



(11)

EP 3 985 323 A1

(12)

EUROPEAN PATENT APPLICATION
published in accordance with Art. 153(4) EPC

(43) Date of publication:
20.04.2022 Bulletin 2022/16

(51) International Patent Classification (IPC):
F24F 13/20 ^(2006.01) **F24F 1/0025** ^(2019.01)

(21) Application number: **20827831.7**

(52) Cooperative Patent Classification (CPC):
F24F 1/0025; F24F 13/20

(22) Date of filing: **03.06.2020**

(86) International application number:
PCT/JP2020/021947

(87) International publication number:
WO 2020/255717 (24.12.2020 Gazette 2020/52)

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME
Designated Validation States:
KH MA MD TN

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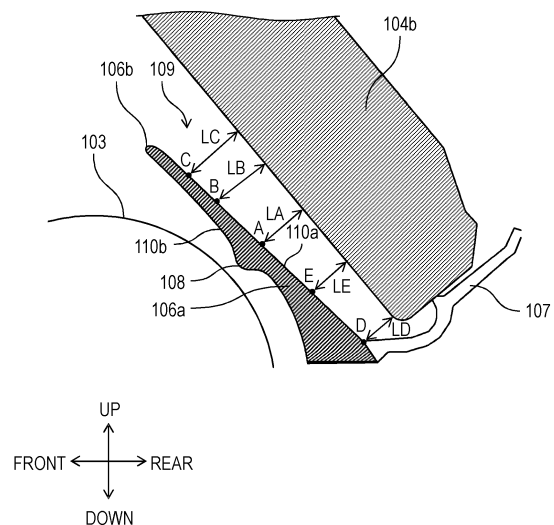
(30) Priority: **17.06.2019 JP 2019112048**

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(54) **AIR CONDITIONER**

(57) An air conditioner includes a stabilizer and a rear guider that are respectively disposed on a front side and a rear side of an outer peripheral portion of cross flow fan (103), and constitute a first air path. The rear guider has rear guider flange portion (106a) disposed between rear heat exchanger (104b) and cross flow fan (103), and first surface (110a) of rear guider flange portion (106a) and rear heat exchanger (104b) constitute second air path (109). In the second air path, a distance between first surface (110a) and rear heat exchanger (104b) at a closest portion at which first surface (110a) and rear heat exchanger (104b) are closest to each other is equal to or shorter than a distance between first surface (110a) and rear heat exchanger (104b) at a portion above the closest portion of second air path (109).

FIG. 2



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Description

TECHNICAL FIELD

[0001] The present disclosure relates to an air conditioner including a main body having an inlet and an outlet of air, a heat exchanger, a cross flow fan, a rear guider, and a stabilizer that is disposed opposite to the rear guider.

BACKGROUND ART

[0002] Generally, in an indoor unit of an air conditioner, a blower circuit through which airflows is formed in a main body casing having an inlet and an outlet. A cross flow fan is provided in the blower circuit, and a heat exchanger is disposed in the vicinity of an upstream side of the cross flow fan. Then, the air sucked through the inlet by the rotation of the cross flow fan is blown out through the outlet after the heat exchange in the heat exchanger. The indoor unit includes a rear guider and a stabilizer to form a flow of air generated by the rotation of the cross flow fan.

[0003] Here, as an example of an indoor unit in the related art, an air conditioner disclosed in PTL 1 will be described with reference to FIG. 10. Air conditioner 1 has inlet 2 of air, which is disposed on an upper surface of a main body, and outlet 3 that is disposed on a front surface of the main body. Cross flow fan 4 is disposed at a central portion of the main body. Rear guider 5 is disposed behind cross flow fan 4, and stabilizer 6 is disposed opposite to rear guider 5. Heat exchanger 7 is disposed so as to sandwich rear guider 5, stabilizer 6, and cross flow fan 4 from a front-rear direction. Heat exchanger 7 includes front heat exchanger 7a and rear heat exchanger 7b. Rear guider 5 includes rear guider flange portion 9. Rear guider flange portion 9 rectifies air such that the air flows above water receiving pan 8, and the air is allowed to flow into cross flow fan 4. Rear guider flange portion 9 has a uniform thickness.

[0004] In air conditioner 1 having the above configuration, when cross flow fan 4 is rotated, the air flowing in from inlet 2 on the upper surface of the main body passes through front heat exchanger 7a and rear heat exchanger 7b. The heat-exchanged air passes through cross flow fan 4, and is blown out from outlet 3. At this time, the air having passed through a lower portion of rear heat exchanger 7b, which is a portion of rear heat exchanger 7b and is below rear guider portion tip end 9a flows upward along rear guider flange portion facing surface 9b that faces rear heat exchanger 7b. Then, the air merges at rear guider flange portion tip end 9a with the air that has passed through an upper portion of rear heat exchanger 7b, which is a portion of rear heat exchanger 7b and is above rear guider portion tip end 9a, and flows toward cross flow fan 4.

[0005] However, since the shape of the rear guider flange portion is defined for the purpose of rectifying the airflow on the cross flow fan side, the airflow on the rear

guider flange portion facing surface of the rear guider flange portion, which faces the rear heat exchanger, is not considered. Therefore, when the air that has passed through the rear heat exchanger passes through a flange back air path formed by the rear heat exchanger and the rear guider flange portion facing surface, the wind speed may be increased or the turbulence of the air may be caused. Thereby, there is a risk of deterioration of the ventilation performance.

[0006] Therefore, there is room for further improvement in the shape of the rear guider.

Citation List

15 Patent Literature

[0007] PTL 1: Unexamined Japanese Patent Publication No. 2015 -55419

20 SUMMARY OF THE INVENTION

[0008] The present inventors have found that, for example, in a case where there is a reduced flow portion in which the air path width is locally narrowed in the flange back air path, an increase in the wind speed in the reduced flow portion, collision of the airflow to the surface of the reduced flow portion, merging of the airflows in different directions, or the like occurs, which may increase the ventilation resistance to cause deterioration of the ventilation performance. The present disclosure provides an air conditioner capable of suppressing an increase in wind speed and turbulence of airflow which are caused by a rear guider flange portion facing surface when air having passed through a rear heat exchanger flows through a flange back air path.

[0009] An air conditioner of the present disclosure includes a main body that has an inlet and an outlet of air; a front heat exchanger that is disposed inside the main body, on a front side of the main body; a rear heat exchanger that is disposed on a rear side of an inner portion of the main body; a cross flow fan that is disposed inside the main body, and has a rotating shaft parallel to a left-right direction of the main body; and a stabilizer and a rear guider that are respectively disposed on a front side and a rear side of an outer peripheral portion of the cross flow fan, and constitute a first air path. The rear guider has a rear guider flange portion disposed between the rear heat exchanger and the cross flow fan. The rear guider flange portion has a first surface that faces the rear heat exchanger, the rear heat exchanger and the first surface of the rear guider flange portion constitute a second air path, the second air path has any section perpendicular to the rotating shaft of the cross flow fan, and in the section, a distance between the first surface and the rear heat exchanger at a closest portion at which the first surface and the rear heat exchanger are closest to each other is equal to or shorter than a distance between the first surface and the rear heat exchanger at a portion

above the closest portion of the second air path.

