



(11) **EP 4 163 569 B1**

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention
of the grant of the patent:
23.10.2024 Bulletin 2024/43

(21) Application number: **20947445.1**

(22) Date of filing: **05.11.2020**

(51) International Patent Classification (IPC):
F24F 13/20 ^(2006.01) **F24F 13/22** ^(2006.01)
F24F 13/14 ^(2006.01) **F24F 1/0011** ^(2019.01)
F24F 1/0057 ^(2019.01)

(52) Cooperative Patent Classification (CPC):
F24F 1/0011; F24F 1/0057; F24F 13/14;
F24F 13/1426; F24F 13/22; F24F 2013/221

(86) International application number:
PCT/CN2020/126772

(87) International publication number:
WO 2022/021654 (03.02.2022 Gazette 2022/05)

(54) **HOUSING ASSEMBLY FOR AIR CONDITIONER, INDOOR UNIT OF AIR CONDITIONER, AND AIR CONDITIONER**

GEHÄUSEANORDNUNG FÜR KLIMAAANLAGE, INNENRAUMEINHEIT EINER KLIMAAANLAGE UND KLIMAAANLAGE

ENSEMBLE BOÎTIER POUR CLIMATISEUR, UNITÉ INTÉRIEURE DE CLIMATISEUR ET CLIMATISEUR

(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

(30) Priority: **27.07.2020 CN 202021507270 U**

(43) Date of publication of application:
12.04.2023 Bulletin 2023/15

(73) Proprietor: **GD Midea Air-Conditioning Equipment Co., Ltd.**
Foshan, Guangdong 528311 (CN)

(72) Inventors:
• **XIE, Yuegan**
Foshan, Guangdong 528311 (CN)

• **LV, Jianhua**
Foshan, Guangdong 528311 (CN)

(74) Representative: **Whitlock, Holly Elizabeth Ann et al**
Maucher Jenkins
Seventh Floor Offices
Artillery House
11-19 Artillery Row
London SW1P 1RT (GB)

(56) References cited:
CN-A- 104 697 052 CN-A- 104 697 052
CN-A- 110 030 623 CN-U- 208 046 356
CN-U- 208 046 356 CN-U- 209 181 107
CN-U- 210 861 619 JP-A- 2013 072 599

Note: Within nine months of the publication of the mention of the grant of the European patent in the European Patent Bulletin, any person may give notice to the European Patent Office of opposition to that patent, in accordance with the Implementing Regulations. Notice of opposition shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

Description

TECHNICAL FIELD

[0001] The present disclosure relates to the technical field of air conditioners, in particular to a housing assembly for an air conditioner, an indoor unit of an air conditioner, and an air conditioner.

BACKGROUND

[0002] A motor for driving an air deflector to swing on an air conditioner is usually located inside a closed mounting cavity, which is not beneficial for heat dissipation. In the related art, cold air at an air outlet of the air conditioner is led into the mounting cavity to dissipate heat of the motor. However, the cold air flowing out of the mounting cavity may contact the housing of the air conditioner, so that a temperature of the housing is reduced, and condensation is generated.

[0003] CN104697052A relates to an indoor unit of an air conditioner and a control method of an indoor unit of an air conditioner. The indoor unit comprises a base, a top frame, a driving device, a wind screen assembly and an air deflector, wherein the top frame is arranged on the base, a mounting cavity is defined between the base and the top frame, and an air outlet is formed in the top frame; the driving device is arranged in the mounting cavity; the wind screen assembly is arranged on the driving device and has an accommodating position and a wind screening position, the wind screen assembly is accommodated in the mounting cavity when the wind screen assembly is in the accommodating position and the wind screen assembly in the wind screening position blocks at least part of the air outlet; the air deflector has an opening position and a closing position, and the air deflector in the opening position opens the air outlet and the air deflector in the closing position covers the air outlet. According to the indoor unit of the air conditioner, outlet air is not directly blown to the user, so that the apparent comfort level of the user is improved.

[0004] CN208046356U provides an air conditioner housing according to the preamble of claim 1 which aims to solve the technical problem that heat dissipation airflow generates condensation after the cold air in the air duct meets the cold air in the air duct, causing dripping of the inner air duct. The air conditioner is formed with a duct, and the housing comprises a partition plate and a fixing plate connected to the partition plate. The plates form a motor cavity, the motor cavity and the air passage are located on opposite sides of the partition plate, an inlet of the air passage is adjacent to the partition plate, and the partition plate is formed with a vent that is connected to the cavity and spaced from the air passage.

SUMMARY

[0005] According to the present invention there is pro-

posed a housing assembly for an air conditioner according to claim 1. Preferred embodiments of the present invention are defined in the dependent claims. In the following, each of the described apparatuses, embodiments, examples, and aspects, which do not fully correspond to the invention as defined in the claims is thus not according to the invention and is, as well as the whole following description, present for illustration purposes only or to highlight specific aspects or features of the claims. Embodiments not falling under the scope of the claims should be interpreted as examples useful for understanding the invention.

[0006] The present invention aims at solving at least one of the technical problems in the related art. Therefore, the present invention proposes a housing assembly for an air conditioner, which guides cold air flowing through a mounting cavity for accommodating a motor of an air deflector and prevents the cold air from contacting a housing of the air conditioner to cause condensation of the housing.

[0007] The present invention also provides an indoor unit of an air conditioner, and an air conditioner.

[0008] A housing assembly for an air conditioner according to an embodiment of one aspect of the present invention includes a housing; an air deflector; a frame connected to the housing and provided with a mounting cavity and an air outlet communicated with the mounting cavity, where the air deflector is rotatably arranged at the air outlet, and the mounting cavity is utilized for mounting a motor which drives the air deflector to swing; an air guide member connected to the frame and formed with an air duct communicated with the mounting cavity, where the air guide member is arranged separately from the housing, wherein the frame is provided with an accommodating cavity utilized for accommodating an evaporator, one end of the air duct is communicated with the mounting cavity, and the other end of the air duct is communicated with the accommodating cavity.

[0009] The housing assembly for the air conditioner according to the embodiments of the present invention at least has the following beneficial effects.

[0010] The housing assembly is provided with a mounting cavity for mounting the motor and an air outlet communicated with the mounting cavity, so that an airflow at the air outlet can enter the mounting cavity to realize rapid heat dissipation of the motor. The housing assembly is also provided with an air guide member to guide the airflow flowing through the mounting cavity. Combined with the separate arrangement of the air guide member and the housing, a condensation phenomenon caused by cooling of the housing can be avoided.

[0011] The frame is provided with an accommodating cavity utilized for accommodating an evaporator, one end of the air duct is communicated with the mounting cavity, and the other end of the air duct is communicated with the accommodating cavity.

[0012] In some embodiments, the air guide member is detachably connected to the frame.

[0013] In some embodiments, the frame is provided with a first vent, a first flange, a second vent and a second flange, the first flange surrounds the first vent and the second flange surrounds the second vent; the air guide member includes a first connecting portion, a body portion and a second connecting portion which are connected in sequence; the first connecting portion is sleeved on the first flange, so that the air duct is communicated with the mounting cavity through the first vent; and the second connecting portion is sleeved on the second flange, so that the air duct is communicated with the accommodating cavity through the second vent.

[0014] In some embodiments, the frame is provided with a plurality of the first vents and a plurality of the second vents, the first flange surrounds the plurality of the first vents, and the second flange surrounds the plurality of the second vents.

[0015] In some embodiments, the body portion is a hose tube.

[0016] In some embodiments, the frame includes a surface frame and an air outlet frame, and the surface frame and the air outlet frame define the mounting cavity, where:

a third vent is formed between the surface frame and the air outlet frame, and the mounting cavity is communicated with the air outlet through the third vent; or, the air outlet frame is provided with a third vent, and the mounting cavity is communicated with the air outlet through the third vent.

[0017] In some embodiments, the housing includes an end cover, the frame includes a surface frame, the end cover is connected to the surface frame, the air guide member is located between the end cover and the surface frame and is arranged separately from the end cover.

[0018] An indoor unit of an air conditioner according to embodiments of another aspect of the present invention includes the housing assembly for the air conditioner.

[0019] An air conditioner according to embodiments of yet another aspect of the present invention includes the indoor unit of the air conditioner.

