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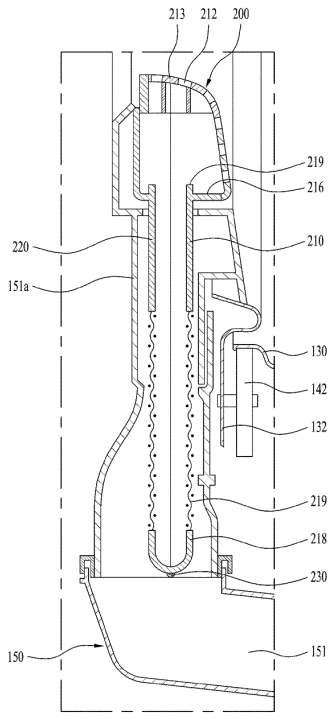
(54) CLOTHING TREATMENT APPARATUS

(57) The present invention relates to a clothing treatment apparatus comprising: a heat pump having an evaporator, a compressor, a condenser, and an expansion valve, and applying heat to air circulating in a drum; an air flow path forming a movement path such that the air is circulated through the drum; a lint filter provided on the air flow path and collecting lint contained in the air; and a condensate water collecting part collecting condensate water generated in the evaporator and supplying the condensate water to the lint filter, wherein the condensate water supplied from the condensate water collecting part is supplied to the upper portion of the lint filter, and the lint collected in the lint filter is moved to the lower portion of the lint filter, thereby securing the air flow path of the lint filter.

FIG. 3



EP 3 978 678 A1

Description

[Technical Field]

[0001] The present disclosure relates to a laundry treating apparatus, and more particularly, to a laundry treating apparatus for securing a flow path of a lint filter of the laundry treating apparatus.

[Background Art]

[0002] In general, a laundry treating apparatus is an apparatus capable of performing a function of washing laundry or drying the laundry that has been washed, or performing the both functions.

[0003] In addition, recently, a laundry treating apparatus equipped with a steam generating apparatus to have a refreshing function, such as wrinkle removal, odor removal, static electricity removal, and the like of the laundry, or a sterilization function has been developed.

[0004] For example, a drum-type dryer that dries the laundry that has been washed, a cabinet-type dryer that hangs the laundry to dry, a refresher that refreshes the laundry by supplying hot air to the laundry, and the like have been developed.

[0005] Among the laundry treating apparatuses, the refresher, the dryer, or the like has a heat source supply to heat air to supply the hot air to the laundry. Such heat source supply includes a gas heater that heats the air by burning gas using a heat source, an electric heater that heats the air by an electric resistance, a heat pump that heats the air using a heat pump that circulates a refrigerant through a compressor, a condenser, an expansion valve, and an evaporator, and the like. Recently, a heat pump having an advantage of excellent energy efficiency has been actively developed.

[0006] In one example, a laundry treating apparatus applying the heat pump has a drum, a driving motor, the compressor, the evaporator, the condenser, and the like inside a cabinet. The drum provides a cylindrical accommodating space to accommodate and dry the laundry, and a space occupied by the drum of a total space inside the cabinet is much larger than a space occupied by another component. For example, an outer circumference (a radius) of the drum extends from a top to a bottom of the cabinet as well as to left and right sides of the cabinet.

[0007] The compressor, the condenser, the expansion valve, and the evaporator constituting a heat pump cycle are disposed using the remaining spaces except for the space occupied by the drum. The remaining spaces except for the space occupied by the drum may be spaces on the left and right sides of the cabinet.

[0008] For example, the evaporator and the condenser may be placed in a front and rear direction in a space on one side of the cabinet, and the compressor with relatively large volume and size may be placed in a corner space on the other side of the cabinet.

[0009] In the case of the laundry treating apparatus using the heat pump according to the prior art as described above, moisture of humid air passing through the evaporator is condensed on a surface of the evaporator based on an operation of the heat pump, and condensed water condensed on the surface of the evaporator is collected by an own weight and drained separately.

[0010] In one example, the air used for drying an object to be dried in the laundry treating apparatus as described above contains lint generated from the laundry. Such lint may be filtered by a lint filter installed on a flow path of air discharged from the drum.

[0011] However, in the related art, after a drying cycle is completed, a user had to take out the lint filter and remove the lint every time. In addition, there was a problem that, when the lint filter is not cleaned for a long time, an air volume is reduced to lower a drying efficiency.

[Disclosure]

[Technical Problem]

[0012] The present disclosure is devised to solve the above-mentioned problems, and is to provide a laundry treating apparatus capable of securing a flow path of air by washing a lint filter that filters lint contained in the air.

[0013] The present disclosure is devised to solve the above-mentioned problems, and is to provide a laundry treating apparatus capable of securing a flow path of air by removing lint filtered from a lint filter using condensed water condensed in an evaporator.

[Technical Solutions]

[0014] It is preferable that a laundry treating apparatus for achieving the above purpose includes a heat pump equipped with an evaporator, a compressor, a condenser, and an expansion valve, and applying heat to air circulating in a drum, an air flow path for defining a flow path such that the air is circulated therein after passing through the drum, a lint filter disposed on the air flow path for collecting lint contained in the air, and a condensed water collector for collecting condensed water generated in the evaporator and supplying the collected condensed water to the lint filter, and the condensed water supplied from the condensed water collector is supplied to an upper portion of the lint filter to move lint collected in the lint filter to a lower portion of the lint filter.

[0015] It is preferable that the condensed water collector includes a condensed water drainage flow path having a condensed water pump for flowing the condensed water, a first branch flow path branching from the condensed water drainage flow path to guide the condensed water to a condensed water tank, a second branch flow path branching from the condensed water drainage flow path to guide the condensed water to the lint filter, and a branch valve disposed on the condensed water drainage flow path to selectively supply the condensed water to the first branch flow path or the second branch flow path.

[0016] It is preferable that the air flow path includes a suction flow path in communication with a front surface of the drum, wherein the air of the drum is introduced into the suction flow path, a filter mounting portion disposed in the suction flow path, wherein the lint filter is installed in the filter mounting portion, and an exhaust flow path in communication with a rear surface of the drum to exhaust air that has passed through the heat pump to the drum.

[0017] It is preferable that the lint filter includes a first housing for forming one surface of the lint filter, a second housing for forming the other surface of the lint filter, and a hinge for connecting one edge of the first housing and one edge of the second housing to each other.

[0018] It is preferable that the first housing and the second housing are formed in a shape symmetric to each other.

[0019] It is preferable that a handle for withdrawing the lint filter is formed on at least one of the first housing and the second housing.