[0010] With such a configuration, in the flange back air path, there is no reduced flow portion, and the turbulence of the airflow is reduced. Furthermore, as the second air path gradually expands toward the downstream side, an increase in the wind speed of the airflow flowing through the second air path is suppressed.

BRIEF DESCRIPTION OF DRAWINGS

[0011]

FIG. 1 is a sectional view illustrating an example of a configuration of an air conditioner according to a first exemplary embodiment of the present disclosure.

FIG. 2 is an enlarged sectional view of a portion around rear guider flange portion 106a of the air conditioner according to the first exemplary embodiment.

FIG. 3 is a perspective view illustrating an example of a configuration of first surface 110a of rear guider flange portion 106a according to a second exemplary embodiment of the present disclosure.

FIG. 4 is an enlarged sectional view of a portion of first surface 110a of rear guider flange portion 106a according to the second exemplary embodiment.

FIG. 5 is a perspective view illustrating an example of a configuration of first surface 110a of rear guider flange portion 106a according to a third exemplary embodiment of the present disclosure.

FIG. 6 is an enlarged sectional view of a portion of first surface 110a of rear guider flange portion 106a according to the third exemplary embodiment.

FIG. 7 is a perspective view illustrating an example of a configuration of first surface 110a of rear guider flange portion 106a according to a fourth exemplary embodiment of the present disclosure.

FIG. 8 is a perspective view illustrating an example of a configuration of first surface 110a of rear guider flange portion 106a according to a fifth exemplary embodiment of the present disclosure.

FIG. 9 is a perspective view illustrating an example of a configuration of first surface 110a of rear guider flange portion 106a according to a sixth exemplary embodiment of the present disclosure.

FIG. 10 is a sectional view illustrating an air conditioner according to PTL 1.

DESCRIPTION OF EMBODIMENTS

[0012] An air conditioner according to an aspect of the present disclosure includes a main body that has an inlet and an outlet of air; a front heat exchanger that is disposed inside the main body, on a front side of the main body; a rear heat exchanger that is disposed inside the main body, on a rear side of the main body; a cross flow fan that is disposed inside the main body, and has a ro-

tating shaft along a width of the main body; and a stabilizer and a rear guider that are respectively disposed on a front side and a rear side of an outer peripheral portion of the cross flow fan, and constitute a first air path. The rear guider has a rear guider flange portion disposed between the rear heat exchanger and the cross flow fan. The rear guider flange portion has a first surface that faces the rear heat exchanger, the rear heat exchanger and the first surface of the rear guider flange portion constitute a second air path, the second air path has a section perpendicular to the rotating shaft of the cross flow fan, and in the section, a distance between the first surface and the rear heat exchanger at a closest portion at which the first surface and the rear heat exchanger are closest to each other is equal to or shorter than a distance between the first surface and the rear heat exchanger at a portion above the closest portion of the second air path.

[0013] With such a configuration, in the second air path, there is no reduced flow portion where the air path width is locally narrowed, and the turbulence of the airflow is reduced. The airflow flowing toward the tip end of the rear guider flange portion is rectified, and thus the ventilation performance is improved. Furthermore, as the second air path gradually expands toward the downstream side, an increase in the wind speed of the airflow flowing through the second air path is suppressed, and the ventilation resistance in the second air path can be reduced so that the ventilation performance is improved.

[0014] The second air path may have a section perpendicular to the rotating shaft of the cross flow fan, and in the section, a distance between the first surface of the rear guider flange portion and the rear heat exchanger may be equal or gradually reduced from a tip end of the rear guider flange portion to the closest portion.

[0015] With such a configuration, as the second air path gradually expands toward the downstream side, the airflow flowing toward the tip end of the rear guider flange portion is rectified, and thus the second ventilation performance is improved.

[0016] The rear guider flange portion may have a projection end portion on a second surface that is a surface on a rear side of the first surface and faces the cross flow fan, the second air path may have a section perpendicular to the rotating shaft of the cross flow fan, and in a case where a distance between a point A that is on the first surface closest to the projection end portion and the rear heat exchanger is set as LA, a distance between any point B on the first surface, the point B being above the point A and below the tip end of the rear guider flange portion, and the rear heat exchanger is set as LB, and a distance between any point C on the first surface, the point C being above the point B and below the tip end of the rear guider flange portion, and the rear heat exchanger is set as LC, in the section, $LC \geq LB \geq LA$ is satisfied.

[0017] With such a configuration, in the second air path, there is no reduced flow portion, and the turbulence of the airflow is reduced. The airflow flowing toward the tip end of the rear guider flange portion is rectified, and

thus the ventilation performance is improved. Furthermore, as the flange back air path gradually expands, an increase in the wind speed of the airflow flowing through the second air path is suppressed, and the ventilation resistance in the second air path can be reduced so that the ventilation performance is improved.

[0018] The air conditioner may further include a water receiving pan that is disposed to be connected to the rear guider flange portion, the second air path may have a section perpendicular to the rotating shaft of the cross flow fan, and in a case where a distance between an intersection D between the rear guider flange portion and the water receiving pan, and the rear heat exchanger is set as LD, and a distance between any point E on the first surface, the point E being above the point D and below the point A, and the rear heat exchanger is set as LE, in the section, $LA \geq LE \geq LD$ is satisfied.

[0019] With such a configuration, in the second air path, there is no reduced flow portion, and the turbulence of the airflow is reduced. The airflow flowing toward the tip end of the rear guider flange portion is rectified, and thus the ventilation performance is improved. Furthermore, as the second air path gradually expands, an increase in the wind speed of the airflow flowing through the second air path is suppressed, and the ventilation resistance in the second air path can be reduced so that the ventilation performance is improved. In addition, an increase in the wind speed and the turbulence of the airflow at a location where the second air path is further narrowed are suppressed, and the ventilation performance is further improved.

[0020] The first surface of the rear guider flange portion may have a planar shape. The planar shape also includes a substantially planar shape.

[0021] With such a configuration, the configuration of the second air path can be simplified, and the reduced flow portion can be easily eliminated. As a result, the turbulence of the airflow is reduced.

[0022] One or a plurality of protrusions may be disposed on the first surface of the rear guider flange portion.

[0023] With such a configuration, a turbulent flow area is generated around the protrusion so that the frictional resistance around the protrusion is reduced. Therefore, the ventilation resistance in the second air path can be reduced, and the ventilation performance is improved.