BRIEF DESCRIPTION OF THE DRAWINGS

[0020] The present invention will be explained with reference to the accompanying drawings and embodiments hereinafter, wherein:

FIG. 1 is a front view of a housing assembly connected to a motor according to an embodiment of the present invention;

FIG. 2 is a schematic cross-sectional view of FIG. 1 along an A-A direction;

FIG. 3 is an enlarged schematic diagram of an area D in FIG. 2;

FIG. 4 is a schematic cross-sectional view of FIG. 1

along a B-B direction;

FIG. 5 is a schematic cross-sectional view of FIG. 1 along a C-C direction;

FIG. 6 is a three-dimensional schematic diagram showing a direction in which the housing assembly is connected to the motor in FIG. 1;

FIG. 7 is an enlarged schematic diagram of area E in FIG. 6

FIG. 8 is a three-dimensional schematic diagram showing another direction in which the housing assembly is connected to the motor in FIG. 1; and

FIG. 9 is a three-dimensional schematic diagram of an air guide member in FIG. 4.

Reference numerals:

[0021] 100 refers to housing, and 110 refers to end cover; 200 refers to frame, 210 refers to mounting cavity, 220 refers to third vent, 230 refers to surface frame, 231 refers to first vent, 232 refers to first flange, 233 refers to second vent, 234 refers to second flange, 240 refers to air outlet frame, and 241 refers to mounting box; 300 refers to air guide member, 310 refers to body portion, 320 refers to first connecting portion, and 330 refers to second connecting portion; 400 refers to accommodating cavity; 500 refers to air outlet; 600 refers to empty cavity; and 700 refers to motor.

DETAILED DESCRIPTION

[0022] The embodiments of the present invention will be described in detail hereinafter. Examples of the embodiments are shown in the accompanying drawings. The same or similar reference numerals throughout the drawings denote the same or similar elements or elements having the same or similar functions. The embodiments described below with reference to the accompanying drawings are exemplary and are only intended to explain the present invention but should not be understood as limiting the present invention, which is limited by the scope of the appended claims only.

[0023] In the description of the present invention, it should be understood that the orientation or positional relationship indicated by the terms relating orientation description such as up, down, left, right, front, back and the like is based on the orientation or positional relationship shown in the drawings, only for the convenience of describing and simplifying the present disclosure, and does not indicate or imply that the indicated device or element must have a specific orientation, or be constructed and operated in a specific orientation. Therefore, the terms should not be construed as limiting the present invention.

[0024] In the description of the present invention, the meaning of multiple refers to be more than two, and the above is understood to include this number. In the description of the present disclosure, if first, second and third are described, the descriptions are utilized for the

purpose of distinguishing the technical features only and cannot be understood as indicating or implying relative importance, or implicitly indicating the number of technical features indicated thereby, or implicitly indicating the order of technical features indicated thereby.

[0025] In the description of the present invention, unless otherwise explicitly defined, words such as formed with, setting, connecting, and installing should be understood in a broad sense, and those having ordinary skill in the art can reasonably determine the specific meanings of the above words in the present invention in combination with the specific contents of the technical solutions.

[0026] In the related art, an air conditioner is provided with a driving device for driving parts. For example, an air outlet of the air conditioner is usually provided with an air deflector, and the air deflector is driven by a motor to swing, thereby changing a direction of an airflow. The motor driving the air deflector is usually located inside a closed space, so the airflow is difficult to enter. Heat generated by the motor needs to be transferred by other parts, and the heat dissipation efficiency is low, which affects a service life of the motor. To solve the above problems, the cold air at the air outlet of the air conditioner can be led into the mounting cavity to realize heat dissipation of the motor. However, the cold air flowing out of the mounting cavity may contact a housing of the air conditioner, resulting in the temperature drop of the housing to cause condensation.

[0027] Based on this, the present invention provides a housing assembly for an air conditioner, which is provided with an air guide member separated from a housing. The air guide member can guide an airflow, and when a temperature of the airflow is low, a condensation phenomenon caused by low-temperature air contacting the housing of the air conditioner can be avoided. Different embodiments of the present invention will be described below with reference to the drawings.

[0028] In some embodiments of the present invention, the housing assembly includes a housing 100, an air deflector, a frame 200 and an air guide member 300. The housing 100 is located outside the housing assembly. The frame 200 is connected to the housing 100 and provided with a mounting cavity 210 and an air outlet 500 communicated with the mounting cavity 210. The air deflector is rotatably arranged at the air outlet 500, and the mounting cavity 210 is utilized for mounting a motor which drives the air deflector to swing. The air guide member 300 is connected to the frame 200 and formed with an air duct communicated with the mounting cavity 210. The air guide member 300 is arranged separately from the housing 100.

[0029] Referring to FIG. 1 to FIG. 3, the frame 200 in this embodiment is provided with the mounting cavity 210 and the air outlet 500. In an implementation, the frame 200 is a single part or a collection of multiple parts. And in an implementation, the mounting cavity 210 is formed inside the single part or among the multiple parts. A po-

sition of the mounting cavity 210 is determined by a position of the motor 700. Since the air deflector is mounted at the air outlet 500 of the housing assembly, the motor 700 driving the air deflector to swing and the corresponding mounting cavity 210 are also close to the air outlet 500 of the housing assembly, that is, located at a lower part of FIG. 1. The air deflector and the motor 700 and a corresponding fixing structure can all be selected according to the existing technology.

[0030] Referring to FIG. 3, a third vent 220 is arranged on or among the parts utilized to form the mounting cavity 210, and the third vent 220 is utilized to allow air at the air outlet 500 to enter the mounting cavity 210, thus realizing air flow in the mounting cavity 210 and accelerating heat dissipation of the motor 700.

[0031] Referring to FIG. 3 and FIG. 4, the air guide member 300 is located inside the housing assembly and is provided with an air duct communicated with the mounting cavity 210. The air guide member 300 is utilized for guiding the airflow flowing through the mounting cavity 210, so that the airflow can follow a required path and is avoided from contacting the housing 100.

[0032] The air guide member 300 is separated from the housing 100. The "housing 100" in this embodiment refers to the part located outside the housing assembly, including but not limited to an end cover, a panel, and the like. In an implementation, the housing 100 is a single part or a collection of multiple parts. The housing 100 is in contact with ambient normal temperature air during daily work, and if the temperature of the housing 100 is lower than that of the ambient air, condensation is easily formed. In this embodiment, the air guide member 300 is separated from the housing 100. Even if low-temperature air flows in the air guide member 300, the temperature of the housing 100 can not be lowered due to contact with the cold air, so that condensation can be avoided.

[0033] It can be understood that the housing assembly in this embodiment can be applied to both an indoor unit of a split air conditioner and an integrated air conditioner.

[0034] In this embodiment, the housing assembly is provided with the mounting cavity 210 for mounting the motor 700 and the mounting cavity 210 is communicated with the air outlet 500 of the housing assembly, so that the cold air at the air outlet 500 can enter the mounting cavity 210 to realize rapid heat dissipation. In another embodiment, the housing assembly is provided with the air guide member 300 to guide the airflow flowing through the mounting cavity 210. Combined with the separate arrangement of the air guide member 300 and the housing 100, a condensation phenomenon caused by the cooling of the housing 100 can be avoided.

[0035] Referring to FIG. 4 to FIG. 7, in some embodiments of the present invention, the housing assembly is provided with an accommodating cavity 400 for accommodating an evaporator. One end of the air duct in the air guide member 300 is communicated with the mounting cavity 210, and the other end of the air duct is com-

municated with the accommodating cavity 400.

[0036] In an embodiment, the frame 200 is provided with a third vent 220. In this embodiment, the third vent 220 serves as an air inlet of the mounting cavity 210, and the mounting cavity 210 is communicated with the air outlet 500 of the housing assembly through the third vent 220. The air guide member 300 is utilized to guide the airflow flowing out of the mounting cavity 210. One end of the air guide member 300 is communicated with the air outlet of the mounting cavity 210, and the other end of the air guide member 300 is communicated with the accommodating cavity 400 of the housing assembly for accommodating the evaporator of the air conditioner. When the housing assembly of this embodiment is applied to the air conditioner, the low-temperature air at the air outlet of the air conditioner enters the mounting cavity 210 through the third vent 220, cools the motor 700, and then enters the accommodating cavity 400 through the air guide member 300. That is, the low-temperature air at the air outlet can be utilized to dissipate heat in this embodiment, which is helpful to improve a heat dissipation effect, and the low-temperature air flowing out of the mounting cavity 210 can flow back to the accommodating cavity 400, thus preventing the low-temperature air from contacting the housing 100.

