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

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Description

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application is based on and claims priority to Chinese Patent Applications Serial No. 201810098734.6 and No. 201820181642.X, filed on January 31, 2018.

FIELD

[0002] The present disclosure relates to the field of an air conditioner, and particularly to a housing assembly for an indoor unit of an air conditioner and to an indoor unit of an air conditioner.

BACKGROUND

[0003] In the related art, in order to enlarge a range of air output some indoor units of air conditioner define auxiliary air outlets in end covers at two ends (at the left and the right). However, it is easy to see structures inside a unit body due to the auxiliary air outlets, which affects the appearance of a whole air conditioner. Moreover, the auxiliary air outlets are provided with grilles, it is difficult to clean the grilles of the auxiliary air outlets due to its structural limit. Patent document CN-107166511-A describes such an indoor unit of an air conditioner having a housing assembly according to the preamble of claim 1. Therefore, improvement is needed.

SUMMARY

[0004] The present application seeks to solve at least one of the problems existing in the related art. The present application provides a housing assembly for an indoor unit of an air conditioner according to claim 1, it is convenient to clean grilles of an auxiliary air outlet of the housing assembly and the appearance of a whole air conditioner can be improved.

[0005] The present application further provides an indoor unit of an air conditioner according to claim 10 with the housing assembly.

[0006] The housing assembly for an indoor unit of an air conditioner according to embodiments of the first aspect of the present application includes a face frame defining an air inlet in a top portion thereof and a main air outlet in a bottom portion thereof; two end covers arranged at a left end and a right end of the face frame respectively, at least one end cover having a part adjacent to the main air outlet, the part defining an auxiliary air outlet, the end cover and the face frame defining an auxiliary air channel therebetween, and the auxiliary air channel is in communication with the auxiliary air outlet; a first auxiliary air outlet grille arranged at the auxiliary air outlet; and a second auxiliary air outlet grille arranged at an outside of the first auxiliary air outlet grille and detachably connected to the end cover.

[0007] In the housing assembly for the indoor unit of an air conditioner according to embodiments of the present disclosure, two layers (at an inside and an outside) of outlet grilles, i.e. the first auxiliary air outlet grille and the second auxiliary air outlet grille, are arranged at the auxiliary air outlet 23 in the end cover 2, it is difficult to see internal structures in a body, which improves aesthetic appearance of a whole appliance. The second auxiliary air outlet grille is detachably arranged at the end cover 2, which makes it convenient to clean the outlet grilles.

[0008] According to some embodiments of the present application, the first auxiliary air outlet grille is integrally formed with the end cover.

[0009] According to some embodiments of the present application, one of the second auxiliary air outlet grille and the end cover defines a slot, and the other one is provided with a snap fitted with the slot.

[0010] Optionally, the second auxiliary air outlet grille is provided with a plurality of snaps, the plurality of snaps are spaced apart along an extending direction of the second auxiliary air outlet grille, and the end cover defines a plurality of slots fitted with the snaps.

[0011] According to some embodiments of the present application, the end cover defines a mounting groove, the first auxiliary air outlet grille constitutes a bottom wall defining the mounting groove, and the second auxiliary air outlet grille is arranged in the mounting groove.

[0012] According to some embodiments of the present application, the first auxiliary air outlet grille is in a shape matching that of the second auxiliary air outlet grille.

[0013] According to some embodiments of the present application, the end cover defining the auxiliary air outlet includes a main body and an extension portion, and the main body is connected to the extension portion, the main body is located at a left side and/or a right side of the face frame, and the auxiliary air outlet is defined in the main body, the extension portion is located in front of the face frame and at a left side and/or a right side of an air outlet, and the extension portion and the face frame define the auxiliary air channel therebetween.

