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(71) Applicant: **WHIRLPOOL CORPORATION**
Benton Harbor, Michigan 49022 (US)

(72) Inventors:
• **Bellinger, Ryan Robert**
21024 Cassinetta di Biandronno (VA) (IT)
• **Blatchley, Timothy Noah**
21024 Cassinetta di Biandronno (VA) (IT)
• **Borgerson, Matthew Edward**
21024 Cassinetta di Biandronno (VA) (IT)

- **Christensen, Mark Jason**
21024 Cassinetta di Biandronno (VA) (IT)
- **Hoffmann, Alex Perry**
21024 Cassinetta di Biandronno (VA) (IT)
- **Kuhn, Ryan Douglas**
21024 Cassinetta di Biandronno (VA) (IT)
- **Morgan, Derek James**
21024 Cassinetta di Biandronno (VA) (IT)
- **Nguyen, Justin**
21024 Cassinetta di Biandronno (VA) (IT)
- **Seiffert, George Frederick**
21024 Cassinetta di Biandronno (VA) (IT)
- **Traylor, Melissa A.**
21024 Cassinetta di Biandronno (VA) (IT)
- **Traylor, Wesley Paul**
21024 Cassinetta di Biandronno (VA) (IT)
- **Bocchino, Gianluca**
21024 Cassinetta di Biandronno (VA) (IT)

(74) Representative: **Spina, Alessandro**
Whirlpool Management EMEA S.R.L.
Via Carlo Pisacane, 1
20016 Pero (MI) (IT)

(54) **FOREIGN PARTICULATE COLLECTOR FOR A LAUNDRY APPLIANCE**

(57) A laundry appliance (10) includes a cabinet (12) that has a user interface (14). A drum (16) is disposed within the cabinet (12) and includes baffles (18). A blower directs process air (72) through an airflow path that includes the drum (16). A lint filter (50) is disposed within the airflow path and between the drum (16) and the blower. A foreign particulate collector (22) is disposed within

the drum (16) and is configured to collect foreign particulates (24) within the drum (16). A controller (26) is operably coupled to a motor (56) for rotating the drum (16) and the blower. The user interface (14) and the controller (26) cooperate to operate the drum (16) and the blower for capturing foreign particulates (24) at least within the foreign particulate collector (22).

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Description

BACKGROUND OF THE DISCLOSURE

[0001] The present disclosure generally relates to a laundry appliance, and more specifically, to a foreign particulate collector for a laundry appliance.

SUMMARY OF THE DISCLOSURE

[0002] According to one aspect of the present disclosure, a laundry appliance includes a cabinet that has a user interface. A drum is disposed within the cabinet and includes baffles. A blower directs process air through an airflow path that includes the drum. A lint filter is disposed within the airflow path and between the drum and the blower. A foreign particulate collector is disposed within the drum and is configured to collect foreign particulates within the drum. A controller is operably coupled to a motor for rotating the drum and the blower. The user interface and the controller cooperate to operate the drum and the blower for capturing foreign particulates at least within the foreign particulate collector.

[0003] According to another aspect of the present disclosure, a laundry appliance includes a blower that directs process air through an airflow path. A drum is disposed within a cabinet. The airflow path includes the drum. A lint filter is disposed within the airflow path and is positioned between the drum and the blower. A foreign particulate collector is attached to the drum via a baffle. The baffle and the foreign particulate collector rotate within the drum to collect foreign particulates present within the drum.

[0004] According to another aspect of the present disclosure, a laundry appliance includes a blower that directs process air through an airflow path. A drum is disposed within a cabinet. The airflow path includes the drum. A lint filter is disposed within the airflow path and is positioned between the drum and the blower. A foreign particulate collector is attached to the drum via a baffle. The baffle and the foreign particulate collector rotate with the drum to collect foreign particulates present within the drum. An electrostatically charged member is disposed within the foreign particulate collector. The electrostatically charged member is a negatively charged member selectively disposed within the baffle. The negatively charged member is configured to attract oppositely-charged foreign particulates present within the drum.

[0005] These and other features, advantages, and objects of the present disclosure will be further understood and appreciated by those skilled in the art by reference to the following specification, claims, and appended drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0006] In the drawings:

FIG. 1 is a front perspective view of a laundry appliance of the present disclosure;

FIG. 2 is a side cross-sectional view of a laundry appliance of the present disclosure;

FIG. 3 is an enlarged partial side perspective view of a foreign particulate collector of the present disclosure with a charge;

FIG. 4 is an enlarged partial side perspective view of a second foreign particulate collector of the present disclosure with a charge;

FIG. 5 is an enlarged partial side cross-sectional view of a baffle and a foreign particulate collector of the present disclosure;

FIG. 6 is a side perspective view of a foreign particulate collector of the present disclosure with a tacky material and a plurality of projections;

FIG. 7 is an enlarged partial side perspective view of a baffle defining grooves in which coupling features of the present disclosure are disposed;

FIG. 8 is an enlarged partial side perspective view of a processing space with foreign substrate collectors of the present disclosure that have a plurality of bristles;

FIG. 9 is an enlarged partial side perspective view of rotatable baffles of foreign particulate collectors of the present disclosure;

FIG. 10 is a side perspective view of a baffle of the present disclosure with a roller of a foreign particulate collector;

FIG. 11 is an exploded side perspective view of a foreign particulate collector of the present disclosure disposed over a vent and having a foreign particulate filter; and

FIG. 12 is a schematic diagram of a controller of the present disclosure with a particulate algorithm.

[0007] The components in the figures are not necessarily to scale, emphasis instead being placed upon illustrating the principles described herein.

DETAILED DESCRIPTION

[0008] The present illustrated embodiments reside primarily in combinations of method steps and apparatus components related to a foreign particulate collector. Accordingly, the apparatus components and method steps have been represented, where appropriate, by conventional symbols in the drawings, showing only those specific details that are pertinent to understanding the embodiments of the present disclosure so as not to obscure the disclosure with details that will be readily apparent to those of ordinary skill in the art having the benefit of the description herein. Further, like numerals in the description and drawings represent like elements.

[0009] For purposes of description herein, the terms "upper," "lower," "right," "left," "rear," "front," "vertical," "horizontal," and derivatives thereof shall relate to the disclosure as oriented in FIG. 1. Unless stated otherwise,

the term "front" shall refer to the surface of the element closer to an intended viewer, and the term "rear" shall refer to the surface of the element further from the intended viewer. However, it is to be understood that the disclosure may assume various alternative orientations, except where expressly specified to the contrary. It is also to be understood that the specific devices and processes illustrated in the attached drawings, and described in the following specification are simply exemplary embodiments of the inventive concepts defined in the appended claims. Hence, specific dimensions and other physical characteristics relating to the embodiments disclosed herein are not to be considered as limiting, unless the claims expressly state otherwise.

[0010] The terms "including," "comprises," "comprising," or any other variation thereof, are intended to cover a non-exclusive inclusion, such that a process, method, article, or apparatus that comprises a list of elements does not include only those elements but may include other elements not expressly listed or inherent to such process, method, article, or apparatus. An element preceded by "comprises a ..." does not, without more constraints, preclude the existence of additional identical elements in the process, method, article, or apparatus that comprises the element.

[0011] Referring to FIGS. 1-12, reference numeral 10 generally designates a laundry appliance including a cabinet 12 that has a user interface 14. A drum 16 is disposed within the cabinet 12 and includes baffles 18. A blower directs process air 72 through an airflow path that includes the drum 16. The drum 16 defines a processing space 20 that is also part of the airflow path. A lint filter 50 is disposed within the airflow path and is located between the drum and the blower. A foreign particulate collector 22 is disposed within the drum 16 and the blower and is configured to collect foreign particulates 24 within the drum 16. A controller 26 is operably coupled to the drum 16 and the blower. The controller 26 is communicatively coupled to the user interface 14. The user interface 14 and the controller 26 cooperate to operate the drum 16 and the blower for capturing foreign particulate 24 within the foreign particulate collector 22 as well as the lint filter 50. The controller 26 is also configured to perform a particulate capturing algorithm 28.