[0037] Referring to FIG. 3, FIG. 6 and FIG. 7, in some embodiments of the present invention, the frame 200 includes a surface frame 230 and an air outlet frame 240. The surface frame 230 and the air outlet frame 240 define the mounting cavity 210. A third vent 220 is formed between the surface frame 230 and the air outlet frame 240, and the mounting cavity 210 is communicated with the air outlet 500 through the third vent 220.

[0038] In this embodiment, the frame 200 includes the surface frame 230 and the air outlet frame 240, which define the mounting cavity 210. The third vent 220 is formed between the surface frame 230 and the air outlet frame 240. In an implementation, one side of the air outlet frame 240 (for example, the lower left side in FIG. 7) is provided with a mounting box 241, and one side of the mounting box 241 (for example, the left side in FIG. 7) is provided with an opening. When connecting, the mounting cavity 210 can be defined by making the opening side of the mounting box 241 face the surface frame 230 and making the mounting box 241 close to but not contacting the surface frame 230, and a gap between the mounting box 241 and the surface frame 230 is the third vent 220. In this embodiment, the slender gap between the surface frame 230 and the air outlet frame 240 is utilized as the third vent 220, which can prevent a user from touching an internal motor on the premise of meeting ventilation requirements. At the same time, it is not necessary to separately process the third vent 220 on the surface frame 230 and the air outlet frame 240, which helps to reduce the processing cost.

[0039] In some embodiments of the present disclosure, the housing assembly includes a surface frame 230 and an air outlet frame 240. The surface frame 230 and

the air outlet frame 240 define a mounting cavity 210. The air outlet frame 240 is provided with a third vent 220, and the mounting cavity 210 is communicated with the air outlet 500 through the third vent 220.

[0040] In this embodiment, the frame 200 includes the surface frame 230 and the air outlet frame 240, which define the mounting cavity 210, and the third vent 220 is formed on the air outlet frame 240 alone. For example, in an implementation, one side of the air outlet frame 240 (for example, the lower left side in FIG. 7) is provided with a mounting box 241, and one side of the mounting box 241 (for example, the left side in FIG. 7) is provided with an opening. When connecting, the mounting cavity 210 can be defined by fitting the opening side of the mounting box 241 with the surface frame 230, and the third vent 220 can be formed on a box wall of the mounting box 241, so that the surface frame 230 and the air outlet frame 240 can form an integrated structure, or the surface frame 230 and the air outlet frame 240 can be connected by a fastener after fitting, and meanwhile, the third vent 220 is arranged on the air outlet frame 240 closer to the air outlet of the air conditioner, which facilitates air intake.

[0041] Referring to FIG. 3, in some embodiments of the present invention, the housing assembly includes a surface frame 230 and an end cover 110. The end cover 110 is connected to the surface frame 230, and an air guide member 300 is located between the end cover 110 and the surface frame 230, and is separately arranged from the end cover 110.

[0042] In this embodiment, the frame 200 includes a surface frame 230, and the housing 100 includes the end cover 110. The end cover 110 is connected to the outside of the surface frame 230. And usually, the end cover 110 and the surface frame 230 define an empty cavity 600. The air guide member 300 is mounted inside the empty cavity 600, which can make full use of the existing space of the housing assembly. The air guide member 300 is not in contact with the end cover 110, which can avoid the end cover 110 from condensation.

[0043] In some embodiments of the present invention, the air guide member 300 is detachably connected to the frame 200, so that the air guide member 300 can be replaced after ageing. In an implementation, the air guide member 300 can be connected to the frame 200 by a fastener or a buckle structure and can also be connected to the frame 200 by an adhesive tape.

[0044] Referring to FIG. 8 and FIG. 9, in some embodiments of the present invention, the frame 200 is provided with a first vent 231, a first flange 232, a second vent 233 and a second flange 234. The first flange 232 surrounds the first vent 231, and the second flange 234 surrounds the second vent 233. The air guide member 300 includes a first connecting portion 320, a body portion 310 and a second connecting portion 330 which are connected in sequence. The first connecting portion 320 is sleeved on the first flange 232, so that the air duct of the air guide member 300 is communicated with the mounting cavity 210 through the first vent 231, and the second connecting

portion 330 is sleeved on the second flange 234, so that the air duct of the air guide member 300 is communicated with the accommodating cavity 400 through the second vent 233, thus realizing quick disassembly between the air guide member 300 and the frame 200.

[0045] Similarly, taking the surface frame 230 as the frame 200 as an example, the surface frame 230 is formed with the first vent 231 and the first flange 232. The first vent 231 leads to the mounting cavity 210, and the first flange 232 surrounds an outside of the first vent 231 along a circular track or a square track. A shape of the first connecting portion 320 is adapted to a shape of the first flange 232, such as a square structure in FIG. 9. In an implementation, the first connecting portion 320 can be an elastic structure made of rubber, silica gel and other materials. When in use, the first connecting portion 320 is stretched and sleeved outside the first flange 232, and the first connecting portion 320 can be tightly connected to the first flange 232 after contracting. When dismounting, the first connecting portion 320 can be separated only by pulling, which is simple to operate.

[0046] In another embodiment, the other end of the air guide member 300 can also be connected to the surface frame 230 in a similar way. In an implementation, the surface frame 230 is formed with a second vent 233 and a second flange 234. The second vent 233 leads to the accommodating cavity 400 where the evaporator is placed, and the second flange 234 surrounds an outside of the second vent 233 along a circular track or a square track. The air guide member 300 includes a second connecting portion 330. The second connecting portion 330, the main body portion 310 and the first connecting portion 320 are connected in sequence, and a shape of the second connecting portion 330 is adapted to a shape of the second flange 234, such as a square structure in FIG. 9. In an implementation, the second connecting portion 330 can also be an elastic structure made of rubber, silica gel and other materials, and the second connecting portion 330 can be connected by being sleeved outside the second flange 234.

[0047] It can be understood that the shapes of the first connecting portion 320 and the second connecting portion 330 are not limited to the shapes described in above embodiments. In some embodiments, the shapes of the first connecting portion 320, the second connecting portion 330 and the body portion 310 can also be the same. For example, the air guide member 300 is an air guide pipe with a constant cross section, and both ends of the air guide pipe are utilized as the first connecting portion 320 and the second connecting portion 330 respectively.

[0048] Referring to FIG. 8, the frame is provided with a plurality of the first vents 231 and a plurality of the second vents 233. The first flange 232 surrounds outside of the plurality of the first vents 231 and the second flange 234 surrounds outside the plurality of the second vents 233.

[0049] Taking the surface frame 230 as the frame 200 as an example, the surface frame 230 is provided with a

plurality of the first vents 231 and a plurality of the second vents 233. Correspondingly, the first flange 232 surrounds the plurality of the first vents 231 and the second flange 234 surrounds the plurality of the second vents 233, so that the strength of the surface frame 230 can be increased through the arrangement of this embodiment under the same vent hole area compared with that of a single vent hole. It can be understood that numbers of the first vent 231 and the second vent 233 are not limited in this embodiment, and can be two, three, four or other numbers.

[0050] In some embodiments of the present invention, the body portion 310 of the air guide member 300 can be a hose tube made of rubber, silica gel, and the like, so that the air guide member 300 can be bent and mounted conveniently. In an embodiment, other parts of the air guide member 300, such as the first connecting portion 320 and the second connecting portion 330, can be made of the same material as the body portion 310, that is, the air guide member 300 has an integrated structure. In another embodiment, the materials of the first connecting portion 320 and the second connecting portion 330 can also be different from the material of the body portion 310, for example, the body portion 310 has a flexible structure, and the first connecting portion 320 and the second connecting portion 330 have a rigid structure.

[0051] In some embodiments of the present invention, an indoor unit of an air conditioner is proposed. The indoor unit of the air conditioner includes the housing assembly of the above embodiments, and the motor 700 for driving the air deflector to rotate on the indoor unit of the air conditioner is located in the mounting cavity 210. When a fan of the indoor unit of the air conditioner drives cold air to be discharged from the air outlet 500, the fan can also drive the cold air to enter the mounting cavity 210, thus realizing rapid heat dissipation of the motor 700.