[0024] One or a plurality of recesses may be disposed on the first surface of the rear guider flange portion.

[0025] With such a configuration, a turbulent flow area is generated around the recess so that the frictional resistance around the recess is reduced. Therefore, the ventilation resistance in the second air path can be reduced, and the ventilation performance is improved.

[0026] Hereinafter, exemplary embodiments of the present disclosure will be described in detail with reference to the drawings. Note that exemplary embodiments described below are examples, and the present disclosure is not limited to the exemplary embodiments.

(First exemplary embodiment)

[0027] FIG. 1 is a sectional view illustrating an example of a configuration of air conditioner 100 according to the present exemplary embodiment, and FIG. 2 is an enlarged sectional view of a portion around rear guider flange portion 106a of air conditioner 100. FIGS. 1 and 2 are sectional views of air conditioner 100 as viewed from the right.

[0028] As illustrated in FIG. 1, air conditioner 100 includes main body 100A. Heat exchanger 104 and cross flow fan 103 are disposed inside main body 100A. Inlet 101 of air is disposed on an upper surface of main body 100A, and outlet 102 is disposed on a front surface of main body 100A. Heat exchanger 104 exchanges heat with the air taken in from inlet 101. The rotating shaft of cross flow fan 103 is disposed in the left-right direction of main body 100A. Cross flow fan 103 generates an airflow which is heat-exchanged in heat exchanger 104 and is to be blown out from outlet 102.

[0029] Rear guider 106 that guides the flow of air to outlet 102 is disposed on the downstream side of cross flow fan 103. Stabilizer 105 is disposed to face rear guider 106. Rear guider 106 and stabilizer 105 constitute ventilation path 102a (first air path). Heat exchanger 104 is disposed so as to sandwich stabilizer 105, rear guider 106, and cross flow fan 103 from the front and the rear. Heat exchanger 104 includes front heat exchanger 104a and rear heat exchanger 104b. Front heat exchanger 104a is disposed inside main body 100A, on the front side of main body 100A, and rear heat exchanger 104b is disposed inside main body 100A, on the rear side of main body 100A.

[0030] Rear guider flange portion 106a for rectifying the air flowing into cross flow fan 103 is provided at an upper end portion of rear guider 106.

[0031] Water receiving pan 107 is disposed so as to be connected to rear guider flange portion 106a. Rear guider flange portion 106a is disposed above water receiving pan 107.

[0032] As illustrated in FIG. 2, rear guider flange portion 106a is disposed to be sandwiched between rear heat exchanger 104b and cross flow fan 103. Projection end portion 108 is formed on rear guider flange portion 106a. Projection end portion 108 is disposed on second surface 110b that is a surface on the rear side of the first surface and faces the cross flow fan. The distance between rear guider flange portion 106a and cross flow fan 103 is the shortest at projection end portion 108. The airflow flowing through the first air path is rectified by projection end portion 108. A lower end of rear heat exchanger 104b is disposed below projection end portion 108. Rear guider flange portion 106a has a rear guider flange portion facing surface (first surface) 110a which is a surface facing rear heat exchanger 104b. In the present exemplary embodiment, first surface 110a of rear guider flange portion 106a has a substantially planar shape. However, first surface 110a may have a spherical

concave shape or a spherical convex shape.

[0033] Flange back air path (second air path) 109 is formed by first surface 110a of rear guider flange portion 106a and rear heat exchanger 104b. The air having passed through a portion of rear heat exchanger 104b, which is below rear guider flange portion tip end 106b flows from the lower side to the upper side in flange back air path 109. Then, the air that has passed through flange back air path 109 and the air that has passed through a portion of rear heat exchanger 104b, which is above rear guider flange portion tip end 106b merge at rear guider flange portion tip end 106b, and flow toward cross flow fan 103.

[0034] In flange back air path 109, the portion where the distance between first surface 110a of rear guider flange portion 106a and rear heat exchanger 104b is the shortest is the closest portion between first surface 110a and rear heat exchanger 104b. In the example illustrated in FIG. 2, a portion around the lower end portion of flange back air path 109 is the closest portion. Specifically, the distance between first surface 110a and rear heat exchanger 104b is the shortest at the portion of point D.

[0035] The distance between first surface 110a and rear heat exchanger 104b at the closest portion is equal to or shorter than the distance between first surface 110a and rear heat exchanger 104b at a portion above the closest portion in flange back air path 109.

[0036] As illustrated in FIG. 2, flange back air path 109 is configured such that the width of the air path is gradually decreased from rear guider flange portion tip end 106b toward the closest portion. First surface 110a of rear guider flange portion 106a may be provided with a step or the like.

[0037] A distance between point A on first surface 110a of rear guider flange portion 106a, which is closest to projection end portion 108, and rear heat exchanger 104b is set as LA, a distance between any point B on first surface 110a of rear guider flange portion 106a, which is above point A and below rear guider flange portion tip end 106b, and rear heat exchanger 104b is set as LB, and a distance between any point C on first surface 110a of rear guider flange portion 106a, which is above point B and below rear guider flange portion tip end 106b, and rear heat exchanger 104b is set as LC. Further, a distance between intersection D between rear guider flange portion 106a and water receiving pan 107 and rear heat exchanger 104b is set as LD, and a distance between any point E on first surface 110a of rear guider flange portion 106a, which is above point D and below point A, and rear surface heat exchanger 104b is set as LE.

[0038] At this time, flange back air path 109 is configured such that $LC \geq LB \geq LA \geq LE \geq LD$.

[0039] That is, flange back air path 109 is configured such that $LC \geq LB \geq LA$. Further, flange back air path 109 is configured such that $LA \geq LE \geq LD$.

[0040] As a result, in flange back air path 109, there is no reduced flow path where the air path width is locally narrowed, and the turbulence of the airflow flowing

through flange back air path 109 is reduced. Furthermore, as flange back air path 109 gradually expands, an increase in the wind speed of the airflow flowing through flange back air path 109 is suppressed.

[0041] In flange back air path 109, the airflow flowing toward rear guider flange portion tip end 106b is rectified, and thus the ventilation performance is improved. Furthermore, since the increase in the wind speed of the airflow flowing through flange back air path 109 is suppressed, the ventilation resistance in flange back air path 109 can be reduced, and the ventilation performance is improved.

(Second exemplary embodiment)

[0042] FIG. 3 is a perspective view illustrating an example of a configuration of first surface 110a of rear guider flange portion 106a according to the present exemplary embodiment. FIG. 4 is an enlarged sectional view of a portion of first surface 110a of rear guider flange portion 106a illustrated in FIG. 3. In FIGS. 3 and 4, elements common to the elements in the first exemplary embodiment are denoted by common reference numerals.

[0043] As illustrated in FIG. 3, a plurality of protrusions 111 are provided on the surface of first surface 110a of rear guider flange portion 106a.

