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(54) AIR PURIFIER COMPRISING FLOW PATH CONTROL MEMBER

LUFTREINIGER MIT STRÖMUNGSWEGREGLER

PURIFICATEUR D'AIR COMPRENANT UN ÉLÉMENT DE COMMANDE DE TRAJET D'ÉCOULEMENT

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Description

[Technical Field]

[0001] The present invention relates to a humidification air purifier, and more particularly to a humidification air purifier including a flow path control member in which a plurality of discharge flow paths are controlled to select a plurality of discharge ports.

[Background Art]

[0002] Recently, as interest in air quality has increased, the demand has been rising for an air purifier that can perform various functions according to the season and indoor area with a single device.

[0003] In the related art, an air purifier has been introduced which is capable of performing both a humidifying function and an air purification function in a single device. However, since a plurality of discharge ports were not formed, various modes to meet the demand could not be implemented, and even if there were a plurality of discharge ports, there was a risk of malfunction due to a complicated switching mechanism therebetween.

[0004] For example, Korean Patent Laid-open Publication No. 10-2010-0057330 discloses an air purifier capable of selecting each flow path by applying each flow path for air purification, humidified air purification, and humidification-only mode and a valve structure that can switch each flow path. Specifically, one valve moves to change the flow path to perform a humidifying function and an air purification function. One discharge port is located on the upper side of the air purifier, and the number of flow paths is two. However, in this type of air purifier, it is difficult to perform the air purification function according to various seasons due to the simple control of the valve, and it is difficult to select a flow path according to a plurality of discharge ports depending on the area and air quality of the room with one discharge port, and thus there is a limitation in that the air purifier cannot satisfy various demands.

[0005] As another example, Korean Patent Laid-Open Patent Publication No. 10-2009-0058446 discloses an air purifier in which an air purification flow path and a humidifying purification flow path are formed as separate flow paths, and the air purification flow path and the humidifying purification flow path are selectively opened and closed by a flow path variable unit so that the amounts of clean air and humidified air can be controlled according to the season or according to the surrounding environment. Specifically, the flow path variable unit has a rotating configuration and controls the separate flow paths. However, this type of air purifier has a single discharge port, and it is necessary to select a flow path according to a plurality of discharge ports according to the area and air quality of the room, but there is a limitation in that the air purifier cannot satisfy various demands.

[0006] As a further example, Korean Laid-Open Patent Publication No. 10-2018-0065355 discloses an air cleaner with a humidification function wherein the humidification can be stopped when the humidification function is not in use. The air cleaner comprises a humidification casing provided with a humidification flow path and a non-humidification flow path through which the air flows; a water tank portion provided in the humidification casing for storing water; a humidification filter provided to be liftable in the humidification flow path so as to be separate from the water stored in the water tank portion, or partially submerged into the water stored in the water tank portion at a lower end thereof; and a flow path converting portion provided in the humidification casing to guide the air introduced into the humidification casing to the humidification flow path or to the non-humidification flow path.

(Patent Document 1) Korean Patent Laid-open Publication No. 10-2010-0057330
(Patent Document 2) Korean Patent Laid-open Publication No. 10-2009-0058446
(Patent Document 3) Korean Patent Laid-open Publication No. 10-2018-0065355

[Disclosure]

[Technical Problem]

[0007] The present invention has been made in an effort to solve the above-described problems.

[0008] The present invention provides an air purifier in which both a humidifying function and an air purification function can be performed, a plurality of discharge flow paths can be flexibly controlled using a flow path control member, and the demand for various air quality changes in indoor air can be satisfied.

[Technical Solution]

[0009] According to an aspect of the present invention, there is provided an air purifier including: an intake flow path (171) through which air introduced from an inlet (170) flows; a flow path control member (150) on the intake flow path (171); and a housing (100), wherein the flow path control member (150) is installed on a flow path between the intake flow path (171) and a plurality of discharge ports (112, 122, 132).

[0010] The plurality of discharge ports (112, 122, 132) include: a first discharge port (112) formed on one side of the housing (100); a second discharge portion (122) formed on an upper side of the housing (100); a third discharge portion (132) formed on the other side opposite to the one side of the housing (100); a first discharge flow path (111) communicating with the first discharge port (112) and the intake flow path (171); a second discharge flow path (121) communicating with the second discharge port (122) and the intake flow path (171); and a third discharge flow path (131) communicating with the third discharge port (132) and the intake flow path (171),

wherein the intake flow path (171) communicates with any one or more of the first discharge flow path (111), the second discharge flow path (121), and the third discharge flow path (131) by way of the flow path control member (150).

[0011] Even when the flow path control member (150) closes the third discharge flow path (131), a guide (160) for guiding air into the third discharge flow path (131) is positioned at an inlet portion of the third discharge flow path (131).

[0012] The air purifier further includes a humidifying filter (133) positioned on the third discharge flow path (131).

[0013] The air purifier may further include a water receiving portion (135) in which the humidifying filter (133) is seated; and a water tank (134) including a check valve communicating in the water receiving portion (135).

[0014] The first discharge portion (112) may be positioned at a side surface of the air purifier, and air introduced into the intake flow path (171) may be discharged to the first discharge port (112) by the flow path control member (150) so that a purification intensive mode is performed.

[0015] Air introduced into the intake flow path (171) may be discharged to the second discharge port (122) by the flow path control member (150) so that a purification circulation mode is performed.

[0016] Air introduced into the intake flow path (171) may be discharged to the third discharge port (132) by the flow path control member (150) so that a humidifying mode is performed.

[0017] The flow path control member (150) may include a plurality of units (151, 152), and the plurality of discharge ports (112, 122, 132) communicating with the intake flow path (171) are changeable by way of relative rotation between the plurality of units (151, 152).

[0018] The flow path control member (150) may have an L-shape due to relative rotation of the plurality of units (151, 152) so that the intake flow path (171) communicates with any two of the first discharge flow path (111), the second discharge flow path (121), and the third discharge flow path (131) by way of the flow path control member (150).

[0019] Air introduced into the intake flow path (171) may be discharged to the first discharge port (112) and the second discharge port (122) by the flow path control member (150) so that a purification circulation intensive mode is performed.

[0020] Air introduced into the intake flow path (171) may be discharged to the second discharge port (122) and the third discharge port (132) by the flow path control member (150) so that a humidifying circulation mode is performed.

[0021] Air introduced into the intake flow path (171) may be discharged to the first discharge port (112) and the third discharge port (132) by the flow path control member (150) so that a humidifying intensive mode is performed.

[0022] The air purifier may further include a fan (180) positioned on the intake flow path (171), wherein a rotating portion of the fan (180) is sealed with respect to a fan power member (181) of the fan (180) by a fan waterproof housing (185).

[Advantageous Effects]

[0023] According to the present invention, a humidifying function or an air purification function can be selectively performed by only simple operation of a flow path control member in a plurality of discharge flow paths inside an air purifier, and indoor air can be discharged through a plurality of appropriate flow paths and discharge ports so that a user can select a desired function in consideration of this.

[0024] For example, a plurality of discharge ports of air are formed on one side, the other side, and the upper side, respectively, so that a narrow space can be intensively ventilated by discharging air to the front, and a large space can be ventilated by discharging air to the upper side.

[0025] In addition, because a flow path inside the air purifier is simply formed, there is little risk of malfunction of the air purifier, and the lifespan of the air purifier can be extended. In addition, because a humidifying filter is located at the top, the user can easily detach the humidifying filter from the air purifier to clean or replace it.

[0026] The purpose of use of front and rear discharge portions is different for humidification and circulation, and the user can easily distinguish the front and rear discharge portions by design only.

[0027] In other words, it is possible to perform various modes to adjust the air quality according to the season and space.

[0028] In addition, there is a guide to guide some air to the humidifying filter even when the humidifying function is not in use. The guide allows air to continuously flow through the humidifying filter, thereby preventing contamination and odors due to long-term non-use of the humidifying filter.

[Brief Description of Drawings]

[0029]

FIG. 1 is a front perspective view of an air purifier according to an embodiment.

FIG. 2 is a perspective view showing a rear side of an air purifier according to an embodiment.

FIG. 3 is an exploded perspective view of an air purifier according to an embodiment.

FIG. 4 is a cross-sectional perspective view of an air purifier according to an embodiment taken along line A-A' of FIG. 1.

FIG. 5 is a side view of an air purifier according to an embodiment and a view showing the position of a flow path control member and the flow of air when

operating in a purification intensive mode.

FIG. 6 is a side view of an air purifier according to an embodiment and a view showing the position of a flow path control member and the flow of air when operating in a purification circulation mode.

FIG. 7 is a side view of an air purifier according to an embodiment and a view showing the position of a flow path control member and the flow of air when operating in a humidifying mode.

FIG. 8 is a side view of an air purifier according to an embodiment and a view showing the position of a flow path control member and the flow of air when operating in a purification circulation intensive mode.

