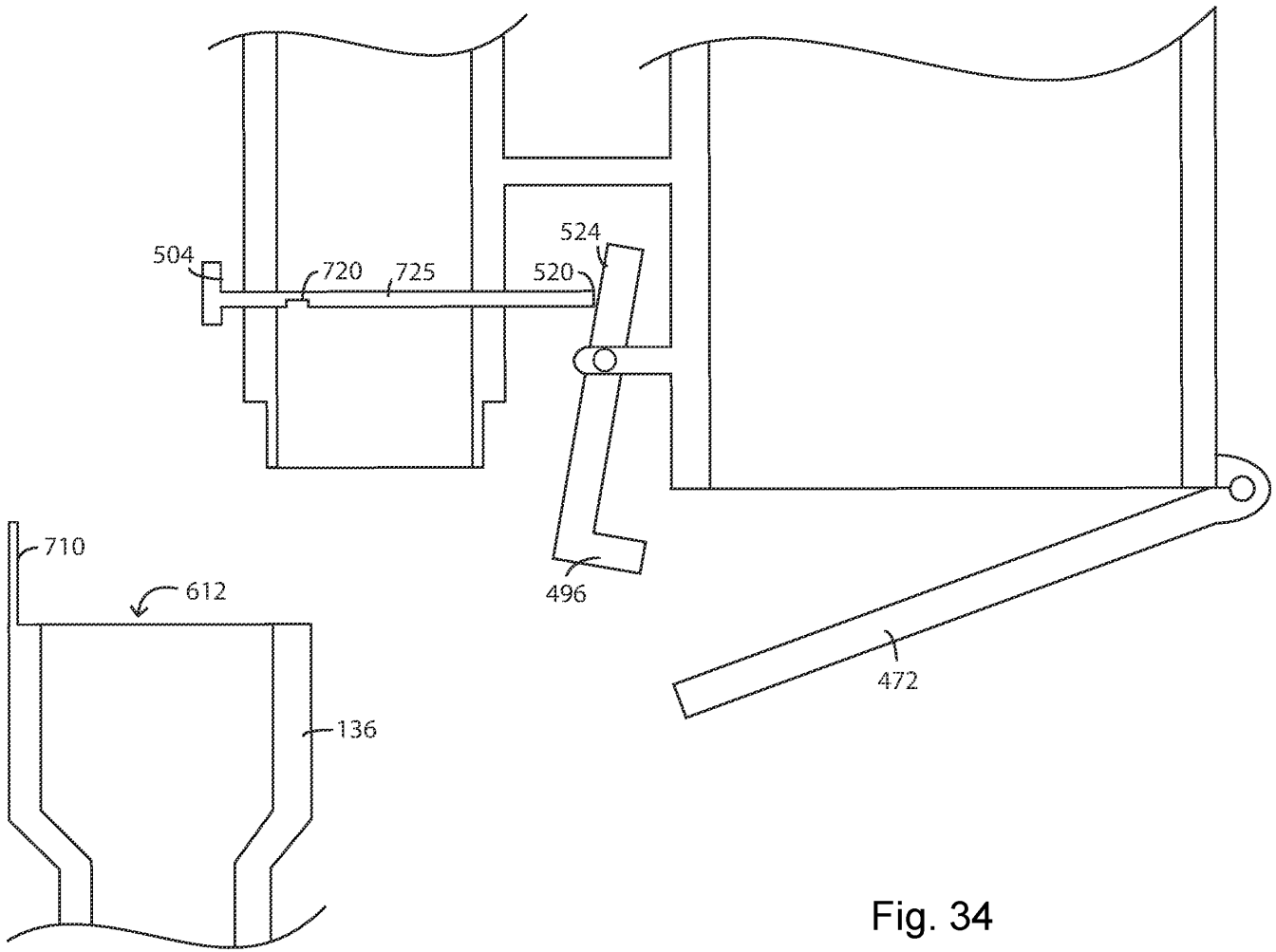


Fig. 34

REPLACEMENT SHEET

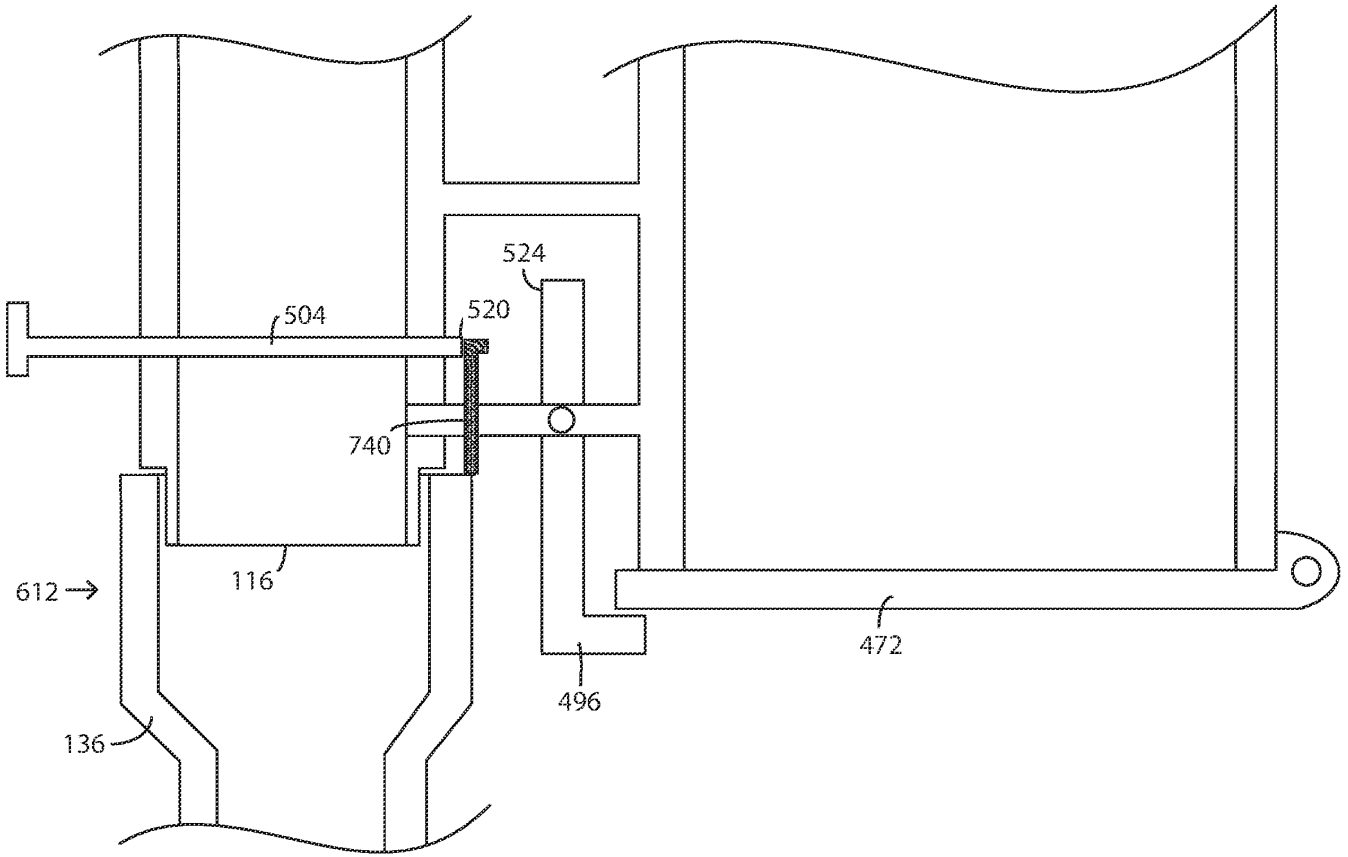


Fig. 35

REPLACEMENT SHEET

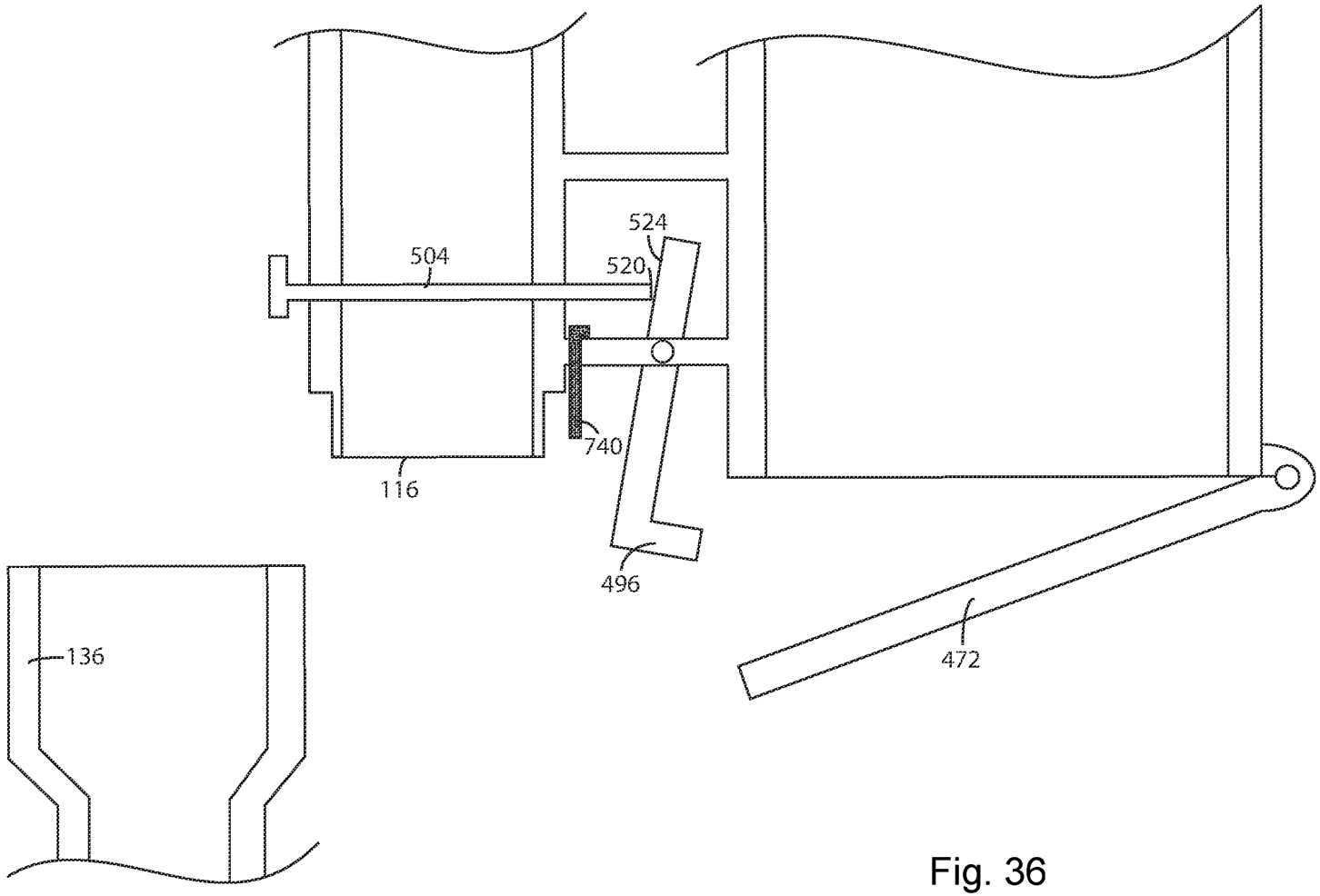


Fig. 36

REPLACEMENT SHEET

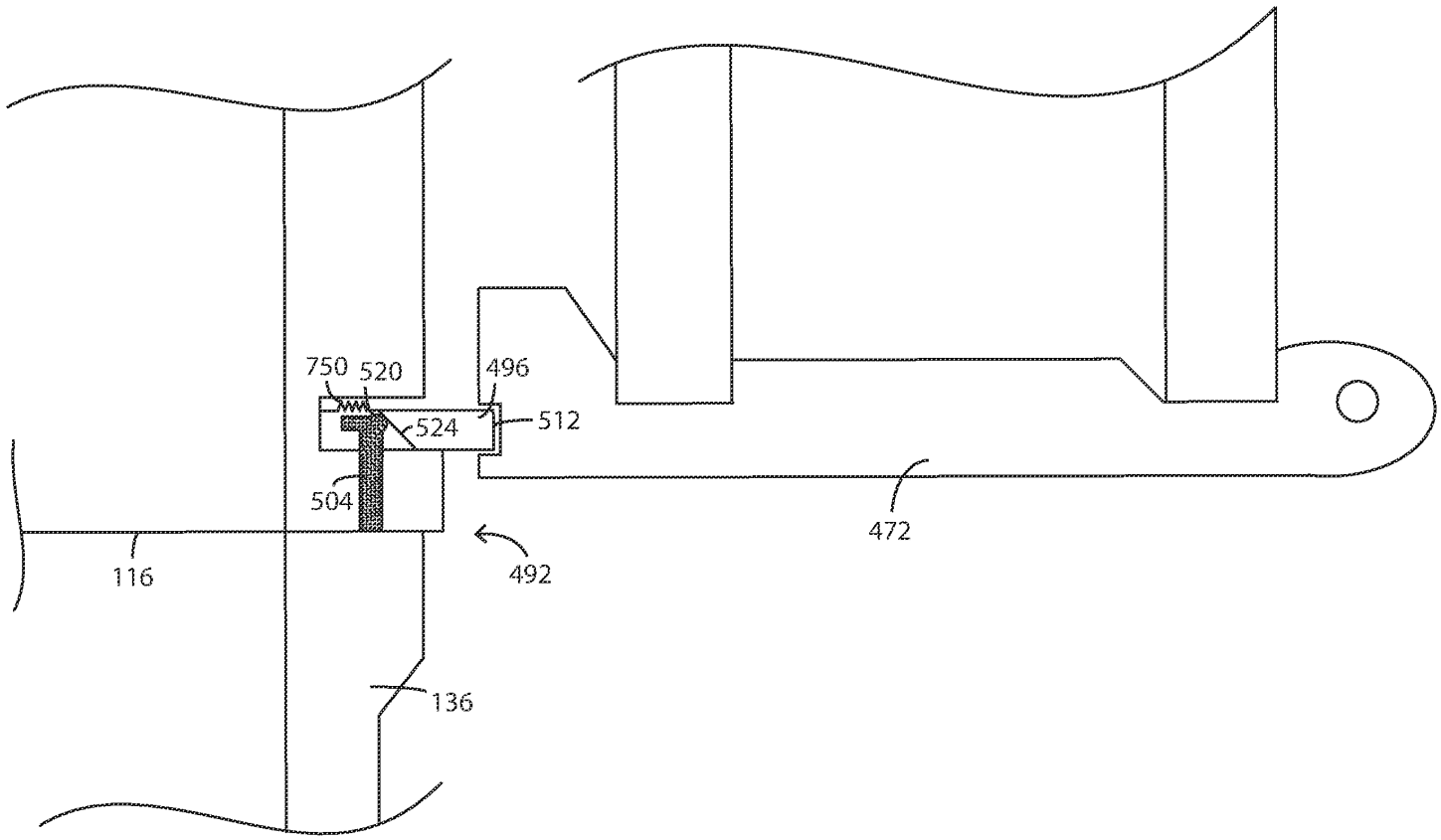


Fig. 37

REPLACEMENT SHEET

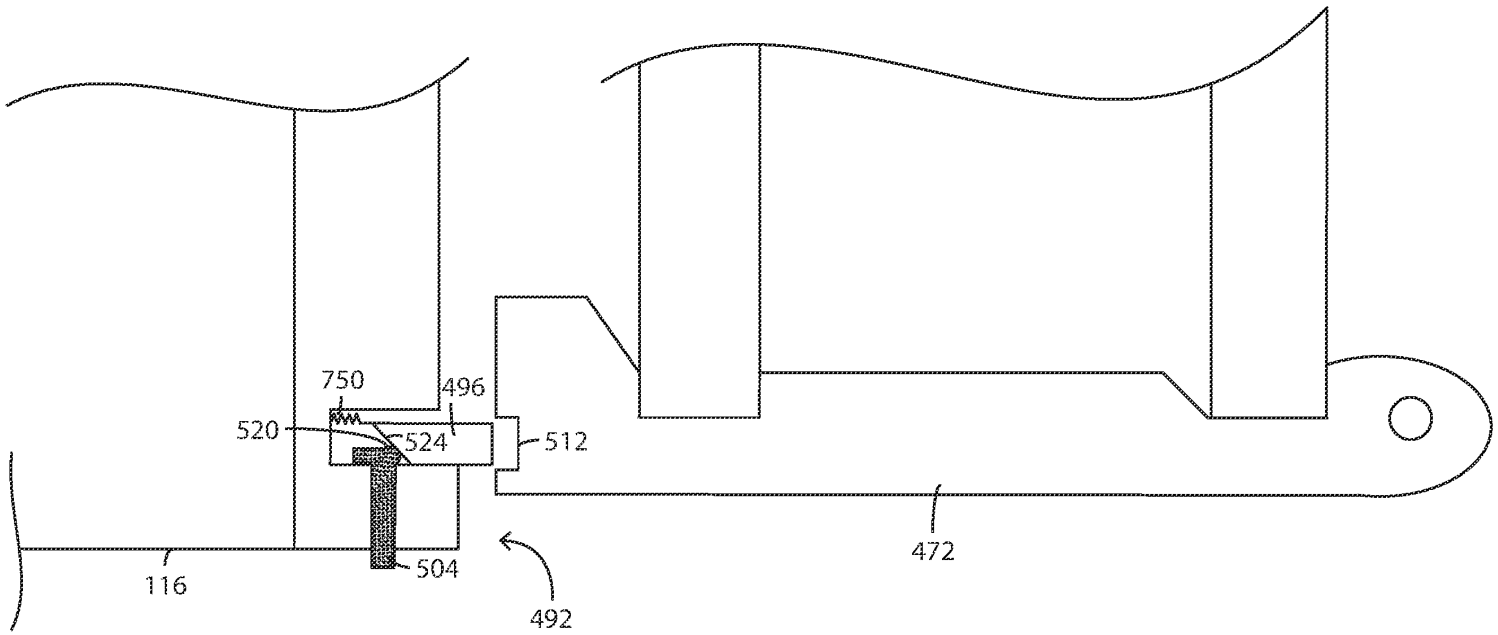


Fig. 38

REPLACEMENT SHEET

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 15/685,962

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY FEE($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	280
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	600
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	720
TOTAL CLAIMS (37 CFR 1.16(i))	25 minus 20 =	* 5			OR	x 80 =	400
INDEPENDENT CLAIMS (37 CFR 1.16(h))	4 minus 3 =	* 1				x 420 =	420
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						0.00
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							0.00
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	2420

APPLICATION AS AMENDED - PART II

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

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

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.

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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
15/685,962	08/24/2017	3723	2420	10452-P49931US06	25	4

CONFIRMATION NO. 3872

UPDATED FILING RECEIPT

1059
BERESKIN & PARR LLP/S.E.N.C.R.L., s.r.l.
40 KING STREET WEST
40th Floor
TORONTO, ON M5H 3Y2
CANADA

Date Mailed: 11/17/2017

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

Wayne Ernest Conrad, Hampton, CANADA;

Applicant(s)

Omachron Intellectual Property Inc., Hampton, CANADA;

Power of Attorney: The patent practitioners associated with Customer Number 01059

Domestic Priority data as claimed by applicant

This application is a CIP of 15/095,714 04/11/2016

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 08/29/2017

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 15/685,962**

Projected Publication Date: 03/01/2018

Non-Publication Request: No

Early Publication Request: No

Title

SURFACE CLEANING APPARATUS

Preliminary Class

015

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

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Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

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Bereskin & Parr

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No.	:	15/685,962
Applicant	:	Omachron Intellectual Property Inc.
Filed	:	August 24, 2017
Title	:	**SURFACE CLEANING APPARATUS**
Grp./A.U.	:	3723
Examiner	:	NGUYEN, Dung V.
Docket No.	:	10452-P49931US06
Customer No.:		1059

Date: December 13, 2018
Confirmation No. 3872

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313–1450

PRELIMINARY AMENDMENT

Prior to examination on the merits, please amend the application as follows:

Amendments to the Specification begin at page 2 of this paper.

Amendments to the Drawings begin on page 13 of this paper.

Remarks/Arguments begin on page 14 of this paper.

Bereskin & Parr LLP
Scotia Plaza, 40 King Street West, 40th Floor, Toronto, ON M5H 3Y2 Canada
Tel: 416.364.7311 Fax: 416.361.1398 bereskinparr.com

AMENDMENTS TO THE SPECIFICATION

A substitute specification is submitted herein for consideration by the Office along with annotated specification. The substitute specification includes no new matter.

The substitute specification includes the following insertions and deletions. Insertions are shown underlined while deletions are struck through or [[double bracketed]].

Please replace paragraph [00119] with the following rewritten paragraph:

[00119] In some embodiments, the dirty air inlet may comprise an inlet passage that extends longitudinally between an inlet end and an outlet end and has a longitudinal passage axis and the longitudinal passage axis ~~interests~~intersects the driving handle.

Please replace paragraph [00130] with the following rewritten paragraph:

[00130] In some embodiments, the dirty air inlet may comprise an inlet passage that extends longitudinally between an inlet end and an outlet end and has a longitudinal passage axis and the longitudinal passage axis ~~interests~~intersects the driving handle.