[0014] According to some embodiments of the present application, the first auxiliary air outlet grille has a plurality of first ribs, the first ribs are arranged in parallel and extend in a shape of an arc, two adjacent first ribs define a first air outlet through hole therebetween, the second auxiliary air outlet grille has a plurality of second ribs, the second ribs are arranged in parallel and extend in a shape of an arc, two adjacent first ribs define a second air outlet through hole therebetween, in an air-output direction, at least a portion of the second rib is opposite to the first air outlet through hole, and a width of the second rib is less than that of the first air outlet through hole.

[0015] Furthermore, the width of the first air outlet through hole increases gradually in a direction adjacent to the auxiliary air channel.

[0016] The indoor unit of an air conditioner according to embodiments of a second aspect of the present appli-

cation includes the housing assembly according to the embodiments of the first aspect of the present application.

[0017] With the indoor unit of an air conditioner according to embodiments of the present application provided with the housing assembly, the aesthetic appearance of a whole appliance can be improved, and the housing assembly is easy to clean.

[0018] Additional aspects and advantages of embodiments of present disclosure will be given in part in the following descriptions, become apparent in part from the following descriptions, or be learned from the practice of the embodiments of the present disclosure.

BRIEF DESCRIPTION OF THE DRAWINGS

[0019] These and/or additional aspects and advantages of embodiments of the present disclosure will become apparent and more readily appreciated from the following descriptions made with reference to the drawings.

Fig. 1 is a schematic view of an indoor unit of an air conditioner according to an embodiment of the present application.

Fig. 2 is an enlarged view of part A in Fig. 1.

Fig. 3 is a partially schematic view of an air conditioner according to an embodiment of the present application.

Fig. 4 is an enlarged view of part B in Fig. 3.

Fig. 5 is a schematic view showing a face frame fitting with an end cover of an air conditioner according to an embodiment of the present application.

Fig. 6 is schematic view showing assembling of an air guide member, a second air out grille and an end cover of an indoor unit of an air conditioner according to an embodiment of the present application.

Fig. 7 is a schematic view showing Fig. 6 from another angle.

Fig. 8 is a schematic view of an end cover of an indoor unit of an air conditioner according to an embodiment of the present application.

Fig. 9 is a schematic view of a second auxiliary air out grille of an indoor unit of an air conditioner according to an embodiment of the present application.

Fig. 10 is a schematic view of an air guide member of an indoor unit of an air conditioner according to an embodiment of the present application.

Reference numerals

[0020]

indoor unit 100 of air conditioner;
face frame 1; main air outlet 11, air guide plate 12;
ventilation hole 121; air inlet grille 13;
end cover 2, main body 21, extension portion 22;
reinforcing structure 221; auxiliary air outlet 23; auxiliary air channel 24; snap 25; mounting groove 26;

slot 261; limiting groove 27; slot 271;
first auxiliary air outlet grille 3; first rib 31; first air outlet through hole 32;
second auxiliary air outlet grille 4; second rib 41; second air outlet through hole 42; snap 43;
air guide member 5; snap 51; limiting portion 52;
front panel 6.

DETAILED DESCRIPTION

[0021] Embodiments of the present will be described in detail, and examples of the embodiments are shown in the drawings. The same or similar elements and the elements having same or similar functions are denoted by like reference numerals throughout the descriptions. The embodiments described hereafter with reference to drawings are explanatory, used to understand the present application, and shall not be construed to limit the present application.

[0022] In the specification, it is to be understood that terms such as "central," "longitudinal," "lateral," "length," "width," "thickness," "upper," "lower," "front," "rear," "left," "right," "vertical," "horizontal," "top," "bottom," "inner," "outer," "clockwise," and "counterclockwise" should be construed to refer to the orientation as then described or as shown in the drawings under discussion. These relative terms are for convenience of description and do not require that the present invention be constructed or operated in a particular orientation. In addition, the feature defined with "first" and "second" may comprise one or more of this feature. In the description of the present invention, the term "a plurality of" means two or more than two, unless specified otherwise.