[0020] It is preferable that the first housing includes an inlet defined at a top of the first housing such that the air of the drum flows into the first housing, and a filter located below the inlet, wherein the lint contained in the air flowed into the inlet is collected in the filter and then is discharged from the filter.

[0021] It is preferable that the laundry treating apparatus further includes a condensed water connection portion formed on one side of the inlet, wherein the second branch flow path is connected to the condensed water connection portion, and a condensed water flowing step for guiding the condensed water supplied through the condensed water connection portion and flowing inside the inlet to flow down to the filter.

[0022] It is preferable that the condensed water connection portion is formed on each of both sides of the inlet, and the condensed water flowing step is formed in a curved shape with a concave central portion.

[0023] It is preferable that multiple condensed water distribution protrusions spaced apart from each other at a predetermined spacing are formed at a longitudinal end of the condensed water flowing step such that the condensed water flowing along the condensed water flowing step flows evenly to the filter.

[Advantageous Effects]

[0024] According to the laundry treating apparatus of the present disclosure, the flow path of the air may be secured by washing the lint filter that filters the lint contained in the air.

[0025] In addition, according to the laundry treating apparatus of the present disclosure, the flow path of the air may be secured by removing the lint filtered from the lint filter using the condensed water condensed in the evaporator.

[Description of Drawings]

[0026]

FIG. 1 is a schematic diagram showing a laundry treating apparatus using a heat pump according to the present disclosure.

FIG. 2 is a simplified diagram showing a configuration of a laundry treating apparatus according to the present disclosure.

FIG. 3 is a partial cross-sectional view showing an installation state of a lint filter in a laundry treating apparatus according to the present disclosure.

FIG. 4 is a perspective view showing a lint filter of a laundry treating apparatus according to the present disclosure.

FIG. 5 is a cross-sectional view showing an internal structure of a lint filter according to the present disclosure.

FIG. 6 is a partial cross-sectional view showing a distribution portion of a lint filter according to the present disclosure.

[Best Mode]

[0027] Hereinafter, a laundry treating apparatus related to the present disclosure will be described in more detail with reference to the drawings. In the present specification, the same/similar reference numerals are assigned to the same/similar components even in different embodiments, and the description is replaced with the first description. As used herein, the singular expression includes the plural expression unless the context clearly dictates otherwise.

[0028] The present disclosure may be applied to a laundry treating apparatus having a drying function or a washing machine combined with a dryer, and a laundry treating apparatus having a refresh function and a sterilization function by having a steam supply apparatus. In addition, the present disclosure may be applied to a drum-type dryer and a cabinet-type dryer.

[0029] Hereinafter, a laundry treating apparatus according to the present disclosure will be described in detail with reference to the accompanying drawings.

[0030] FIG. 1 is a schematic diagram showing a laundry treating apparatus using a heat pump according to the present disclosure, and FIG. 2 is a simplified diagram showing a configuration of a laundry treating apparatus according to the present disclosure.

[0031] As shown in FIGS. 1 to 2, a laundry treating apparatus 100 according to the present disclosure is an example of a drum-type dryer, and is able to include a cabinet 110, a drum 130, a driver (not shown), a blowing fan 170, and a heat pump 160. Air of the drum 130 is connected to the heat pump 160 by an air flow path 150.

[0032] In this connection, the cabinet 110 may form an appearance of a product, and at the same time, include a door 112 constructed at a front surface thereof for in-

putting laundry, and a base 114 on which an internal component of the laundry treating apparatus 100 is installed.

[0033] In one example, the drum 130 may rotate about a rotation shaft directed in a horizontal direction or in a direction inclined at a certain angle inside the cabinet. In one example, the drum 130 may have a hollow cylindrical shape, and provide an accommodation space for drying the laundry, which is an object to be dried, put thereinto.

[0034] The drum 130 is formed in a cylindrical shape with open front and rear surfaces. The drum 130 has a front support 132 that rotatably supports the drum 130 at the front surface thereof. In addition, the drum 130 has a rear support 133 that rotatably supports the drum 130 at the rear surface thereof.

[0035] Additionally, a front roller 142 and a rear roller 143 in a form of a roller for rotatably supporting the drum 130 may be additionally disposed beneath the front and rear surfaces of the drum 130, respectively. That is, the front support 132 and the rear support 133 block the front and rear surfaces of the drum 130 to define the drying space for the object to be dried, and at the same time, support front and rear ends of the drum 130, respectively.

[0036] In one example, the front support 132 has an inlet 132b defined therein to put the object to be dried into the drum 130, and the inlet is selectively opened and closed by the door 112. In addition, an air outlet 132a to which the air flow path 150 to be described later is connected is positioned at a lower portion of the front support 132. The air outlet 132a is defined to be in communication with a suction flow path 151 of the air flow path 150 to be described later.

[0037] In addition, the rear support 133 has an air inlet 133a defined therein composed of a plurality of through-holes in order to supply air into the drum 130. The air inlet 133a is defined to be in communication with an exhaust flow path 152 of the air flow path 150 to be described later.

[0038] In this connection, in order to efficiently dry the laundry, which is the object to be dried, a lifter 131a for tumbling the input laundry may be further disposed on an inner circumferential surface of the drum 130.

[0039] In addition, the driver may provide a rotation force using a motor (not shown), an output shaft of the motor and the drum 130 may be connected to each other by power transmission means such as a belt or the like, and the rotation force of the motor may be transmitted to the drum 130 to rotate the drum 130.

[0040] In addition, the air flow path 150 may be connected to the drum 130 to form a closed loop for air circulation. For example, the air flow path 150 may be formed in a form of a duct. The suction flow path 151 for discharging air is defined beneath the front support 132 of the drum 130, and the exhaust flow path 152 for supplying air is defined beneath the rear support 133 of the drum 130.

[0041] In one example, the blowing fan 170 may be installed inside the air flow path 150 extending from the suction flow path 151 to an evaporator 161 of the heat pump 160, or inside the air flow path 150 extending from a condenser 16 of the heat pump 160 to the exhaust flow path 152.

[0042] In this connection, the blowing fan 170 may be driven by a separate fan motor, may apply power to air to pass through the drum 130, and may circulate air discharged from the drum 130 back to the drum 130.

[0043] In addition, a filter mounting portion 151a in which a lint filter 200 for filtering lint in the circulating air is installed is formed in the suction flow path 151. The lint filter 200 may collect the lint contained in the air as the air sucked from the drum 130 to the suction flow path passes therethrough.