[0012] Referring to FIGS. 1-4, the laundry appliance 10 is illustrated as a laundry dryer. It is also contemplated that the laundry appliance 10 may be configured as any one of a washer, a dryer, and/or a combination washer and dryer. The cabinet 12 is illustrated as having a door 40 operably coupled to a first side 42 of the laundry appliance 10, proximate to an opening 44 defined by the first side 42 of the cabinet 12. The door 40 may be configured as a flat panel door, a fishbowl door, and/or any other practicable door for use with a laundry appliance 10. The door 40 may provide selective access to the processing space 20, such that the door 40 selectively conceals the opening 44. It is generally contemplated that the cabinet 12 defines a slot 46 and a housing 48

proximate to the door 40 and the opening 44. As described in more detail herein, the slot 46 may be configured to receive a lint filter 50, which may be configured as a second foreign particulate collector 76.

[0013] The cabinet 12 may also define a machine compartment 52, in which machine components 54 of the laundry appliance 10 are disposed. By way of example, not limitation, the machine components 54 may include, at least, a motor 56 and electrical circuitry 58. Both the motor 56 and the electrical circuitry 58 may be communicatively and operably coupled with the controller 26, as described further herein. The motor 56 is operably connected with at least the drum 16. In certain aspects of the device, the motor 56 can be attached to each of the drum 16 and the blower. The user interface 14 of the cabinet 12 is also communicatively and operably coupled with the controller 26. The user interface 14 can include an interface portion 60 through which a user may operably control the laundry appliance 10. It is generally contemplated that the interface portion 60 may be configured as a touchscreen, buttons, and/or a knob for manually actuating the laundry appliance 10 or a voice activated interface or an interface that can receive and transfer remote or wireless commands and instructions. The user interface 14 is configured to present various routines of the controller 26 for selection by the user, such as the particulate capturing algorithm 28. As described in more detail herein, the user interface 14 may present the particulate capturing algorithm 28 to be selected by the user via the interface portion 60.

[0014] With reference to FIGS. 2-4, the housing 48 defined by the cabinet 12 may include a plurality of openings 70 within an airflow path and through which the process air 72 of the laundry appliance 10 may pass. The direction of the process air 72 through the plurality of openings 70 may assist in at least partially translating the foreign particulates 24 onto the lint filter 50. As described in more detail herein, the foreign particulate collector 22 may be operably coupled with at least one of the baffles 18 within the drum 16. It is also contemplated that the foreign particulate collector 22 may include a first foreign particulate collector 74 and a second foreign particulate collector 76, such that the first foreign particulate collector 74 is operably coupled to or integrally formed with one of the baffles 18, and the second foreign particulate collector 76 is disposed within the housing 48. In certain aspects of the device, the second foreign particulate collector 76 can be the lint filter 50.

[0015] The baffles 18 are illustrated as extending from a sidewall 78 of the drum 16. The baffles 18 extend from the sidewall 78 and into the processing space 20. The baffles 18 are configured to lift or otherwise tumble clothing items 80 within the drum 16 during a laundry cycle. The drum 16 defines the processing space 20 in which the clothing items 80 are selectively disposed. It is generally contemplated that the foreign particulates 24 may be released or otherwise removed from the clothing items 80 within the processing space 20 during the laundry

cycle. For example, the laundry cycle may be the particulate capturing algorithm 28, which is specifically configured to assist in the removal of the foreign particulates 24 from the clothing items 80.

[0016] Referring still to FIGS. 2-4, the electrical circuitry 58 may be operably coupled to the foreign particulate collector 22 to define a charge 90 along the foreign particulate collector 22. In this configuration, it is contemplated that the foreign particulate collector 22 may be referred to as a charged member, or electrostatically charged member, that is configured to attract oppositely-charged foreign particulates 24. By way of example, not limitation, the charge 90 may be a negative charge configured to collect positively charged foreign particulates 24. Additionally or alternatively, the charge 90 may be a positive charge configured to collect negatively charged foreign particulates 24. It is generally contemplated that the charge 90 may be defined within both the first foreign particulate collector 74 and the second foreign particulate collector 76, such that the electrical circuitry 58 may be operably coupled to both the baffles 18 and the housing 48, respectively. Stated differently, the first and second foreign particulate collectors 74, 76 can be operably coupled with the electrical circuitry 58 to obtain the charge 90. The electrical circuitry 58 may run an electrical current through the foreign particulate collector 22 to define the charge 90 and, ultimately, electrostatically charge the foreign particulate collector 22.

[0017] The charge 90 defined within the foreign particulate collector 22 is configured to attract oppositely charged foreign particulates 24, such as pet hair, located within the processing space 20. It is contemplated that the negatively charged first foreign particulate collector 74 operably coupled to and/or integrally formed with at least one of the baffles 18 may obtain the charge 90 via electrostatic charge buildup during the laundry cycle of the laundry appliance 10. Additionally or alternatively, the negatively charged member of the foreign particulate collector 22 may be configured as a plurality of negatively charged sheets 92 that may be operably coupled to the baffles 18 via an adhesive or other coupling method. In this configuration, the negatively charged sheets 92 may be configured to be selectively removed by the user when the foreign particulates 24 have accumulated on the negatively charged sheet 92.

[0018] Referring now to FIGS. 2 and 5-7, the baffles 18 define grooves 100 along a width W of each baffle 18. It is generally contemplated that the foreign particulate collector 22 includes an outer surface 102 and an inner surface 104. The inner surface 104 is operably coupled to the baffles 18 via the grooves 100 and includes coupling features 106 configured to couple the foreign particulate collector 22 to the baffles 18 via the grooves 100. It is generally contemplated that the coupling features 106 may include snaps, clips, or other coupling features 106 generally practicable for coupling the foreign particulate collector 22 to the baffles 18. The coupling features 106 may slide within the grooves 100 and, ultimately,

define a snap-fit configuration between the foreign particulate collector 22 and the baffle 18. Stated differently, the foreign particulate collector 22 may slide along the baffle 18 via the coupling features 106 disposed within the grooves 100 until the foreign particulate collector 22 enters a locked position. The locked position is defined by the snap-fit configuration between the coupling features 106 and the grooves 100 of the baffles 18. Additionally, using the grooves 100, the foreign particulate collector 22 can be aligned in a repeatable position on the baffle 18. In this manner, the foreign particulate collector 22 can be efficiently removed and replaced with respect to the baffle 18 for cleaning, replacement and other maintenance. It is also contemplated that the grooves 100 may define latching holes 108 in which the coupling features 106 may be selectively disposed in the locked position. Typically, the respective latching holes 108 cooperate with the coupling features 106 of the foreign particulate collector 22. This latching engagement between the respective latching holes 108 and the coupling features 106 defines a locked position of the foreign particulate collector 22.

[0019] The outer surface 102 of the foreign particulate collector 22 may be formed from a tacky or otherwise gripping material, such as silicone. Stated differently, the foreign particulate collector 22 includes a tacky outer surface 102. The outer surface 102 may also include a plurality of projections 110 that extend outwardly from the outer surface 102 of the foreign particulate collector 22. The plurality of projections 110 are configured to remove the foreign particulates 24 from the clothing items 80 within the processing space 20. For example, a user may place the clothing items 80 within the drum 16, and the clothing items 80 can tumble within the processing space 20 to dry the clothing items 80. It is generally contemplated that the clothing items 80 may contain at least some foreign particulates 24, such that the user may desire to remove the foreign particulates 24 from the clothing items 80. During the drying cycle, the clothing items 80 may engage with the baffles 18 and also the foreign particulate collector 22 as the clothing items 80 tumble within the drum 16.