FIG. 9 is a side view of an air purifier according to an embodiment and a view showing the position of a flow path control member and the flow of air when operating in a multi-circulation mode.

FIG. 10 is a side view of an air purifier according to an embodiment and a view showing the position of a flow path control member and the flow of air when operating in a multi-intensive mode.

FIG. 11 is a perspective view of an air purifier according to an embodiment and a view showing the flow of air when operating in a purification circulation intensive mode.

FIG. 12 is a perspective view of the rear side of an air purifier according to an embodiment and a view showing the flow of air when operating in a multi-circulation mode.

FIG. 13 is a perspective view of an air purifier according to an embodiment and a view showing the flow of air when operating in a multi-intensive mode.

[Detailed Description of the Invention]

[0030] Hereinafter, the present invention will be described in detail with reference to the accompanying drawings.

1. Description of structure of air purifier

[0031] Referring to FIGS. 1 through 4, an air purifier according to an embodiment of the present invention includes a housing 100, a plurality of discharge ports 112, 122, and 132, a flow path control member 150, a guide 160, an inlet 170, a fan 180, and a control unit 190. In the illustrated embodiment, the housing 100 has a rectangular parallelepiped shape, but the shape of the housing 100 is not limited thereto and may be formed in other shapes. The control unit 190 is located on the upper side of the housing 100 and performs a function of controlling a mode of the air purifier.

1) Description of multiple discharge ports 112, 122, and 132

[0032] A plurality of discharge ports 112, 122, and 132 may be formed inside the housing 100. Although the number of the plurality of discharge ports 112, 122, and 132 is illustrated and described as three, the number thereof is not limited according to circumstances.

[0033] A first discharge port 112 is located on the front surface of the housing 100. The first discharge port 112 is connected to a first discharge flow path 111 through which the air introduced from the inlet 170 moves, and thus functions to discharge the air to the outside. When air is discharged through the first discharge port 112, the surrounding air of the air purifier can be intensively purified. Accordingly, a user can select the first discharge port 112 when intensive and rapid air purification in a narrow space is required.

[0034] A second discharge port 122 is located on the upper side of the housing 100. The second discharge port 122 is connected to a second discharge flow path 121 through which the air introduced from the inlet 170 moves, and thus functions to discharge air to the outside. When air is discharged through the second discharge port 122, the air is discharged upward, and convection occurs. The overall air around the air purifier can be circulated. Accordingly, the user may select the second discharge port 112 when overall air circulation in a large space is required.

[0035] A third discharge port 132 is located on the rear surface of the housing 100 opposite to the first discharge port 112. The third discharge port 132 is connected to a third discharge flow path 131 through which the air introduced from the inlet 170 moves, and thus functions to discharge air to the outside. Before the air is discharged through the third discharge port 132, the air passes through a humidifying filter 133. The air passing through the humidifying filter 133 is humidified to increase the humidity of the indoor air. Accordingly, the user may select the third discharge port 132 in a dry season when the humidity decreases.

[0036] The humidifying filter 133 is seated in a water receiving portion 135 with three open sides. Looking at the water receiving portion 135, the humidifying filter 133 is located on one side of the open three sides, and a water tank 134 is located on the other side (see FIG. 3). A check valve (not shown) is located on the lower surface of the water tank 134, so that when the water tank 134 is mounted in the air purifier (that is, when the water tank 134 is seated in the water receiving portion 135), water flows into the water receiving portion 135 and permeates into the humidifying filter 133. The air flowing along the third discharge flow path 131 passes through the humidifying filter 133 to become moist air and is discharged to the outside.

2) Description of flow path control member 150

[0037] The flow path control member 150 is positioned at a portion where the plurality of discharge flow paths 111, 121, and 131 and an intake flow path 171 are in contact with each other, and the possibility of fluid connection is controlled so that air flows along any one or

more of the plurality of discharge flow paths 111, 121, and 131. In FIGS. 5 through 7, the flow path control member 150 has a plate shape and rotates to perform a purification intensive mode, a purification circulation mode, a humidifying mode, and the like.

[0038] In addition, the flow path control member 150 may include a plurality of units 151 and 152, and a plurality of discharge ports 112, 122, and 132, which communicate with the intake flow path 171, may be changed by relative rotation between the plurality of units 151 and 152. In FIGS. 8 through 10, the flow path control member 150 includes two units, a first unit 151 and a second unit 152, and the first unit 151 and the second unit 152 are relatively rotated to form an L-shape. The plurality of units 151 and 152 of the flow path control member 150 may rotate to perform a purification circulation intensive mode, a humidifying intensive mode, a humidifying circulation mode, and the like.

[0039] The shape and configuration of the flow path control member 150 are for closing the plurality of discharge flow paths 111, 121, and 131. Even if it is a configuration not shown in the embodiment, if the plurality of discharge flow paths 111, 121, and 131 are closed, a different shape may be formed.

[0040] As described above, according to the environment of the indoor air, the flow path control member 150 can flexibly control the plurality of discharge flow paths 111, 121, and 131, thereby enabling various modes according to the quality of the indoor air.

3) Description of guide 160

[0041] The guide 160 is positioned at an inlet portion of the third discharge flow path adjacent to the flow path control member 150.

[0042] When the humidifying function is not in use, if the air does not flow in the humidifying filter 133, water may accumulate, and odor may be gradually generated, and air may be introduced from the outside, and thus a filter may be dusty and contaminated. In the present invention, the guide 160 may continuously guide a portion of the air to the third discharge flow path 131 even when the third discharge flow path 131 is not used, to let the air pass through, thereby preventing odor and contamination.

4) Description of inlet 170

[0043] The inlet 170 is a place where indoor air to be purified is introduced into the interior, and the introduced indoor air is purified by a first functional filter 177a, a second functional filter 177b, and the like, and then discharged again. In the illustrated embodiment, the inlet 170, the first functional filter 177a, and the second functional filter 177b are shown to be located on the lower side of the housing 100, but the present invention is not limited thereto, and the inlet 170, the first functional filter 177a, and the second functional filter 177b may be located anywhere inside the housing 100.

[0044] The first functional filter 177a and the second functional filter 177b may include a fine dust filter, a deodorizing filter, a HEPA filter, and the like, but may be any various filtering devices as needed.

[0045] In the illustrated embodiment, the shape of the first functional filter 177a and the second functional filter 177b is a rectangular plate shape, but the shape may be formed in other shapes.

5) Description of fan 180

[0046] The fan 180 performs a function of introducing and discharging indoor air into the interior of the housing 100. That is, indoor air is introduced into the housing 100 through the inlet 170 by the rotation of the fan 180.

[0047] The rotation speed of the fan 180 may be adjusted as needed. That is, the housing 100 may be rotated at a high speed to increase the flow rate of the indoor air flowing into the housing 100, or the housing 100 may be rotated at a low speed to decrease the flow rate.

[0048] On the other hand, when the humidifying function is used, water that has leaked or condensed due to the humidifying filter 133 or the like flows into the electrical parts of the fan 180 (the right side of FIG. 5), which may cause a malfunction. In the air purifier according to the present invention, in order to prevent water from entering a fan power member 181, such as when water leaks from the humidifying filter 133, a fan waterproof housing 185 having watertightness is placed between a core and blades of the fan 180 and the electrical parts of the fan 180.

2. Description of how to use air purifier

[0049] The air purifier according to an embodiment of the present invention may perform various modes according to the state or season of indoor air.

[0050] Six modes will be mainly described as examples. Specifically, embodiments in which the flow path control member 150 is not classified into units but closes a plurality of discharge ports 112, 122, and 132 (modes 1 to 3 below) and in which the flow path control member 150 is classified into a plurality of units 151 and 152 and closes the discharge ports 112, 122, and 132 in an L-shape (modes 4 to 6 below) will be described.

[0051] The flow path control member 150 rotates to close the second discharge port 122 and the third discharge port 132 to perform a purification intensive mode, and to close the first discharge port 112 and the third discharge port 132 to perform a purification circulation mode, and to close the first discharge port 112 and the second discharge port 122, thereby performing a humidifying mode. In a second embodiment, the plurality of units 151 and 152 of the flow path control member 150 rotate to close the third discharge port 132, thereby performing a purification circulation intensive mode, to close the second discharge port 122, thereby performing

a humidifying intensive mode, and to close the first discharge portion 112, thereby performing a humidifying circulation mode.

[0052] Hereinafter, each mode of the air purifier and its effects will be described in detail with reference to FIGS. 5 through 13.

1) Purification intensive mode

[0053] The purification intensive mode will be described with reference to FIG. 5.

[0054] Here, the air introduced into the inlet 170 passes through the first functional filter 177a and the second functional filter 177b, and the air flowing along an intake flow path 171 is branched by the flow path control member 150 to be directed toward the first discharge flow path 111. At this time, air is guided by the guide 160 in the third discharge flow path 131 so that air is always passed through the humidifying filter 133 little by little, thereby preventing odor of the humidifying filter 133 and preventing contamination.