Please replace paragraph [00222] with the following rewritten paragraph:

[00222] Alternately or in addition, in accordance with this aspect, the cyclone air inlet may be in an upper portion of the sidewall 168 of the cyclone. An advantage of this design is that ~~is that~~ it inhibits dirt that may remain in cyclone chamber 160 from exiting or blocking the air inlet when the apparatus is moved to various operating angles.

Please replace paragraph [00226] with the following rewritten paragraph:

[00226] It will be appreciated that if cyclone air inlet 180 is located at an upper end of the cyclone 160, then inlet passage 128 [[is]] may be located above the central longitudinal axis of cyclone 160 and preferably is located above cyclone 160. For example, as exemplified in Figures 1, 6 and 7, cyclone air inlet 180 may be a tangential air inlet so that air entering the cyclone 160 will tend to rotate as the air travels axially through the cyclone 160, thereby dis-entraining dirt and debris from the air flow, before leaving the cyclone via the air outlet 184. Further, inlet passage 128 extends longitudinally between passage inlet end 124 (i.e., the dirty air inlet 116) and passage outlet end 130 along a longitudinal passage axis 364, and passage outlet end 130 communicates (e.g. is positioned upstream) of cyclone air inlet 180. Passage axis 364 may be linear, and all of the longitudinal passage axis 364 may be positioned above cyclone axis of rotation 484 when surface cleaning apparatus 100 is positioned with bottom 125 on a horizontal surface 584.

Please replace paragraph [00229] with the following rewritten paragraph:

[00229] As exemplified in Figure 6, main body lower end 568 may comprise bottom 125. In the illustrated example, when bottom 125 is placed on a horizontal surface, cyclone 160 may be oriented horizontally if bottom or base 125 is parallel to the cyclone axis. It [[If]] will be appreciated that if bottom 125 is oriented at an angle to the horizontal, e.g., so that dirt air inlet 116 points downwardly when bottom 125 is on a horizontal surface, cyclone 160 may be not be oriented horizontally when bottom 125 is on a horizontal surface. It will be appreciated that, as referred to herein, cyclone 160 being horizontal relates to the orientation if bottom 125 is parallel to the cyclone axis of rotation 484.

Please replace paragraph [00274] with the following rewritten paragraph:

[00274] As exemplified in Figures 1 and 17, cyclone unit handle 344 may comprise an air flow passage (e.g. an air flow conduit). This may promote a compact design for apparatus 100 by reducing or eliminating the volume added to apparatus 100 to incorporate cyclone unit handle 344. For example, an existing air flow conduit may be reshaped and/or repositioned to provide handle functionality. As exemplified in Figure 17, handle 344 is positioned rearward and coaxial with the inlet conduit extending from dirty air inlet 116. It will be appreciated that if the inlet to the air treatment member chamber (e.g., cyclone chamber 160) is rearward of the front of handle 344, then part of handle 344 form part of inlet conduit 124. Alternately, or in addition as exemplified in Figure 17, handle 344 may provide part or all of a bleed air conduit 380 having a longitudinal passage axis 390. Bleed conduit 380 provides a portion of the air flow path between the bleed air inlet 384 and the suction motor and fan assembly 152 and houses bleed valve 388. The bleed valve 388 may be any suitable valve that **is** known in the art, which typically open automatically in response to low pressure. For example, bleed valve 388 may be a pressure relief valve. Bleed valve 388 may help maintain adequate volumetric air flow through the suction motor and fan assembly 152 during low pressure events to avoid overheating of the suction motor and fan assembly 152. Low pressure may occur where there is a partial or total blockage in the air flow upstream of the suction motor and fan assembly 152 (e.g. a plastic bag is blocking dirty air inlet 116).