[0020] The projections 110 of the foreign particulate collector 22 are configured to gently engage the clothing items 80 and the foreign particulate 24. This engagement causes the foreign particulate to adhere to the material surface of the foreign particulate collector 22. Because the foreign particulate 24 is light in weight, and because of the adhesive qualities of the foreign particulate collector 22, the foreign particulate 24 transfers from the clothing items 80 to the foreign particulate collector 22 to remove the foreign particulates 24, such as pet hair. The tacky material of the outer surface 102 retains the foreign particulates 24 on the foreign particulate collector 22. The user may selectively remove the foreign particulate collector 22 via the coupling features 106 being slidably removed from the grooves 100 of the baffles 18. The user may then rinse and/or otherwise clean the foreign par-

ticulate collector 22 and replace on the baffle 18 for repeated use.

[0021] With reference to FIGS. 2, 8, and 9, an alternate configuration of the foreign particulate collector 22 may include a plurality of bristles 120 snap-engaged to the baffles 18. The bristles 120 are configured to contact and remove the foreign particulates 24 from the clothing items 80 during the laundry cycle. The bristles 120 may be coupled to the baffles 18 via the coupling features 106. The plurality of bristles 120 and the foreign particulate collector 22 may be selectively removed from the baffles 18 via the coupling features 106 and grooves 100 to assist in cleaning and removal of the foreign particulates 24 that are collected during the laundry cycle. Additionally or alternatively, it is contemplated that the bristles 120 may be integrally formed with the baffle 18, such that the foreign particulate collector 22 and the baffle 18 form a single unit. In either configuration, it is contemplated that the bristles 120 extend along a length L of the baffle 18 to maximize the potential engagement between the foreign particulate collector 22 and the clothing items 80.

[0022] The foreign particulate collector 22, as illustrated in FIG. 9, includes a plurality of independently movable baffles 122 operably coupled to the baffles 18. Additionally or alternatively, the baffles 18 of the drum 16 may be configured as the independently movable baffles 122. The independently movable baffles 122 may also include the projections 110 extending from the movable baffles 122. It is generally contemplated that the projections 110 coupled to the movable baffles 122 may have an outer shape that can be used to trap the foreign particulate 24. In at least one aspect of the device, the projections 110 of the moveable baffles 122 can have a generally corkscrew configuration configured to collect and trap the foreign particulates 24 during the laundry cycle. The foreign particulate collector 22 utilizes the corkscrew configuration of the projections 110 to engage the clothing items 80 within the processing space 20 and trap the foreign particulates 24 removed from the clothing items 80.

[0023] The independently movable baffles 122 further articulate with the clothing items 80 and gently agitate the clothing items 80 to loosen or otherwise remove the foreign particulates 24 from the clothing items 80. Stated differently, the movable baffles 122 may assist in lifting and tumbling the clothing items 80 within the processing space 20, and the movable baffles 122 assist in rotating and otherwise gently agitating the clothing items 80 to loosen and remove the foreign particulates 24. Accordingly, the movable baffles 122 capture a certain portion of the foreign particulate 24 and also loosen and release portions of the foreign particulate 24 so that this material can be delivered to a lint filter 50 or another portion of the foreign particulate collector 22 for later disposal.

[0024] With reference to FIGS. 2 and 10, the foreign particulate collector 22 is illustrated as including a roller 130 operably coupled to the baffle 18. The roller 130 may include a plurality of tacky layers 132 wrapped around a central shaft 134 that operably couples the foreign par-

ticulate collector 22 with the baffle 18. The baffle 18 may include retention features 136 operably coupled to the central shaft 134 of the foreign particulate collector 22 to retain the foreign particulate collector 22 relative to the baffle 18. It is also contemplated that the retention features 136 may include bearings 138. The bearings 138 are configured to assist in the rotational movement of the foreign particulate collector 22 during contact with the clothing items 80 within the processing space 20.

[0025] During a laundry cycle, the clothing items 80 may engage with the outermost tacky layer 132 of the roller 130 that is outermost and exposed to the processing space 20. The foreign particulates 24 may be stuck or otherwise retained by the exposed tacky layer 132. After the exposed tacky layer 132 is populated or otherwise filled with foreign particulates 24, the user may remove the outermost tacky layer 132. It is also contemplated that the roller 130 may have an independent collector rotational axis 140 that is generally parallel and eccentric to a rotational axis 142 of the drum 16. Stated differently, the roller 130 rotates and otherwise operates independently of the rotational axis 142 of the drum 16. The independent collector rotational axis 140 of the roller 130 assists in the removal of the foreign particulates 24 as the roller 130 may operate at a different rate relative to the rotational axis 142 and movement of the drum 16.

[0026] Referring to FIGS. 1, 2, and 11, the foreign particulate collector 22 is illustrated as being integrally formed with at least one of the baffles 18, such that the foreign particulate collector 22 may be referred to as a foreign particulate baffle 150. The foreign particulate baffle 150 can be coupled to the sidewall 78 of the drum 16. The drum 16 may define a receptacle, such as a vent 152, in the sidewall 78 over which the foreign particulate baffle 150 may be disposed. The foreign particulate baffle 150 defines a series of apertures 154 along a perforated baffle wall 156 of the foreign particulate baffle 150. A foreign particulate filter 158 is selectively disposed within the perforated baffle wall 156 of the foreign particulate baffle 150. The series of apertures 154 are configured to allow the foreign particulates 24 to translate through the apertures 154 of the perforated baffle wall 156 and couple to the foreign particulate filter 158. It is generally contemplated that a suction device 160 may be disposed within the machine compartment 52 and is operably coupled to the drum 16 via the vent 152.

[0027] The suction device 160 defines an at least a partial vacuum within the vent 152 and the foreign particulate baffle 150. The at least partial vacuum is configured to draw the foreign particulates 24 through the series of apertures 154 and subsequently into the foreign particulate filter 158. The at least partial vacuum can pull on or otherwise draw the foreign particulates 24 from the processing space 20 into the foreign particulate baffle 150 to be temporarily retained on the foreign particulate filter 158. The at least partial vacuum may then draw the foreign particulates 24 from the foreign particulate filter 158 into the suction device 160. The suction device 160

may include a space in which the foreign particulates 24 may be collected and temporarily stored. Once filled, the user may empty a dedicated container or collector that is associated with the suction device 160 of the foreign particulates 24. The foreign particulates 24 may accumulate within the dedicated space of the suction device 160, such that the space may be contained within a drawer in communication with the suction device 160. The user may then access the space via the drawer to remove and clean out the collected foreign particulates 24. It is contemplated that the suction device 160 can be in the form of the blower or a separate dedicated air-handling mechanism.

[0028] With further reference to FIGS. 1, 2, and 11 and in an alternate configuration, the foreign particulate baffle 150 may include a supplemental airflow 162 generated within the foreign particulate baffle 150. The supplemental airflow 162 is directed outward away from the foreign particulate baffle 150 and is configured to push the foreign particulates 24 toward the process air 72 within the processing space 20. It is further contemplated that the foreign particulate baffle 150 may also include the plurality of projections 110 disposed around the series of apertures 154. The projections 110 may loosen or otherwise dislodge the foreign particulates 24 when the clothing items 80 engage the foreign particulate baffle 150. Once dislodged, the foreign particulates 24 may be directed through the series of apertures 154 defined by the foreign particulate baffle 150 and may be collected on the foreign particulate filter 158. Additionally or alternatively, the supplemental airflow 162 may direct the foreign particulates 24 to remain within the process air 72 to ultimately be retained by the second foreign particulate collector 76. Similar to the second foreign particulate collector 76 being removable from the housing 48, the foreign particulate filter 158 may be selectively removable from the foreign particulate baffle 150 to remove the foreign particulates 24 collected thereon.