[0055] Air is discharged through the first discharge port 112. As the first discharge port 112 is installed on the front side, the purification intensive mode enables intensive purification at a desired location around the air purifier, thereby enabling intensive indoor circulation of air. In the purification circulation mode to be described later, since the second discharge port 122 located on the upper side is used instead of the first discharge port 112, it takes time to purify around the air purifier because overall circulation of the air is performed.

[0056] Therefore, it is possible to use the purification intensive mode when intensive purification is required in a relatively narrow indoor space.

2) Purification circulation mode

[0057] The purification circulation mode will be described with reference to FIG. 6.

[0058] Here, the air introduced into the inlet 170 passes through the first functional filter 177a and the second functional filter 177b, and the air flowing along the intake flow path 171 is branched by the flow path control member 150 to be directed toward the second discharge flow path 121. Air is then guided by the guide 160 in the third discharge flow path 131 so that air is always passed through the humidifying filter 133 little by little, thereby preventing odor of the humidifying filter 133 and preventing contamination.

[0059] Air is discharged through the second discharge port 122. As the second discharge port 122 is installed on the upper side, in the purification circulation mode, large indoor circulation occurs that largely circulates the entire indoor space due to a convection phenomenon. The purification concentration mode described above differs in that it is difficult to circulate the entire large indoor space because the second discharge port 122 is not used.

[0060] Therefore, the purification circulation mode can be used when the air purifying function of a large indoor space is required.

3) Humidifying mode

[0061] A humidifying mode will be described with reference to FIG. 7.

[0062] Here, the air introduced into the inlet 170 passes through the first functional filter 177a and the second functional filter 177b, and the air flowing along the intake flow path 171 is branched by the flow path control member 150 to be directed toward the third discharge flow path 131.

[0063] Air is discharged through the third discharge port 132. As the third discharge port 132 includes a humidifying filter 133, it can be used when a humidifying function is required.

[0064] Therefore, it is possible to use the humidifying mode when the humidifying function is intensively needed as the humidity is low rather than air purification.

4) Purification circulation intensive mode

[0065] The purification circulation intensive mode will be described with reference to FIGS. 8 and 11.

[0066] Here, the air introduced into the inlet 170 passes through the first functional filter 177a and the second functional filter 177b, and the air flowing along the intake flow path 171 is branched by the flow path control member 150 to be directed toward the first discharge flow path 111 and the second discharge flow path 121. Air is then guided by the guide 160 in the third discharge flow path 131 so that air is always passed through the humidifying filter 133 little by little, thereby preventing odor of the humidifying filter 133 and preventing contamination.

[0067] Air is discharged through the first discharge port 112 and the second discharge port 122. The first discharge port 112 is installed on the front side to enable intensive indoor circulation, and the second discharge port 122 is formed on the upper side, so that large indoor circulation occurs that greatly circulates the entire indoor space due to convection. The purification circulation intensive mode uses the functions of the purification intensive mode and purification circulation mode.

[0068] Therefore, when an intensive purification function of a narrow indoor space and a purification function of a large indoor space are required at the same time, the purification circulation intensive mode can be used. In particular, it is useful when there is not a great need for humidified air, such as in spring and summer.

5) Humidifying circulation mode

[0069] The humidifying circulation mode will be described with reference to FIG. 9 and 12.

[0070] Here, the air introduced into the inlet 170 passes through the first functional filter 177a and the second

functional filter 177b, and the air flowing along the intake flow path 171 is branched by the flow path control member 150 to be directed to the second discharge flow path 121 and the third discharge flow path 131.

[0071] Air is discharged through the second discharge port 122 and the third discharge port 132. The second discharge port 122 is formed on the upper side, and as major indoor circulation occurs in the entire indoor space due to a convection phenomenon, it can be used when a humidifying function and an air purifying function are required at the same time. As the third discharge port 132 includes a humidifying filter 133, it can be used when a humidifying function is required. The humidifying circulation mode uses the functions of the purification circulation mode and humidifying mode.

[0072] Therefore, it is possible to circulate air in a large indoor space and use the humidifying circulation mode when a humidifying function is also required. In particular, it is useful when humidified air is needed, such as in autumn and winter.

6) Humidifying intensive mode

[0073] The humidifying concentration mode will be described with reference to FIGS. 10 and 13.

[0074] Here, the air introduced into the inlet 170 passes through the first functional filter 177a and the second functional filter 177b, and the air flowing along the intake flow path 171 is branched by the flow path control member 150 to be directed to the first discharge flow path 111 and the third discharge flow path 131.

[0075] Air is discharged through the first discharge port 112 and the third discharge port 132. The first discharge port 112 is formed in the front to intensively purify a narrow indoor space, and the third discharge port 132 may perform a humidifying function by including the humidifying filter 133. The humidifying intensive mode uses the functions of the purification intensive mode and the humidifying mode.

[0076] Therefore, it is possible to use the humidifying intensive mode when a narrow indoor space is intensively purified and a humidifying function is also required. In particular, it is useful when limited humidified air is needed in a narrow space.

[0077] While the present invention has been particularly shown and described with reference to exemplary embodiments thereof, it will be understood by those of ordinary skill in the art that various changes in form and details may be made therein without departing from the scope of the present invention as defined by the following claims.

Claims

1. An air purifier comprising:

an intake flow path (171) through which air introduced from an inlet (170) flows;
a flow path control member (150) on the intake flow path (171); and
a housing (100),
wherein the flow path control member (150) is installed on a flow path between the intake flow path (171) and a plurality of discharge ports (112, 122, 132),
wherein
the plurality of discharge ports (112, 122, 132) comprises:

a first discharge port (112) formed on one side of the housing (100);
a second discharge port (122) formed on an upper side of the housing (100);
a third discharge port (132) which is formed on the other side opposite to the one side of the housing (100) and in which a humidifying filter (133) is located;
a first discharge flow path (111) communicating the first discharge port (112) with the intake flow path (171);
a second discharge flow path (121) communicating the second discharge port (122) with the intake flow path (171); and
a third discharge flow path (131) communicating the third discharge port (132) with the intake flow path (171),
wherein the intake flow path (171) is in communication with any one or more of the first discharge flow path (111), the second discharge flow path (121), and the third discharge flow path (131) by way of the flow path control member (150),
wherein, even when the flow path control member (150) closes the third discharge flow path (131), a guide (160) for guiding air into the third discharge flow path (131) is positioned at an inlet portion of the third discharge flow path (131).

2. The air purifier of claim 1, further comprising:

a water receiving portion (135) in which the humidifying filter (133) is seated; and
a water tank (134) comprising a check valve in communication with an inside of the water receiving portion (135).

3. The air purifier of claim 1, wherein the first discharge port (112) is positioned at a side surface of the air purifier, and air introduced into the intake flow path (171) is discharged to the first discharge port (112) by the flow path control member (150) so that a purification intensive mode is performed.

4. The air purifier of claim 1, wherein air introduced into

the intake flow path (171) is discharged to the second discharge port (122) by the flow path control member (150) so that a purification circulation mode is performed.

5. The air purifier of claim 2, wherein air introduced into the intake flow path (171) is discharged to the third discharge port (132) by the flow path control member (150) so that a humidifying mode is performed.

6. The air purifier of claim 1, wherein the flow path control member (150) comprises a plurality of units (151, 152), and the plurality of discharge ports (112, 122, 132) in communication with the intake flow path (171) are changeable by way of relative rotation between the plurality of units (151, 152).

7. The air purifier of claim 6, wherein the flow path control member (150) has an L-shape due to relative rotation of the plurality of units (151, 152) so that the intake flow path (171) is in communication with any two of the first discharge flow path (111), the second discharge flow path (121), and the third discharge flow path (131) by way of the flow path control member (150).

8. The air purifier of claim 7, wherein air introduced into the intake flow path (171) is discharged to the first discharge port (112) and the second discharge port (122) by the flow path control member (150) so that a purification circulation intensive mode is performed.

9. The air purifier of claim 7, wherein air introduced into the intake flow path (171) is discharged to the second discharge port (122) and the third discharge port (132) by the flow path control member (150) so that a humidifying circulation mode is performed.

10. The air purifier of claim 7, wherein air introduced into the intake flow path (171) is discharged to the first discharge port (112) and the third discharge port (132) by the flow path control member (150) so that a humidifying intensive mode is performed.

11. The air purifier of claim 1, further comprising a fan (180) positioned on the intake flow path (171), wherein a rotating portion of the fan (180) is sealed with respect to a fan power member (181) of the fan (180) by a fan waterproof housing (185).