[0052] This embodiment is applied to various air conditioners with indoor units, such as wall-mounted air conditioners, cabinet air conditioners, ceiling air conditioners, and the like.

[0053] In the embodiment, as shown in FIG. 3, the body portion of the motor 700 is fixed inside the mounting cavity 210, and a driving shaft of the motor 700 is directly or indirectly connected to the air deflector (not shown in the figure) outside the mounting cavity 210 through a shaft sleeve and other structures, which can not only avoid touching the motor by the user, but also can drive the air deflector.

[0054] The fan is located inside the housing 100 for forcing airflow into the mounting cavity 210. This embodiment can adopt the existing fan of the indoor unit of the air conditioner to form an airflow for heat dissipation, which is favorable for reducing the cost. The fan and a corresponding fixing structure can both be selected according to the existing technology.

[0055] In some embodiments of the present invention, an air conditioner is proposed, including the indoor unit of the air conditioner according to various embodiments

described above.

Claims

1. A housing assembly for an air conditioner, comprising:

a housing (100);
an air deflector;
a frame (200) connected to the housing (100), and provided with a mounting cavity (210) and an air outlet (500) communicated with the mounting cavity (210), wherein the air deflector is rotatably arranged at the air outlet (500), and the mounting cavity (210) is utilized for mounting a motor (700) which drives the air deflector to swing; **characterized by:**

an air guide member (300) connected to the frame (200) and formed with an air duct communicated with the mounting cavity (210), wherein the air guide member (300) is arranged separately from the housing (100);
wherein the frame (200) is provided with an accommodating cavity (400) utilized for accommodating an evaporator, one end of the air duct is communicated with the mounting cavity (210), and the other end of the air duct is communicated with the accommodating cavity (400).

2. The housing assembly for the air conditioner according to claim 1, wherein the air guide member (300) is detachably connected to the frame (200).

3. The housing assembly for the air conditioner according to claim 2, wherein:

the frame (200) is provided with a first vent (231), a first flange (232), a second vent (233) and a second flange (234), the first flange (232) surrounds the first vent (231), and the second flange (234) surrounds the second vent (233);
the air guide member (300) comprises a first connecting portion (320), a body portion (310) and a second connecting portion (330) which are connected in sequence;
the first connecting portion (320) is sleeved on the first flange (232), so that the air duct is communicated with the mounting cavity (210) through the first vent (231); and
the second connecting portion (330) is sleeved on the second flange (234), so that the air duct is communicated with the accommodating cavity (400) through the second vent (233).

4. The housing assembly for the air conditioner according to claim 3, wherein the frame (200) is provided with a plurality of the first vents (231) and a plurality of the second vents (233), the first flange (232) surrounds the plurality of the first vents (231), and the second flange (234) surrounds the plurality of the second vents (233).

5. The housing assembly for the air conditioner according to claim 3, wherein the body portion (310) is a hose tube.

6. The housing assembly for the air conditioner according to claim 1, wherein:
the frame (200) comprises a surface frame (230) and an air outlet frame (240), and the surface frame (230) and the air outlet frame (240) define the mounting cavity (210), wherein:

a third vent (220) is formed between the surface frame (230) and the air outlet frame (240), and the mounting cavity (210) is communicated with the air outlet (500) through the third vent (220);
or, the air outlet frame (240) is provided with a third vent (220), and the mounting cavity (210) is communicated with the air outlet (500) through the third vent (220).

7. The housing assembly for the air conditioner according to claim 1, wherein the housing (100) comprises an end cover (110), the frame (200) comprises a surface frame (230), the end cover (110) is connected to the surface frame (230), the air guide member (300) is located between the end cover (110) and the surface frame (230), and is arranged separately from the end cover (110).

8. An indoor unit of an air conditioner, comprising the housing assembly for the air conditioner according to any one of claims 1 to 7.

9. An air conditioner, comprising the indoor unit of the air conditioner according to claim 8.

Patentansprüche

1. Gehäusebaugruppe für eine Klimaanlage, umfassend:

ein Gehäuse (100),
ein Luftleitblech,
einen Rahmen (200), der mit dem Gehäuse (100) verbunden und mit einem Montagehohlraum (210) und einem Luftauslass (500) versehen ist, der mit dem Montagehohlraum (210) in Verbindung steht, wobei das Luftleitblech drehbar an dem Luftauslass (500) angeordnet ist und

der Montagehohlraum (210) verwendet wird, um einen Motor (700) zu montieren, der das Luftleitblech zum Schwingen antreibt, **gekennzeichnet durch:**

ein Luftleitelement (300), das mit dem Rahmen (200) verbunden und mit einem Luftkanal gebildet ist, der mit dem Montagehohlraum (210) in Verbindung steht, wobei das Luftleitelement (300) separat vom Gehäuse (100) angeordnet ist, wobei der Rahmen (200) mit einem Unterbringungshohlraum (400) versehen ist, der zum Unterbringen eines Verdampfers verwendet wird, wobei ein Ende des Luftkanals mit dem Montagehohlraum (210) in Verbindung steht und das andere Ende des Luftkanals mit dem Unterbringungshohlraum (400) in Verbindung steht.

2. Gehäusebaugruppe für die Klimaanlage nach Anspruch 1, wobei das Luftleitelement (300) lösbar mit dem Rahmen (200) verbunden ist.

3. Gehäusebaugruppe für die Klimaanlage nach Anspruch 2, wobei:

der Rahmen (200) mit einer ersten Lüftungsöffnung (231), einem ersten Flansch (232), einer zweiten Lüftungsöffnung (233) und einem zweiten Flansch (234) versehen ist, wobei der erste Flansch (232) die erste Lüftungsöffnung (231) umgibt und der zweite Flansch (234) die zweite Lüftungsöffnung (233) umgibt, das Luftleitelement (300) einen ersten Verbindungsabschnitt (320), einen Hauptteilabschnitt (310) und einen zweiten Verbindungsabschnitt (330) umfasst, die nacheinander verbunden sind, der erste Verbindungsabschnitt (320) derart auf den ersten Flansch (232) aufgesetzt ist, dass der Luftkanal durch die erste Lüftungsöffnung (231) in Verbindung mit dem Montagehohlraum (210) steht, und der zweite Verbindungsabschnitt (330) derart auf den zweiten Flansch (234) aufgesetzt ist, dass der Luftkanal durch die zweite Lüftungsöffnung (233) in Verbindung mit dem Unterbringungshohlraum (400) steht.

4. Gehäusebaugruppe für die Klimaanlage nach Anspruch 3, wobei der Rahmen (200) mit mehreren der ersten Lüftungsöffnungen (231) und mehreren der zweiten Lüftungsöffnungen (233) versehen ist, wobei der erste Flansch (232) die mehreren der ersten Lüftungsöffnungen (231) umgibt und der zweite Flansch (234) die mehreren der zweiten Lüftungsöffnungen (233) umgibt.

5. Gehäusebaugruppe für die Klimaanlage nach Anspruch 3, wobei der Hauptteilabschnitt (310) ein Schlauch ist.

- 5 6. Gehäusebaugruppe für die Klimaanlage nach Anspruch 1, wobei:
der Rahmen (200) einen Oberflächenrahmen (230) und einen Luftauslassrahmen (240) umfasst und der Oberflächenrahmen (230) und der Luftauslassrahmen (240) den Montagehohlraum (210) definieren, wobei:

eine dritte Lüftungsöffnung (220) zwischen dem Oberflächenrahmen (230) und dem Luftauslassrahmen (240) gebildet ist und der Montagehohlraum (210) durch die dritte Lüftungsöffnung (220) mit dem Luftauslass (500) in Verbindung steht, oder der Luftauslassrahmen (240) mit einer dritten Lüftungsöffnung (220) versehen ist und der Montagehohlraum (210) durch die dritte Lüftungsöffnung (220) mit dem Luftauslass (500) in Verbindung steht.