[0044] In one example, in the case of the lint filter 200 of the present disclosure, a flow path of the air passing through the lint filter 200 may be secured by removing, from a filter 219 of the lint filter 200, the lint collected using condensed water generated from the evaporator 161 of the heat pump 160. This will be described in detail after a description of the heat pump.

[0045] Therefore, the laundry (also referred to as 'cloth') evaporates moisture by hot air supplied into the drum 130, and the air passing through the drum 130 is discharged from the drum 130 with the moisture evaporated from the laundry. The hot and humid air discharged from the drum 130 is circulated to the drum 130 after being heated by receiving heat from the heat pump 160 while flowing along the air flow path 150.

[0046] In one example, the heat pump 160 is constructed to include the evaporator 161, a compressor 163, the condenser 16, and an expansion valve 164. The heat pump 160 may use a refrigerant as a working fluid. The refrigerant flows along a refrigerant pipe 165, and the refrigerant pipe 165 forms a closed loop for circulation of the refrigerant. The evaporator 161, the compressor 163, the condenser 16, and the expansion valve 164 are connected to each other by the refrigerant pipe 165, so that the refrigerant sequentially passes through the evaporator 161, the compressor 163, the condenser 16, and the expansion valve 164.

[0047] In this connection, the evaporator 161 is installed in the air flow path 150 to be in communication with a drum outlet, and performs heat exchange between the air discharged from the drum outlet and the refrigerant to recover heat of the air discharged from the drum 130 without discarding the heat out of the dryer.

[0048] In addition, the condenser 16 is installed in the air flow path 150 to be in communication with a drum inlet, and performs heat exchange between the air that has passed through the evaporator 161 and the refrigerant to radiate heat of the refrigerant absorbed in the evaporator 161 to the air to be introduced into the drum 130.

[0049] In one example, the evaporator 161 and the condenser 16 may be installed inside the air flow path 150. The evaporator 161 may be connected to the drum outlet, and the condenser 16 may be connected to the drum inlet.

[0050] Because the hot and humid air discharged from

the drum 130 has a higher temperature than the refrigerant of the evaporator 161, as the air loses the heat to the refrigerant of the evaporator 161 while passing through the evaporator 161, the air is condensed to generate the condensed water.

[0051] Accordingly, the hot and humid air may be dehumidified by the evaporator 161, the condensed water may be collected through a condensed water collector 154 disposed beneath the evaporator 161, and the collected condensed water may be collected into a condensed water tank 158 and discarded, or may be supplied to the lint filter 200 and used to remove the lint collected by the lint filter 200.

[0052] The heat of the air absorbed by the evaporator 161 is transferred to the condenser 16 through the refrigerant. The compressor 163 is located between the evaporator 161 and the condenser 16 to transfer the heat from the evaporator 161 (a low heat portion) to the condenser 16 (a high heat portion).

[0053] In one example, the evaporator 161 and the condenser 16 may be a fin & tube type heat exchanger. The fin & tube type is in a form in which a number of fins of a flat plate shape are attached to a hollow tube. As the refrigerant flows along an interior of the tube and the air passes through the multiple fins attached to the tube, the refrigerant and the air may exchange heat with each other. In this connection, the fins are used to expand a heat exchange area between the air and the refrigerant.

[0054] The compressor 163 compresses the refrigerant evaporated in the evaporator 161 to make a high-temperature and high-pressure refrigerant, and transfers the high-temperature and high-pressure refrigerant to the condenser 16 along the refrigerant pipe 165. The compressor 163 may be an inverter type compressor 163 that may vary a frequency to control a discharge amount of the refrigerant.

[0055] The expansion valve 164 is installed on the refrigerant pipe 165 extending from the condenser 16 to the evaporator 161, expands the refrigerant condensed in the condenser 16 to make a low-temperature and low-pressure refrigerant, and transfers the low-temperature and low-pressure refrigerant to the evaporator 161.

[0056] When describing a flow path of the refrigerant according to the configuration as described above, the refrigerant flows into the compressor 163 in a gaseous state and becomes the high temperature and high pressure refriegerant by the compression of the compressor 163. The high-temperature and high-pressure refrigerant flows into the condenser 16 and becomes to be in a liquid state from the gaseous state as the heat is released to the air in the condenser 16.

[0057] Subsequently, the refrigerant in the liquid state flows into the expansion valve 164 and becomes the low-temperature and low-pressure refrigerant by a wire drawing effect of the expansion valve 164 (or including a capillary tube or the like). The low-temperature and low-pressure refrigerant in the liquid state flows into the evaporator 161 and absorbs the heat from the air in the evaporator 161 to be evaporated from the liquid state to the gaseous state.

[0058] As such, the heat pump 160 provides the heat to he air circulated to the drum 130 while repeatedly circulating the refrigerant to the compressor 163 → the condenser 16 → the expansion valve 164 → the evaporator 161.

[0059] In one example, the condensed water generated in the evaporator 161 in the above-described process is collected in the condensed water collector 154 located below the evaporator 161. The condensed water collector 154 is positioned beneath the evaporator 161 and the condenser 16 and is formed such that the condensed water falling from the evaporator 161 is collected therein.

[0060] In addition, the condensed water collected in the condensed water collector 154 may be supplied to the condensed water tank 158 or the lint filter 200 through a condensed water drainage flow path 155. The condensed water drainage flow path 155 may further include a condensed water pump 156 for draining the condensed water.

[0061] In addition, on a discharge side of the condensed water pump 156, a first branch flow path 157a and a second branch flow path 157b for guiding the condensed water flowed by the condensed water pump 156 to the condensed water tank 158 or the lint filter 200 may be disposed.

[0062] In this connection, a branch valve 159 for selectively supplying the condensed water flowing from an outlet of the condensed water pump 156 to the first branch flow path 157a or the second branch flow path 157b is disposed between the first branch flow path 157a and the second branch flow path 157b.

[0063] In one example, the laundry treating apparatus 100 includes the lint filter 200 for filtering the lint generated during the drying of the laundry. The lint filter 200 may be installed by being inserted into the filter mounting portion 151a located at the lower portion of the front support 132 of the drum.

[0064] In this connection, when a drying cycle continues, foreign substances such as the lint are deposited on the lint filter 200. When the lint filter 200 is not cleaned for a long time, a flow amount of air passing through the lint filter 200 may decrease due to the collected lint, and thus, a drying efficiency may be reduced. Therefore, there was a hassle in that a user has to take out the lint filter and remove the lint each time after use of the laundry treating apparatus is completed.