Please also replace paragraph [00296] with the following rewritten paragraph:

[00296] In the illustrated example, air treatment member 112 includes an openable front end 472 wherein all of the front end is ~~opeanable~~openable. As exemplified, the air treatment member may be a cyclone unit comprising a cyclone and a dirt collection chamber external to the cyclone and may have a front end 472 [[the]] that includes cyclone first end wall 192, and dirt collection chamber first end wall 476. It will be

appreciated that, in some embodiments, only a portion of the front end 472 may be openable.

Please also replace paragraph [00299] with the following rewritten paragraph:

[00299] In alternative embodiments, cyclone unit front door 472 may rotate in a different direction about a different axis. For example, cyclone unit front door 472 may move laterally outwardly by rotation about a substantially vertical axis positioned proximate a left or right side of the cyclone unit 112. In other embodiments, cyclone unit front door 472 may move upwardly by rotation about a substantially horizontal axis positioned proximate cyclone unit ~~lower portion 352~~ upper portion 348.

Please also replace paragraph [00303] with the following rewritten paragraph:

[00303] Preferably, actuator is positioned proximate the air treatment member handle 344 so that a user may operate actuator 504 with the same hand that is used to hold handle [[504]]344. For example, actuator 504 may be located within close proximity (e.g. finger-reach) of handle 344, e.g., it may be provided on or adjacent handle 344 and may be provided at the end of handle 344 at which the door is located. Accordingly while holding handle 344, the user may use their thumb of the same hand to operate actuator 504, i.e., door release actuator 504 may be operated by the same hand which is holding the cyclone unit 112 for single-handed emptying of cyclone unit 112. In the illustrated embodiment, unit door release actuator 504 is positioned forward of handle 344 on upper portion 348 (e.g. at a forward end of inlet passage 380). In other embodiments, door release actuator 504 may be located on handle 344, or rearwardly of handle 344.

Please also replace paragraph [00329] with the following rewritten paragraph:

[00329] As exemplified in Figure 25, apparatus 100 includes an electrical circuit 642 [[624]] between a source of power and electrical conductor elements 588. The

source of power may be an energy storage member 580 (e.g. battery) or a power cord 628 (connectable to an external power outlet), for example. In accordance with this aspect, electrical conductor elements 588 may be de-energized when not connected with a mating electrical coupling (e.g. of a power accessory). This may prevent user injury from being hurt by inadvertent contact with the electrical conductor elements 588.

Please also replace paragraph [00330] with the following rewritten paragraph:

[00330] The electrical circuit [[624]]642 may include two or more electrical conductor elements 588, at least one of which, and preferably two of which, may be movable between a circuit closed position and a circuit open position, and biased to the circuit open position. In the circuit closed position, the electrical conductor element 588 is electrically connected to the source of power. In the circuit open position, the electrical conductor 588 is electrically disconnected from the source of power. Accordingly, at least one of the electrical conductor elements 588 is normally electrically disconnected from the source of power, which may prevent accidental electric shock. In use, the electrical conductor element 588 is moved to the circuit closed position upon attaching an accessory tool to dirty air inlet 116.

Please also replace paragraph [00335] with the following rewritten paragraph:

[00335] Electrical conductor element 588 may be biased to the circuit open position in any manner. For example, electrical outlet 144 includes a biasing member 648 that applies a biasing force urging electrical conductor element 588 toward the circuit open position. In the illustrated example, biasing member 648 is a compression spring positioned between the electrical conductor element 588 and the terminal end 636 of electrical conductive member 590 which urges electrical conductor element 588 forwardly. The force of biasing member 648 may be overcome when connecting an accessory tool to dirty air inlet 116 to move the electrical conductor element 588 rearwardly to the circuit closed position. Preferably, biasing member 648 is substantially

non-electrically conductive. For example, biasing member 648 may be formed of (or coated with) plastic, rubber, a non-conductive metal or another substantially non-electrically conductive material. This helps to prevent biasing member 648 from short circuiting electrical circuit [[624]]642 or electrically connecting electrical conductor element 588 and terminal end [[632]]636 when the electrical conductor element 588 is in the closed position.

Please also replace paragraph [00336] with the following rewritten paragraph:

[00336] It will be appreciated that, in an alternate embodiment, electrical conductor elements 588 may be mounted in a moveable (e.g., plastic or other non-conductive material) housing and the housing may have an engagement member that is engaged by, e.g., a protrusion or finger provided on the accessory tool. In this way, the electrical conductor elements of the accessory tool need not be used to drive the circuit [[624]]642 to a closed position.

Please also replace paragraph [00337] with the following rewritten paragraph:

[00337] In some embodiments, main power switch 650, which is movable between a circuit closed position and a circuit open position to energize the suction motor, may be part of electrical circuit [[624]]642. The power switch may be manually user operable. In the circuit open position, power switch 650 electrically disconnects electrical terminal end 636 from the power source. In the circuit closed position, power switch 650 electrically connects circuit terminal end 636 with the power source.

AMENDMENTS TO THE DRAWINGS

The attached replacement drawing sheet includes changes to Fig. 25. This sheet, which includes Fig. 25, replaces the original sheet including Fig. 25.

Attachment: Replacement Sheet and Annotated Sheet showing changes made

REMARKS

This papers is submitted prior to the first substantive Office Action on the merits. Accordingly, this Preliminary Amendment is timely filed.

Remarks Regarding Amendments to the Specification

Paragraphs [00119], [00130], [00222], [00226], [00229], [00274], [00296], [00299], [00303], [00329], [00330], [00335], [00336], and [00337] have been amended to correct typographical errors and to correct the inadvertent error in use of reference 624 for electrical circuit 642.

Remarks Regarding Amendment to the Drawing

Figure 25 has been amended to correct clerical errors in the numbering of elements shown in Figure 25. Applicant respectfully submits that this element labeling was present in the drawings as originally filed, but was inadvertently omitted from the drawing sheets filed on October 30, 2017.

Figure 25 has also been amended to change element label 624 to 642. Applicant respectfully submits that this corrects an issue with element labeling 624 which was inadvertently used both for recesses 624 in which protrusions may be received (see e.g. para [00262]-[00266] and Figures 26-30) and for electrical circuit 642. Applicant respectfully submits that no new matter has been added.

Applicant understands that no fees are due with this response. However, if Applicant is mistaken, the Commissioner is hereby authorized to charge any deficiency in fees required to keep the present application in good standing (including any extension of time fees, excess claim fees, and request for continued examination fees) or credit any overpayment to our Deposit Account No. 02-2095.

Should the Examiner deem it beneficial to discuss the application in greater detail, the Examiner is kindly requested to contact Philip C. Mendes da Costa by telephone at 416-957-1695 at the Examiner's convenience.

Respectfully submitted,

BERESKIN & PARR LLP/S.E.N.C.R.L., s.r.l.

/Philip C. Mendes da Costa/

By: Philip C. Mendes da Costa
Reg. No. 33,106
Tel: 416-957-1695

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/685,962	08/24/2017	Wayne Ernest Conrad	10452-P49931US06	3872

1059 7590 06/26/2019

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TORONTO, ONTARIO M5H 3Y2
CANADA

EXAMINER	
NGUYEN, DUNG V	

ART UNIT	PAPER NUMBER
3723	

NOTIFICATION DATE	DELIVERY MODE
06/26/2019	ELECTRONIC

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

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

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

ipprocessingcentre@bereskinparr.com

Office Action Summary	**Application No.** 15/685,962	**Applicant(s)** Conrad, Wayne Ernest	
	Examiner DUNG V NGUYEN	**Art Unit** 3723	**AIA (FITF) Status** Yes

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

Period for Reply

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

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

Status

1)☐ Responsive to communication(s) filed on _____.

☐ 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) 1-25 is/are pending in the application.

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

6) ☑ Claim(s) 16-19 is/are allowed.

7) ☑ Claim(s) 1-7,14-15 and 20-25 is/are rejected.

8) ☑ Claim(s) 8-13 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 24 August 2017 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 2/7/2018.

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

4) ☐ Other: _____.

Notice of Pre-AIA or AIA Status

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

Information Disclosure Statement

Note that the citation by applicant of a large number of prior art references, without pointing out how each reference is material to the examination of the application, can act to obscure any pertinent information by burying the information in a mass of document, rather than to clearly bring the information to the examiner's attention. Note *Lam, Inc. V. Johns-Manville Corporation, et al.*, 206 USPQ 450, (D, Col. 1979) wherein the court stated: "Absolute good faith is required of patent applicants, but there is no requirement that overworked patent examiners be burdened with the study of material a reasonable man would think was neither relevant nor material." Further, note MPEP 2004 (Aids to Compliance With Duty of Disclosure) which states:

13. It is desirable to avoid the submission of long lists of documents if it can be avoided. Eliminate clearly irrelevant and marginally pertinent cumulative information. If a long list is submitted, highlight those documents which have been specifically brought to applicant's attention and/or are known to be of significance. See *Penn Yan Boats, Inc. v Sea Lark Boats, Inc.,* 359 F. Supp 984, 175 USPQ 260 (S.D. Fla, 1972), aff'd, 479 F.2nd 1338, 178 USPQ 577 (5th Cir. 1973), cert, denied, 414 U.S 874 (1974). But cf. *Molins PLC v. Textron, Inc.* 48 F.3d 1172, 33 USQO2d 1823 (Fed. Cir. 1995).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

> (a)(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.

Claim(s) 1-7, 14, 15 and 20-25 is/are rejected under 35 U.S.C. 102(a)(1) as being anticipated by Dimbylow (US Pub 2017/0079489). Dimbylow discloses a surface cleaning apparatus 10 comprising an air flow path from a dirty air inlet to a clean air outlet including a suction motor 12, an air treatment member 8 comprising a dirt collection region 51 having an openable door 26, an accessory 10 connectable to the dirty air inlet 33, wherein when the accessory 10 is connected to the dirty air inlet 33, the openable door 26 is inhibited from opening, a front end having the dirty air inlet 33 and the openable door 26 is provided on the front end, wherein the accessory 10 is removably mounted to the dirty air inlet 33, wherein when the accessory 10 is connected to the dirty air inlet 33, the accessory 10 physically inhibits the openable door 26 from opening, the accessory 10 overlies a portion of the openable door 26, and the accessory 10 abuts a portion of the openable door 26, a hinge 40 for openable door 26 and when the accessory 10 is connected to the dirty air inlet 33, the accessory 10 interacts with the side thereby inhibiting the openable door 26 from opening, an openable door lock 42 movable to an open position when the openable door lock 42 is moved to an open position and wherein the openable door lock 42 is inhibited from moving to the open position when the accessory 10 is connected to the dirt air inlet 33, wherein the accessory 10 is a longitudinally extending rigid member 36 (note Fig. 1-2 AND 8, paragraphs [0030] – [0037], [0048]).

Allowable Subject Matter

Claims 16-19 are allowed.

Claims 8-13 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.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See attached form PTO-892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DUNG V NGUYEN whose telephone number is (571)272-4490. The examiner can normally be reached on M-F 7:00-3:30.

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, Sean K Hunter can be reached on 5712707791. 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.