[0044] As illustrated in FIG. 4, a small turbulent vortex is generated behind protrusion 111. As a result, it is possible to suppress that the airflow flowing through flange back air path 109 (refer to FIG. 2) is separated from the surface of first surface 110a of rear guider flange portion 106a. In addition, the frictional resistance of the surface of first surface 110a of rear guider flange portion 106a is reduced, and the ventilation resistance in flange back air path 109 can be reduced. Therefore, the ventilation performance is improved.

[0045] In the present exemplary embodiment, the shape of protrusion 111 is a circular hill shape. However, the shape of protrusion 111 may be a conical shape, a triangular pyramid shape, a rectangular shape, or the like. Furthermore, in the present exemplary embodiment, an example in which protrusions 111 are arranged in parallel is illustrated, but the protrusions may be arranged in a staggered manner or randomly, or may be arranged in another manner.

(Third exemplary embodiment)

[0046] FIG. 5 is a perspective view illustrating an example of a configuration of first surface 110a of rear guider flange portion 106a according to the present exemplary embodiment. FIG. 6 is an enlarged sectional view of a portion of first surface 110a of rear guider flange portion 106a illustrated in FIG. 5. In FIGS. 5 and 6, elements common to the elements in the first exemplary embodiment are denoted by common reference numerals.

[0047] As illustrated in FIG. 5, a plurality of recesses 112 are provided on the surface of first surface 110a of rear guider flange portion 106a.

[0048] As illustrated in FIG. 6, a small turbulent vortex is generated behind recess 112. As a result, it is possible to suppress that the airflow flowing through flange back air path 109 (refer to FIG. 2) is separated from the surface of first surface 110a of rear guider flange portion 106a. In addition, the frictional resistance of the surface of first surface 110a of rear guider flange portion 106a is reduced, and the ventilation resistance in flange back air path 109 can be reduced. Therefore, the ventilation performance is improved.

[0049] In the present exemplary embodiment, the shape of recess 112 is a substantially spherical shape. However, the shape of recess 112 may be a conical shape, a triangular pyramid shape, a rectangular shape, or the like. Furthermore, in the present exemplary embodiment, an example in which recesses 112 are arranged in parallel is illustrated, but the recesses may be arranged in a staggered manner or randomly, or may be arranged in another manner.

(Fourth exemplary embodiment)

[0050] FIG. 7 is a perspective view illustrating an example of a configuration of first surface 110a of rear guider flange portion 106a according to the present exemplary embodiment. In FIG. 7, elements common to the elements in the first exemplary embodiment are denoted by common reference numerals.

[0051] As illustrated in FIG. 7, as another form of recess 112, a plurality of slits (grooves) 113 are provided on the surface of first surface 110a of rear guider flange portion 106a. In the present exemplary embodiment, slit 113 extends in a direction (left-right direction) parallel to the rotating shaft of cross flow fan 103 (refer to FIG. 2).

[0052] Thereby, it possible to prevent shape defects such as sink marks on resin molding when rear guider flange portion 106a is manufactured by resin molding.

(Fifth exemplary embodiment)

[0053] FIG. 8 is a perspective view illustrating an example of a configuration of first surface 110a of rear guider flange portion 106a according to the present exemplary embodiment. In FIG. 8, elements common to the elements in the first exemplary embodiment are denoted by common reference numerals.

[0054] As illustrated in FIG. 8, as another form of recess 112, a plurality of slits (grooves) 113, which extend in a direction perpendicular to the rotating shaft of cross flow fan 103 (refer to FIG. 2), are provided on the surface of first surface 110a of rear guider flange portion 106a.

[0055] Thereby, it possible to prevent shape defects such as sink marks on resin molding when rear guider flange portion 106a is manufactured by resin molding.

[0056] In addition, the length of slit 113 of the present

exemplary embodiment is relatively short. Specifically, slit 113 of the present exemplary embodiment is shorter than slit 113 illustrated in FIG. 7. Therefore, workability such as cutting at the time of manufacturing the molding die of the rear guider is improved.

(Sixth exemplary embodiment)

[0057] FIG. 9 is a perspective view illustrating an example of a configuration of first surface 110a of rear guider flange portion 106a according to the present exemplary embodiment. In FIG. 9, elements common to the elements in the first exemplary embodiment are denoted by common reference numerals.

[0058] As illustrated in FIG. 9, as another form of protrusion 111, a plurality of ribs 114 are provided on the surface of first surface 110a of rear guider flange portion 106a.

[0059] As a result, rear guider flange portion 106a is reinforced. Therefore, during operation of air conditioner 100, it is possible to prevent the vibration of rear guider flange portion 106a due to an influence of collision of the airflow against rear guider flange portion 106a, vibration of the motor, or the like. Therefore, stable ventilation performance can be exhibited.

[0060] In the present exemplary embodiment, rib 114 extends in a direction perpendicular to the rotating shaft of cross flow fan 103 (refer to FIG. 2). However, rib 114 may extend in a direction parallel to the rotating shaft of cross flow fan 103.

[0061] Rear guider flange portion 106a may have a configuration in which any one of the protrusion and the recess described in the above-described exemplary embodiments is disposed on the first surface, or may have a configuration in which both the protrusion and the recess are disposed on the first surface.

INDUSTRIAL APPLICABILITY

[0062] The air conditioner according to the present disclosure can improve the ventilation performance by adjusting the airflow flowing through the flange back air path and reducing the ventilation resistance in the flange back air path. The configuration of the present disclosure can be suitably used for a household air conditioner and a business air conditioner.

REFERENCE MARKS IN THE DRAWINGS

[0063]

- 100: air conditioner
- 100A: main body
- 101: inlet
- 102: outlet
- 102a: ventilation path (first air path)
- 103: cross flow fan
- 104: heat exchanger

104a: front heat exchanger
 104b: rear heat exchanger
 105: stabilizer
 106: rear guider
 106a: rear guider flange portion 5
 106b: rear guider flange portion tip end
 107: water receiving pan
 108: projection end portion
 109: flange back air path (second air path)
 110a: rear guider flange portion facing surface (first 10
 surface)
 110b: second surface
 111: protrusion
 112: recess
 113: slit 15
 114: rib

Claims

1. An air conditioner comprising:

a main body that has an inlet and an outlet of air;
 a front heat exchanger that is disposed inside 25
 the main body, on a front side of the main body;
 a rear heat exchanger that is disposed inside
 the main body, on a rear side of the main body;
 a cross flow fan that is disposed inside the main
 body, and has a rotating shaft along a width of
 the main body; and 30
 a stabilizer and a rear guider that are disposed
 on a front side and a rear side of an outer pe-
 ripheral portion of the cross flow fan, respective-
 ly, and constitute a first air path,
 wherein the rear guider has a rear guider flange
 portion disposed between the rear heat ex- 35
 changer and the cross flow fan,
 the rear guider flange portion has a first surface
 that faces the rear heat exchanger,
 the rear heat exchanger and the first surface of 40
 the rear guider flange portion constitute a sec-
 ond air path, and
 the second air path has a section perpendicular
 to the rotating shaft of the cross flow fan, and in
 the section, a distance between the first surface 45
 and the rear heat exchanger at a closest portion
 at which the first surface and the rear heat ex-
 changer are closest to each other is equal to or
 shorter than a distance between the first surface
 and the rear heat exchanger at a portion above 50
 the closest portion of the second air path.