Patentansprüche

1. Luftreiniger, aufweisend:

einen Ansaugströmungsweg (171), durch den von einem Einlass (170) zugeführte Luft strömt;
ein Strömungsweg-Steuerelement (150) auf dem Ansaugströmungsweg (171); und
ein Gehäuse (100),
wobei das Strömungsweg-Steuerelement (150) auf einem Strömungsweg zwischen dem Ansaugströmungsweg (171) und einer Vielzahl von Auslassöffnungen (112, 122, 132) installiert ist,
wobei die Vielzahl von Auslassöffnungen (112, 122, 132) aufweisen:

eine erste Auslassöffnung (112), die an einer Seite des Gehäuses (100) ausgebildet ist;
eine zweite Auslassöffnung (122), die an einer Oberseite des Gehäuses (100) ausgebildet ist;
eine dritte Auslassöffnung (132), die auf der anderen Seite gegenüber der einen Seite des Gehäuses (100) ausgebildet ist und in der ein Befeuchtungsfilter (133) angeordnet ist;
einen ersten Auslassströmungsweg (111), der die erste Auslassöffnung (112) mit dem Ansaugströmungsweg (171) verbindet;
einen zweiten Auslassströmungsweg (121), der die zweite Auslassöffnung (122) mit dem Ansaugströmungsweg (171) verbindet; und
einen dritten Auslassströmungsweg (131), der die dritte Auslassöffnung (132) mit dem Ansaugströmungsweg (171) verbindet,
wobei der Ansaugströmungsweg (171) mit einem oder mehreren des ersten Auslassströmungswegs (111), des zweiten Auslassströmungswegs (121) und des dritten Auslassströmungswegs (131) über das Strömungsweg-Steuerelement (150) in Verbindung steht,
wobei selbst dann, wenn das Strömungsweg-Steuerelement (150) den dritten Auslassströmungsweg (131) schließt, eine Führung (160) zum Führen von Luft in den dritten Auslassströmungsweg (131) an einem Einlassabschnitt des dritten Auslassströmungswegs (131) positioniert ist.

2. Luftreiniger nach Anspruch 1, ferner aufweisend:

einen Wasseraufnahmeabschnitt (135), in dem der Befeuchtungsfilter (133) sitzt; und
einen Wassertank (134), aufweisend ein Rückschlagventil, das mit dem Inneren des Wasseraufnahmeabschnitts (135) in Verbindung steht.

3. Luftreiniger nach Anspruch 1, wobei die erste Auslassöffnung (112) an einer Seitenfläche des Luftreinigers positioniert ist und Luft, die in den Ansaugströmungsweg (171) eingeleitet wird, durch das Strö-

mungsweg-Steuerelement (150) zur ersten Auslassöffnung (112) ausgelassen wird, so dass ein Reinigungsintensivmodus durchgeführt wird.

4. Luftreiniger nach Anspruch 1, wobei die Luft, die in den Ansaugströmungsweg (171) eingeleitet wird, durch das Strömungsweg-Steuerelement (150) zur zweiten Auslassöffnung (122) ausgelassen wird, so dass ein Reinigungszirkulationsmodus durchgeführt wird.

5. Luftreiniger nach Anspruch 2, wobei die Luft, die in den Ansaugströmungsweg (171) eingeleitet wird, durch das Strömungsweg-Steuerelement (150) zur dritten Auslassöffnung (132) ausgelassen wird, so dass ein Befeuchtungsmodus durchgeführt wird.

6. Luftreiniger nach Anspruch 1, wobei das Strömungsweg-Steuerelement (150) eine Vielzahl von Einheiten (151, 152) aufweist und die Vielzahl von Auslassöffnungen (112, 122, 132), die mit dem Ansaugströmungsweg (171) in Verbindung stehen, durch eine relative Drehung zwischen der Vielzahl von Einheiten (151, 152) veränderbar sind.

7. Luftreiniger nach Anspruch 6, wobei das Strömungsweg-Steuerelement (150) aufgrund der relativen Drehung der Vielzahl von Einheiten (151, 152) eine L-Form aufweist, so dass der Ansaugströmungsweg (171) über das Strömungsweg-Steuerelement (150) mit zwei beliebigen von dem ersten Auslassströmungsweg (111), dem zweiten Auslassströmungsweg (121) und dem dritten Auslassströmungsweg (131) in Verbindung steht.

8. Luftreiniger nach Anspruch 7, wobei die Luft, die in den Ansaugströmungsweg (171) eingeleitet wird, durch das Strömungsweg-Steuerelement (150) an die erste Auslassöffnung (112) und die zweite Auslassöffnung (122) abgelassen wird, so dass ein Reinigungszirkulations-Intensivmodus durchgeführt wird.

9. Luftreiniger nach Anspruch 7, wobei die Luft, die in den Ansaugströmungsweg (171) eingeleitet wird, durch das Strömungsweg-Steuerelement (150) zur zweiten Auslassöffnung (122) und zur dritten Auslassöffnung (132) ausgelassen wird, so dass ein Befeuchtungszirkulationsmodus durchgeführt wird.

10. Luftreiniger nach Anspruch 7, wobei die Luft, die in den Ansaugströmungsweg (171) eingeleitet wird, durch das Strömungsweg-Steuerelement (150) zur ersten Auslassöffnung (112) und zur dritten Auslassöffnung (132) ausgelassen wird, so dass ein Befeuchtungsintensivmodus durchgeführt wird.

11. Luftreiniger nach Anspruch 1, ferner aufweisend ein Gebläse (180), das in dem Ansaugströmungsweg (171) positioniert ist, wobei ein drehender Abschnitt des Gebläses (180) in Bezug auf ein Gebläseantriebselement (181) des Gebläses (180) durch ein wasserdichtes Gebläsegehäuse (185) abgedichtet ist.

Revendications

1. Purificateur d'air comprenant :

un circuit (171) d'écoulement d'admission à travers lequel coule de l'air introduit à partir d'un orifice d'admission (170) ;
un élément (150) de commande de circuit d'écoulement sur le circuit (171) d'écoulement d'admission ; et
un carter (100),
dans lequel l'élément (150) de commande de circuit d'écoulement est installé sur un circuit d'écoulement entre le circuit (171) d'écoulement d'admission et une pluralité d'orifices d'évacuation (112, 122, 132),
dans lequel la pluralité d'orifices d'évacuation (112, 122, 132) comprend :

un premier orifice d'évacuation (112) formé sur un côté du carter (100) ;
un deuxième orifice d'évacuation (122) formé sur un côté supérieur du carter (100) ;
un troisième orifice d'évacuation (132) qui est formé sur l'autre côté opposé audit côté du carter (100) et dans lequel un filtre d'humidification (133) est situé ;
un premier circuit (111) d'écoulement d'évacuation mettant en communication le premier orifice d'évacuation (112) avec le circuit (171) d'écoulement d'admission ;
un deuxième circuit (121) d'écoulement d'évacuation mettant en communication le deuxième orifice d'évacuation (122) avec le circuit (171) d'écoulement d'admission ; et
un troisième circuit (131) d'écoulement d'évacuation mettant en communication le troisième orifice d'évacuation (132) avec le circuit (171) d'écoulement d'admission,
dans lequel le circuit (171) d'écoulement d'admission est en communication avec au moins un circuit quelconque parmi le premier circuit (111) d'écoulement d'évacuation, le deuxième circuit (121) d'écoulement d'évacuation et le troisième circuit (131) d'écoulement d'évacuation, par l'intermédiaire de l'élément (150) de commande de circuit d'écoulement,
dans lequel, même lorsque l'élément (150)

de commande de circuit d'écoulement ferme le troisième circuit (131) d'écoulement d'évacuation, un guide (160), permettant de guider de l'air vers le troisième circuit (131) d'écoulement d'évacuation, est positionné au niveau d'une partie entrée du troisième circuit (131) d'écoulement d'évacuation.

2. Le purificateur d'air de la revendication 1, comprenant en outre :

une partie (135) de réception d'eau dans laquelle le filtre d'humidification (133) est logé ; et un réservoir d'eau (134) comprenant un clapet anti-retour en communication avec un intérieur de la partie (135) de réception d'eau.

3. Le purificateur d'air de la revendication 1, dans lequel le premier orifice d'évacuation (112) est positionné au niveau d'une surface latérale du purificateur d'air, et l'air introduit dans le circuit (171) d'écoulement d'admission est évacué vers le premier orifice d'évacuation (112) par l'élément (150) de commande de circuit d'écoulement, de façon à effectuer un mode intensif de purification.

4. Le purificateur d'air de la revendication 1, dans lequel l'air introduit dans le circuit (171) d'écoulement d'admission est évacué vers le deuxième orifice d'évacuation (122) par l'élément (150) de commande de circuit d'écoulement, de façon à effectuer un mode de circulation de purification.

5. Le purificateur d'air de la revendication 2, dans lequel l'air introduit dans le circuit (171) d'écoulement d'admission est évacué vers le troisième orifice d'évacuation (132) par l'élément (150) de commande de circuit d'écoulement, de façon à effectuer un mode d'humidification.

6. Le purificateur d'air de la revendication 1, dans lequel l'élément (150) de commande de circuit d'écoulement comprend une pluralité d'unités (151, 152), et la pluralité d'orifices d'évacuation (112, 122, 132), en communication avec le circuit (171) d'écoulement d'admission, sont changeables au moyen d'une rotation relative entre la pluralité d'unités (151, 152).