- 25 7. Gehäusebaugruppe für die Klimaanlage nach Anspruch 1, wobei das Gehäuse (100) eine Stirnseitenabdeckung (110) umfasst, der Rahmen (200) einen Oberflächenrahmen (230) umfasst, die Stirnseitenabdeckung (110) mit dem Oberflächenrahmen (230) verbunden ist, sich das Luftleitelement (300) zwischen der Stirnseitenabdeckung (110) und dem Oberflächenrahmen (230) befindet und separat von der Stirnseitenabdeckung (110) angeordnet ist.

- 35 8. Inneneinheit einer Klimaanlage, umfassend die Gehäusebaugruppe für die Klimaanlage nach einem der Ansprüche 1 bis 7.

- 40 9. Klimaanlage, umfassend die Inneneinheit der Klimaanlage nach Anspruch 8.

Revendications

- 45 1. Ensemble formant boîtier pour un climatiseur, comportant :

un boîtier (100) ;
un déflecteur d'air ;
un cadre (200) relié au boîtier (100) et doté d'une cavité de montage (210) et d'une sortie d'air (500) en communication avec la cavité de montage (210), dans lequel le déflecteur d'air est monté de manière rotative au niveau de la sortie d'air (500), et la cavité de montage (210) est utilisée à des fins de montage d'un moteur (700) qui entraîne le déflecteur d'air à osciller ; **caractérisé par :**

- un élément de guidage d'air (300) relié au cadre (200) et formé avec un conduit d'air en communication avec la cavité de montage (210), dans lequel l'élément de guidage d'air (300) est agencé séparément du boîtier (100) ;
 dans lequel le cadre (200) est doté d'une cavité de réception (400) utilisée pour recevoir un évaporateur, une extrémité du conduit d'air est en communication avec la cavité de montage (210) et l'autre extrémité du conduit d'air est en communication avec la cavité de réception (400).
2. Ensemble formant boîtier pour le climatiseur selon la revendication 1, dans lequel l'élément de guidage d'air (300) est relié de manière amovible au cadre (200).
3. Ensemble formant boîtier pour le climatiseur selon la revendication 2, dans lequel :
- le cadre (200) est doté d'un premier événement (231), d'une première bride (232), d'un deuxième événement (233) et d'une deuxième bride (234), la première bride (232) entourant le premier événement (231) et la deuxième bride (234) entourant le deuxième événement (233).
 l'élément de guidage d'air (300) comporte une première partie de liaison (320), une partie formant corps (310) et une deuxième partie de liaison (330) qui sont reliées de manière séquentielle.
 la première partie de liaison (320) est gainée sur la première bride (232), de telle sorte que le conduit d'air est en communication avec la cavité de montage (210) par l'intermédiaire du premier événement (231) ; et
 la deuxième partie de liaison (330) est gainée sur la deuxième bride (234), de telle sorte que le conduit d'air est en communication avec la cavité de réception (400) par l'intermédiaire du deuxième événement (233).
4. Ensemble formant boîtier pour le climatiseur selon la revendication 3, dans lequel le cadre (200) est doté d'une pluralité de premiers événements (231) et d'une pluralité de deuxièmes événements (233), la première bride (232) entoure la pluralité de premiers événements (231), et la deuxième bride (234) entoure la pluralité de deuxièmes événements (233).
5. Ensemble formant boîtier pour le climatiseur selon la revendication 3, dans lequel la partie formant corps (310) est un tube flexible.
6. Ensemble formant boîtier pour le climatiseur selon la revendication 1, dans lequel :
- le cadre (200) comporte un cadre de surface (230) et un cadre de sortie d'air (240), et le cadre de surface (230) et le cadre de sortie d'air (240) définissent la cavité de montage (210), dans lequel :
- un troisième événement (220) est formé entre le cadre de surface (230) et le cadre de sortie d'air (240), et la cavité de montage (210) est en communication avec la sortie d'air (500) par l'intermédiaire du troisième événement (220) ;
 ou, le cadre de sortie d'air (240) est doté d'un troisième événement (220), et la cavité de montage (210) est en communication avec la sortie d'air (500) par l'intermédiaire du troisième événement (220).
7. Ensemble formant boîtier pour le climatiseur selon la revendication 1, dans lequel le boîtier (100) comporte un couvercle d'extrémité (110), le cadre (200) comporte un cadre de surface (230), le couvercle d'extrémité (110) est relié au cadre de surface (230), l'élément de guidage d'air (300) est situé entre le couvercle d'extrémité (110) et le cadre de surface (230), et est agencé séparément du couvercle d'extrémité (110).
8. Unité intérieure d'un climatiseur, comportant l'ensemble formant boîtier pour le climatiseur d'air selon l'une quelconque des revendications 1 à 7.
9. Climatiseur, comportant l'unité intérieure du climatiseur selon la revendication 8.