[0023] In the present invention, it is to be understood, unless specified or limited otherwise, the terms "mounted," "connected," and "coupled," are used broadly, and may be, for example, fixed connections, detachable connections, or integral connections; may also be mechanical or electrical connections; may also be direct connections or indirect connections via intervening structures; may also be inner communications of two elements, which can be understood by those skilled in the art according to specific situations.

[0024] A housing assembly for an indoor unit 100 of an air conditioner according to embodiments of the present application is described hereafter with reference to Fig. 1 to Fig. 10.

[0025] As shown in Fig. 1 to Fig. 10, the housing assembly for an indoor unit 100 of an air conditioner according to embodiments of a first aspect of the present application includes a face frame 1, an end cover 2, a first auxiliary air outlet grille 3 and a second auxiliary air outlet grille 4.

[0026] Specifically, the face frame 1 defines an air inlet in a top portion thereof and a main air outlet 11 in a bottom portion thereof. The air inlet may be provided with an air inlet grille 13. The face frame 1 is provided with a front panel 6 at a front side, and the main air outlet 11 is located

below the front panel 6. The main air outlet 1 is provided with an air deflector 12, the air deflector 12 is configured to open and close the main air outlet 11. Two end covers 2 are arranged at a left end and a right end of the face frame 1 respectively. At least one end cover 2 has a part adjacent to the main air outlet 11, and the part defines an auxiliary air outlet 23. The end cover 2 and the face frame 1 define an auxiliary air channel 24 therebetween, and the auxiliary air channel 24 is in communication with the auxiliary air outlet 23.

[0027] Optionally, the end cover 2 defining the auxiliary air outlet 23 includes a main body 21 and an extension portion 22, and the main body 21 is connected to the extension portion 22. The main body 21 is located at a left side and/or a right side of the face frame 1, and the auxiliary air outlet 23 is defined in the main body 21. The extension portion 22 is located in front of the face frame 1 and at a left side and/or a right side of an air outlet. The extension portion 22 and the face frame 1 define the auxiliary air channel 24 therebetween. Therefore, the auxiliary air channel 24 can be conveniently defined, and it is convenient to guide air to the auxiliary air outlet 23 for output with the auxiliary air channel 24.

[0028] It is possible that only the end cover 2 at the left end of the face frame 1 defines the auxiliary air outlet 23, and the auxiliary air outlet 23 is located in the main body 21 of this end cover 2. The extension portion 22 of this end cover 2 and the face frame 1 define the auxiliary air channel 24 therebetween. The auxiliary air channel 24 is in communication with the corresponding auxiliary air outlet 23. During operation of an air conditioner, air can be output through the main air outlet 11 and the auxiliary air outlet 23 at the left side. It is also possible that only the end cover 2 at the right end of the face frame 1 defines the auxiliary air outlet 23, and the auxiliary air outlet 23 is located in the main body 21 of this end cover 2. The extension portion 22 of this end cover 2 and the face frame 1 define the auxiliary air channel 24 therebetween. The auxiliary air channel 24 is in communication with the corresponding auxiliary air outlet 23. During operation of an air conditioner, air can be output through the main air outlet 11 and the auxiliary air outlet 23 at the right side. Or, both the end cover 2 at the left end of the face frame 1 and the end cover 2 at the right end of the face frame 1 define the auxiliary air outlets 23, and the auxiliary air outlets 23 are defined in the main bodies 21 of the two end covers 2. The extension portions 22 of each of the two end covers 2 and the face frame 1 define the auxiliary air channel 24 therebetween. Each auxiliary air channel 24 is in communication with the corresponding auxiliary air outlet 23. During operation of an air conditioner, air can be output through the main air outlet 11 and the auxiliary air outlets 23 at the left and right sides.