2. The air conditioner according to claim 1, wherein the 55 second air path has a section perpendicular to the rotating shaft of the cross flow fan, and in the section, a distance between the first surface of the rear guider flange portion and the rear heat exchanger is equal or gradually reduced from a tip end of the rear guider

flange portion to the closest portion.

3. The air conditioner according to claim 1 or 2, wherein

the rear guider flange portion has a projection
 end portion on a second surface that is a surface
 on a rear side of the first surface and faces the
 cross flow fan, and
 the second air path has a section perpendicular
 to the rotating shaft of the cross flow fan, and in
 a case where a distance between a point A that
 is on the first surface closest to the projection
 end portion and the rear heat exchanger is set
 as LA, a distance between any point B on the
 first surface, the point B being above the point
 A and below the tip end of the rear guider flange
 portion, and the rear heat exchanger is set as
 LB, and a distance between any point C on the
 first surface, the point C being above the point
 B and below the tip end of the rear guider flange
 portion, and the rear heat exchanger is set as
 LC, in the section, $LC \geq LB \geq LA$ is satisfied.

4. The air conditioner according to any one of claims 1 25 to 3, further comprising a water receiving pan that is disposed to be connected to the rear guider flange portion,

wherein the second air path has a section perpen-
 dicular to the rotating shaft of the cross flow fan, and
 in a case where a distance between an intersection
 D between the rear guider flange portion and the
 water receiving pan, and the rear heat exchanger is
 set as LD, and a distance between any point E on
 the first surface, the point E being above the point
 D and below the point A, and the rear heat exchanger
 is set as LE, in the section, $LA \geq LE \geq LD$ is satisfied.

5. The air conditioner according to any one of claims 1 40 to 4, wherein the first surface of the rear guider flange portion has a planar shape.

6. The air conditioner according to any one of claims 1 45 to 5, wherein the rear guider flange portion has the first surface in which a protrusion is disposed.

7. The air conditioner according to any one of claims 1 50 to 6, wherein the rear guider flange portion has the first surface in which a recess is disposed.