/Dung Van Nguyen/
Primary Examiner, Art Unit 3723

Notice of References Cited	Application/Control No. 15/685,962	Applicant(s)/Patent Under Reexamination Conrad, Wayne Ernest	
	Examiner DUNG V NGUYEN	Art Unit 3723	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-20170079489-A1	03-2017	DIMBYLOW; Stephen Robert	A47L5/24	1/1
	B					
	C					
	D					
	E					
	F					
	G					
	H					
	I					
	J					
	K					
	L					
	M					

FOREIGN PATENT DOCUMENTS

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

NON-PATENT DOCUMENTS

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

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

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/685,962	Conrad, Wayne Ernest
	Examiner	**Art Unit**
	DUNG V NGUYEN	3723

✓	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	06/21/2019								
	1	✓								
	2	✓								
	3	✓								
	4	✓								
	5	✓								
	6	✓								
	7	✓								
	8	O								
	9	O								
	10	O								
	11	O								
	12	O								
	13	O								
	14	✓								
	15	✓								
	16	=								
	17	=								
	18	=								
	19	=								
	20	✓								
	21	✓								
	22	✓								
	23	✓								
	24	✓								
	25	✓								

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/685,962	Conrad, Wayne Ernest
	Examiner	Art Unit
	DUNG V NGUYEN	3723

CPC - Searched*		
Symbol	Date	Examiner
A47L 9/106, 5/225, 5/24, 5/28, 9/0072, 9/12, 9/122, 9/1608, 9/165, 9/1666, 9/1683, 9/1691, 9/22, 9/2868, 9322	06/21/2019	DVN

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
See search history (inventor name search, citation searches)	06/21/2019	DVN

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

Bereskin
& Parr

Appl. No	:	15/685,962
Applicant	:	Omachron Intellectual Property Inc.
Filed	:	August 24, 2017
Title	:	SURFACE CLEANING APPARATUS
TC./A.U.	:	3723
Examiner	:	NGUYEN, Dung V
Docket No.	:	10452-P49931US06
Customer No.	:	01059

Date: September 25, 2019
Confirmation No.: 3872

Mail Stop Amendment
Honorable Commissioner for Patents
P. O. Box 1450
Alexandria, Virginia 22313–1450

AMENDMENT

In response to the Non-Final Office Action of June 26, 2019, please amend the above-identified application as follows:

Amendments to the Claims are reflected in the listing of claims, which begins on page 2 of this paper.

Remarks/Arguments begin on page 7 of this paper.

Bereskin & Parr LLP
Scotia Plaza, 40 King Street West, 40th Floor, Toronto, ON M5H 3Y2 Canada
Tel: 416.364.7311 Fax: 416.361.1398 bereskinparr.com

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A surface cleaning apparatus comprising:

(a) an air flow path from a dirty air inlet to a clean air outlet and including a suction motor;

(b) an air treatment member comprising a dirt collection region having an openable door; [[and]],

(c) an accessory removably connectable to the dirty air inlet wherein, when the accessory is connected to the dirty air inlet, the openable door is inhibited from opening; and,

(d) an openable door lock comprising a lock engaging member and a door release actuator drivingly connected to the lock engaging member, the lock engaging member moveable between an engaged position in which the lock engaging member secures the openable door in a closed position and a disengaged position in which the openable door is openable wherein the lock engaging member is inhibited from moving to the disengaged position when the accessory is connected to the dirty air inlet.

2. (Original) The surface cleaning apparatus of claim 1 further comprising a front end having the dirty air inlet and the openable door is provided on the front end.

3. (Original) The surface cleaning apparatus of claim 1 wherein the accessory is removably mounted to the dirty air inlet.

4. (Original) The surface cleaning apparatus of claim 1 wherein, when the accessory is connected to the dirty air inlet, the accessory physically inhibits the openable door from opening.

5. (Original) The surface cleaning apparatus of claim 4 wherein, when the accessory is connected to the dirty air inlet, the accessory overlies a portion of the openable door.

6. (Original) The surface cleaning apparatus of claim 5 wherein, when the accessory is connected to the dirty air inlet, the accessory abuts a portion of the openable door.

7. (Currently Amended) [[The]] A surface cleaning apparatus ~~of claim 4~~ comprising:

(a) an air flow path from a dirty air inlet to a clean air outlet and including a suction motor;

(b) an air treatment member comprising a dirt collection region having an openable door wherein the dirty air inlet is positioned above the air treatment member;

(c) an accessory removably connectable to the dirty air inlet wherein,

wherein the openable door has first and second opposed sides, the first side having a hinge for the openable door and the second opposed side is positioned adjacent the dirty air inlet such that, when the accessory is connected to the dirty air inlet, the accessory overlies ~~interacts with~~ the second opposed side thereby inhibiting the openable door from opening.

8. (Cancelled).

9. (Currently Amended) The surface cleaning apparatus of claim [[8]] 1 wherein the accessory has a blocking portion which inhibits the lock engaging member moving to the disengaged position when the accessory is connected to the dirty air inlet.

10. (Original) The surface cleaning apparatus of claim 9 wherein the openable door lock includes a moveable portion which moves along a path from a first position when the lock engaging member is in the engaged position to a second position when the lock engaging member is in the disengaged position, the moveable portion has an abutment surface and the blocking portion is positioned in the path of the abutment surface when the accessory is connected to the dirty air inlet.

11. (Original) The surface cleaning apparatus of claim 10 wherein the moveable portion is part of a drive member drivingly connecting the door release actuator to the lock engaging member.

12. (Currently Amended) The surface cleaning apparatus of claim [[8]] 1 further comprising a lock deactivation member and the accessory has a blocking portion which activates the lock deactivation member when the accessory is connected to the dirty air inlet.

13. (Original) The surface cleaning apparatus of claim 12 wherein the lock deactivation member includes a moveable portion which moves along a path from a first position when the lock engaging member is in the engaged position to a second position when the lock engaging member is in the disengaged position, the moveable portion has an abutment surface and the blocking portion is positioned in the path of the abutment surface when the accessory is connected to the dirty air inlet.

14. (Cancelled).

15. (Original) The surface cleaning apparatus of claim 1 wherein the accessory is a longitudinally extending rigid member air flow member, an accessory cleaning tool, or a flexible hose.

16. (Original) A surface cleaning apparatus comprising:

(a) an air flow path from a dirty air inlet to a clean air outlet and including a suction motor;

(b) an air treatment member comprising a dirt collection region having an openable door;

(c) an accessory removably connectable in air flow communication with the dirty air inlet; and,

(d) an openable door lock comprising a lock engaging member and a door release actuator drivingly connected to the lock engaging member, the lock

engaging member is moveable between an engaged position in which the lock engaging member secures the openable door in a closed position and a disengaged position in which the openable door is openable wherein the lock engaging member is inhibited from moving to the disengaged position when the accessory is connected in air flow communication with the dirty air inlet.

17. (Original) The surface cleaning apparatus of claim 16 wherein the accessory has a blocking portion which inhibits the lock engaging member moving to the disengaged position when the accessory is connected to the dirty air inlet.

18. (Original) The surface cleaning apparatus of claim 17 wherein the openable door lock includes a moveable portion which moves along a path from a first position when the lock engaging member is in the engaged position to a second position when the lock engaging member is in the disengaged position, the moveable portion has an abutment surface and the blocking portion is positioned in the path of the abutment surface when the accessory is connected to the dirty air inlet.

19. (Original) The surface cleaning apparatus of claim 18 wherein the moveable portion is part of a drive member drivingly connecting the door release actuator to the lock engaging member.

20. (Currently Amended) A surface cleaning apparatus comprising:

(a) an air flow path from a dirty air inlet to a clean air outlet and including a suction motor;

(b) an air treatment member comprising a dirt collection region having an openable door;

(c) an accessory removably connectable in air flow communication with the dirty air inlet; and,

(d) an openable door lock securing the openable door in a closed position, a lock deactivation member and the accessory has a blocking portion which

~~activates~~ moves the lock deactivation member to a blocking position which inhibits the openable door lock moving to a door openable position when the accessory is connected in air flow communication with the dirty air inlet.

21. (Cancelled).

22. (Cancelled).

23. (New) The surface cleaning apparatus of claim 20 wherein the accessory has a blocking portion which inhibits the lock engaging member moving to the disengaged position when the accessory is connected to the dirty air inlet.

24. (New) The surface cleaning apparatus of claim 23 wherein the openable door lock includes a moveable portion which moves along a path from a first position when the lock engaging member is in the engaged position to a second position when the lock engaging member is in the disengaged position, the moveable portion has an abutment surface and the blocking portion is positioned in the path of the abutment surface when the accessory is connected to the dirty air inlet.

REMARKS/ARGUMENTS

This letter is being filed in response to the Non-Final Office Action of June 26, 2019. Accordingly, it is respectfully submitted that this response is timely filed.

Status of the Claims

Claims 1 – 25 were examined in the non-final Office Action of June 26, 2019.

By this response, claim 1 has been amended to include the limitations of claim 8. Claim 8 has accordingly been cancelled without prejudice.

Claim 7 has been rewritten in independent form to include limitations from Claim 1 and to clarify the configuration.

Claim 20 has been amended to clarify the configuration of the door lock.

Claim 14 has been cancelled without prejudice due to the addition of the subject matter of claim 18 to claim 1.

Claim 21 has have been cancelled without prejudice in view of the amendment of claim 20.

Claim 22 has been cancelled without prejudice.

Claims 23 and 24 have been added as new claims. Support for the subject matter of these claims can be found at least in paragraphs [0144] and [0145].

Claims 1-7, 9-13, 15-20, and 23-24 are pending in this application, of which claims 1, 7, 16, and 20 are independent.

Allowable Subject Matter

The Applicant thanks the Examiner for indicating that claims 16-19 are allowed and that claims 8-13 would be allowable if rewritten to include all of the limitations of the base claim and any intervening claims.

Claim Rejections – 35 U.S.C. § 102

The Examiner rejected claims 1-7, 14, 15 and 20-25 under 35 U.S.C. 102(a)(1) as being anticipated by Dimbylow (US Pub 2017/0079489).

Discussion of the patentability of Independent Claim 1

Without agreeing with the Examiner that Dimbylow discloses the features of independent claim 1, claim 1 has been amended to incorporate the features of dependent claim 8.

Therefore, Applicant respectfully submits that claim 1 is allowable as it includes the subject matter of claim 8, which was objected to by the Examiner. Withdrawal of the rejection under 35 U.S.C. 102(a)(1) is respectfully requested.

Discussion of the patentability of Independent Claim 7

In rejecting claim 7, the Examiner stated that Dimbylow discloses an accessory 10 connectable to the dirty air inlet 33. When the accessory 10 is connected to the dirty air inlet 33, the accessory 10 overlies a portion of the openable door 26, thereby inhibiting the openable door 26 from opening.

As exemplified in Figures 1 and 2 of Dimbylow, which follow, the hand held vacuum cleaner has a central duct 30. Cleaning tool 10 is mountable to the central duct 30. As stated at Paragraph [0037], the cleaning tool 10 has an annular collar 43 that abuts the end wall 26 thereby holding the end wall 26 in the closed position, and so prevents accidental opening of the end wall 26 while the cleaning tool 10 is attached.