7. Le purificateur d'air de la revendication 6, dans lequel l'élément (150) de commande de circuit d'écoulement présente une forme en L en raison de la rotation relative de la pluralité d'unités (151, 152), de façon que le circuit (171) d'écoulement d'admission soit en communication avec deux circuits quelconques parmi le premier circuit (111) d'écoulement d'évacuation, le deuxième circuit (121) d'écoulement d'évacuation et le troisième circuit (131) d'écoulement d'évacuation, par l'intermédiaire de l'élément (150) de commande de circuit d'écoulement.

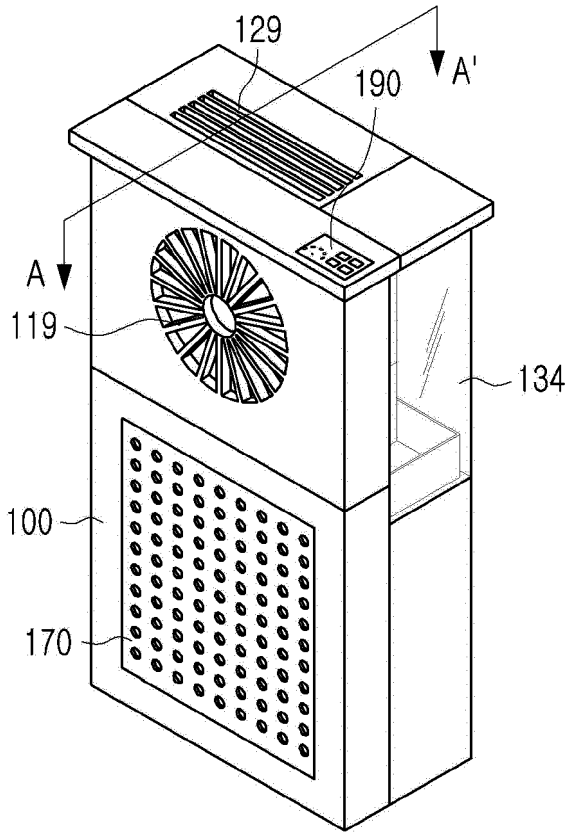
8. Le purificateur d'air de la revendication 7, dans lequel l'air introduit dans le circuit (171) d'écoulement d'admission est évacué vers le premier orifice d'évacuation (112) et le deuxième orifice d'évacuation (122) par l'élément (150) de commande de circuit d'écoulement, de façon à effectuer un mode intensif de circulation de purification.

9. Le purificateur d'air de la revendication 7, dans lequel l'air introduit dans le circuit (171) d'écoulement d'admission est évacué vers le deuxième orifice d'évacuation (122) et le troisième orifice d'évacuation (132) par l'élément (150) de commande de circuit d'écoulement, de façon à effectuer un mode de circulation d'humidification.

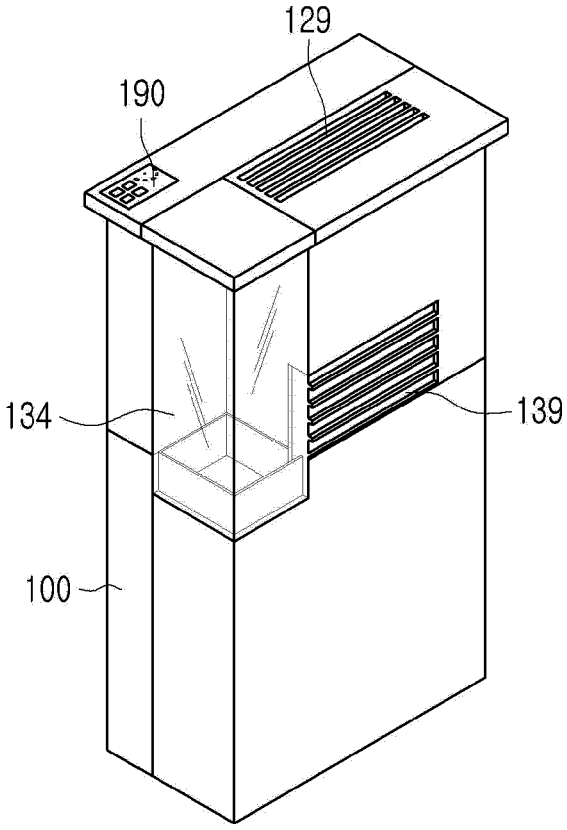
10. Le purificateur d'air de la revendication 7, dans lequel l'air introduit dans le circuit (171) d'écoulement d'admission est évacué vers le premier orifice d'évacuation (112) et le troisième orifice d'évacuation (132) par l'élément (150) de commande de circuit d'écoulement, de façon à effectuer un mode intensif d'humidification.

11. Le purificateur d'air de la revendication 1, comprenant en outre un ventilateur (180) positionné sur le circuit (171) d'écoulement d'admission, dans lequel une partie en rotation du ventilateur (180) est fermée hermétiquement, par rapport à un élément d'alimentation en énergie (181) du ventilateur (180), à l'aide d'une enveloppe étanche (185) de ventilateur.