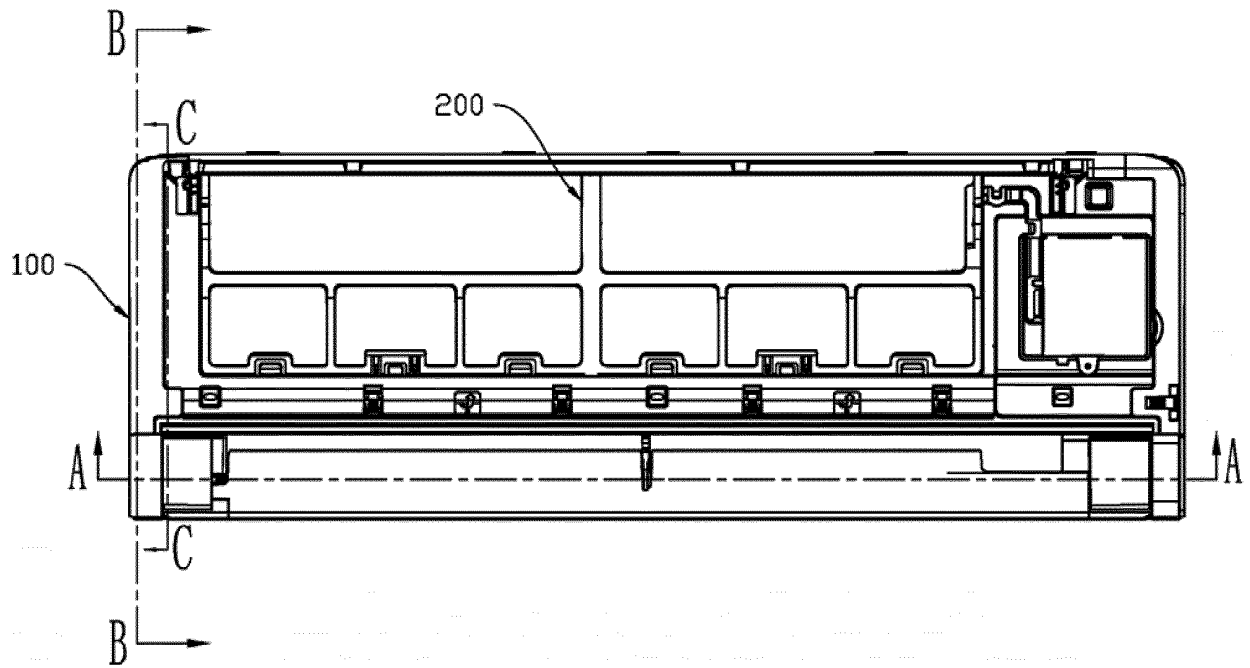


FIG. 1

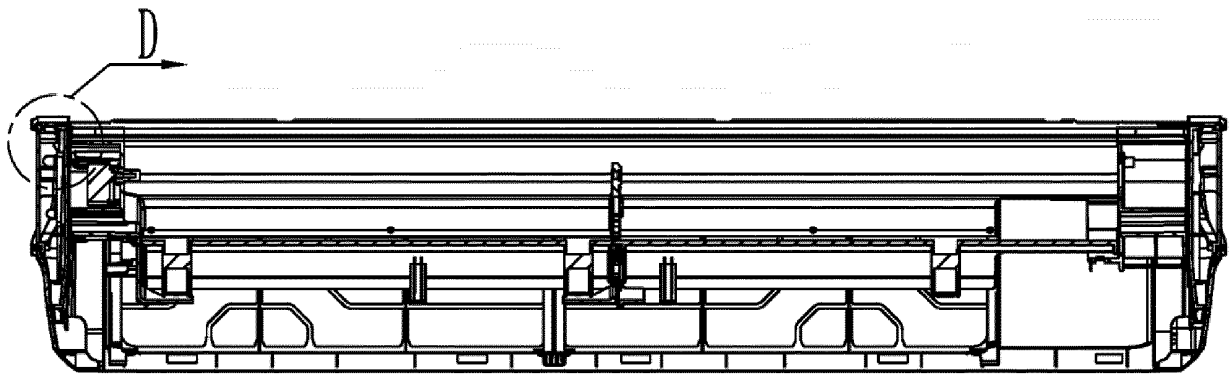


FIG. 2

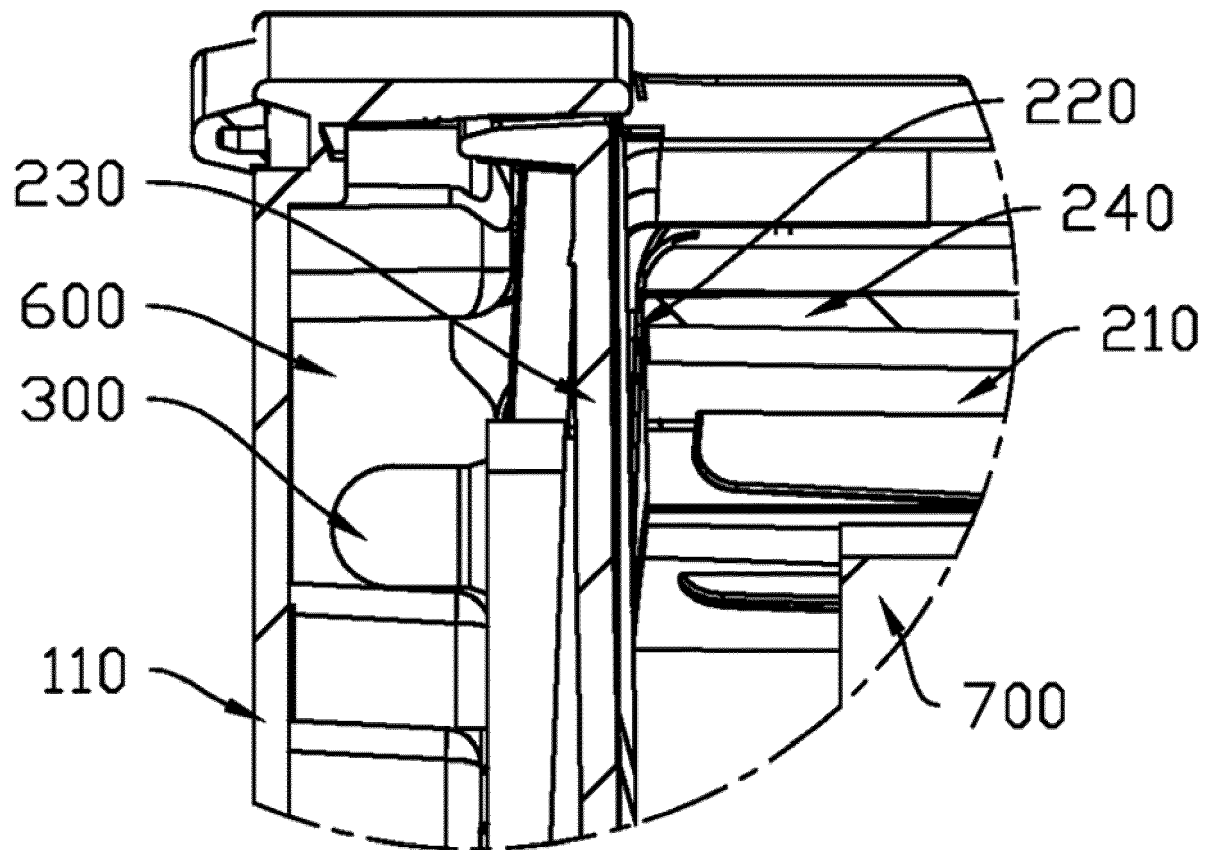


FIG. 3

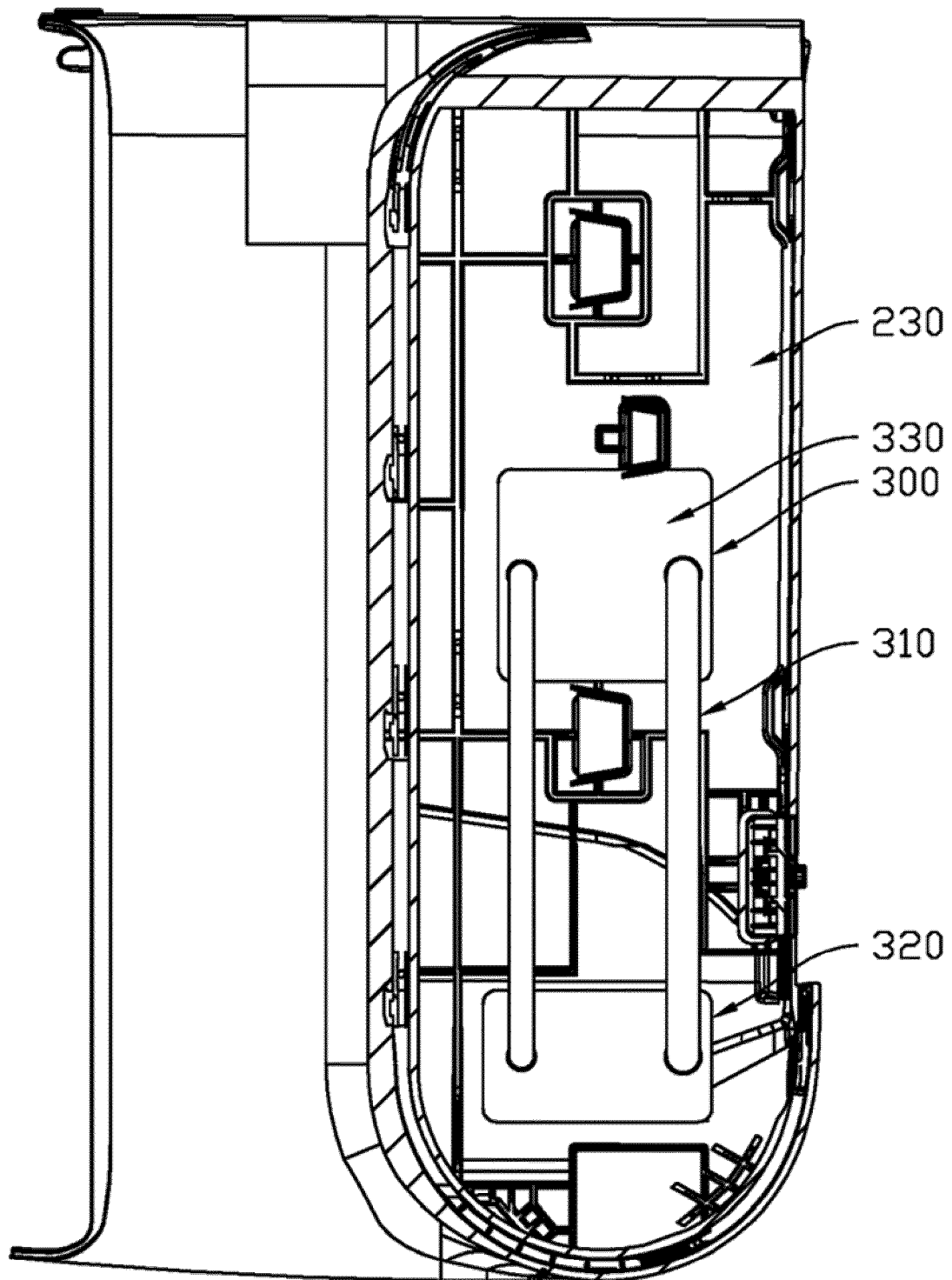