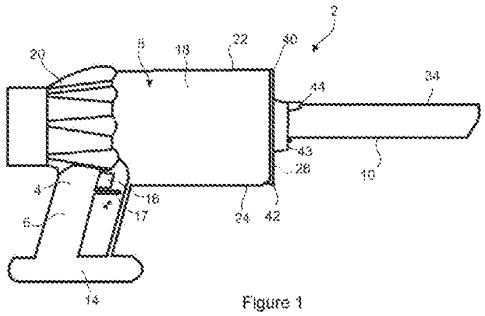


Figure 1

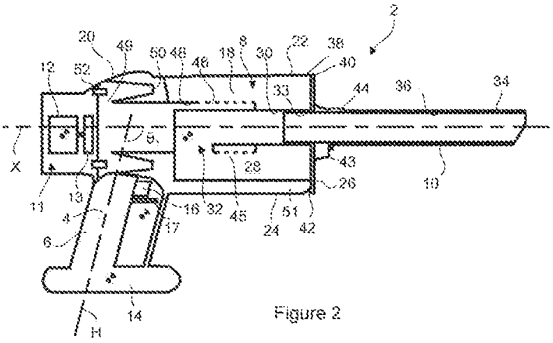
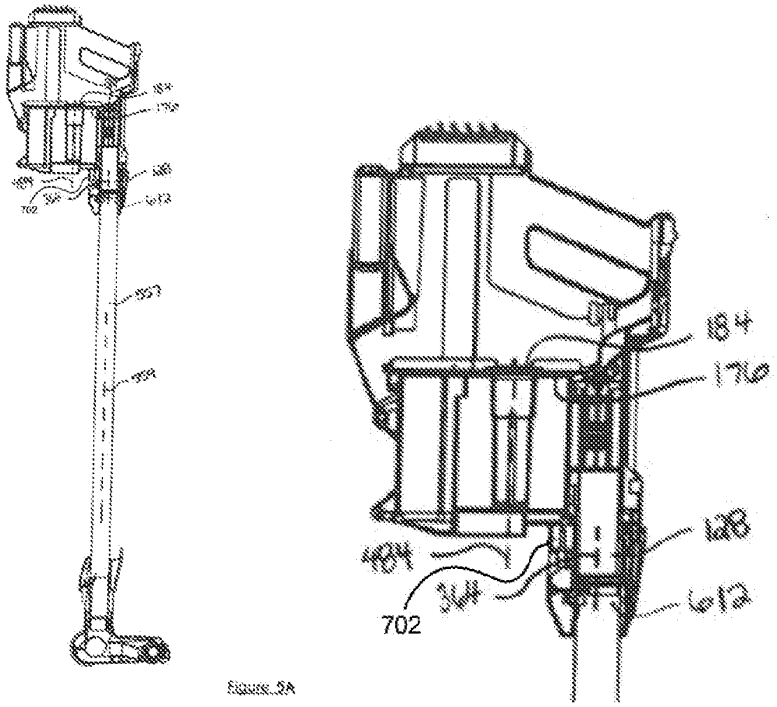


Figure 2

As exemplified in FIG. 5a of this application, which is set out below together with an enlargement of part of FIG. 5a, the cyclone unit front door 472 is connected to cyclone unit 112 by a hinge 486. The hinge 486 is provided at one end of the door (the lower end as exemplified). Therefore, when a user seeks to open the door 472, the user will try to open the door by moving the upper end of the door (the second opposed side of the door 472) and pivoting the door forwardly. In contrast to Dimbylow, the dirty air inlet 116 is positioned above the air treatment member (e.g., the cyclone chamber 160) and is not centrally positioned. As a result, when the outlet end 612 of the wand 136 is connected to the dirty air inlet 116, part of the wand (collar 702) overlies a second opposed side of the door 472 (the upper end as exemplified).



An advantage of positioning the dirty air inlet 116 above the air treatment member results in the wand being secured to the dirty air inlet 116 and then overlying part of the openable door spaced from the hinge. Therefore, when the wand is connected to the dirty air inlet,

the user will not be able to move the upper end of the door as it is secured in position by the wand. In contrast, in Dimbylow, the perimeter of the door is not secured in position. Therefore, a user may try to open the door without realizing the wand is preventing the door from opening. As a result, the user may bend or crack the door before they realize that the door cannot be opened due to the wand being attached to centrally positioned conduit 30.

The Applicant has amended claim 7 to reflect this configuration. Accordingly, claim 7 now specifies that:

- the dirty air inlet is positioned above the air treatment member;
- the openable door has a first side having a hinge; and,
- the openable door has a second opposed side positioned adjacent the dirty air inlet such that, when the accessory is connected to the dirty air inlet, the accessory overlies the second opposed side thereby inhibiting the openable door from opening.

Accordingly, as claimed in claim 7, in contrast to Dimbylow, an improved design is provided wherein a user may not commence to move the door towards the open position when the wand is attached.

In view of foregoing, it is respectfully submitted that claim 7 is novel over Dimbylow. Withdrawal of the rejection of claim 7 under 35 U.S.C. 102(1)(a) is respectfully requested.

Discussion of the patentability of Independent claim 20

The Applicant has amended claim 20 to clarify that the accessory has a blocking portion which moves a lock deactivation member to a blocking position which inhibits the openable door lock moving to a door openable position when the accessory is connected in air flow communication with the dirty air inlet.

For example, referring to Figure 35 and 36 of the application, when the wand 136 is connected to the dirty air inlet 116, bar 740 is moved to a blocking position in which bar

740 is interposed between the abutment 520 of door release actuator 504 and the abutment 524 of lock engaging member 496. In this position, bar 740 inhibits door release actuator 504 from moving lock engaging member 496, thereby inhibiting door 472 from being moved to an open position. In Figure 36, the 10 accessory is disconnected from the dirty air inlet 116, and bar 740 has moved to a door openable position so that bar 740 no longer inhibits door release actuator 504 from moving lock engaging member 496 (see, e.g., para [00317] of the application as filed).

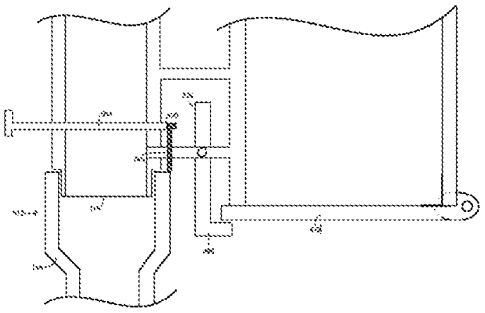


Figure 35

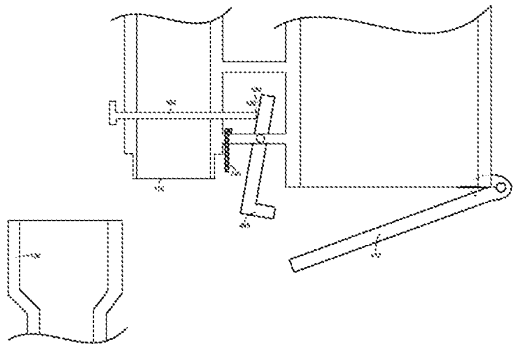


Figure 36

The Examiner rejected claim 20 based on Dimbylow. However, Dimbylow does not disclose that the accessory 10 has a blocking portion which moves a lock deactivation member to a blocking position which inhibits the openable door lock moving to a door openable position when the accessory 10 is connected in air flow communication with the is spaced from accessory 10.

Therefore, Applicant respectfully submits that Dimbylow does not disclose all of the features of independent claim 20. In view of foregoing, it is respectfully submitted that claim 20 is novel over Dimbylow. Withdrawal of the rejection of claim 20 under 35 U.S.C. 102(1)(a) is respectfully requested.

Discussion of the Patentability of the Dependent Claims

The rest of the rejected claims depend from claims 1, 7, 16, and 20 and further define additional technical features of the present invention. In view of the patentability of claims 1, 7, 16, and 20 and in further view of the additional technical features, Applicant respectfully submits that the dependent claims are patentable over the prior art.

Although Applicant has not addressed all the issues of the dependent claims, Applicant respectfully submits that Applicant does not necessarily agree with the characterization and assessments of the dependent claims made by the Examiner, and Applicant believes that each claim is patentable on its own merits. Applicant respectfully submits that the dependent claims incorporate by reference all the limitations of the claim to which they refer and include their own patentable features, and are therefore in condition for allowance. Therefore Applicant respectfully requests the withdrawal of all claim rejections and prompts allowance of the claims.

Conclusion

In light of Applicant's amendments to the claims and the foregoing Remarks, it is respectfully submitted that the present application is in condition for allowance. Should the Examiner have any remaining concerns which might prevent the prompt allowance of the application, the Examiner is respectfully invited to contact the undersigned at the telephone number appearing below.

No Disclaimers or Disavowals

Although the present communication may include alterations to the application or claims, or characterizations of claim scope or referenced art, Applicant is not conceding in this application that previously pending claims are not patentable over the cited references. Rather, any alterations or characterizations are being made to facilitate expeditious prosecution of this application. Applicant reserves the right to pursue at a later date any previously pending or other broader or narrower claims that capture any subject matter supported by the present disclosure, including subject matter found to be specifically

disclaimed herein or by any prior prosecution. Accordingly, reviewers of this or any parent, child or related prosecution history shall not reasonably infer that Applicant has made any disclaimers or disavowals of any subject matter supported by the present specification.

Applicant believes that no fees are due with the submission of the present response aside the fee under 37 CFR 1.17(h) for one independent claim in excess of three. However, if Applicant is mistaken, the Commissioner is hereby authorized to charge any deficiency in fees required to keep the present application in good standing (including any extension of time fees, excess claim fees, and request for continued examination fees) or credit any overpayment to our Deposit Account No. 02-2095.

Should the Examiner deem it beneficial to discuss the application in greater detail, the Examiner is kindly requested to contact Philip C. Mendes da Costa by telephone at 416-957-1695 at the Examiner's convenience.

Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

BERESKIN & PARR LLP/S.E.N.C.R.L., s.r.l.

/Philip C. Mendes da Costa/

By _____
Name: Philip C. Mendes da Costa
Reg. No. 33,106
Tel: 416.957.1695

Replacement Sheet

Attach Figure

Electronic Patent Application Fee Transmittal

Application Number:	15685962
Filing Date:	24-Aug-2017
Title of Invention:	SURFACE CLEANING APPARATUS
First Named Inventor/Applicant Name:	Wayne Ernest Conrad
Filer:	Philip C. Mendes da Costa/Snezana Lisowsky
Attorney Docket Number:	10452-P49931US06

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
INDEPENDENT CLAIMS IN EXCESS OF 3	1201	1	460	460
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**460**

Electronic Acknowledgement Receipt	
EFS ID:	37267875
Application Number:	15685962
International Application Number:	
Confirmation Number:	3872
Title of Invention:	SURFACE CLEANING APPARATUS
First Named Inventor/Applicant Name:	Wayne Ernest Conrad
Customer Number:	1059
Filer:	Philip C. Mendes da Costa/Snezana Lisowsky
Filer Authorized By:	Philip C. Mendes da Costa
Attorney Docket Number:	10452-P49931US06
Receipt Date:	25-SEP-2019
Filing Date:	24-AUG-2017
Time Stamp:	11:34:45
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$460
RAM confirmation Number	E20199OB35139066
Deposit Account	022095
Authorized User	Snezana Lisowsky
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37 CFR 1.19 (Document supply fees)

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37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		EFSWEB_P49931US06_Response_2019-09-25.pdf	1139966 6039ae6f1c0b1695e16a6cad4f26d6b1bb61edea	yes	14

Multipart Description/PDF files in .zip description

Document Description	Start	End
Amendment/Req. Reconsideration-After Non-Final Reject	1	1
Claims	2	6
Applicant Arguments/Remarks Made in an Amendment	7	14

Warnings:

Information:

2	Fee Worksheet (SB06)	fee-info.pdf	30697 1d3670fa4f679e576edd7b410fb367bb24676add	no	2

Warnings:

Information:

Total Files Size (in bytes):	1170663

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New Applications Under 35 U.S.C. 111

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

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If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

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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.
15/685,962	08/24/2017	Wayne Ernest Conrad	10452-P49931US06	3872

1059 7590 10/29/2019

BERESKIN & PARR LLP/S.E.N.C.R.L., s.r.l.
40 KING STREET WEST
40th Floor
TORONTO, ONTARIO M5H 3Y2
CANADA

EXAMINER	
NGUYEN, DUNG V	

ART UNIT	PAPER NUMBER
3723	

NOTIFICATION DATE	DELIVERY MODE
10/29/2019	ELECTRONIC

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

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

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

ipprocessingcentre@bereskinparr.com

Office Action Summary	**Application No.** 15/685,962	**Applicant(s)** Conrad, Wayne Ernest	
	Examiner DUNG V NGUYEN	**Art Unit** 3723	**AIA (FITF) Status** Yes

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

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 2 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

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

Status

1)☑ Responsive to communication(s) filed on 25 September 2019.

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

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

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

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

Disposition of Claims*

5) ☑ Claim(s) 1-25 is/are pending in the application.

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

6) ☑ Claim(s) 16-19 is/are allowed.

7) ☑ Claim(s) 1-7,14-15 and 20-25 is/are rejected.

8) ☑ Claim(s) 8-13 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 24 August 2017 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: _____.

Notice of Pre-AIA or AIA Status

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

Claim Objections

Claims 23-25 are objected to because of the following informalities: omitted. Appropriate correction is required.

The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

The added new claims 23-24 should be renumbered 26-27.