FIG. 1

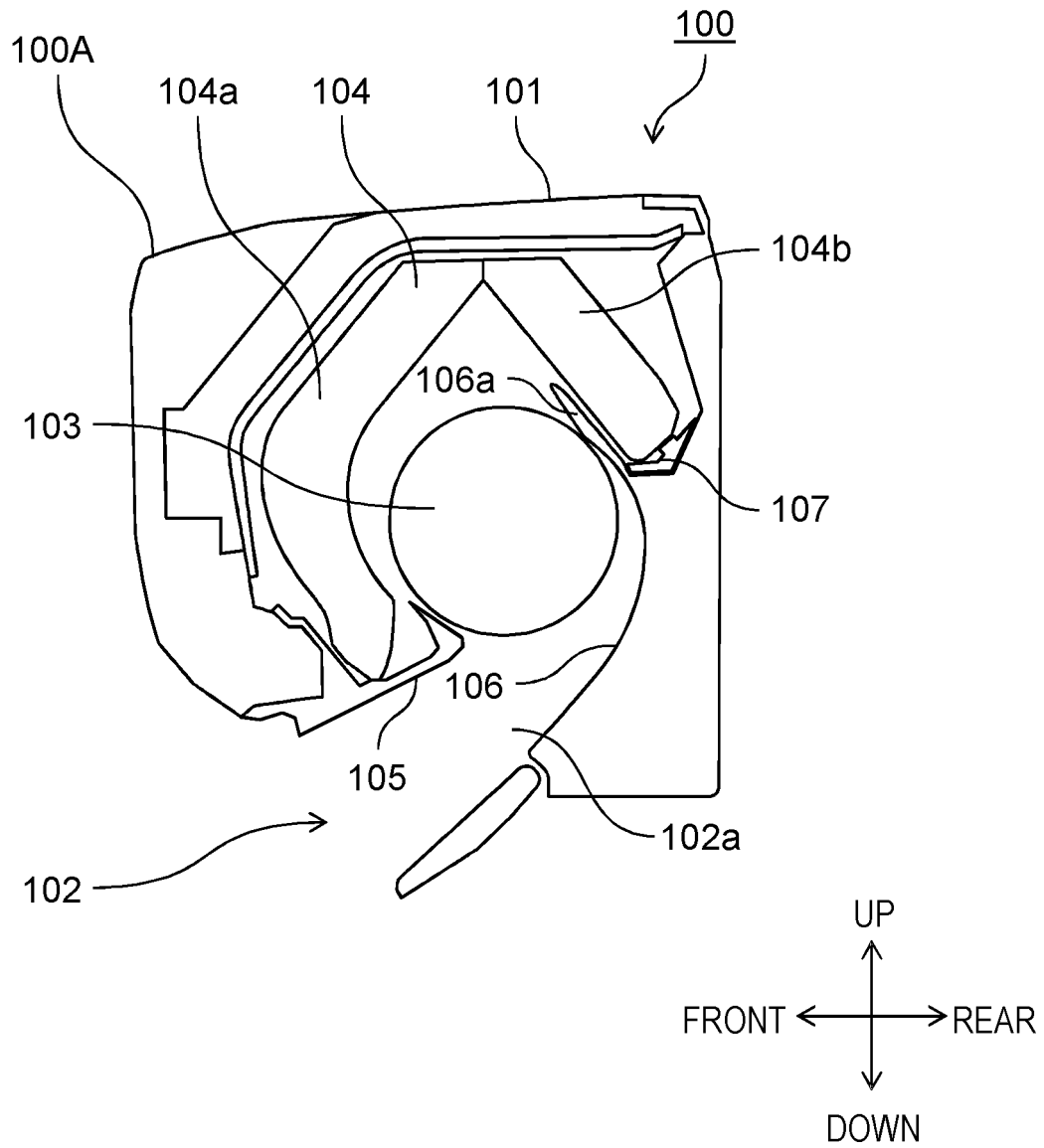


FIG. 2

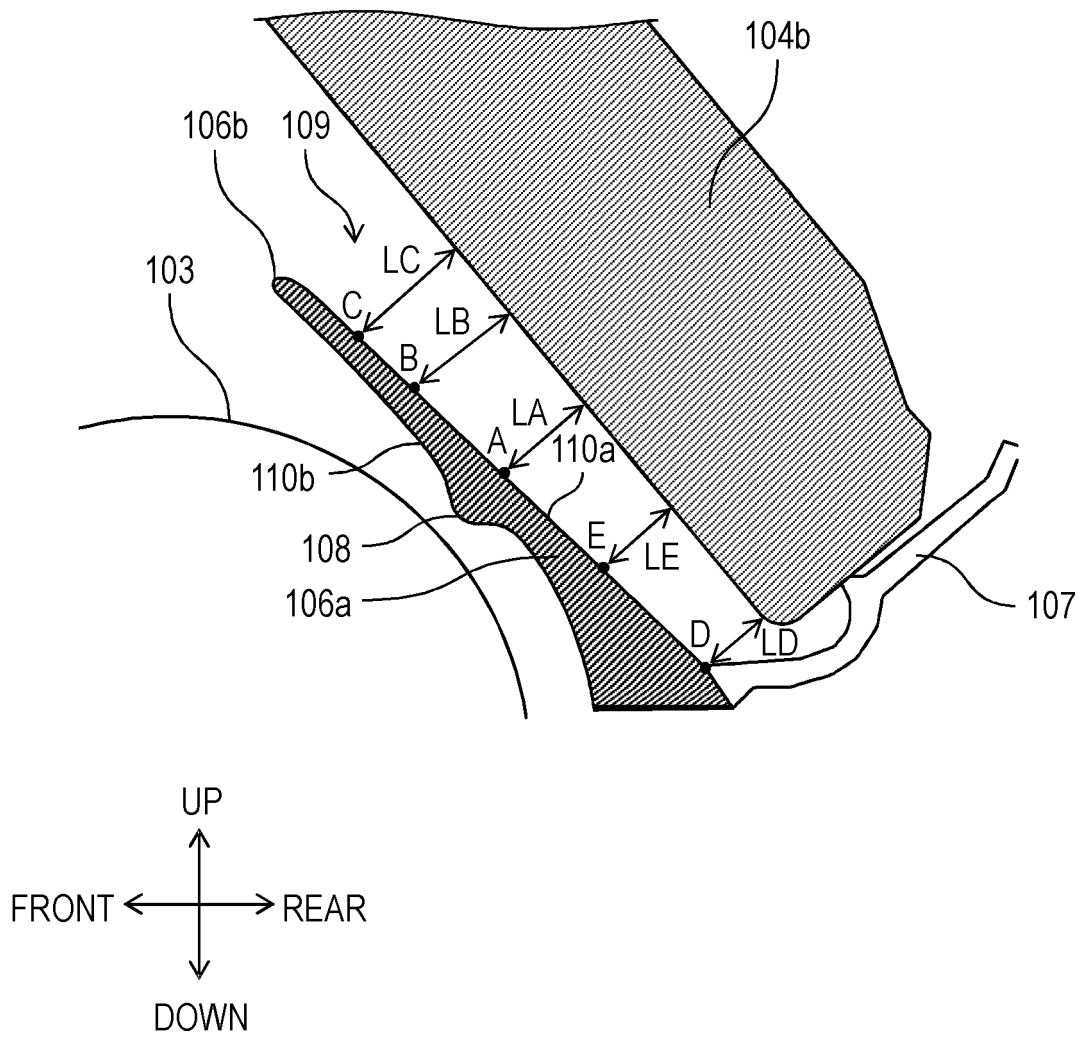


FIG. 3

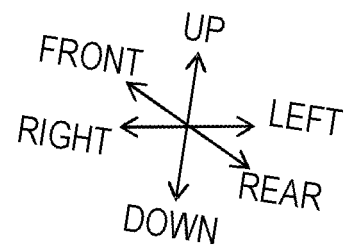
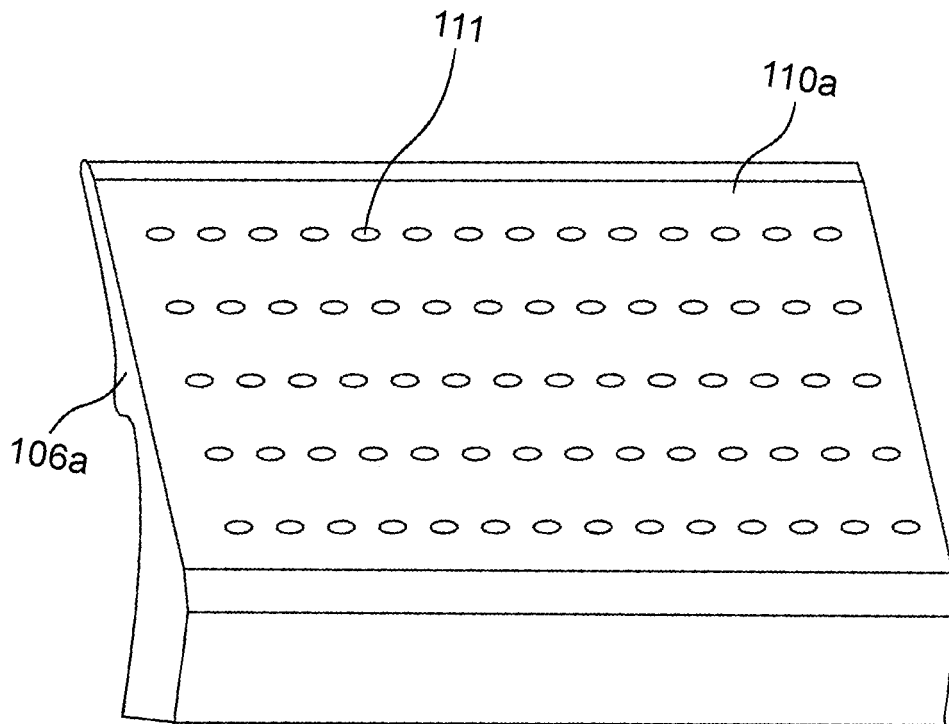