[0029] The first auxiliary air outlet grille 3 is arranged at the auxiliary air outlet 23, the second auxiliary air outlet grille 4 is arranged at an outside of the first auxiliary air outlet grille 3. With two layers (at an inside and an outside) of outlet grilles at the auxiliary air outlet 23 in the end

cover 2, it is difficult to see internal structures in a body, which improves aesthetic appearance of a whole appliance. The second auxiliary air outlet grille 4 is detachably connected to the end cover 2. During operation of the indoor unit 100 of an air conditioner in a long term, a large amount of dust accumulated around the auxiliary air outlet 23 needs cleaning, it is only needs to detach the second auxiliary air outlet grille 4 at outside to clean, and the second auxiliary air outlet grille 4 is mounted to the end cover 2 after cleaning. Therefore, it is convenient to clean the grille at the auxiliary air outlet 23. Optionally, the first auxiliary air outlet grille may be integrally formed with the end cover 2.

[0030] Optionally, the first auxiliary air outlet grille 3 is in a shape matching that of the second auxiliary air outlet grille 4, such that the end cover 2 has an artistic and harmonious appearance.

[0031] For instance, in examples shown in Fig. 1 to Fig. 10, the housing assembly includes the face frame 1, the front panel 6, the two end covers 2 and the air deflector 12. The face frame 1 defines the air inlet in the top portion and the main air outlet 11 in a bottom portion at a front side. The face frame 1 is provided the front panel 6 at the front side, and the main air outlet 11 is located below the front panel 6. The main air outlet 11 is provided with the air deflector 12. The two end covers 2 are arranged at the left end and the right end of the face frame 1 respectively. The end cover 2 is provided with a snap 25. The face frame 1 defines a slot. The end cover 2 can be mounted to the face frame 1 by means of the fit between the snap 25 and the slot.

[0032] Both the end cover 2 at the left end of the face frame 1 and the end cover 2 at the right end of the face frame 1 define the auxiliary air outlets 23. Each auxiliary air outlet 23 is provided with the first auxiliary air outlet grille 3 and the second auxiliary air outlet grille 4. Each end cover 2 includes the main body 21 and the extension portion 22. The main bodies 21 of the end covers 2 are located at the left end and right end of the face frame 1. Each main body 21 defines the auxiliary air outlet 23, and the auxiliary air outlet 23 is located in a lower and front portion of the main body 21. The extension portion 22 has an end connected to a bottom of the main body 21 and another end extending forwards and upwards. The extension portion 2 is arc plate curving forwards. The extension portion 22 of each end cover 2 extends from a bottom surface of the face frame 1 to a front side of the face frame 1. The air deflector 12 covers the extension portion 22 at the outside when covering the main air outlet 11, i.e., the extension portion 22 is covered by the air deflector 12, which makes the whole appearance artistic. Optionally, with reference to Fig. 3, Fig. 4 and Fig. 7, the extension portion 22 may be provided with a reinforcing structure 221, which can improve the strength of the extension portion 22. For example, the reinforcing structure 221 may have a plurality of grooves in an outer surface of the extension portion 22.

[0033] The end cover 2 at the left end of the extension

portion 22 and the face frame 1 defines the auxiliary air channel 24 therebetween. The auxiliary air channel 24 is in communication with the auxiliary air outlet 23 in the corresponding main body 21. The end cover 2 at the left end of the extension portion 22 and the face frame 1 defines the auxiliary air channel 24 therebetween. The auxiliary air channel 24 is in communication with the auxiliary air outlet 23 in the corresponding main body 21.

[0034] During operation of the air conditioner, air deflector 12 opens the main air outlet 11, a part of air is output through the main air outlet 11, and another part of air flows through the auxiliary air channels 24 at the left end and the right end, and then is output through the auxiliary air outlets 23 in the end covers 2. The air passes through the first auxiliary air outlet grille 3 and the second auxiliary air outlet grille 4 sequentially when the air is outputting through the auxiliary air outlets 23 in the end covers 2, such that the two layers of outlet grilles guide the air.