Conclusion

The reply filed on 25 September 2019 is not fully responsive to the prior Office action because of the following omission(s) or matter(s): Objection to the claims. See 37 CFR 1.111. Since the above-mentioned reply appears to be bona fide, applicant is given a TIME PERIOD of **TWO (2) MONTHS** from the mailing date of this notice within which to supply the omission or correction in order to avoid abandonment. This application has been granted special status under the accelerated examination program. Extensions of this time period may be granted under 37 CFR 1.136(a). However, filing a petition for extension of time will result in the application being taken out of the accelerated examination program. The objective of the accelerated examination program is to complete the examination of an application within twelve

months from the filing date of the application. To meet that objective, any reply must be filed electronically via EFS-Web so that the papers will be expeditiously processed and considered. If the reply is not filed electronically via EFS-Web, the final disposition of the application may occur later than twelve months from the filing of the application.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DUNG V NGUYEN whose telephone number is (571)272-4490. The examiner can normally be reached on M-F 7:00-3:30.

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, ORLANDO E. AVILES can be reached on 5712705531. 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.

/Dung Van Nguyen/
Primary Examiner, Art Unit 3723

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 15/685,962	Filing Date 08/24/2017	☐ To be Mailed

ENTITY: ☑ LARGE ☐ SMALL ☐ MICRO

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A		N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A		N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*		x $80 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		x $420 =	
☐ 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	10/30/2019	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 20	Minus	** 20	= 0		x $100 =	0
	Independent (37 CFR 1.16(h))	* 4	Minus	*** 4	= 0		x $460 =	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 $0 =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=		x $0 =	
	☐ 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.	LIE
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".	/ANGELONA D JONES/
*** 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.	

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.

Bereskin
& Parr

Appl. No	:	15/685,962
Applicant	:	Omachron Intellectual Property Inc.
Filed	:	August 24, 2017
Title	:	SURFACE CLEANING APPARATUS
TC./A.U.	:	3723
Examiner	:	NGUYEN, Dung V
Docket No.	:	10452-P49931US06
Customer No.:		01059

Date: October 30, 2019
Confirmation No.: 3872

Mail Stop Amendment
Honorable Commissioner for Patents
P. O. Box 1450
Alexandria, Virginia 22313–1450

AMENDMENT

In response to the Final Office Action of October 29, 2019, please amend the above-identified application as follows:

Amendments to the Claims are reflected in the listing of claims, which begins on page 2 of this paper.

Remarks/Arguments begin on page 7 of this paper.

Bereskin & Parr LLP
Scotia Plaza, 40 King Street West, 40th Floor, Toronto, ON M5H 3Y2 Canada
Tel: 416.364.7311 Fax: 416.361.1398 bereskinparr.com

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A surface cleaning apparatus comprising:

   (a) an air flow path from a dirty air inlet to a clean air outlet and including a suction motor;

   (b) an air treatment member comprising a dirt collection region having an openable door; [[and]],

   (c) an accessory removably connectable to the dirty air inlet wherein, when the accessory is connected to the dirty air inlet, the openable door is inhibited from opening; and,

   (d) an openable door lock comprising a lock engaging member and a door release actuator drivingly connected to the lock engaging member, the lock engaging member moveable between an engaged position in which the lock engaging member secures the openable door in a closed position and a disengaged position in which the openable door is openable wherein the lock engaging member is inhibited from moving to the disengaged position when the accessory is connected to the dirty air inlet.

2. (Original) The surface cleaning apparatus of claim 1 further comprising a front end having the dirty air inlet and the openable door is provided on the front end.

3. (Original) The surface cleaning apparatus of claim 1 wherein the accessory is removably mounted to the dirty air inlet.

4. (Original) The surface cleaning apparatus of claim 1 wherein, when the accessory is connected to the dirty air inlet, the accessory physically inhibits the openable door from opening.

5. (Original) The surface cleaning apparatus of claim 4 wherein, when the accessory is connected to the dirty air inlet, the accessory overlies a portion of the openable door.

6. (Original) The surface cleaning apparatus of claim 5 wherein, when the accessory is connected to the dirty air inlet, the accessory abuts a portion of the openable door.

7. (Currently Amended) [[The]] A surface cleaning apparatus ~~of claim 4~~ comprising:

(a) an air flow path from a dirty air inlet to a clean air outlet and including a suction motor;

(b) an air treatment member comprising a dirt collection region having an openable door wherein the dirty air inlet is positioned above the air treatment member;

(c) an accessory removably connectable to the dirty air inlet wherein,

wherein the openable door has first and second opposed sides, the first side having a hinge for the openable door and the second opposed side is positioned adjacent the dirty air inlet such that, when the accessory is connected to the dirty air inlet, the accessory overlies ~~interacts with~~ the second opposed side thereby inhibiting the openable door from opening.

8. (Cancelled).

9. (Currently Amended) The surface cleaning apparatus of claim [[8]] 1 wherein the accessory has a blocking portion which inhibits the lock engaging member moving to the disengaged position when the accessory is connected to the dirty air inlet.

10. (Original) The surface cleaning apparatus of claim 9 wherein the openable door lock includes a moveable portion which moves along a path from a first position when the lock engaging member is in the engaged position to a second position when the lock engaging member is in the disengaged position, the moveable portion has an abutment surface and the blocking portion is positioned in the path of the abutment surface when the accessory is connected to the dirty air inlet.

11. (Original) The surface cleaning apparatus of claim 10 wherein the moveable portion is part of a drive member drivingly connecting the door release actuator to the lock engaging member.

12. (Currently Amended) The surface cleaning apparatus of claim [[8]] 1 further comprising a lock deactivation member and the accessory has a blocking portion which activates the lock deactivation member when the accessory is connected to the dirty air inlet.

13. (Original) The surface cleaning apparatus of claim 12 wherein the lock deactivation member includes a moveable portion which moves along a path from a first position when the lock engaging member is in the engaged position to a second position when the lock engaging member is in the disengaged position, the moveable portion has an abutment surface and the blocking portion is positioned in the path of the abutment surface when the accessory is connected to the dirty air inlet.

14. (Cancelled).

15. (Original) The surface cleaning apparatus of claim 1 wherein the accessory is a longitudinally extending rigid member air flow member, an accessory cleaning tool, or a flexible hose.

16. (Original) A surface cleaning apparatus comprising:

(a) an air flow path from a dirty air inlet to a clean air outlet and including a suction motor;

(b) an air treatment member comprising a dirt collection region having an openable door;

(c) an accessory removably connectable in air flow communication with the dirty air inlet; and,

(d) an openable door lock comprising a lock engaging member and a door release actuator drivingly connected to the lock engaging member, the lock

engaging member is moveable between an engaged position in which the lock engaging member secures the openable door in a closed position and a disengaged position in which the openable door is openable wherein the lock engaging member is inhibited from moving to the disengaged position when the accessory is connected in air flow communication with the dirty air inlet.

17. (Original) The surface cleaning apparatus of claim 16 wherein the accessory has a blocking portion which inhibits the lock engaging member moving to the disengaged position when the accessory is connected to the dirty air inlet.

18. (Original) The surface cleaning apparatus of claim 17 wherein the openable door lock includes a moveable portion which moves along a path from a first position when the lock engaging member is in the engaged position to a second position when the lock engaging member is in the disengaged position, the moveable portion has an abutment surface and the blocking portion is positioned in the path of the abutment surface when the accessory is connected to the dirty air inlet.

19. (Original) The surface cleaning apparatus of claim 18 wherein the moveable portion is part of a drive member drivingly connecting the door release actuator to the lock engaging member.

20. (Currently Amended) A surface cleaning apparatus comprising:

(a) an air flow path from a dirty air inlet to a clean air outlet and including a suction motor;

(b) an air treatment member comprising a dirt collection region having an openable door;

(c) an accessory removably connectable in air flow communication with the dirty air inlet; and,

(d) an openable door lock securing the openable door in a closed position, a lock deactivation member and the accessory has a blocking portion which

~~activates~~ moves the lock deactivation member to a blocking position which inhibits the openable door lock moving to a door openable position when the accessory is connected in air flow communication with the dirty air inlet.

21. (Cancelled).

22. (Cancelled).

23. (Cancelled).

24. (Cancelled).

25. (Cancelled).

26. (New) The surface cleaning apparatus of claim 20 wherein the accessory has a blocking portion which inhibits the lock engaging member moving to the disengaged position when the accessory is connected to the dirty air inlet.

27. (New) The surface cleaning apparatus of claim 26 wherein the openable door lock includes a moveable portion which moves along a path from a first position when the lock engaging member is in the engaged position to a second position when the lock engaging member is in the disengaged position, the moveable portion has an abutment surface and the blocking portion is positioned in the path of the abutment surface when the accessory is connected to the dirty air inlet.

REMARKS/ARGUMENTS

This letter is being filed in response to the Final Office Action of October 29, 2019. Accordingly, it is respectfully submitted that this response is timely filed.

Status of the Claims

Applicant understands that the amendments to the claims set out in the Response dated September 25, 2019 have not been entered. Therefore, the following amendments are based on the claims as filed.

Claims 1 – 25 were examined in the non-final Office Action of June 26, 2019 and the final Office Action of October 29, 2019.

By this response, claim 1 has been amended to include the limitations of claim 8. Claim 8 has accordingly been cancelled without prejudice.

Claim 7 has been rewritten in independent form to include limitations from Claim 1 and to clarify the configuration.

Claim 20 has been amended to clarify the configuration of the door lock.

Claim 14 has been cancelled without prejudice due to the addition of the subject matter of claim 18 to claim 1.

Claim 21 has have been cancelled without prejudice in view of the amendment of claim 20.

Claims 22-25 have been cancelled without prejudice.

Claims 26 and 27 have been added as new claims. Support for the subject matter of these claims can be found at least in paragraphs [0144] and [0145].

Claims 1-7, 9-13, 15-20, and 26-27 are pending in this application, of which claims 1, 7, 16, and 20 are independent.

Allowable Subject Matter

The Applicant thanks the Examiner for indicating that claims 16-19 are allowed and that claims 8-13 would be allowable if rewritten to include all of the limitations of the base claim and any intervening claims.

Claim Rejections – 35 U.S.C. § 102

The Examiner rejected claims 1-7, 14, 15 and 20-25 under 35 U.S.C. 102(a)(1) as being anticipated by Dimbylow (US Pub 2017/0079489).

Discussion of the patentability of Independent Claim 1

Without agreeing with the Examiner that Dimbylow discloses the features of independent claim 1, claim 1 has been amended to incorporate the features of dependent claim 8.

Therefore, Applicant respectfully submits that claim 1 is allowable as it includes the subject matter of claim 8, which was objected to by the Examiner. Withdrawal of the rejection under 35 U.S.C. 102(a)(1) is respectfully requested.

Discussion of the patentability of Independent Claim 7

In rejecting claim 7, the Examiner stated that Dimbylow discloses an accessory 10 connectable to the dirty air inlet 33. When the accessory 10 is connected to the dirty air inlet 33, the accessory 10 overlies a portion of the openable door 26, thereby inhibiting the openable door 26 from opening.

As exemplified in Figures 1 and 2 of Dimbylow, which follow, the hand held vacuum cleaner has a central duct 30. Cleaning tool 10 is mountable to the central duct 30. As stated at Paragraph [0037], the cleaning tool 10 has an annular collar 43 that abuts the end wall 26 thereby holding the end wall 26 in the closed position, and so prevents accidental opening of the end wall 26 while the cleaning tool 10 is attached.