[0029] With reference again to FIGS. 1-12, the controller 26 is configured with the particulate capturing algorithm 28, which is configured to assist in removing the foreign particulates 24 from the clothing items 80 within the processing space 20. The particulate capturing algorithm 28 alters a rotational speed and/or a rotational direction of the drum 16 via selective activation of the motor 56. For example, the controller 26, via the particulate capturing algorithm 28, may reduce the rotational speed of the drum 16 during the laundry cycle by slowing the speed of the motor 56. The reduced speed of the drum 16 assists in uncoupling the foreign particulates 24 from the clothing items 80 within the processing space 20. The speed reduction of the drum 16 may further increase the duration of contact between the clothing items 80 and, thus, the foreign particulates 24 and the foreign particulate collector 22.

[0030] The increased duration of contact between the clothing items 80 and the foreign particulate collector 22 may assist in maximizing the removal of the foreign par-

ticulates 24 from the clothing items 80 during the laundry cycle. The user may activate the particulate capturing algorithm 28 via the controller 26 by selecting the particulate capturing algorithm 28 on the user interface 14 of the laundry appliance 10. Regardless of the configuration of the foreign particulate collector 22, the particulate capturing algorithm 28 is configured to manipulate the speed and/or rotation of the drum 16 to maximize contact between the clothing items 80 and the foreign particulate collector 22. The particulate capturing algorithm 28 may also alter the rotation of the drum 16 during the laundry cycle, such that the drum 16 may switch between a clockwise rotation and a counterclockwise rotation.

[0031] Referring still to FIGS. 1-12, the particulate capturing algorithm 28 is configured with a predetermined number of rotation alterations to maximize the removal of the foreign particulates 24 from the clothing items 80. The altered rotational direction of the drum 16 may gently agitate the clothing items 80 to release the foreign particulates 24. The altered rotation, in addition to any one of the foreign particulate collectors 22 described herein, assists in maximizing the contact between the clothing items 80 and the foreign particulate collector 22. This maximized contact further loosens and assists in the removal of the foreign particulates 24 from the clothing items 80.

[0032] The foreign particulate collector 22 in any one of the configurations described herein assists in removing and retaining the foreign particulates 24. The clothing items 80 may gently engage the foreign particulate collector 22 to remove the foreign particulates 24. The foreign particulate collector 22 is configured with various features designed to retain the foreign particulates 24 for later removal. The foreign particulate collector 22 may also be configured to be selectively removable from the laundry appliance 10 to maximize the ease in cleaning of the foreign particulate collector 22, including removal of the foreign particulates 24.

[0033] Further, the addition of the particulate capturing algorithm 28 in combination with the foreign particulate collector 22 maximizes the overall removal of the foreign particulates 24 from the clothing items 80. The adjusted speed of the drum 16 assists in increasing the contact between the clothing items 80 and the foreign particulate collector 22. The increased duration in contact between the foreign particulate collector 22 and the clothing items 80 assists in maximizing the removal of the foreign particulates 24. Additionally or alternatively, the altered rotation of the drum 16 assists in gently agitating the clothing items 80, such that the clothing items 80 may come in contact with the foreign particulate collector 22 in varied directions. The clockwise and counterclockwise rotation maximizes contact between the foreign particulate collector 22 and the various surfaces of the clothing items 80 to maximize the removal of the foreign particulates 24.

[0034] The invention disclosed herein is further summarized in the following paragraphs and is further characterized by combinations of any and all of the various

aspects described therein.

[0035] According to one aspect of the present disclosure, a laundry appliance includes a cabinet that has a user interface. A drum is disposed within the cabinet and includes baffles. A blower directs process air through an airflow path that includes the drum. A lint filter is disposed within the airflow path and between the drum and the blower. A foreign particulate collector is disposed within the drum and is configured to collect foreign particulates within the drum. A controller is operably coupled to a motor for rotating the drum and the blower. The user interface and the controller cooperate to operate the drum and the blower for capturing foreign particulates at least within the foreign particulate collector.

[0036] According to another aspect, the foreign particulate collector includes coupling features that attach the foreign particulate collector to the baffles. The baffles include grooves that slidably receive the coupling features of the foreign particulate collector.

[0037] According to another aspect, the foreign particulate collector includes a tacky outer surface and projections that extend outwardly from the tacky outer surface.

[0038] According to another aspect, the grooves of the baffles each include a respective latching hole. The coupling features of the foreign particulate collector defines a locking position through a latching engagement with the respective latching hole.

[0039] According to another aspect, the controller, the blower and the motor cooperate to perform an algorithm that is configured to variably alter a speed of the motor and the drum.

[0040] According to another aspect, the foreign particulate collector is snap engaged with at least one of the baffles. The foreign particulate collector includes a plurality of bristles.

[0041] According to yet another aspect, the foreign particulate collector includes a roller that has a collector rotational axis that is eccentric to a rotational axis of the drum, and the roller includes a tacky outer surface.

[0042] According to another aspect, the foreign particulate collector is incorporated within at least one of the baffles that has a perforated baffle wall. The baffle wall includes apertures and a foreign particulate filter that separate foreign particulates from the process air within the drum.

[0043] According to yet another aspect, the drum includes a receptacle that receives the baffle wall that defines the foreign particulate collector. A suction device is in communication with an interior of the baffle wall via the receptacle to define an at least partial vacuum within the foreign particulate collector.

[0044] According to another aspect, the foreign particulate collector is a negatively charged member that is selectively disposed within the drum, and the negatively charged member is configured to attract oppositely-charged foreign particulates present within the drum.

[0045] According to another aspect of the present disclosure, a laundry appliance includes a blower that di-

rects process air through an airflow path. A drum is disposed within a cabinet. The airflow path includes the drum. A lint filter is disposed within the airflow path and is positioned between the drum and the blower. A foreign particulate collector is attached to the drum via a baffle. The baffle and the foreign particulate collector rotate within the drum to collect foreign particulates present within the drum.

[0046] According to another aspect, the foreign particulate collector is slidably attached to a baffle wall of the baffle.

[0047] According to another aspect, the baffle includes a perforated baffle wall that defines an interior that has a foreign particulate filter. The foreign particulate collector includes a suction device that draws process air from the drum and through the perforated baffle wall and the foreign particulate filter.

[0048] According to another aspect, the foreign particulate collector is snap engaged with the baffle.

[0049] According to another aspect, the foreign particulate collector includes a plurality of bristles.

[0050] According to yet another aspect, the foreign particulate collector includes a roller that has a collector rotational axis that is eccentric to a rotational axis of the drum, and the roller includes a tacky outer surface.

[0051] According to another aspect, the blower defines the suction device.

[0052] According to yet another aspect, the foreign particulate collector is a negatively charged member that is selectively disposed within the drum. The negatively charged member is configured to attract oppositely-charged foreign particulates present within the drum.

[0053] According to another aspect of the present disclosure, a laundry appliance includes a blower that directs process air through an airflow path. A drum is disposed within a cabinet. The airflow path includes the drum. A lint filter is disposed within the airflow path and is positioned between the drum and the blower. A foreign particulate collector is attached to the drum via a baffle. The baffle and the foreign particulate collector rotate with the drum to collect foreign particulates present within the drum. An electrostatically charged member is disposed within the foreign particulate collector. The electrostatically charged member is a negatively charged member selectively disposed within the baffle. The negatively charged member is configured to attract oppositely-charged foreign particulates present within the drum.