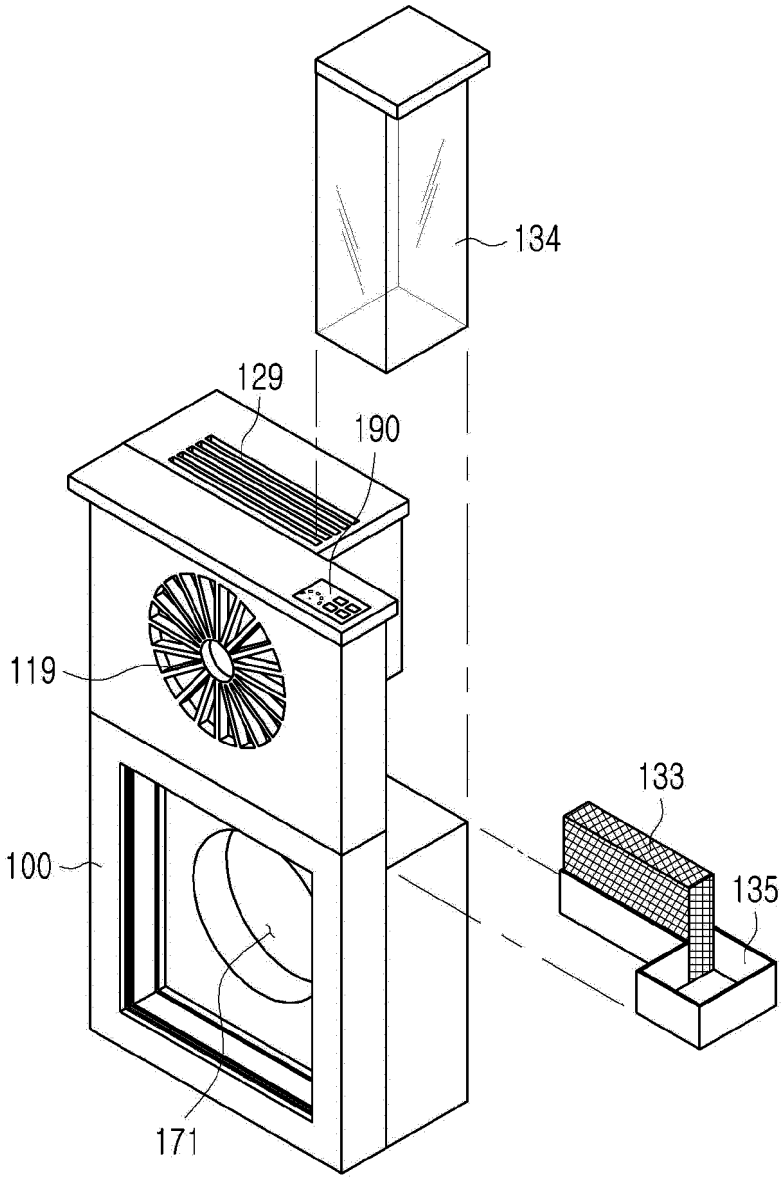
【FIG 1】



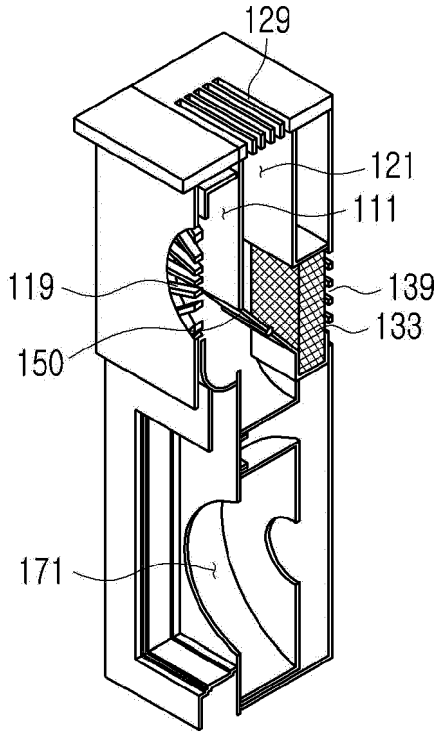
【FIG 2】



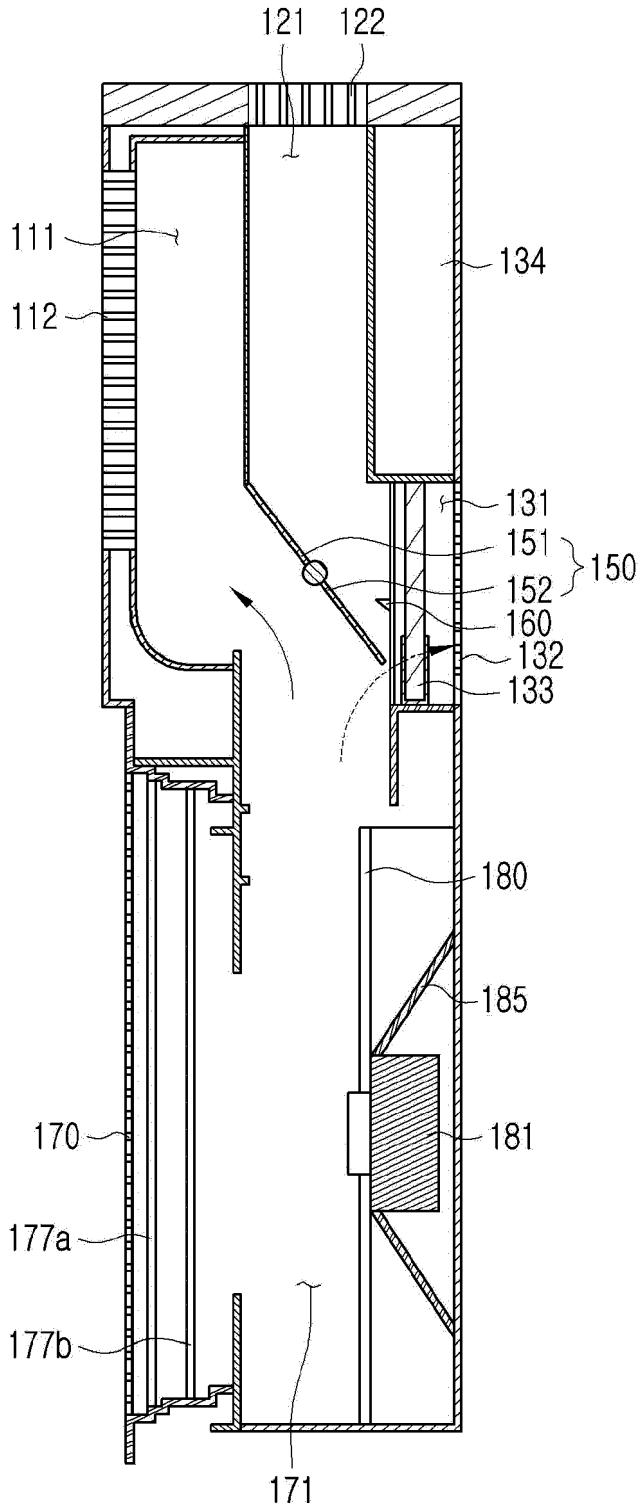
【FIG 3】



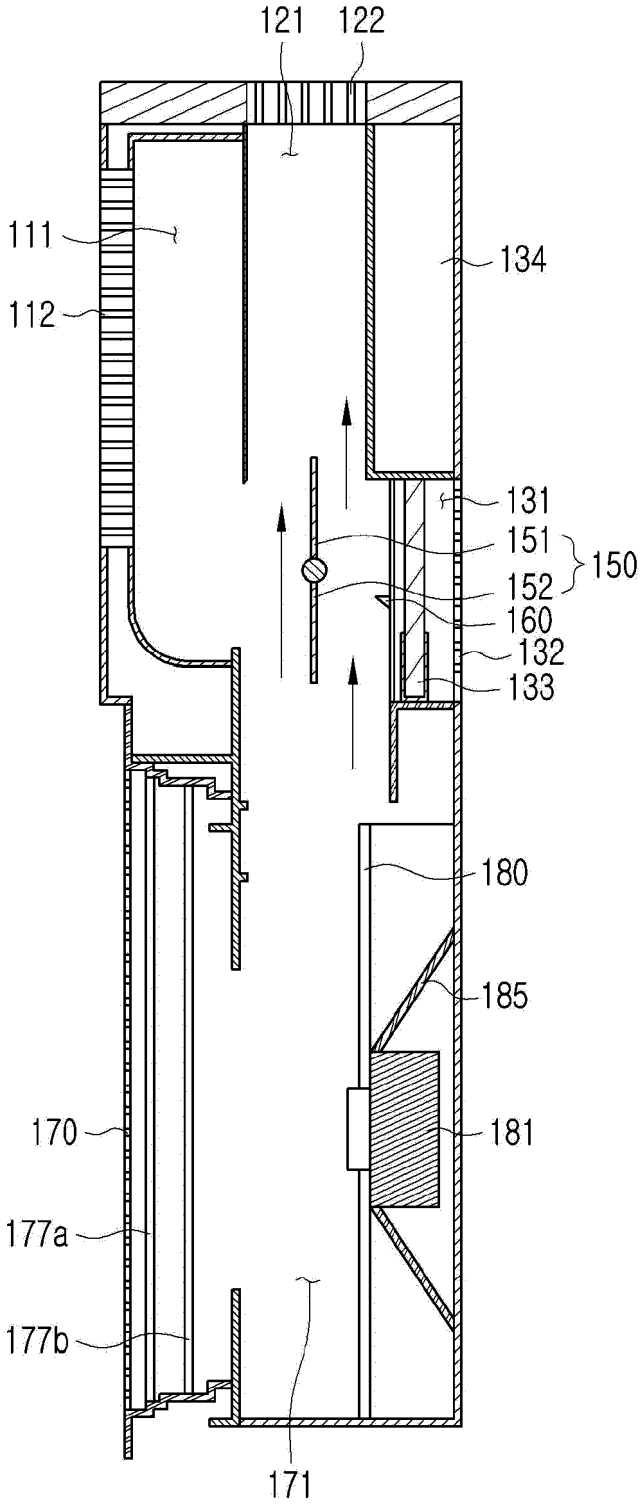
【FIG 4】



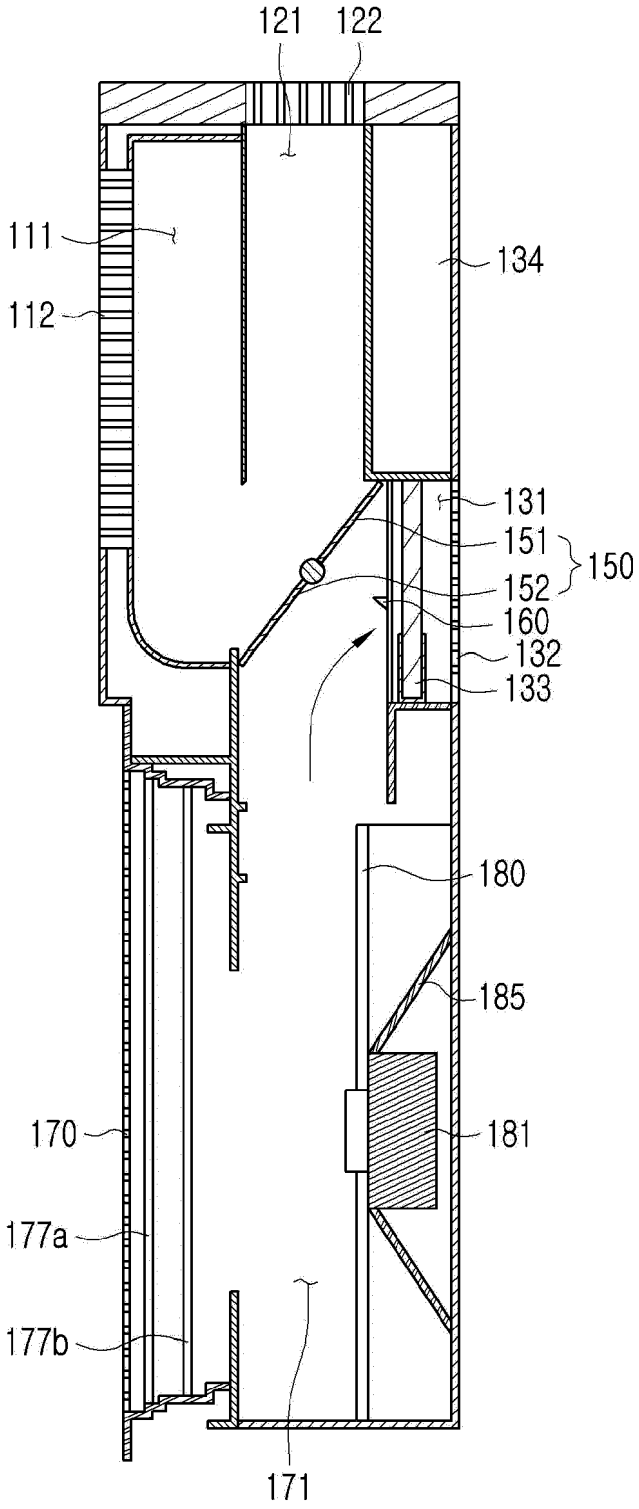
【FIG 5】


121
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111
112
134
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152
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177a
177b
171