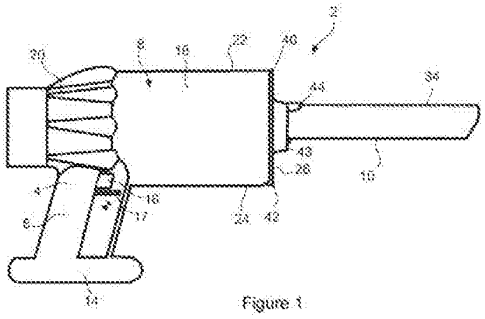


Figure 1

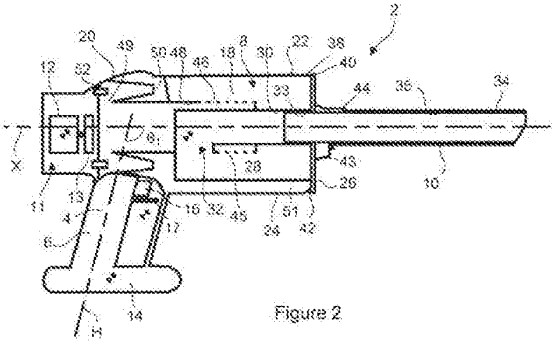
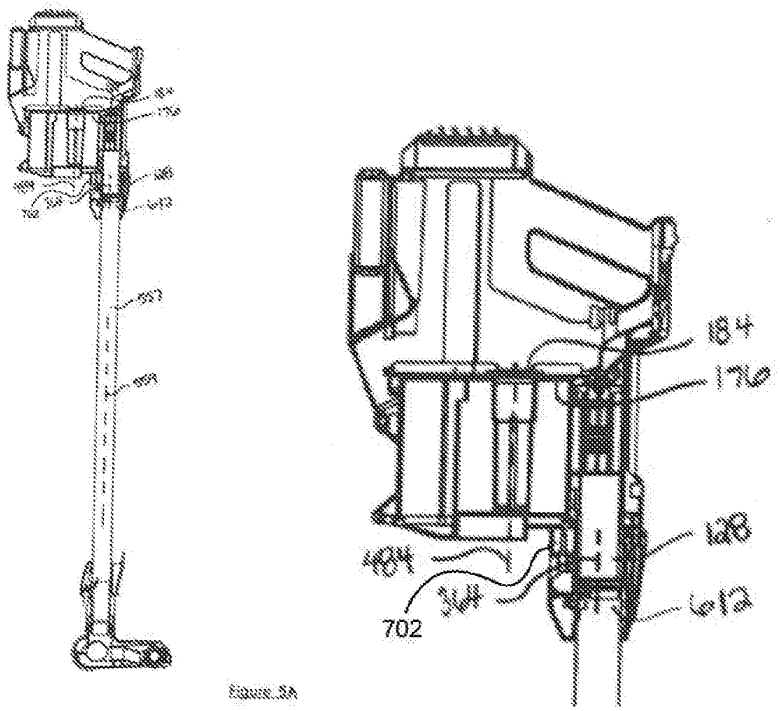


Figure 2

As exemplified in FIG. 5a of this application, which is set out below together with an enlargement of part of FIG. 5a, the cyclone unit front door 472 is connected to cyclone unit 112 by a hinge 486. The hinge 486 is provided at one end of the door (the lower end as exemplified). Therefore, when a user seeks to open the door 472, the user will try to open the door by moving the upper end of the door (the second opposed side of the door 472) and pivoting the door forwardly. In contrast to Dimbylow, the dirty air inlet 116 is positioned above the air treatment member (e.g., the cyclone chamber 160) and is not centrally positioned. As a result, when the outlet end 612 of the wand 136 is connected to the dirty air inlet 116, part of the wand (collar 702) overlies a second opposed side of the door 472 (the upper end as exemplified).



An advantage of positioning the dirty air inlet 116 above the air treatment member results in the wand being secured to the dirty air inlet 116 and then overlying part of the openable door spaced from the hinge. Therefore, when the wand is connected to the dirty air inlet, the user will not be able to move the upper end of the door as it is secured in position by the wand. In contrast, in Dimbylow, the perimeter of the door is not secured in position. Therefore, a user may try to open the door without realizing the wand is preventing the door from opening. As a result, the user may bend or crack the door before they realize that the door cannot be opened due to the wand being attached to centrally positioned conduit 30.

The Applicant has amended claim 7 to reflect this configuration. Accordingly, claim 7 now specifies that:

- the dirty air inlet is positioned above the air treatment member;

- the openable door has a first side having a hinge; and,
- the openable door has a second opposed side positioned adjacent the dirty air inlet such that, when the accessory is connected to the dirty air inlet, the accessory overlies the second opposed side thereby inhibiting the openable door from opening.

Accordingly, as claimed in claim 7, in contrast to Dimbylow, an improved design is provided wherein a user may not commence to move the door towards the open position when the wand is attached.

In view of foregoing, it is respectfully submitted that claim 7 is novel over Dimbylow. Withdrawal of the rejection of claim 7 under 35 U.S.C. 102(1)(a) is respectfully requested.

Discussion of the patentability of Independent claim 20

The Applicant has amended claim 20 to clarify that the accessory has a blocking portion which moves a lock deactivation member to a blocking position which inhibits the openable door lock moving to a door openable position when the accessory is connected in air flow communication with the dirty air inlet.

For example, referring to Figure 35 and 36 of the application, when the wand 136 is connected to the dirty air inlet 116, bar 740 is moved to a blocking position in which bar 740 is interposed between the abutment 520 of door release actuator 504 and the abutment 524 of lock engaging member 496. In this position, bar 740 inhibits door release actuator 504 from moving lock engaging member 496, thereby inhibiting door 472 from being moved to an open position. In Figure 36, the 10 accessory is disconnected from the dirty air inlet 116, and bar 740 has moved to a door openable position so that bar 740 no longer inhibits door release actuator 504 from moving lock engaging member 496 (see, e.g., para [00317] of the application as filed).

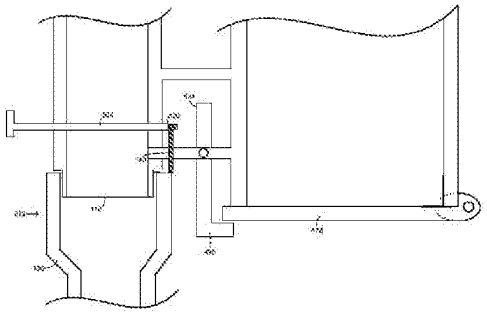


Figure 35

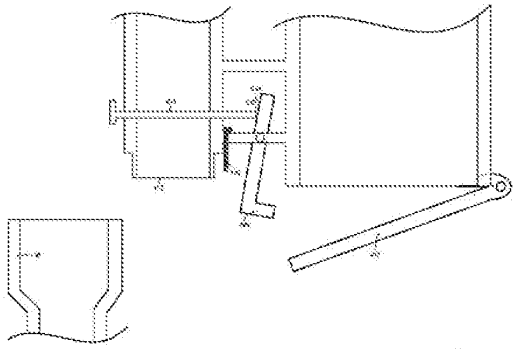


Figure 36

The Examiner rejected claim 20 based on Dimbylow. However, Dimbylow does not disclose that the accessory 10 has a blocking portion which moves a lock deactivation member to a blocking position which inhibits the openable door lock moving to a door openable position when the accessory 10 is connected in air flow communication with the is spaced from accessory 10.

Therefore, Applicant respectfully submits that Dimbylow does not disclose all of the features of independent claim 20. In view of foregoing, it is respectfully submitted that claim 20 is novel over Dimbylow. Withdrawal of the rejection of claim 20 under 35 U.S.C. 102(1)(a) is respectfully requested.

Discussion of the Patentability of the Dependent Claims

The rest of the rejected claims depend from claims 1, 7, 16, and 20 and further define additional technical features of the present invention. In view of the patentability of claims 1, 7, 16, and 20 and in further view of the additional technical features, Applicant respectfully submits that the dependent claims are patentable over the prior art.

Although Applicant has not addressed all the issues of the dependent claims, Applicant respectfully submits that Applicant does not necessarily agree with the characterization and assessments of the dependent claims made by the Examiner, and Applicant believes that each claim is patentable on its own merits. Applicant respectfully submits that the

dependent claims incorporate by reference all the limitations of the claim to which they refer and include their own patentable features, and are therefore in condition for allowance. Therefore Applicant respectfully requests the withdrawal of all claim rejections and prompts allowance of the claims.

Conclusion

In light of Applicant's amendments to the claims and the foregoing Remarks, it is respectfully submitted that the present application is in condition for allowance. Should the Examiner have any remaining concerns which might prevent the prompt allowance of the application, the Examiner is respectfully invited to contact the undersigned at the telephone number appearing below.

No Disclaimers or Disavowals

Although the present communication may include alterations to the application or claims, or characterizations of claim scope or referenced art, Applicant is not conceding in this application that previously pending claims are not patentable over the cited references. Rather, any alterations or characterizations are being made to facilitate expeditious prosecution of this application. Applicant reserves the right to pursue at a later date any previously pending or other broader or narrower claims that capture any subject matter supported by the present disclosure, including subject matter found to be specifically disclaimed herein or by any prior prosecution. Accordingly, reviewers of this or any parent, child or related prosecution history shall not reasonably infer that Applicant has made any disclaimers or disavowals of any subject matter supported by the present specification.

Applicant believes that no fees are due with the submission of the present response aside the fee under 37 CFR 1.16(h) for one independent claim in excess of three, which was previously submitted on September 25, 2019. However, if Applicant is mistaken, the Commissioner is hereby authorized to charge any deficiency in fees required to keep the present application in good standing (including any extension of time fees, excess claim fees, and request for continued examination fees) or credit any overpayment to our Deposit Account No. 02-2095.

Should the Examiner deem it beneficial to discuss the application in greater detail, the Examiner is kindly requested to contact Philip C. Mendes da Costa by telephone at 416-957-1695 at the Examiner's convenience.

Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

BERESKIN & PARR LLP/S.E.N.C.R.L., s.r.l.

/Philip C. Mendes da Costa/

By _____
Name: Philip C. Mendes da Costa
Reg. No. 33,106
Tel: 416.957.1695

Electronic Acknowledgement Receipt

EFS ID:	37612904
Application Number:	15685962
International Application Number:	
Confirmation Number:	3872
Title of Invention:	SURFACE CLEANING APPARATUS
First Named Inventor/Applicant Name:	Wayne Ernest Conrad
Customer Number:	1059
Filer:	Philip C. Mendes da Costa/Snezana Lisowsky
Filer Authorized By:	Philip C. Mendes da Costa
Attorney Docket Number:	10452-P49931US06
Receipt Date:	30-OCT-2019
Filing Date:	24-AUG-2017
Time Stamp:	19:41:16
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		P49931US06_Response_2019-10_30.pdf	281538 3af3a5deccdc7dc16d2fb86ddec47eaec04ef4e1	yes	14

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Amendment/Req. Reconsideration-After Non-Final Reject	1	1
	Claims	2	6
	Amendment/Req. Reconsideration-After Non-Final Reject	7	14
Warnings:			
Information:			
	Total Files Size (in bytes):	281538	

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

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.
National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.
New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

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NOTICE OF ALLOWANCE AND FEE(S) DUE

1059 7590 01/08/2020

BERESKIN & PARR LLP/S.E.N.C.R.L., s.r.l.
40 KING STREET WEST
40TH FLOOR
TORONTO, ONTARIO M5H 3Y2
CANADA

EXAMINER
NGUYEN, DUNG V

ART UNIT	PAPER NUMBER
3723	

DATE MAILED: 01/08/2020

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/685,962	08/24/2017	Wayne Ernest Conrad	10452-P49931US06	3872

TITLE OF INVENTION: SURFACE CLEANING APPARATUS

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1000	$0.00	$0.00	$1000	04/08/2020

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

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

HOW TO REPLY TO THIS NOTICE:

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

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

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

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

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

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

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

PART B - FEE(S) TRANSMITTAL

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

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

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

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

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

1059 7590 01/08/2020

BERESKIN & PARR LLP/S.E.N.C.R.L., s.r.l.
40 KING STREET WEST
40TH FLOOR
TORONTO, ONTARIO M5H 3Y2
CANADA

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

Certificate of Mailing or Transmission

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

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/685,962	08/24/2017	Wayne Ernest Conrad	10452-P49931US06	3872

TITLE OF INVENTION: SURFACE CLEANING APPARATUS

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1000	$0.00	$0.00	$1000	04/08/2020

EXAMINER	ART UNIT	CLASS-SUBCLASS
NGUYEN, DUNG V	3723	015-344000

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 _____
2 _____
3 _____

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

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

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

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

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

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

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

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

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

❑ Applicant certifying micro entity status. See 37 CFR 1.29

❑ Applicant asserting small entity status. See 37 CFR 1.27

❑ Applicant changing to regular undiscounted fee status.