FIG. 4

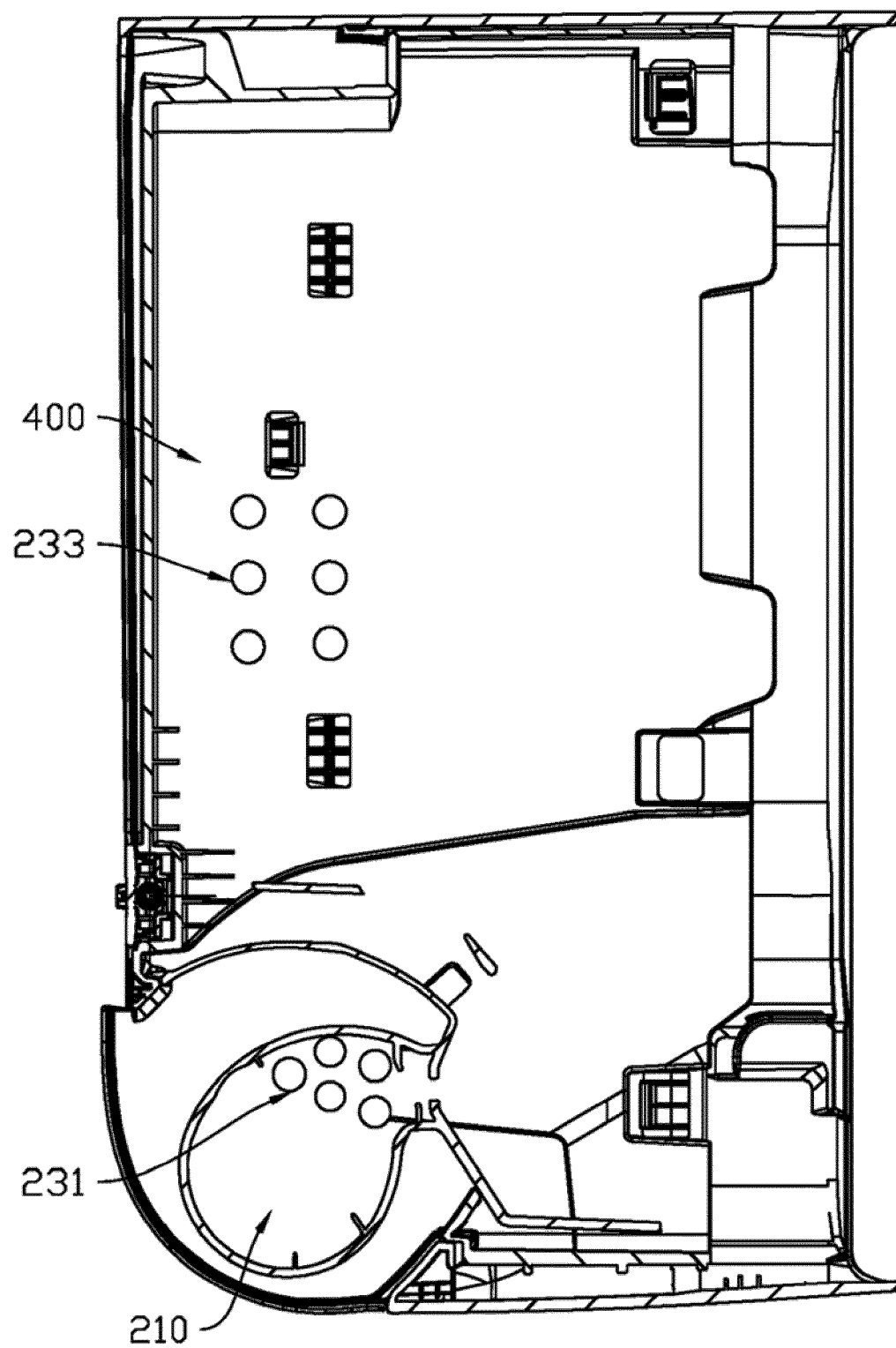


FIG. 5

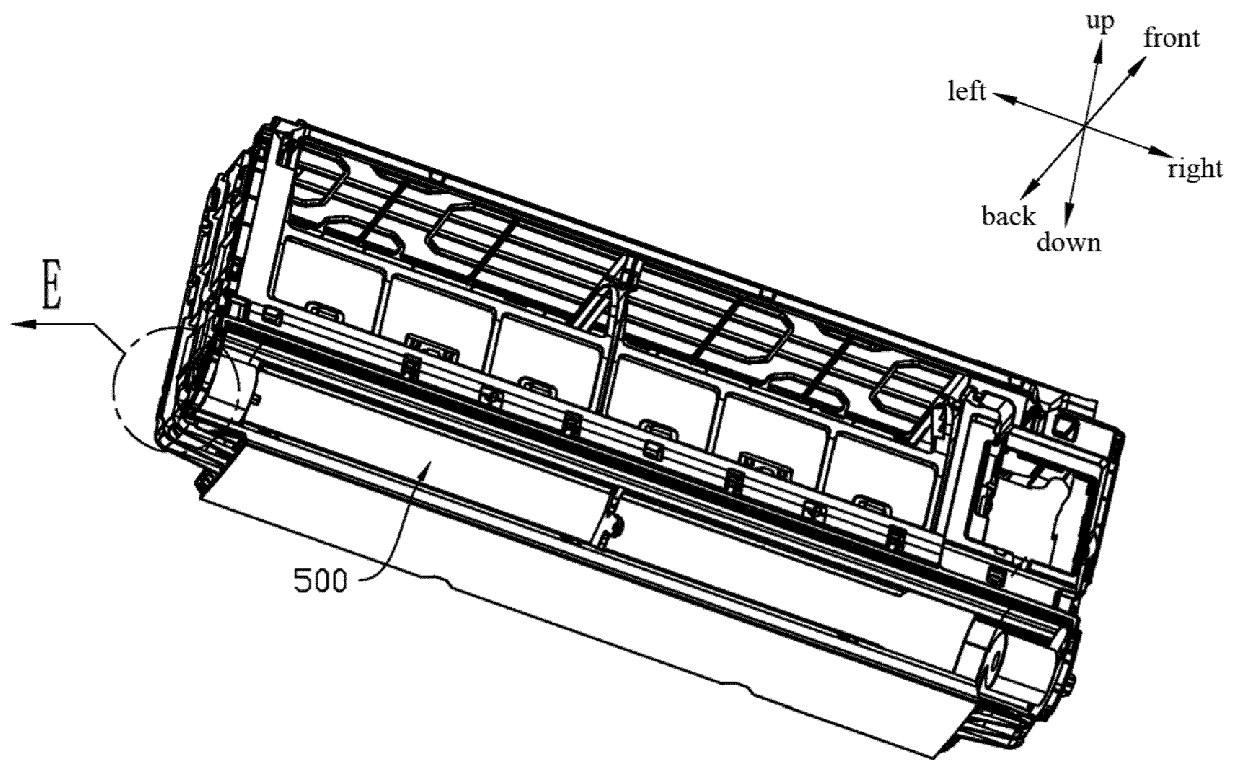


FIG. 6

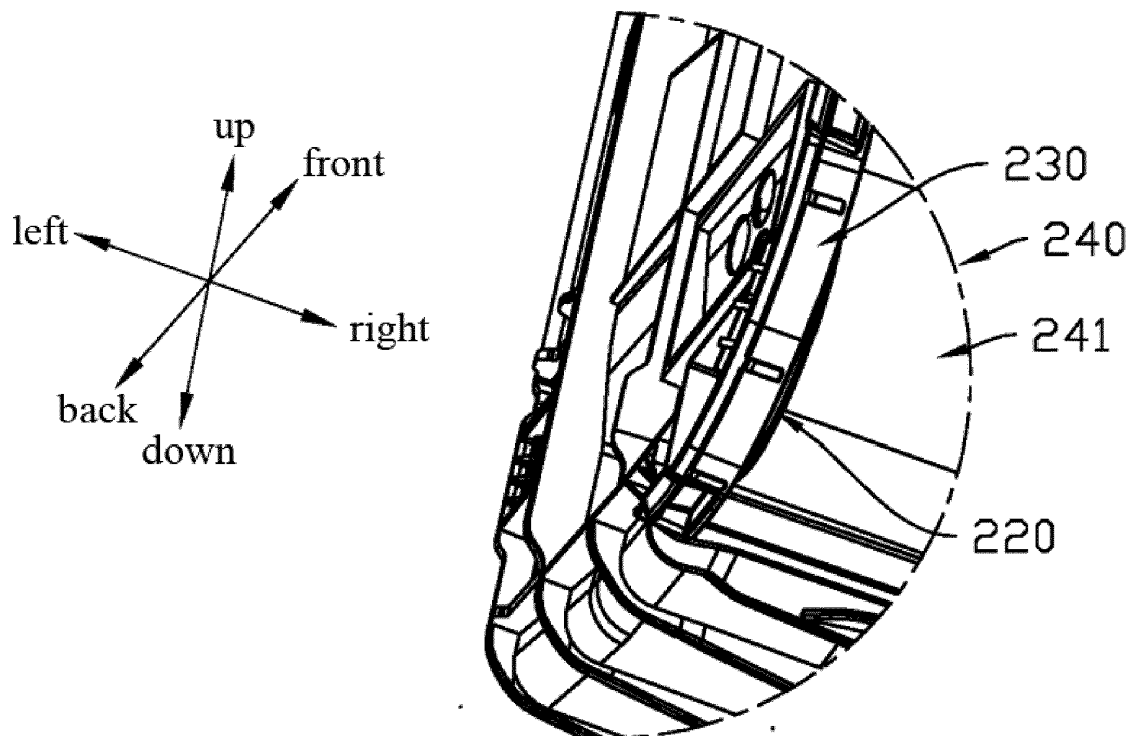


FIG. 7