[0054] According to another aspect, the electrostatically charged member is negatively charged by an electrical current that is delivered to the foreign particulate collector.

Claims

1. A laundry appliance (10), comprising:
a cabinet (12) having a user interface (14);

- a drum (16) disposed within the cabinet (12) and including baffles (18);
 a blower that directs process air (72) through an airflow path that includes the drum (16);
 a lint filter (50) disposed within the airflow path and between the drum (16) and the blower;
 a foreign particulate collector (22) disposed within the drum (16) and configured to collect foreign particulates (24) within the drum (16); and
 a controller (26) operably coupled to a motor (56) for rotating the drum (16) and the blower, wherein the user interface (14) and the controller (26) cooperate to operate the drum (16) and the blower for capturing foreign particulates (24) at least within the foreign particulate collector (22).
2. The laundry appliance (10) of claim 1, wherein the foreign particulate collector (22) includes coupling features (106) that attach the foreign particulate collector (22) to the baffles (18).
 3. The laundry appliance (10) of claim 2, wherein the baffles (18) include grooves (100) that slidably receive the coupling features (106) of the foreign particulate collector (22).
 4. The laundry appliance (10) of any one of claims 1-3, wherein the foreign particulate collector (22) includes a tacky outer surface (102) and projections (110) extending outwardly from the tacky outer surface (102).
 5. The laundry appliance (10) of claim 3, wherein the grooves (100) of the baffles (18) each include a respective latching hole (108), and wherein the coupling features (106) of the foreign particulate collector (22) define a locked position through a latching engagement with the respective latching hole (108).
 6. The laundry appliance (10) of any one of claims 1-5, wherein the controller (26), the blower and the motor (56) cooperate to perform an algorithm (28) that is configured to variably alter a speed of the motor (56) and the drum (16).
 7. The laundry appliance (10) of any one of claim 1-6, wherein the foreign particulate collector (22) is snap engaged with at least one of the baffles (18).
 8. The laundry appliance (10) of any one of claims 1-7, and wherein the foreign particulate collector (22) includes a plurality of bristles (120).
 9. The laundry appliance (10) of any one of claims 1-8, wherein the foreign particulate collector (22) includes a roller (130) having a collector rotational axis (140) that is eccentric to a rotational axis (142) of the drum (16).
 10. The laundry appliance (10) of claim 9, and wherein the roller (130) includes a tacky outer surface (102).
 11. The laundry appliance (10) of any one of claims 1-10, wherein the foreign particulate collector (22) is incorporated within at least one of the baffles (18) having a perforated baffle wall (156).
 12. The laundry appliance (10) of claim 11, wherein the baffle wall (156) includes apertures (154) and a foreign particulate filter (158) that separate foreign particulates (24) from the process air (72) within the drum (16).
 13. The laundry appliance (10) of claim 12, wherein the drum (16) includes a receptacle that receives the baffle wall (156) that defines the foreign particulate collector (22).
 14. The laundry appliance (10) of claim 13, wherein a suction device (160) is in communication with an interior of the baffle wall (156) via the receptacle to define an at least partial vacuum within the foreign particulate collector (22).
 15. The laundry appliance (10) of any one of claims 1-14, wherein the foreign particulate collector (22) is a negatively charged member selectively disposed within the drum (16), and wherein the negatively charged member is configured to attract oppositely-charged foreign particulates (24) present within the drum (16).