[0065] To solve such problem, in the present disclosure, the lint filter 200 that may improve convenience of the user and secure a flow rate of the air by supplying the condensed water to the lint filter 200 to remove the lint collected in the lint filter 200 from the filter by the condensed water and collect the removed lint in a lower portion of the lint filter 200 is provided.

[0066] Hereinafter, an installation state of the lint filter will be described with reference to the accompanying drawings.

[0067] FIG. 3 is a partial cross-sectional view showing an installation state of a lint filter in a laundry treating apparatus according to the present disclosure, FIG. 4 is a perspective view showing a lint filter of a laundry treating apparatus according to the present disclosure, FIG. 5 is a cross-sectional view showing an internal structure of a lint filter according to the present disclosure, and FIG. 6 is a partial cross-sectional view showing a distribution portion of a lint filter according to the present disclosure.

[0068] As shown in FIGS. 3 to 4, the lint filter 200 is constructed to be inserted and mounted in the filter mounting portion 151a of the suction flow path 151 in communication with the air outlet 132a of the front support 132, and has a first housing 210 and a second housing 220 connected to each other by foldable hinges 230 at lower ends thereof.

[0069] In such lint filter 200, the air is introduced into the lint filter 200 by a combination of the first housing 210 and the second housing 220, and the lint contained in the air is trapped in an inner space defined by the first housing 210 and the second housing 220.

[0070] Such first housing 210 and second housing 220 may be formed to be symmetric to each other around the hinge. There may be some differences depending on a shape of the filter mounting portion 151a in which the lint filter 200 is installed and an inflow direction of air, but the first housing 210 and the second housing 220 may be formed in similar shapes.

[0071] In addition, a handle 214 for removing the lint filter 200 from the filter mounting portion 151a may be further formed on at least one of the first housing 210 and the second housing 220.

[0072] In one example, an inlet 211 through which the air that has dried the object to be dried in the drum 130 is introduced is defined on top of the first housing 210 and the second housing 220, and a filter frame 218 to which the filter 219 is fixed is formed below the inlet 211.

[0073] In this connection, the filter frame 218 may be formed below the first housing 210 and the second housing 220, and may have a lower outer shape of the first housing 210 and the second housing 220 and an inner shape of a lattice form such that the filter 219 in a form of a mesh is located therein.

[0074] In this connection, each inlet 211 has multiple through-holes 212 and multiple inflow guides 213 defined therein. the air may be introduced into the lint filter 200 by the through-holes 212 and the inflow guides 213.

[0075] In one example, the through-holes 212 and the inflow guides 213 may be formed in a grid shape of a relatively small size in order to prevent the object to be dried inside the drum 130 from being introduced thereinto.

[0076] The air is introduced into such lint filter 200 through the inlet 211 defined at the top of the first housing 210 and the second housing 220, and the lint contained in the air is collected while the air is passing through the filter 219 formed beneath the first housing 210 and the second housing 220.

[0077] In addition, when the lint is collected inside the lint filter 200, top surfaces of the first housing 210 and the second housing 220 may be opened and the first housing 210 and the second housing 220 may be pivoted around the hinge 230, so that the line collected inside the lint filter 200 may be removed.

[0078] In one example, as shown in FIGS. 5 to 6, a condensed water connection portion 215 to which the second branch flow path 157a of the condensed water collector 154 is connected is formed at an upper portion of an external surface on each of both sides of each of the first housing 210 and the second housing 220, and a condensed water flowing step 16 is formed at an upper portion of an inner surface or each of the first housing 210 and the second housing 220 such that the condensed water is introduced into the condensed water connection portion 215 and flows.

[0079] In this connection, the condensed water flowing step 16 may be formed in a curved shape with a concave central portion such that the condensed water introduced from both sides of the first housing 210 and the second housing 220 flows down to a central portion inside the first housing 210 and the second housing 220 along the inner surfaces of the first housing 210 and the second housing 220.

[0080] In addition, at a longitudinal end of the condensed water flowing step 16 of each of the first housing 210 and the second housing 220, multiple condensed water distribution protrusions 217 spaced apart from each other at a predetermined spacing are formed such that the condensed water flowing along the condensed water flowing step 16 may flow evenly from the inner surface of each of the first housing 210 and the second housing 220 to the filter 219.

[0081] Therefore, while flowing down to the central portion of the first housing 210 and the second housing 220 along the curved shape of the condensed water flowing step 16, the condensed water introduced along the condensed water flowing step 16 of each of the first housing 210 and the second housing 220 may flow down to a front surface of the filter 219 by flowing down to a space between the condensed water distribution protrusions 217 formed on each of the first housing 210 and the second housing 220.

[0082] In the lint filter 200 according to the present disclosure as described above, when the condensed water is supplied through the condensed water connection portion 215 disposed on each of the first housing 210 and the second housing 220 of the lint filter 200, the supplied condensed water flows along the condensed water flowing step 16.

[0083] In one example, the condensed water flowing along the condensed water flowing step 16 is discharged through the space between the multiple condensed water distribution protrusions 217 formed on the condensed water flowing step 16 and flows evenly toward the filter 219, and the condensed water flowing down to the filter

219 flows down to a lower portion of the lint filter 200 along a surface of the filter 219 along with the lint while wetting the lint collected in the filter 219.

[0084] In this connection, the condensed water flowing down with the lint to the lower portion of the lint filter 200 is drained through the filter 219 at the lower portion of the lint filter 200, and the lint moved with the condensed water remains at the lower portion of the filter 200.

[0085] Accordingly, as the lint of the filter 219 of the lint filter 200 is removed and moved downward, the flow path of the air passing through the filter 219 may be secured.

[0086] According to the present disclosure as described above, it is possible to secure the air flow path of the lint filter 200 by supplying the condensed water to the lint filter 200 that filters the lint contained in the air to remove the lint collected in the filter 219 and collecting the removed lint at the lower portion of the lint filter 200.

[0087] As described above, although the preferred embodiment of the present disclosure has been described in detail, a person with ordinary skill in the technical field to which the present disclosure belongs will be able to implement the present disclosure in various ways without departing from the spirit and scope of the present disclosure defined in the appended claims. Therefore, future changes in the embodiments of the present disclosure will not be able to deviate from the description of the present disclosure.

[Industrial Applicability]

[0088] Included in the detailed description of the present disclosure.

Claims

1. A laundry treating apparatus comprising:

a heat pump equipped with an evaporator, a compressor, a condenser, and an expansion valve, and applying heat to air circulating in a drum;
an air flow path for defining a flow path such that the air is circulated therein after passing through the drum;
a lint filter disposed on the air flow path for collecting lint contained in the air; and
a condensed water collector for collecting condensed water generated in the evaporator and supplying the collected condensed water to the lint filter,
wherein the condensed water supplied from the condensed water collector is supplied to an upper portion of the lint filter to move lint collected in the lint filter to a lower portion of the lint filter.