[0035] Optionally, with reference to Fig. 1 and Fig. 2, the air deflector 12 defines a plurality of ventilation holes 121, and the plurality of ventilation holes are evenly distributed in air deflector 12. The air conditioner may work in a normal mode and a wind-free mode. When the air conditioner works at the normal mode, the air deflector 12 opens the main air outlet 11, a part of air is output through the main air outlet 11, and another part of air flows through the auxiliary air channels 24 at the left end and the right end, and then is output through the auxiliary air outlets 23 in the end covers 2. When the air conditioner works in a wind-free mode, the air deflector 12 closes the main air outlet 11, while a part of air is output through the plurality of ventilation holes 121 in the air deflector 12, such that air flow can be dispersed, and another part of air flows through the auxiliary air channels 24 at the left end and the right end, and then is output through the auxiliary air outlets 23 in the end covers 2. Therefore, different customer needs can be met.

[0036] In the housing assembly for the indoor unit 100 of an air conditioner according to embodiments of the present disclosure, the two layers (at an inside and an outside) of outlet grilles, i.e. the first auxiliary air outlet grille 3 and the second auxiliary air outlet grille 4, are arranged at the auxiliary air outlet 23 in the end cover 2, it is difficult to see internal structures in a body, which improves aesthetic appearance of a whole appliance. The second auxiliary air outlet grille 4 is detachably arranged at the end cover 2, which makes it convenient to clean the outlet grilles.

[0037] According to some embodiments of the present application, with reference to Fig. 7 to Fig. 9, one of the second auxiliary air outlet grille 4 and the end cover 2 defines a slot, and the other one is provided with a snap. When the second auxiliary air outlet grille 4 is provided with the snap, the end cover 2 defines the slot. When the second auxiliary air outlet grille 4 defines the slot, the end cover 2 is provided with the snap. The second auxiliary air outlet grille 4 can be conveniently mounted and dis-

mounted by means of fit between the snap and the slot.

[0038] For instance, in an example shown in Fig. 8 and Fig. 9, the second auxiliary air outlet grille 4 is provided with a plurality of snaps 43, the plurality of snaps 43 are spaced apart along an extending direction of the second auxiliary air outlet grille 4, and the end cover 2 defines a plurality of slots 261 fitted with the snaps 43. The second auxiliary air outlet grille 4 can be reliably fixed to the end cover 2.

[0039] According to some embodiments of the present application, with reference to Fig. 7 to Fig. 9, the end cover 2 defines a mounting groove 26, the first auxiliary air outlet grille 3 constitutes a bottom wall defining the mounting groove 26, and the second auxiliary air outlet grille 4 is arranged in the mounting groove 26. The second auxiliary air outlet grille 4 can be conveniently mounted, and an outer structure of the end cover 2 is more compact and the whole appearance is more artistic.

[0040] According to some embodiments of the present application, with reference to Fig. 7 to Fig. 9, the first auxiliary air outlet grille 3 has a plurality of first ribs 31, and the first ribs 31 are arranged in parallel and extend in the shape of an arc. Two adjacent first ribs 31 define a first air outlet through hole 32 therebetween. The second auxiliary air outlet grille 4 has a plurality of second ribs 41, and the second ribs 41 are arranged in parallel and extend in the shape of an arc. Two adjacent first ribs 41 define a second air outlet through hole 42 therebetween. In a direction along which air is output, at least a portion of the second rib 41 corresponds to the first air outlet through hole 32, and a width of the second rib 41 is less than that of the first air outlet through hole 32. A gap in the end cover 2 due to the auxiliary air outlet 23 can be reduced, it is can be further prevented that the structures in the body can be seen from the appearance, which further improves the aesthetic appearance of the whole appliance without influence on air output. Moreover, with first ribs 31 of the first auxiliary air outlet grille 3 and the second ribs 41 of the second auxiliary air outlet grille 4 which extend as an arc, the aesthetic appearance of the end cover 2 can be further improved.

[0041] Furthermore, with reference to Fig. 8, the width of the first air outlet through hole 32 increases gradually in a direction adjacent to the auxiliary air channel 24. A portion having a large area of the first air outlet through hole 32 is adjacent to the auxiliary air channel 24, which shortens a route along which air flows and therefore reduces resistance to air flow, such that air can be output smoothly and energy loss of air flow can be reduced.