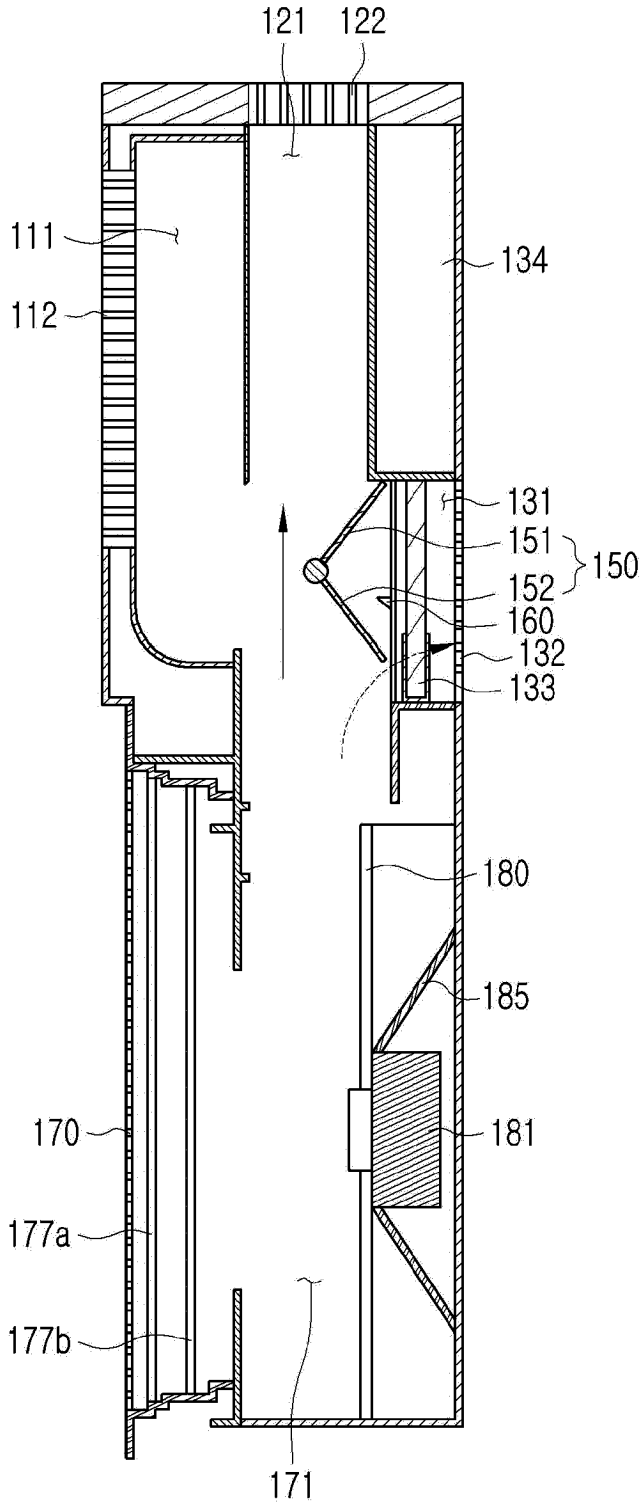
【FIG6】


121
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112
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177a
177b
171