2. The laundry treating apparatus of claim 1, wherein the condensed water collector includes:

a condensed water drainage flow path having a condensed water pump for flowing the condensed water;
a first branch flow path branching from the condensed water drainage flow path to guide the condensed water to a condensed water tank;
a second branch flow path branching from the condensed water drainage flow path to guide the condensed water to the lint filter; and
a branch valve disposed on the condensed water drainage flow path to selectively supply the condensed water to the first branch flow path or the second branch flow path.

3. The laundry treating apparatus of claim 2, wherein the air flow path includes:

a suction flow path in communication with a front surface of the drum, wherein the air of the drum is introduced into the suction flow path;
a filter mounting portion disposed in the suction flow path, wherein the lint filter is installed in the filter mounting portion; and
an exhaust flow path in communication with a rear surface of the drum to exhaust air that has passed through the heat pump to the drum.

4. The laundry treating apparatus of claim 2, wherein the lint filter includes:

a first housing for forming one surface of the lint filter;
a second housing for forming the other surface of the lint filter; and
a hinge for connecting one edge of the first housing and one edge of the second housing to each other.

5. The laundry treating apparatus of claim 4, wherein the first housing and the second housing are formed in a shape symmetric to each other.

6. The laundry treating apparatus of claim 4, wherein a handle for withdrawing the lint filter is formed on at least one of the first housing and the second housing.

7. The laundry treating apparatus of claim 4, wherein the first housing includes:

an inlet defined at a top of the first housing such that the air of the drum flows into the first housing; and
a filter located below the inlet, wherein the lint contained in the air flowed into the inlet is collected in the filter and then is discharged from

the filter.

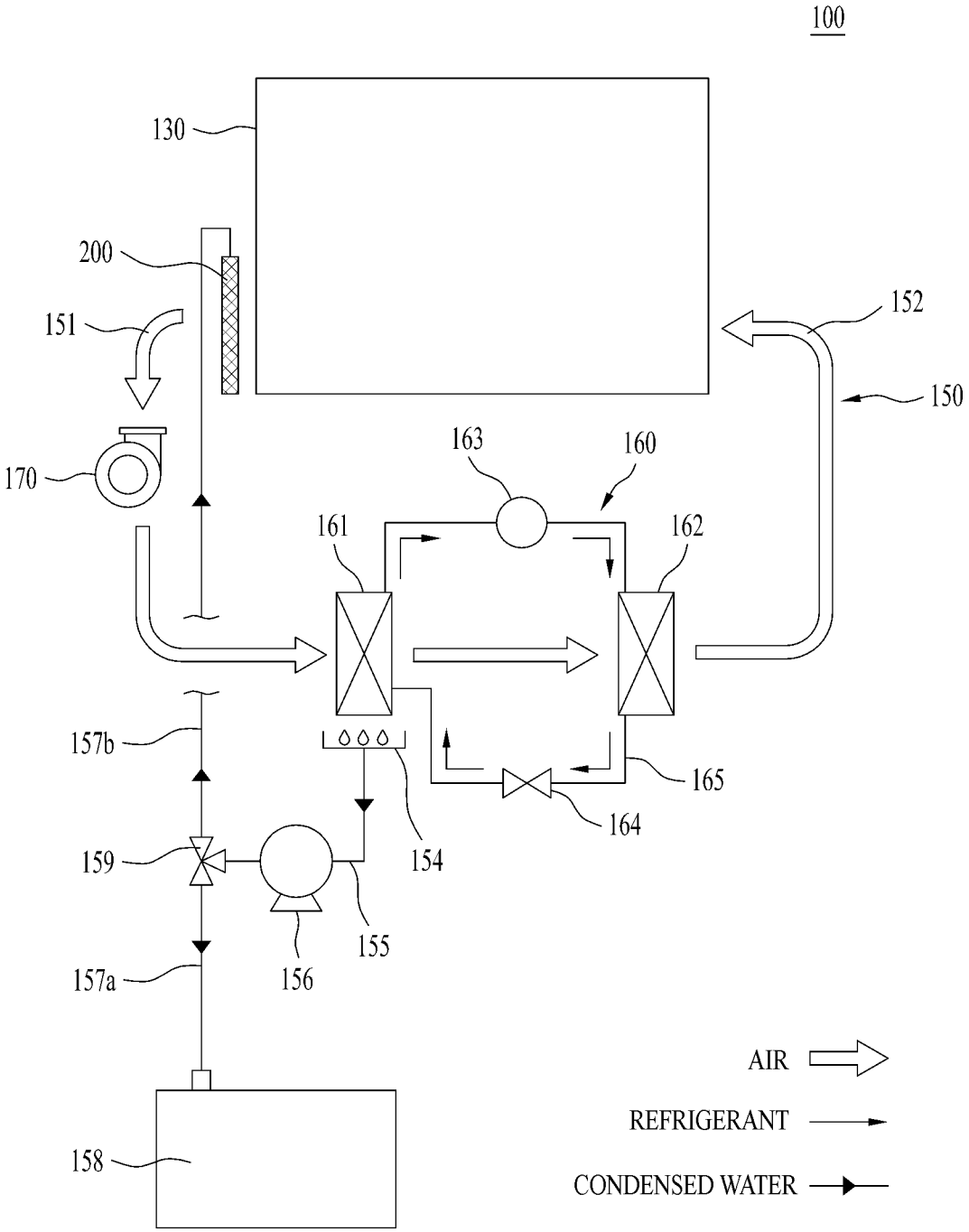
8. The laundry treating apparatus of claim 7, further comprising:

a condensed water connection portion formed on one side of the inlet, wherein the second branch flow path is connected to the condensed water connection portion; and
a condensed water flowing step for guiding the condensed water supplied through the condensed water connection portion and flowing inside the inlet to flow down to the filter.

9. The laundry treating apparatus of claim 8, wherein the condensed water connection portion is formed on each of both sides of the inlet, wherein the condensed water flowing step is formed in a curved shape with a concave central portion.

10. The laundry treating apparatus of claim 9, wherein multiple condensed water distribution protrusions spaced apart from each other at a predetermined spacing are formed at a longitudinal end of the condensed water flowing step such that the condensed water flowing along the condensed water flowing step flows evenly to the filter.