FIG. 4

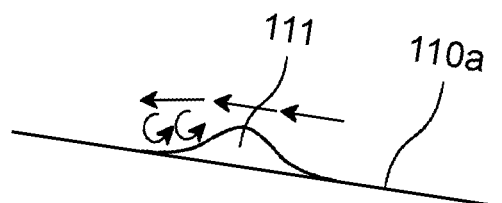


FIG. 5

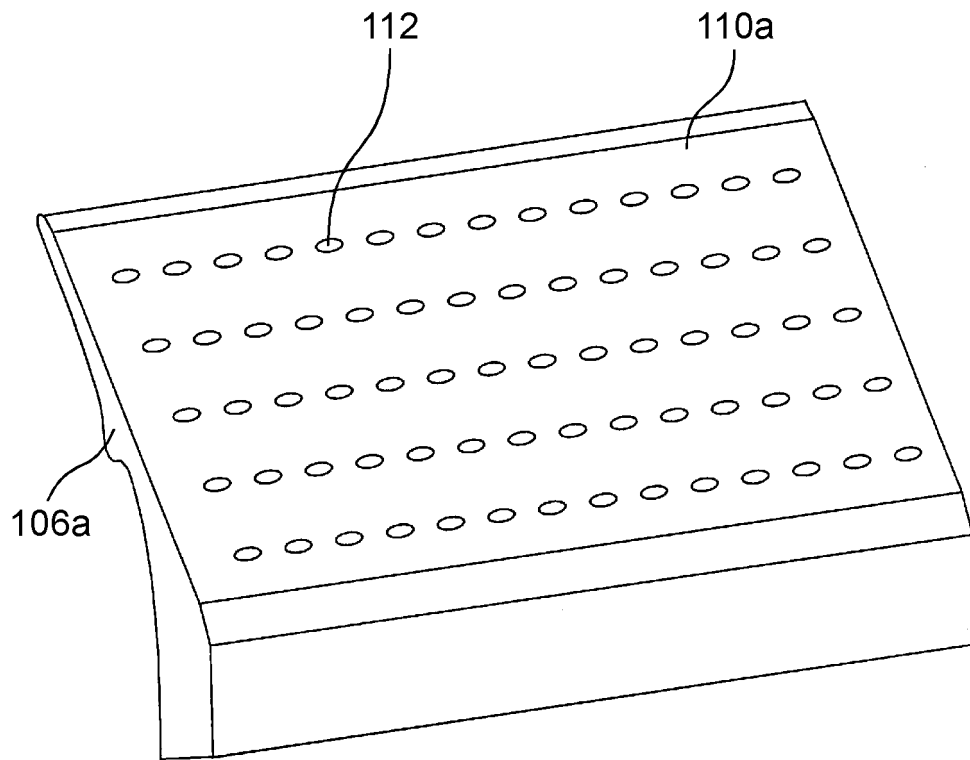


FIG. 6

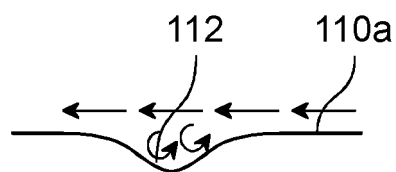


FIG. 7

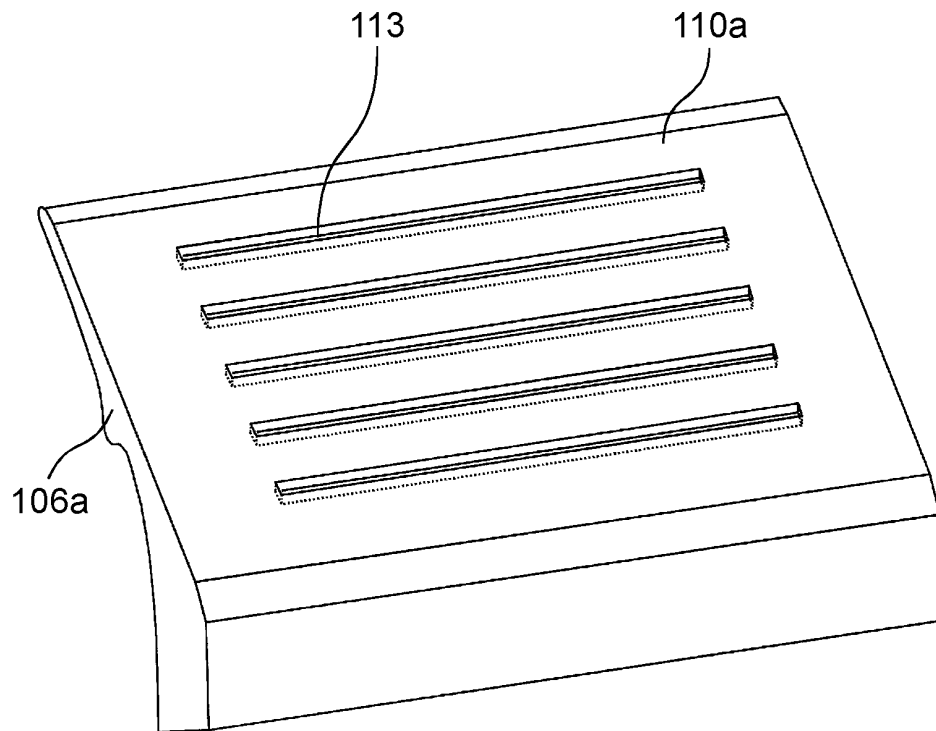


FIG. 8

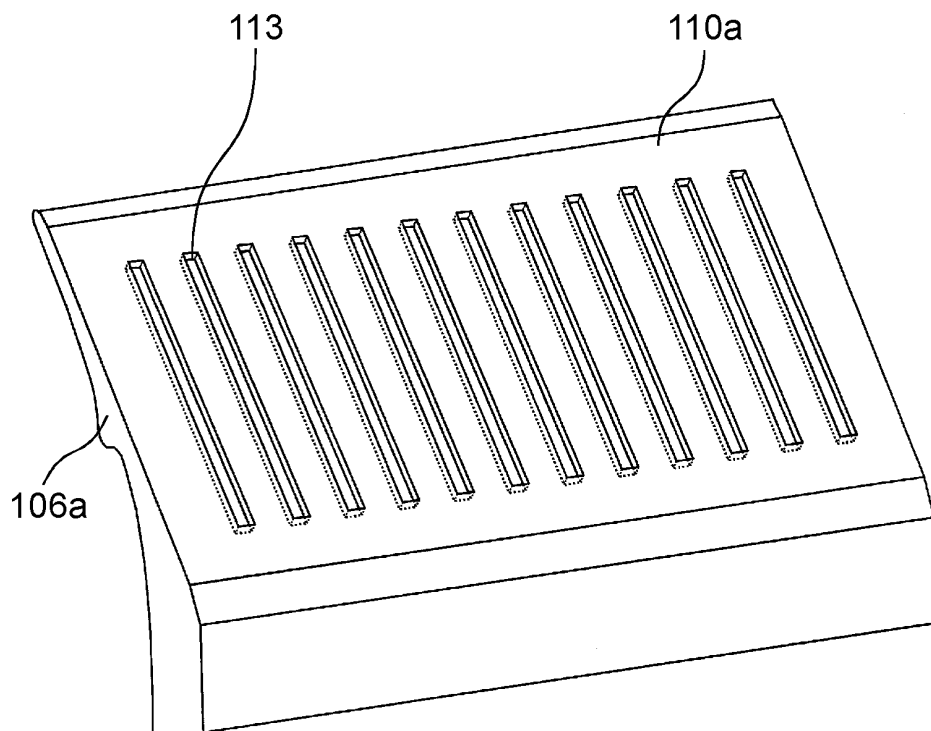


FIG. 9

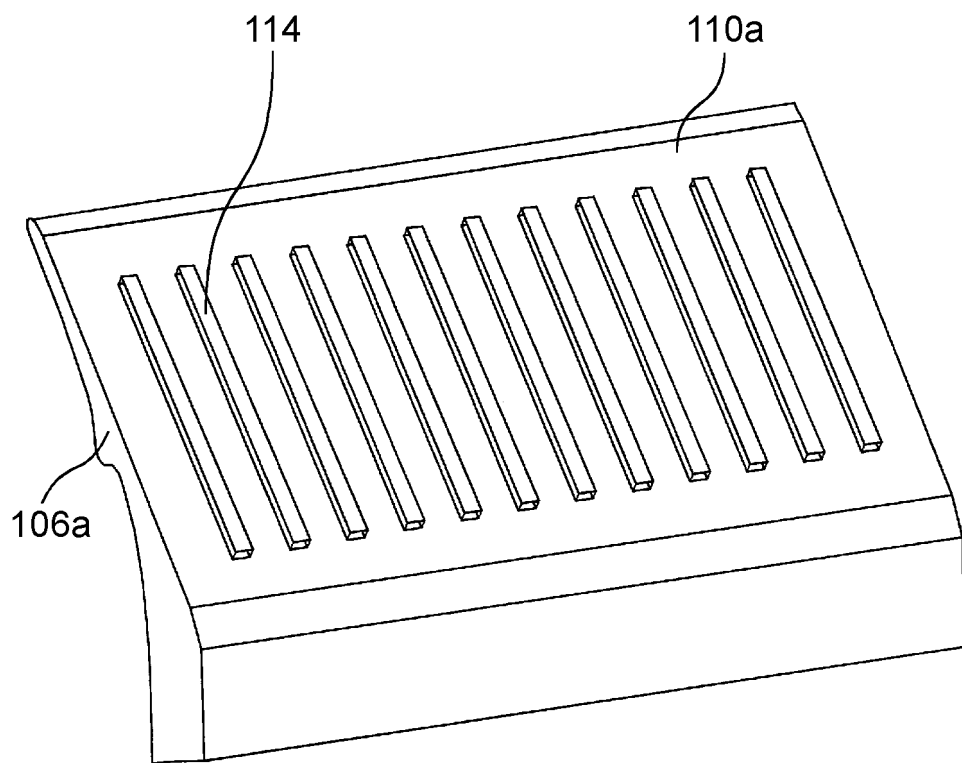
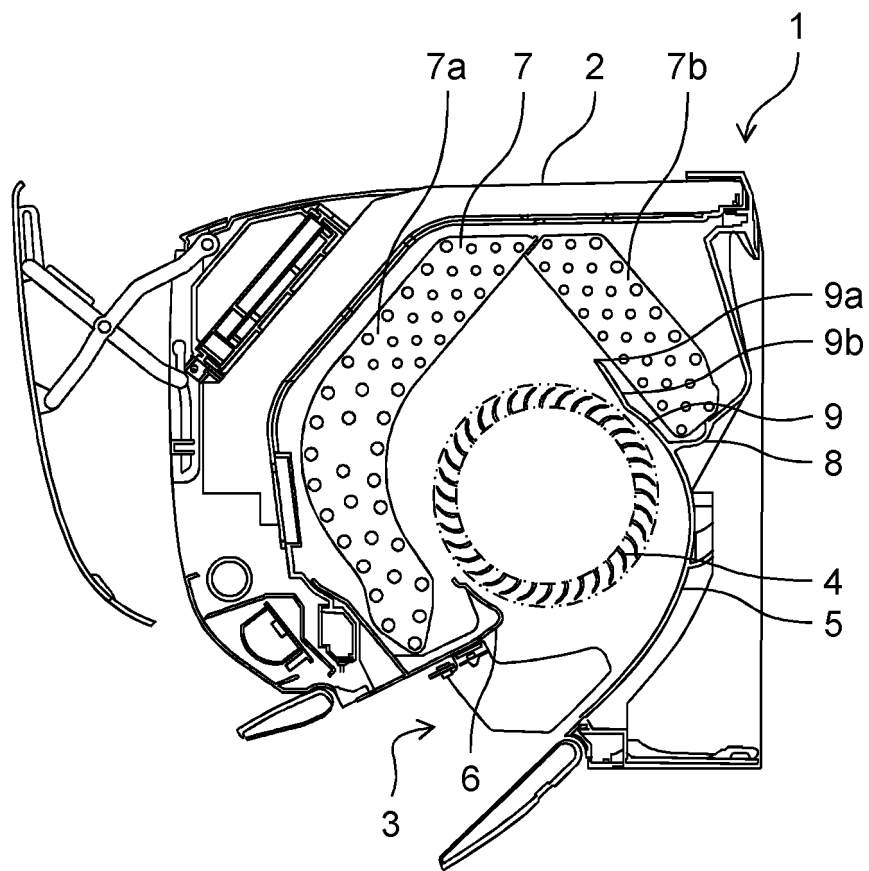


FIG. 10



INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2020/021947

A. CLASSIFICATION OF SUBJECT MATTER

F24F 13/20 (2006.01) i; F24F 1/0025 (2019.01) i
 FI: F24F1/0007 401D; F24F1/0025

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)
 F24F13/20; F24F1/0025

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Published examined utility model applications of Japan	1922-1996
Published unexamined utility model applications of Japan	1971-2020
Registered utility model specifications of Japan	1996-2020
Published registered utility model applications of Japan	1994-2020

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	JP 2001-90689 A (DAIKIN INDUSTRIES, LTD.)	1-5
Y	03.04.2001 (2001-04-03) paragraphs [0001]-[0020], fig. 1-2	6-7
Y	JP 10-205798 A (MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD.) 04.08.1998 (1998-08-04) paragraphs [0023]-[0024], fig. 3	6-7



Further documents are listed in the continuation of Box C.



See patent family annex.

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"&" document member of the same patent family

Date of the actual completion of the international search
 18 August 2020 (18.08.2020)

Date of mailing of the international search report
 01 September 2020 (01.09.2020)

Name and mailing address of the ISA/
 Japan Patent Office
 3-4-3, Kasumigaseki, Chiyoda-ku,
 Tokyo 100-8915, Japan

Authorized officer

Telephone No.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/JP2020/021947

Patent Documents referred in the Report	Publication Date	Patent Family	Publication Date
JP 2001-90689 A	03 Apr. 2001	(Family: none)	
JP 10-205798 A	04 Aug. 1998	(Family: none)	

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- JP 2015055419 A [0007]