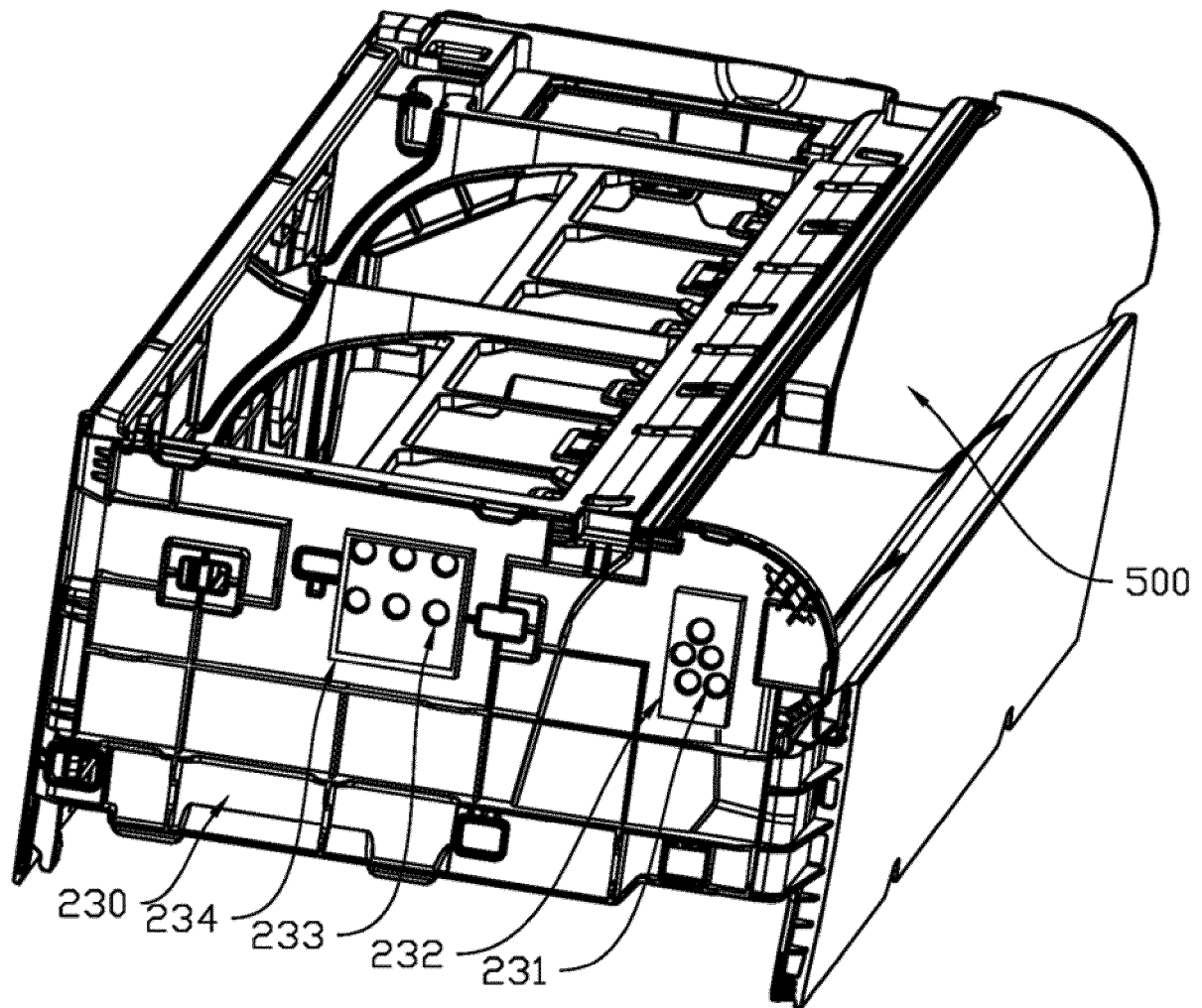


FIG. 8

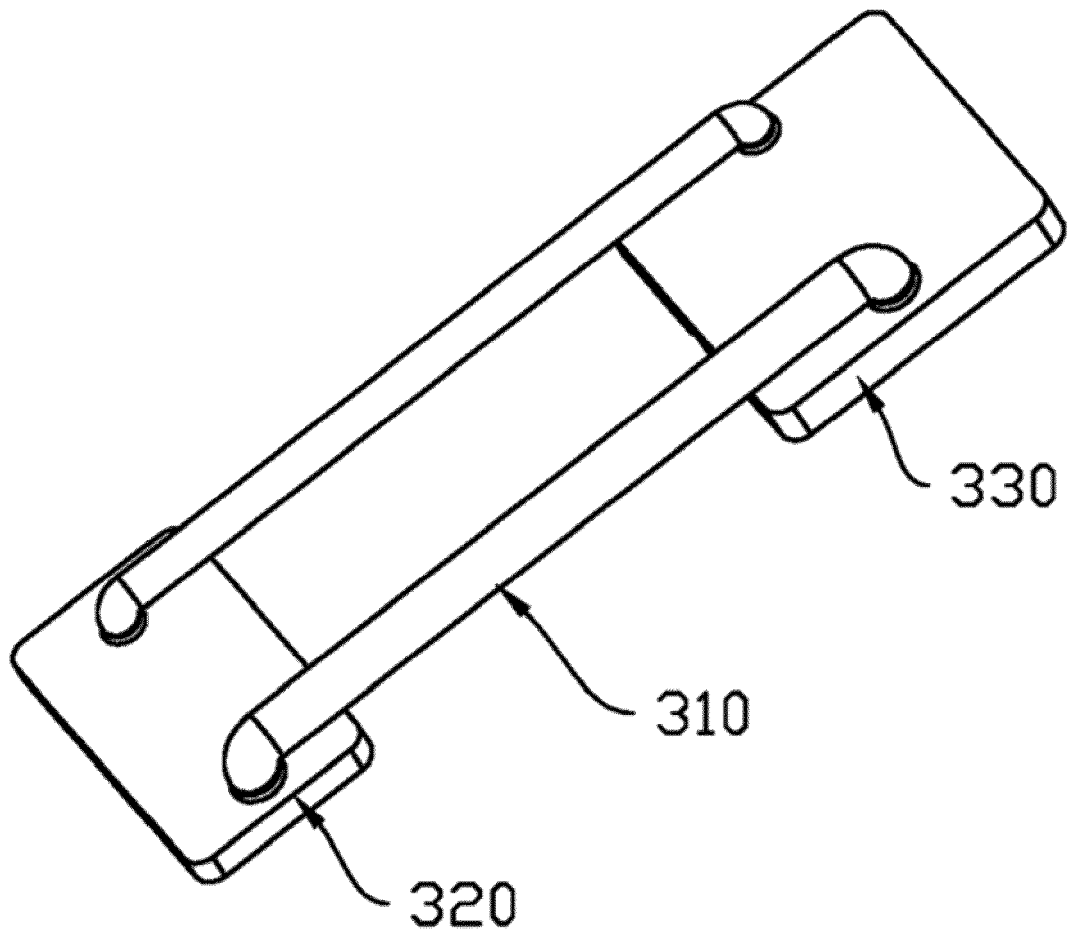


FIG. 9

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- CN 104697052 A [0003]
- CN 208046356 U [0004]