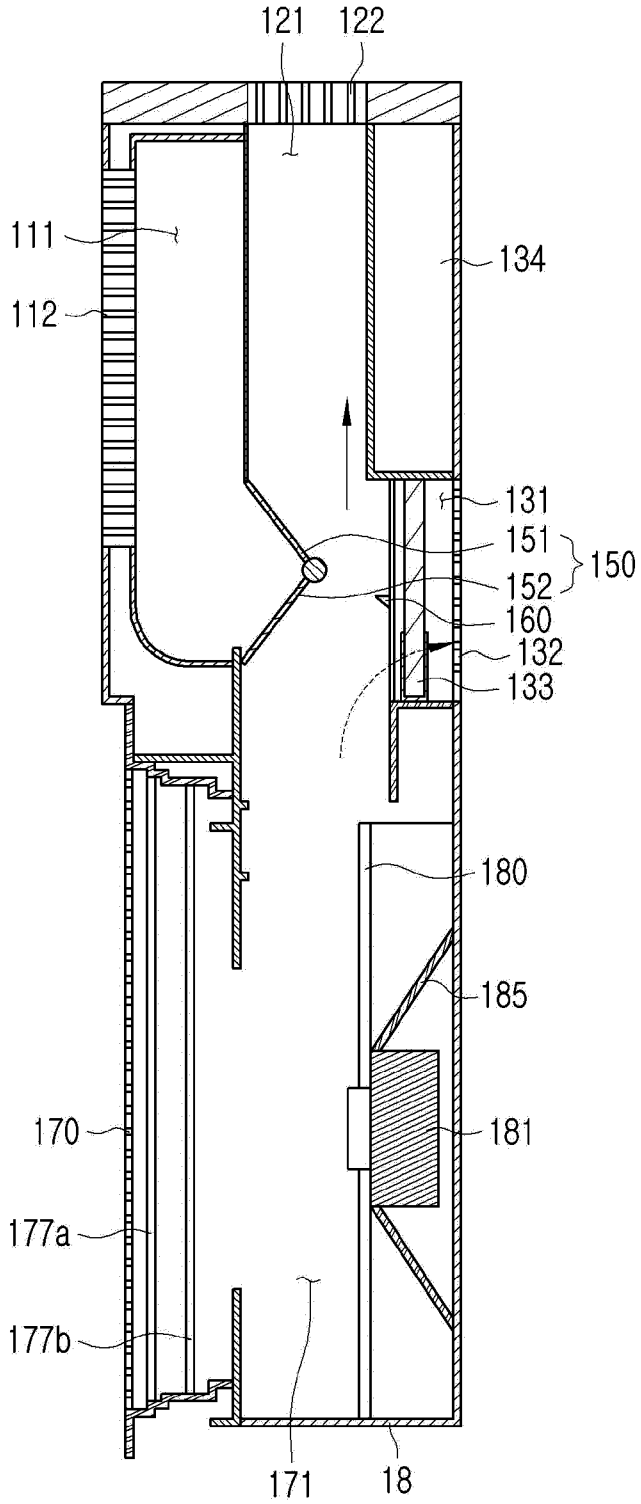
【FIG 7】


121
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177a
177b
171

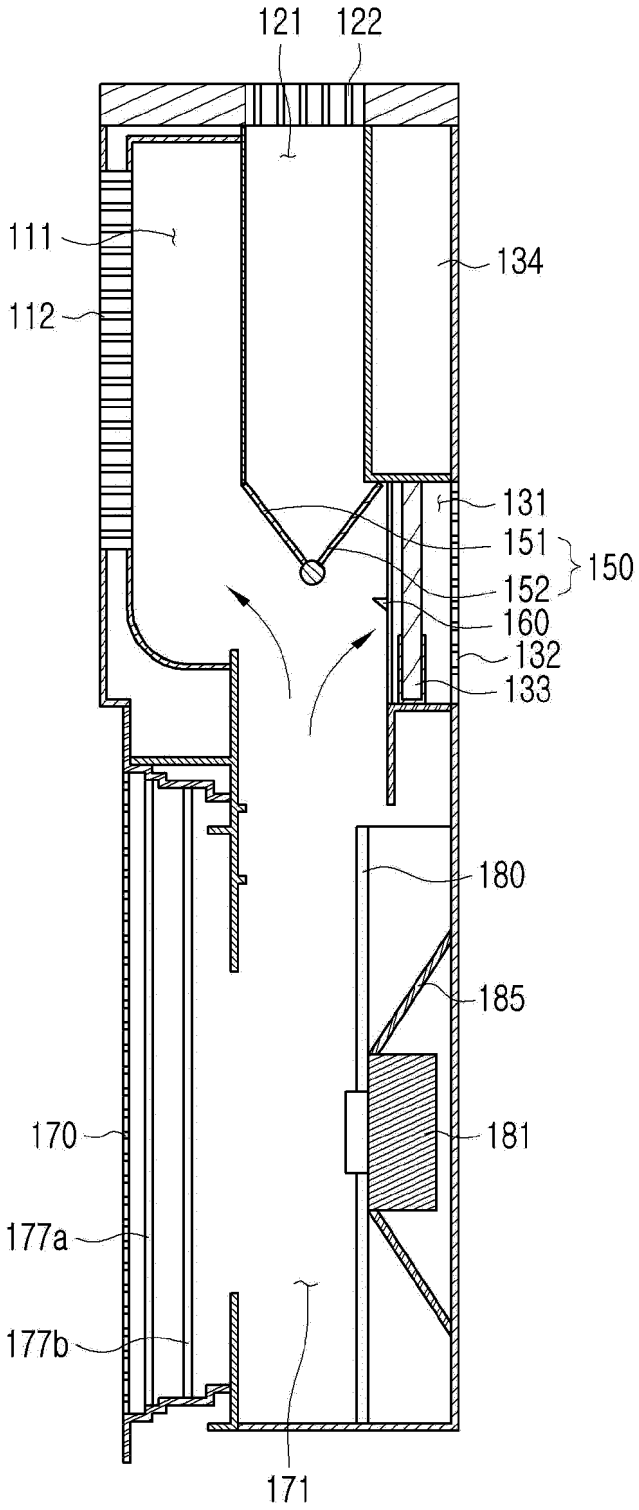
【FIG 8】


121
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177a
177b
171

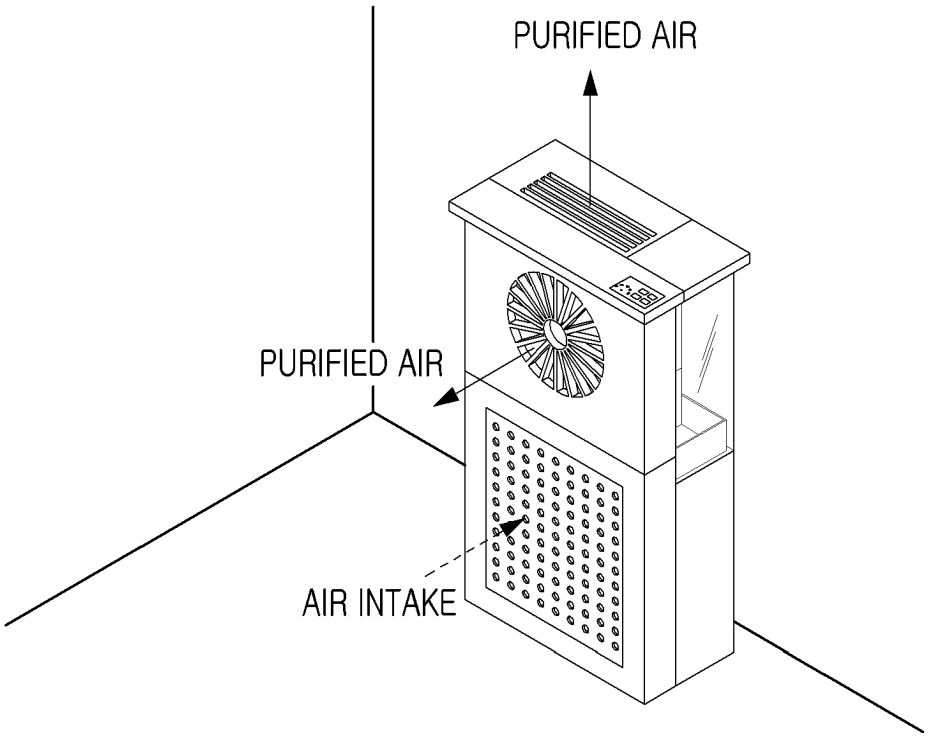
【FIG 9】


121
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181
177a
177b
171
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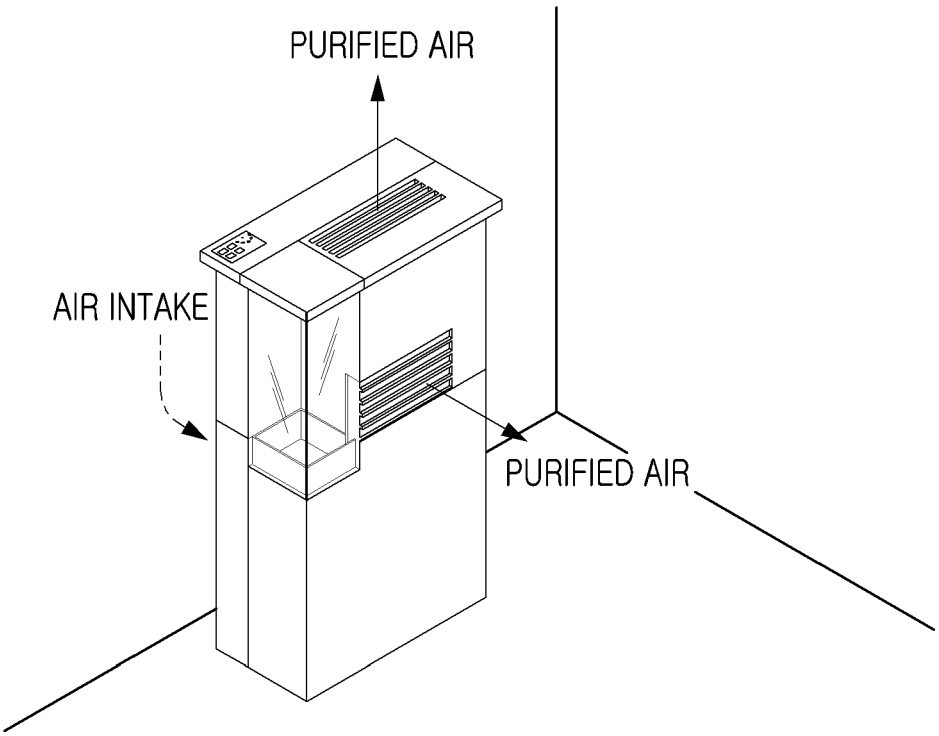
【FIG 10】


121
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152
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132
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170
181
177a
177b
171

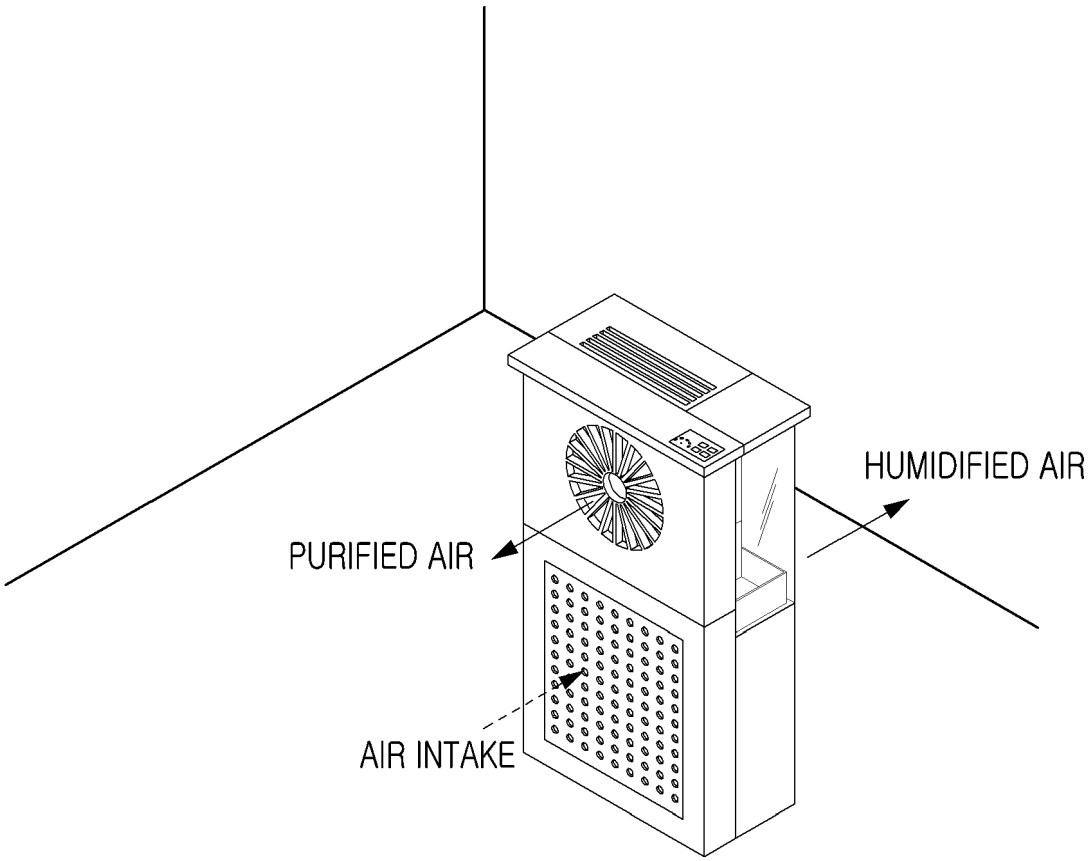
【FIG 1 1】



【FIG 1 2】



【FIG 1 3】



REFERENCES CITED IN THE DESCRIPTION

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