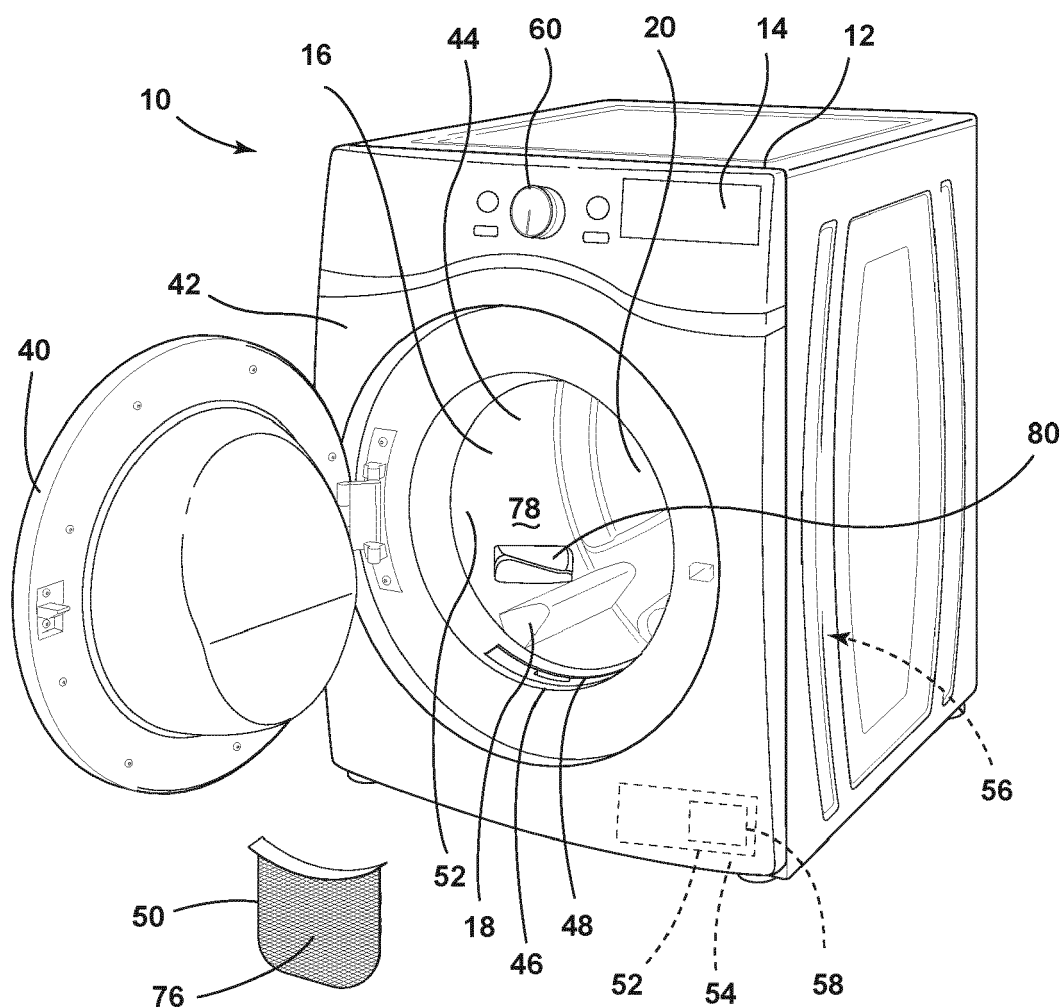


FIG. 1

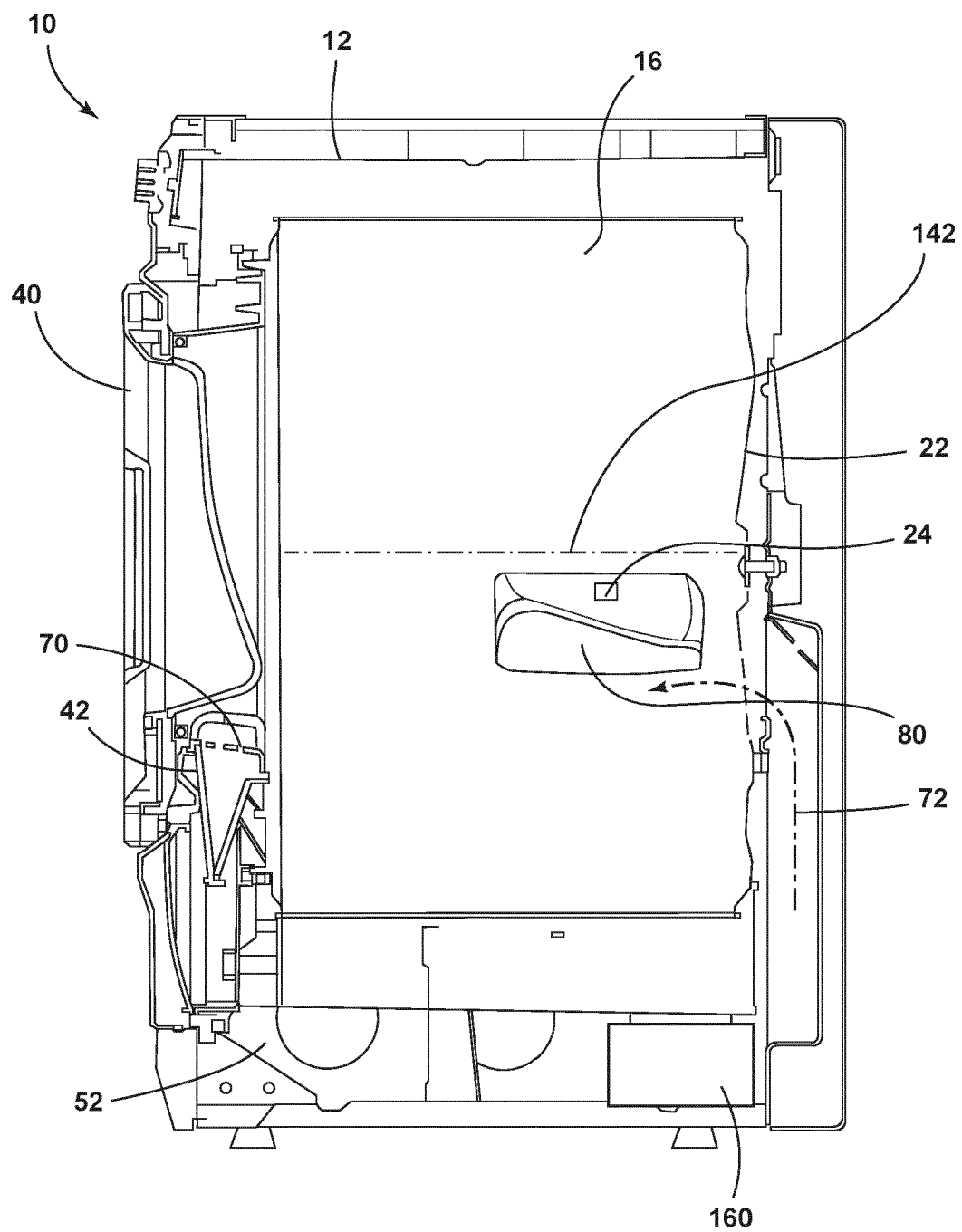


FIG. 2

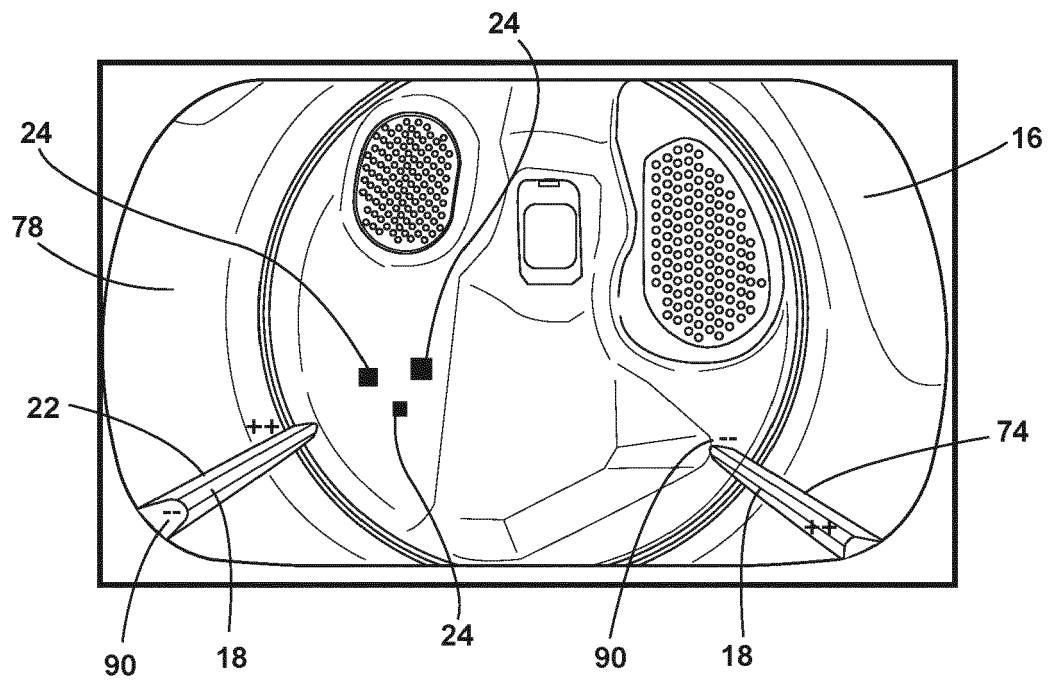


FIG. 3

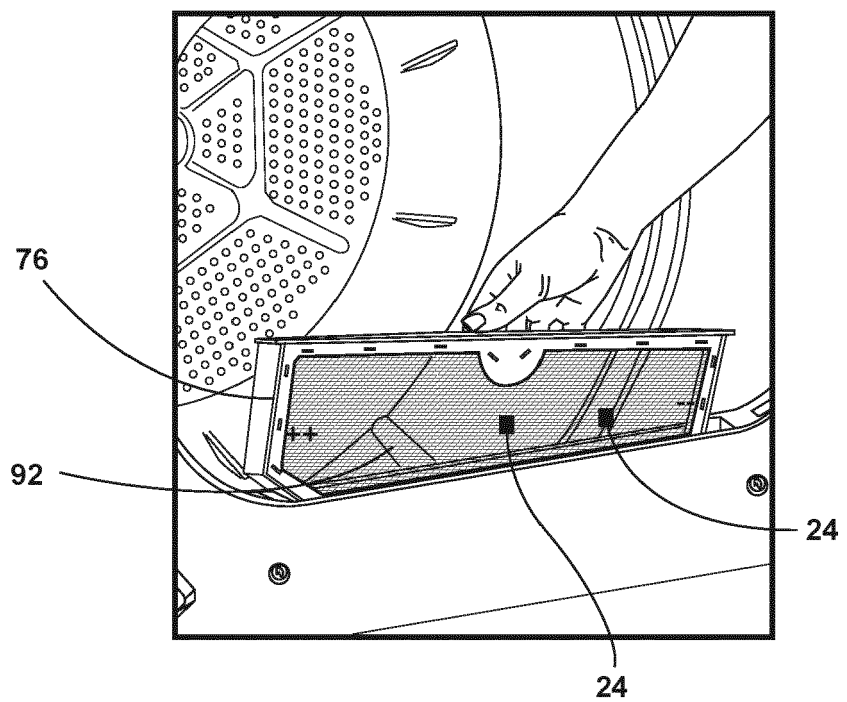


FIG. 4

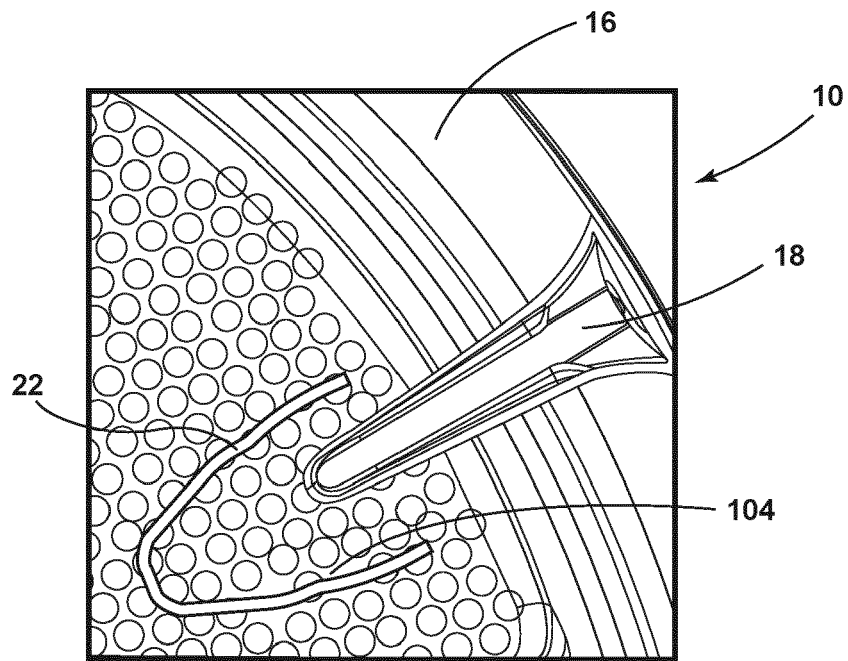


FIG. 5

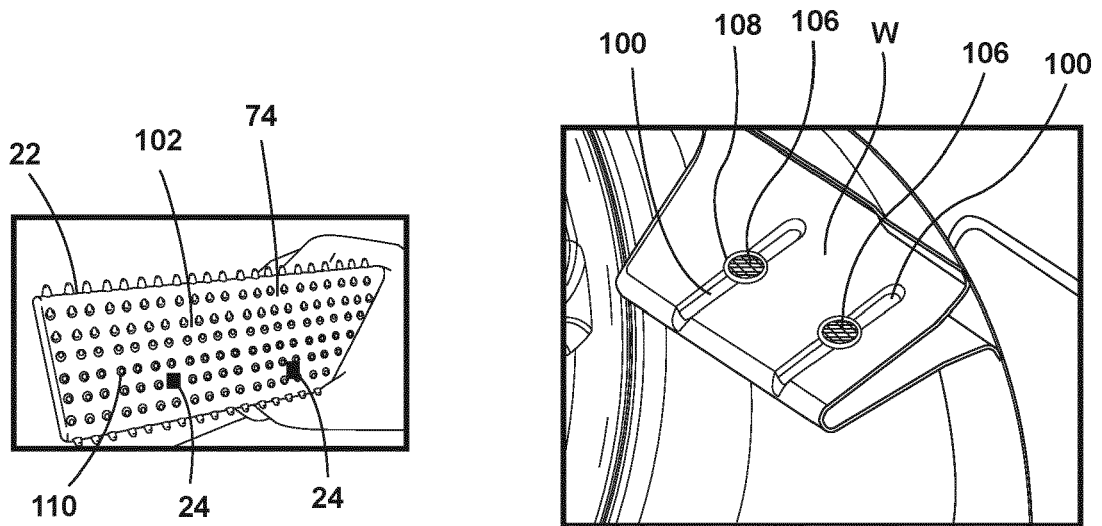


FIG. 6

FIG. 7