[0042] Optionally, with reference to Fig. 9, the width of the second air outlet through hole 32 increases gradually in a direction adjacent to the auxiliary air channel 24. A portion having a large area of the second air outlet through hole 32 is adjacent to the auxiliary air channel 24, which shortens a route along which air flows and therefore reduces resistance to air flow, such that air can be output smoothly and energy loss of air flow can be reduced.

[0043] In a further embodiment of the present application, with reference to Fig. 7 to Fig. 10, the end cover 2 is further provided with an air guide 5, and the air guide 5 is arranged on an outer surface of the end cover 2 and around a periphery of the auxiliary air outlet 23, such that the air guide can further guide flow and air. Optionally, an outer contour of the air guide 5 is in the shape matching those of the first auxiliary air outlet grille 3 and the second auxiliary air outlet grille 4, such that the end cover 2 has an artistic and harmonious appearance. For example, all the outer contours of the first auxiliary air outlet grille 3, the first auxiliary air outlet grille 3 and the air guide 5 are in the shape of S, such that the air guide 5 can function as a decoration in the meantime, which further gussy the appearance of the whole appliance.

[0044] Optionally, the air guide 5 is detachably connected to the end cover 2. For example, one of the air guide 5 and the end cover 2 is provided with the snap, and the other one defines a slot fitted with the snap.

[0045] With reference to an example shown in Fig. 7, Fig. 8 and Fig. 10, the end cover 2 defines a limiting groove 27, a side wall defining the limiting groove 27 defines a slot 271, and the air guide 5 is provided with a snap 51. It is convenient to mount and dismount the air guide 5 through fit between the snap 51 and the slot 271.

[0046] Furthermore, with reference to Fig. 7, Fig. 8 and Fig. 10, the air guide 5 is provided with a limiting portion 52 fitted with the limiting groove 27. The limiting portion 52 extends along an direction along which the air guide 5 extends, and the limiting groove 52 is spaced apart from the snap 51. It is convenient for prepositioning by means of fit between the limiting portion 52 on the air guide and the limiting groove 27 in the end cover 2, when mounting the air guide 5. After the air guide 5 is positioned in advance, and then the snap 51 on the air guide 5 is snapped into the slot 271 in side wall defining the limiting groove 27. Reliable connection of the air guide 5 can be further improved by means of fit between the snap 51 and the slot 271 with combination of fit between the limiting groove 27 and the limiting portion 52.

[0047] An indoor unit 100 of an air conditioner according to embodiments of a second aspect of the present application includes the housing assembly for the indoor unit 100 of an air conditioner according to the embodiments of the first aspect, and the indoor unit 100 of an air conditioner further includes a heat exchanger and a fan wheel, etc. Both the heat exchanger and the fan wheel are arranged in a space defined by the housing assembly.

[0048] The indoor unit 100 of an air conditioner according to the embodiments of the present application is provided with the above housing assembly, the appearance of the whole air conditioner can be improved, and it is convenient to clean and maintain the housing assembly.

[0049] Reference throughout this specification to "an embodiment," "some embodiments," "example," "a specific example," or "some examples," means that a particular feature, structure, material, or characteristic described in connection with the embodiment or example

is included in at least one embodiment or example of the present disclosure.

[0050] Although explanatory embodiments have been shown and described, it would be appreciated by those skilled in the art that the above embodiments cannot be construed to limit the present disclosure, and changes, alternatives, and modifications can be made in the embodiments without departing from the scope of the present invention which is defined by the appended claims.