FIG. 1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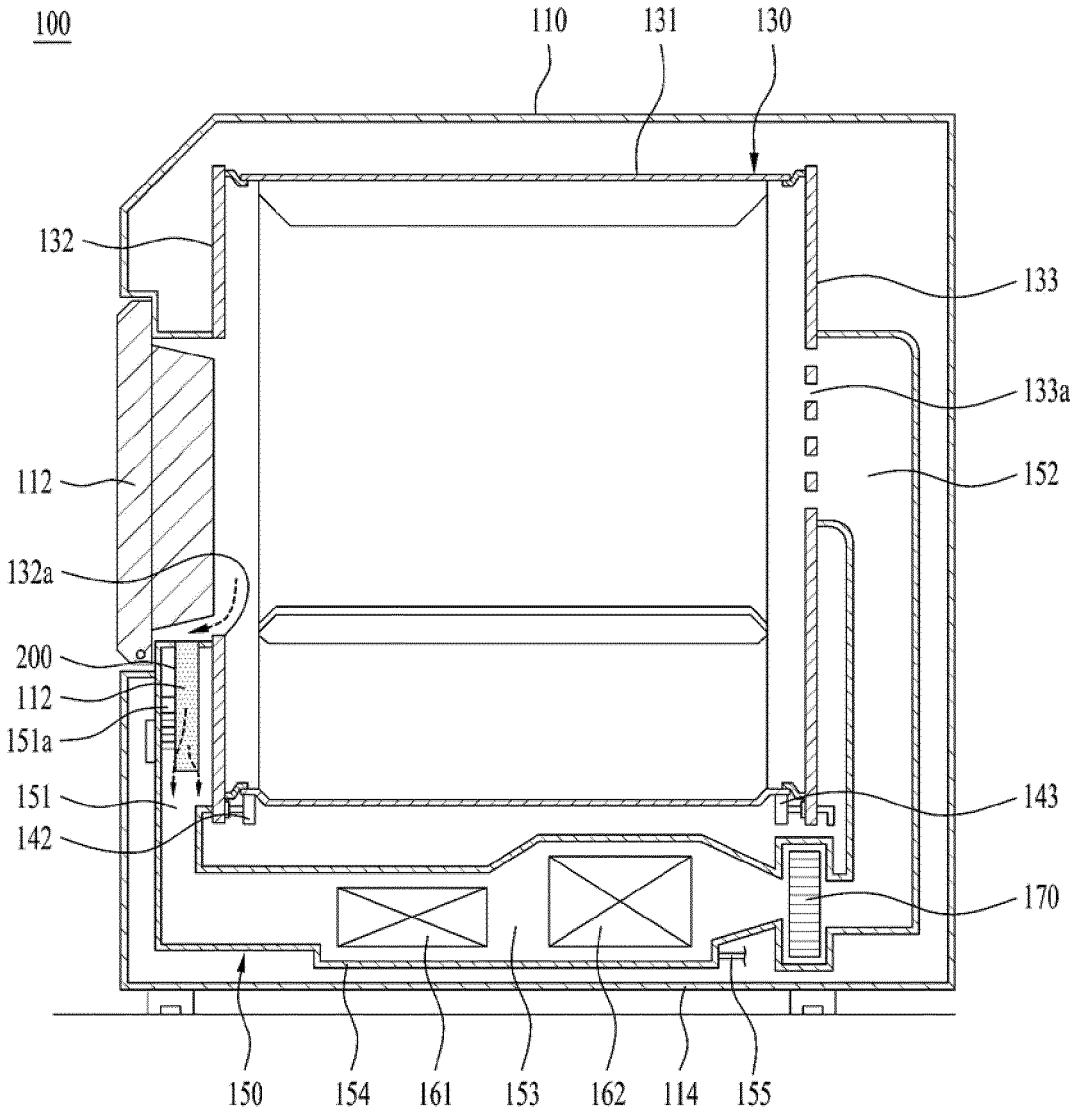
200
151
152
150
170
163
160
161
162
157b
165
164
159
154
155
156
157a
158
AIR
REFRIGERANT
CONDENSED WATER

FIG. 2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110
131
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132
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133a
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150
154
161
153
162
114
155