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 _____

Typed or printed name _____ Registration No. _____

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/685,962	08/24/2017	Wayne Ernest Conrad	10452-P49931US06	3872

1059 7590 01/08/2020

BERESKIN & PARR LLP/S.E.N.C.R.L., s.r.l.
40 KING STREET WEST
40TH FLOOR
TORONTO, ONTARIO M5H 3Y2
CANADA

EXAMINER	
NGUYEN, DUNG V	
ART UNIT	**PAPER NUMBER**
3723	

DATE MAILED: 01/08/2020

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

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

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

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

PTOL-85 (Rev. 02/11)

Dyson Ex1004
Page 306

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. 15/685,962	Applicant(s) Conrad, Wayne Ernest	
	Examiner DUNG V NGUYEN	Art Unit 3723	AIA (FITF) Status Yes

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

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

1. ☑ This communication is responsive to Amendment filed on 10/30/2019.
   ☐ 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 See Continuation Sheet . As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see **http://www.uspto.gov/patents/init_events/pph/index.jsp** or send an inquiry to **PPHfeedback@uspto.gov.**

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

   Certified copies:

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

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

   * Certified copies not received: _____ .

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

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

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

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

Attachment(s)

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

/Dung Van Nguyen/
Primary Examiner, Art Unit 3723

Continuation of 3. The allowed claim(s) is/are: 1-7,9-13,15-20 and 26-27

Notice of Pre-AIA or AIA Status

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

Reasons for Allowance

The following is an examiner's statement of reasons for allowance: prior art of record considered as a whole alone or in combination neither anticipates nor renders obvious, an openable door lock comprising a lock engaging member and a door release actuator drivingly connected to the lock engaging member, the lock engaging member moveable between an engaged position in which the lock engaging member secures the openable door in a closed position and a disengaged position in which the openable door is openable wherein the lock engaging member is inhibited from moving to the disengaged position when the accessory is connected to the dirty air inlet, in combination with the rest of the limitations in claim 1; prior art of record considered as a whole alone or in combination neither anticipates nor renders obvious, the openable door has first and second opposed sides, the first side having a hinge for the openable door and the second opposed side is positioned adjacent the dirty air inlet such that, when the accessory is connected to the dirty air inlet, the accessory overlies interacts with the second opposed side thereby inhibiting the openable door from opening, in combination with the rest of the limitations in claim 7; prior art of record considered as a whole alone or in combination neither anticipates nor renders obvious, an openable door lock comprising a lock engaging member and a door release actuator drivingly connected to the lock engaging member, the lock engaging member is moveable between an engaged position in which the lock engaging member secures the openable

door in a closed position and a disengaged position in which the openable door is openable wherein the lock engaging member is inhibited from moving to the disengaged position when the accessory is connected in air flow communication with the dirty air inlet, in combination with the rest of the limitations in claim 16; prior art of record considered as a whole alone or in combination neither anticipates nor renders obvious, an openable door lock securing the openable door in a closed position, a lock deactivation member and the accessory has a blocking portion which activates moves the lock deactivation member to a blocking position which inhibits the openable door lock moving to a door openable position when the accessory is connected in airflow communication with the dirty air inlet, in combination with the rest of the limitations in claim 20.

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

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DUNG V NGUYEN whose telephone number is (571)272-4490. The examiner can normally be reached on M-F 7:00-3:30.

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, ORLANDO E. AVILES can be reached on (571) 270-5531. 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.

/Dung Van Nguyen/
Primary Examiner, Art Unit 3723

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/685,962	Conrad, Wayne Ernest
	Examiner	**Art Unit**
	DUNG V NGUYEN	3723

CPC						
Symbol					**Type**	**Version**
A47L	/	9	/	106	F	2013-01-01
A47L	/	5	/	24	I	2013-01-01
A47L	/	9	/	1683	I	2013-01-01
A47L	/	9	/	1666	I	2013-01-01
A47L	/	9	/	12	I	2013-01-01
A47L	/	9	/	1608	I	2013-01-01
A47L	/	9	/	1691	I	2013-01-01
A47L	/	9	/	322	I	2013-01-01
A47L	/	9	/	165	I	2013-01-01
A47L	/	9	/	2868	I	2013-01-01
A47L	/	9	/	22	I	2013-01-01
A47L	/	5	/	28	I	2013-01-01
A47L	/	5	/	225	I	2013-01-01
A47L	/	9	/	0072	I	2013-01-01
A47L	/	9	/	122	I	2013-01-01

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

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	20	
/Dung Van Nguyen/ Primary Examiner, Art Unit 3723	12 December 2019	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	21

U.S. Patent and Trademark Office — Part of Paper No.: 20191212

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/685,962	Conrad, Wayne Ernest
	Examiner	**Art Unit**
	DUNG V NGUYEN	3723

INTERNATIONAL CLASSIFICATION				
CLAIMED				
A47L	/	9	/	10
A47L	/	5	/	24
A47L	/	9	/	16
A47L	/	9	/	32
A47L	/	9	/	12

NON-CLAIMED				
	/		/	

US ORIGINAL CLASSIFICATION	
CLASS	**SUBCLASS**

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

NONE (Assistant Examiner) (Date)	**Total Claims Allowed:** 20	
/Dung Van Nguyen/ Primary Examiner, Art Unit 3723 (Primary Examiner) 12 December 2019 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 21

U.S. Patent and Trademark Office Part of Paper No.: 20191212

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/685,962	Conrad, Wayne Ernest
	Examiner	**Art Unit**
	DUNG V NGUYEN	3723

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

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	20	
/Dung Van Nguyen/ Primary Examiner, Art Unit 3723	12 December 2019	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	21

U.S. Patent and Trademark Office — Part of Paper No.: 20191212

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/685,962	Conrad, Wayne Ernest
	Examiner	Art Unit
	DUNG V NGUYEN	3723

CPC - Searched*		
Symbol	Date	Examiner
A47L 9/106, 5/225, 5/24, 5/28, 9/0072, 9/12, 9/122, 9/1608, 9/165, 9/1666, 9/1683, 9/1691, 9/22, 9/2868, 9322	06/21/2019	DVN
updated	12/12/2019	DVN

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
See search history (inventor name search, citation searches)	06/21/2019	DVN
See search history	12/12/2019	DVN

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
	See search history	12/12/2019	DVN

Bibliographic Data

Application No: 15/685,962

Foreign Priority claimed: ○ Yes ◉ No

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

Verified and Acknowledged: /Dung Van Nguyen/ (Examiner's Signature) | (Initials)

Title: SURFACE CLEANING APPARATUS

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
08/24/2017	015	3723	
RULE			

APPLICANTS

Omachron Intellectual Property Inc., Hampton, CANADA

INVENTORS

Wayne Ernest Conrad Hampton, CANADA

CONTINUING DATA

This application is a CIP of 15095714 04/11/2016 PAT 9986880

FOREIGN APPLICATIONS

IF REQUIRED, FOREIGN LICENSE GRANTED**

08/29/2017

STATE OR COUNTRY

CANADA

ADDRESS

FILING FEE RECEIVED

$2,420

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	441	a47l9/106.cpc.	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2019/12/12 14:40
L2	785	a47l5/225.cpc.	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2019/12/12 14:40
L3	1378	a47l5/24.cpc.	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2019/12/12 14:40
L4	11	1 and door same lock same inlet	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2019/12/12 14:42
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L8	1376	a47l5/28.cpc.	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2019/12/12 15:45
L9	279	a47l9/0072.cpc.	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2019/12/12 15:45
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L11	865	a47l9/122.cpc.	US-	OR	OFF	2019/12/12

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L35	1	((cleaning with apparatus) and path and inlet and outlet and (treatment with member) and accessory and (door with lock) and (deactivation with member)).clm.	US-PGPUB; USPAT	OR	OFF	2019/12/12 16:31

12/ 12/ 2019 4:31:14 PM
C:\ Users\ dnguyen9\ Documents\ EAST\ Workspaces\ 15685962.wsp

Bereskin & Parr

Appl. No	:	15/685,962	Confirmation No.:	3872
Applicant	:	Omachron Intellectual Property Inc.		
Filed	:	August 24, 2017		
Title	:	SURFACE CLEANING APPARATUS		
TC./A.U.	:	3723		
Examiner	:	NGUYEN, DUNG V.		
Docket No.	:	10452-P49931US06		
Customer No.	:	01059		

Mail Stop Issue Fee
Honorable Commissioner for Patents
P. O. Box 1450
Alexandria, Virginia 22313–1450

January 10, 2020

ISSUE FEES

This correspondence is responsive to the Notice of Allowance and Issue Fee Due dated January 8, 2020, which issued in the above-identified patent application. As required, we enclose herewith the Issue Fee transmittal form.

The government fee of $1000 is included. Please charge any deficiency or credit any overpayment to our deposit account no. 02-2095.

Respectfully submitted,

BERESKIN & PARR LLP/ S.E.N.C.R.L., s.r.l.

/Philip C. Mendes da Costa/

Philip C. Mendes da Costa
Registration No. 33,106
416. 957.1695

Bereskin & Parr LLP
Scotia Plaza, 40 King Street West, 40th Floor, Toronto, ON M5H 3Y2 Canada
Tel: 416.364.7311 Fax: 416.361.1398 bereskinparr.com

3659087

Electronic Patent Application Fee Transmittal

Application Number:	15685962
Filing Date:	24-Aug-2017
Title of Invention:	SURFACE CLEANING APPARATUS
First Named Inventor/Applicant Name:	Wayne Ernest Conrad
Filer:	Philip C. Mendes da Costa/Snezana Lisowsky
Attorney Docket Number:	10452-P49931US06

Filed as Large 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:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
PUBL. FEE- EARLY, VOLUNTARY, OR NORMAL	1504	1	0	0
UTILITY APPL ISSUE FEE	1501	1	1000	1000
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**1000**

Electronic Acknowledgement Receipt	
EFS ID:	38269905
Application Number:	15685962
International Application Number:	
Confirmation Number:	3872
Title of Invention:	SURFACE CLEANING APPARATUS
First Named Inventor/Applicant Name:	Wayne Ernest Conrad
Customer Number:	1059
Filer:	Philip C. Mendes da Costa/Snezana Lisowsky
Filer Authorized By:	Philip C. Mendes da Costa
Attorney Docket Number:	10452-P49931US06
Receipt Date:	10-JAN-2020
Filing Date:	24-AUG-2017
Time Stamp:	20:08:56
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$1000
RAM confirmation Number	E202010K09191154
Deposit Account	022095
Authorized User	Snezana Lisowsky
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.16 (National application filing, search, and examination fees) 37 CFR 1.17 (Patent application and reexamination processing fees)	

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	p49931us06_IssueFeeTransmittal_2020_01_10.pdf	122032 c28ece5ad2011e953c287d98b057c21829aef38a	no	1
Warnings:					
Information:					
2	Miscellaneous Incoming Letter	P49931US06_Commissioner_IssueFee_2020_01_10.pdf	126075 13399678fd26852966ad09dbb9510c7f10ee4d84	no	1
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	32145 3dffa3b319e276a1ef670ee913aa6a23acdb9c8e	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	280252		

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.

PART B - FEE(S) TRANSMITTAL

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

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

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

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

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

1059 7590 01/08/2020
BERESKIN & PARR LLP/S.E.N.C.R.L., s.r.l.
40 KING STREET WEST
40TH FLOOR
TORONTO, ONTARIO M5H 3Y2
CANADA

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

Certificate of Mailing or Transmission

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

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/685,962	08/24/2017	Wayne Ernest Conrad	10452-P49931US06	3872

TITLE OF INVENTION: SURFACE CLEANING APPARATUS

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1000	$0.00	$0.00	$1000	04/08/2020

EXAMINER	ART UNIT	CLASS-SUBCLASS
NGUYEN, DUNG V	3723	015-344000

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 Philip C. Mendes da Costa
2 BERESKIN & PARR LLP/ S.E.N.C.R.L., s.r.l.
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: Omachron Intellectual Property Inc.

(B) RESIDENCE: (CITY and STATE OR COUNTRY): Hampton, Ontario, Canada

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. 022095

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 /Philip C. Mendes da Costa/ Date January 10, 2020

Typed or printed name Philip C. Mendes da Costa Registration No. 33,106

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.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/685,962	02/25/2020	10568477	10452-P49931US06	3872

1059 7590 02/05/2020

BERESKIN & PARR LLP/S.E.N.C.R.L., s.r.l.
40 KING STREET WEST
40TH FLOOR
TORONTO, ONTARIO M5H 3Y2
CANADA

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 245 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):

Wayne Ernest Conrad, Hampton, CANADA;
Omachron Intellectual Property Inc., Hampton, CANADA;

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