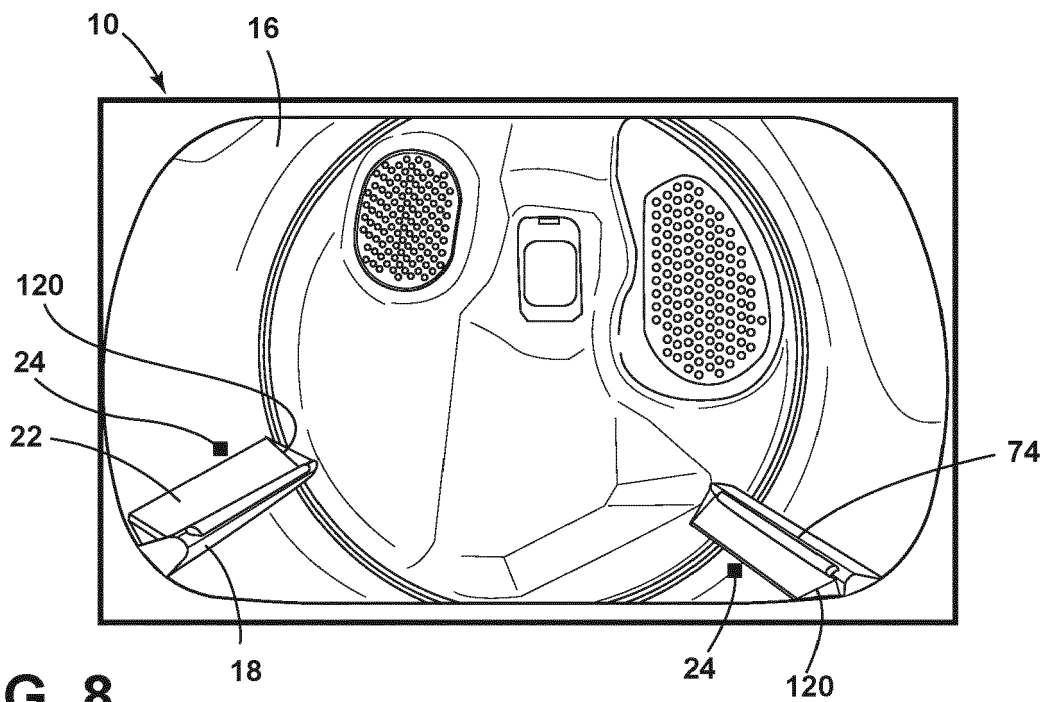


FIG. 8

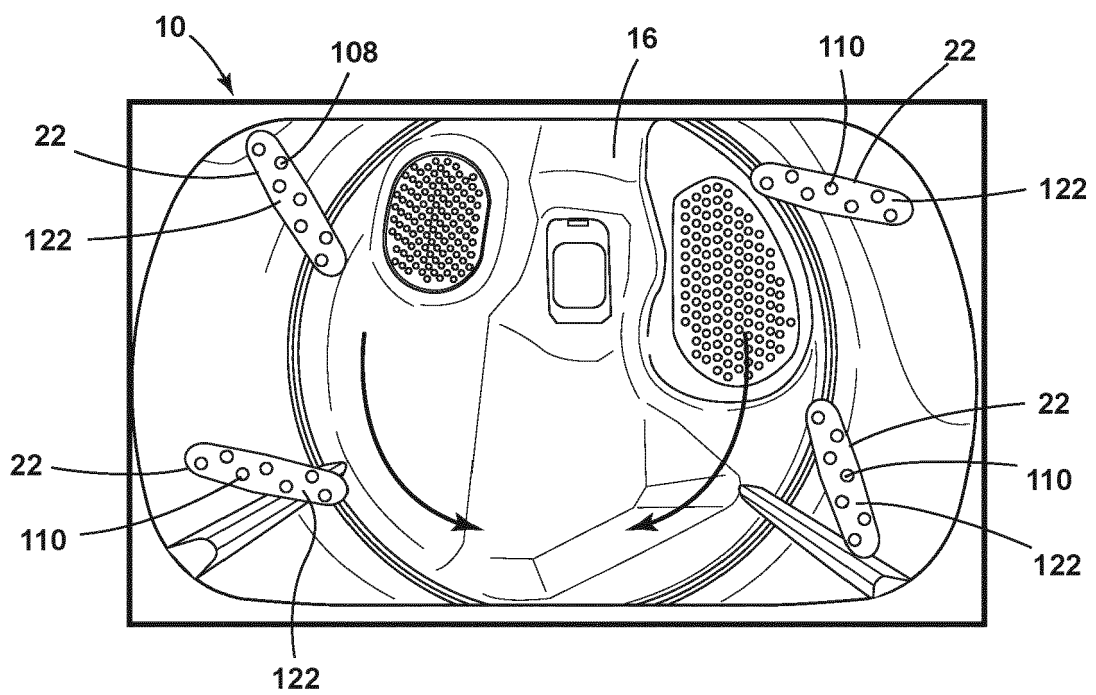


FIG. 9

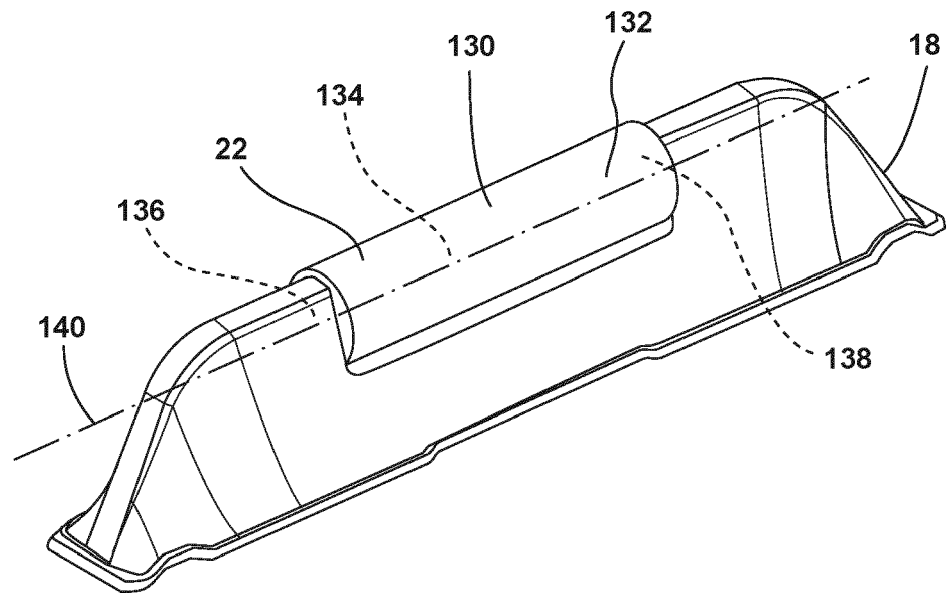


FIG. 10

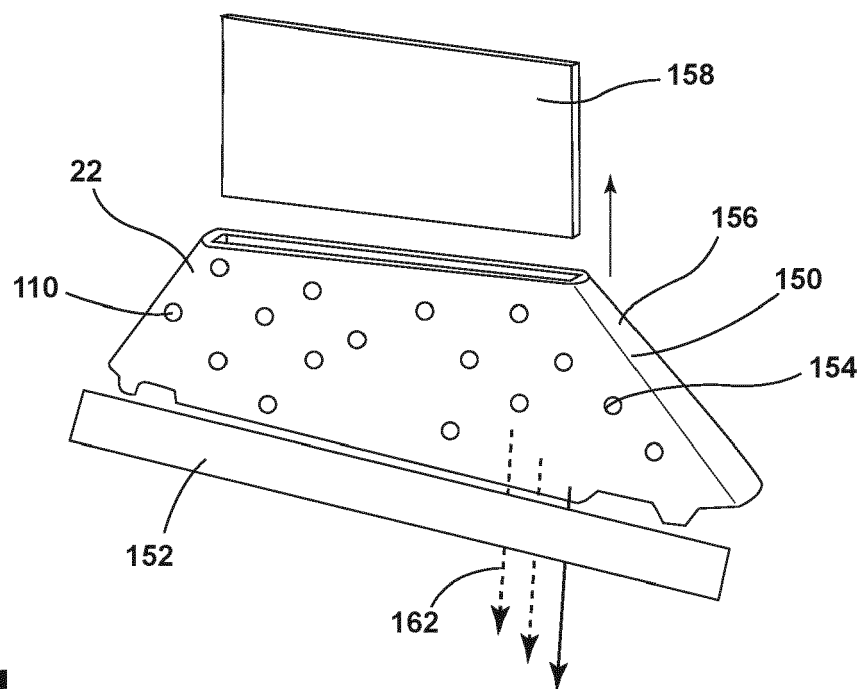


FIG. 11

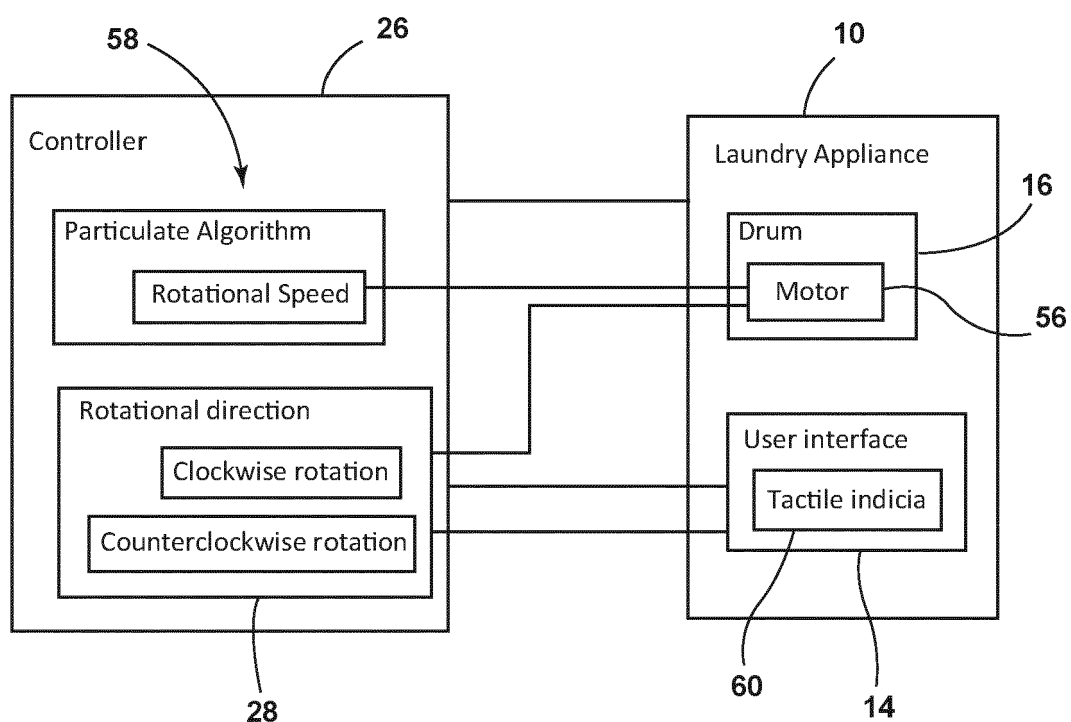


FIG. 12



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Y	* paragraphs [0004], [0010]; claims; figures *	3, 5-9, 11-13, 15	ADD. D06F25/00 D06F37/06 D06F58/02
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Place of search Munich		Date of completion of the search 9 January 2023	Examiner Popara, Velimir
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