FIG. 3

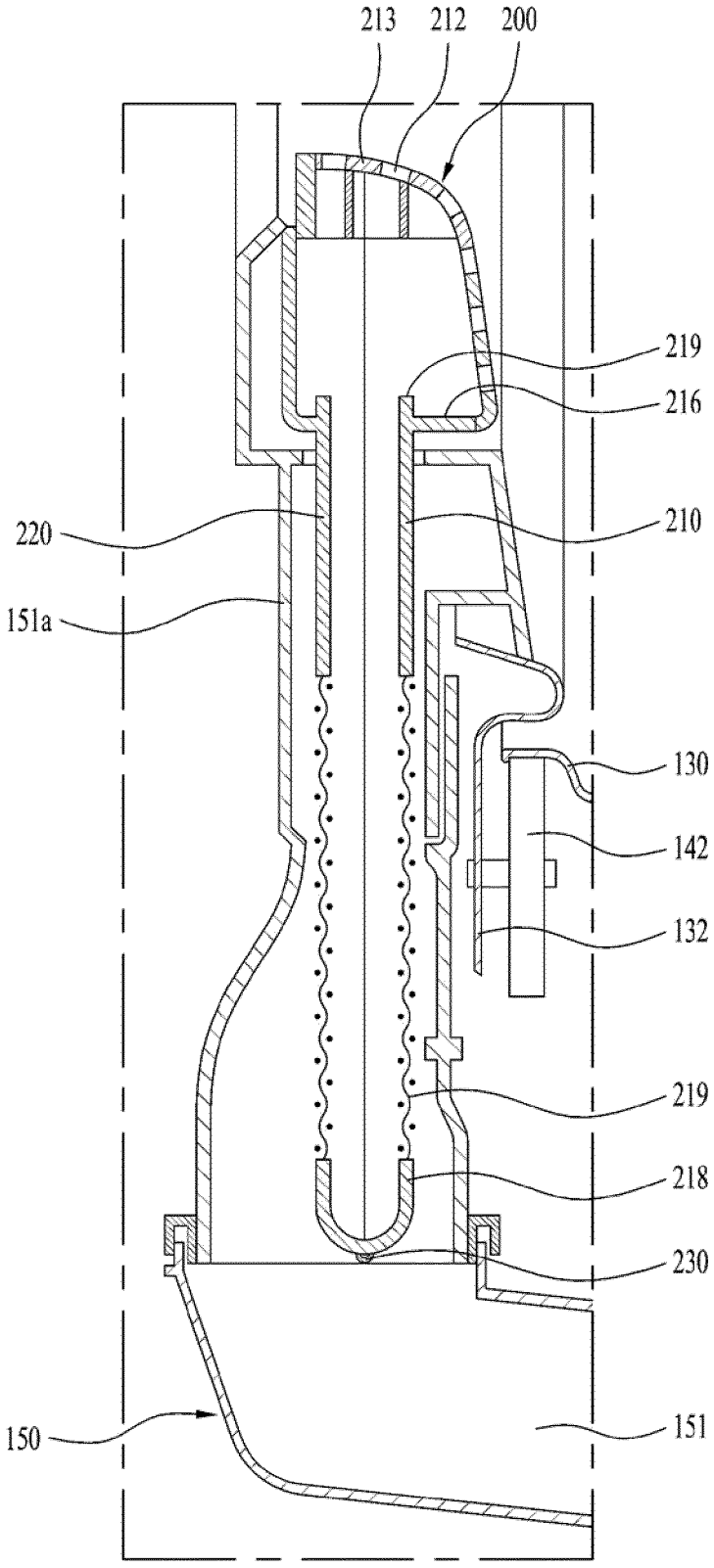


FIG. 4

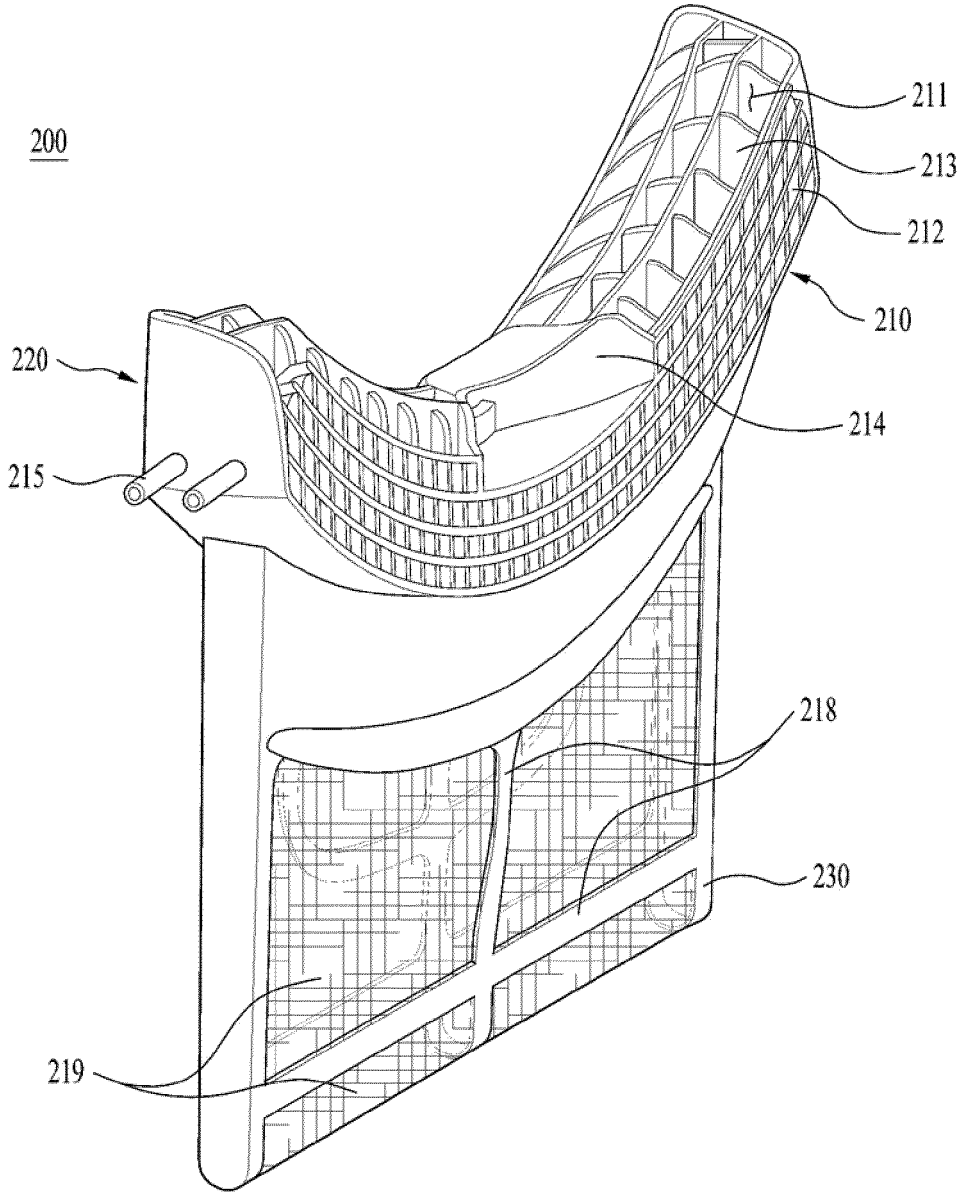


FIG. 5

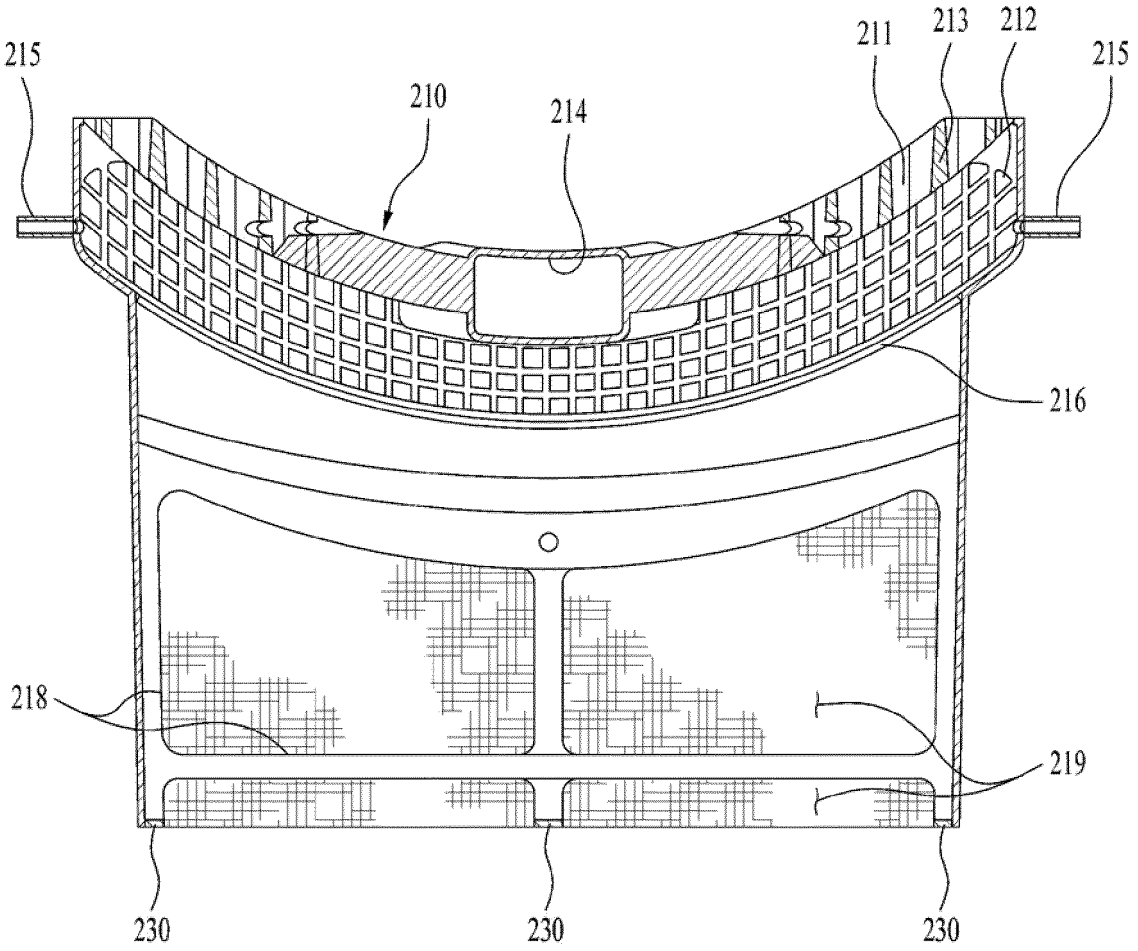
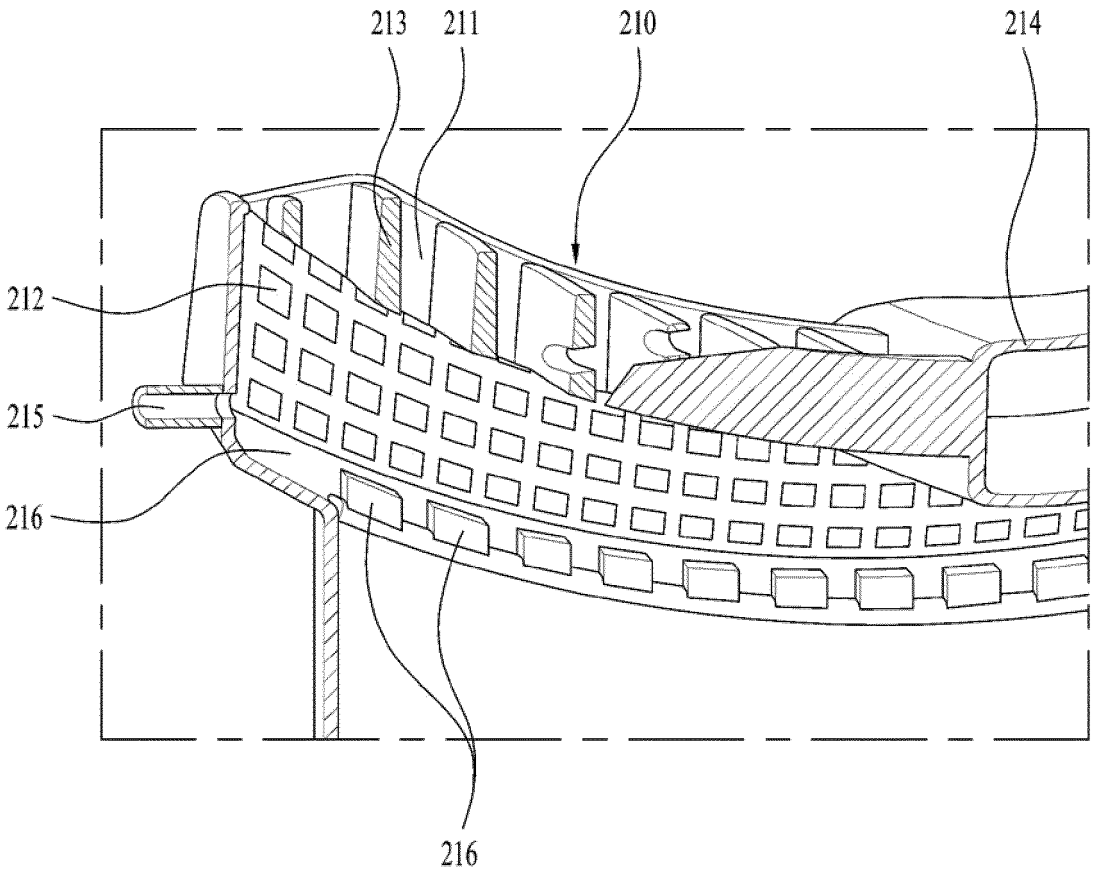


FIG. 6



INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR2020/007067

A. CLASSIFICATION OF SUBJECT MATTER

D06F 58/22(2006.01)i, D06F 58/20(2006.01)i, D06F 58/24(2006.01)i

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

D06F 58/22; D06F 58/02; D06F 58/04; D06F 58/10; D06F 58/24; D06F 58/20

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
Korean utility models and applications for utility models: IPC as above
Japanese utility models and applications for utility models: IPC as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS (KIPO internal) & Keywords: evaporator, compressor, condenser, drum, air flow channel, lint filter, coagulated water

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	KR 10-2007-0076853 A (SAMSUNG ELECTRONICS CO., LTD.) 25 July 2007 See claims 1-5 and figure 3.	1
Y		2-10
Y	KR 10-2012-0005266 A (LG ELECTRONICS INC.) 16 January 2012 See paragraph [0030] and figure 7b.	2-10
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A	KR 10-2012-0019209 A (LG ELECTRONICS INC.) 06 March 2012 See paragraphs [0062]-[0074] and figures 3-6.	1-10

☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

* Special categories of cited documents:
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"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
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"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
24 SEPTEMBER 2020 (24.09.2020)	**24 SEPTEMBER 2020 (24.09.2020)**
Name and mailing address of the ISA/KR Korean Intellectual Property Office Government Complex Daejeon Building 4, 189, Cheongsa-ro, Seo-gu, Daejeon, 35208, Republic of Korea Facsimile No. +82-42-481-8578	Authorized officer Telephone No.

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PCT/KR2020/007067

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