Claims

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

a face frame (1) defining an air inlet in a top portion thereof and a main air outlet (11) in a bottom portion thereof;

two end covers (2) arranged at a left end and a right end of the face frame respectively, at least one end cover having a part adjacent to the main air outlet, the part defining an auxiliary air outlet (23), the end cover and the face frame defining an auxiliary air channel (24) therebetween, and the auxiliary air channel being in communication with the auxiliary air outlet;

a first auxiliary air outlet grille (3) arranged at the auxiliary air outlet; the housing assembly being **characterized by** further comprising

a second auxiliary air outlet grille (4) arranged at an outside of the first auxiliary air outlet grille (3) and detachably connected to the at least one end cover.

2. The housing assembly according to claim 1, wherein the first auxiliary air outlet grille is integrally formed with the end cover.
3. The housing assembly according to claim 1 or 2, wherein one of the second auxiliary air outlet grille and the end cover defines a slot, and the other one is provided with a snap fitted with the slot.
4. The housing assembly according to claim 3, wherein the second auxiliary air outlet grille is provided with a plurality of snaps (43), the plurality of snaps are spaced apart along an extending direction of the second auxiliary air outlet grille, and the end cover defines a plurality of slots fitted with the snaps.
5. The housing assembly according to any one of claims 1 to 4, wherein the end cover defines a mounting groove (26), the first auxiliary air outlet grille constitutes a bottom wall defining the mounting groove, and the second auxiliary air outlet grille is arranged in the mounting groove.

6. The housing assembly according to any one of claims 1 to 5, wherein the first auxiliary air outlet grille is in a shape matching that of the second auxiliary air outlet grille. 5
7. The housing assembly according to any one of claims 1 to 6, wherein the end cover defining the auxiliary air outlet comprises a main body (21) and an extension portion (22), and the main body is connected to the extension portion, the main body is located at a left side and/or a right side of the face frame, and the auxiliary air outlet is defined in the main body, the extension portion is located in front of the face frame and at a left side and/or a right side of an air outlet, and the extension portion and the face frame define the auxiliary air channel therebetween. 10
8. The housing assembly according to any one of claims 1 to 7, wherein the first auxiliary air outlet grille has a plurality of first ribs (31), the first ribs are arranged in parallel and extend in a shape of an arc, two adjacent first ribs define a first air outlet through hole (32) therebetween, the second auxiliary air outlet grille has a plurality of second ribs (41), the second ribs are arranged in parallel and extend in a shape of an arc, two adjacent first ribs define a second air outlet through hole (42) therebetween, in an air-output direction, at least a portion of the second rib is opposite to the first air outlet through hole, and a width of the second rib is less than that of the first air outlet through hole. 20
9. The housing assembly according to claim 8, wherein the width of the first air outlet through hole increases gradually in a direction adjacent to the auxiliary air channel. 25
10. An indoor unit (100) of an air conditioner comprising the housing assembly according to any one of claims 1 to 9. 30

Patentansprüche

1. Gehäuseanordnung für eine Inneneinheit einer Klimaanlage, umfassend: 35
 - einen Frontrahmen (1), der einen Lufteinlass in einem oberen Abschnitt desselben und einen Hauptluftauslass (11) in einem unteren Abschnitt desselben definiert; 40
 - zwei Endabdeckungen (2), die an einem linken Ende bzw. einem rechten Ende des Frontrahmens angeordnet sind, wobei mindestens eine Endabdeckung einen dem Hauptluftauslass benachbarten Teil aufweist, der Teil einen Hilfs- 45

und der Frontrahmen einen Hilfsluftkanal (24) dazwischen definieren und der Hilfsluftkanal mit dem Hilfsluftauslass in Verbindung steht; ein erstes Hilfsluftauslassgitter (3), das an dem Hilfsluftauslass angeordnet ist; wobei die Gehäuseanordnung **dadurch gekennzeichnet ist, dass** sie ferner ein zweites Hilfsluftauslassgitter (4) umfasst, das an einer Außenseite des ersten Hilfsluftauslassgitters (3) angeordnet ist und abnehmbar mit der mindestens einen Endabdeckung verbunden ist.

2. Gehäuseanordnung nach Anspruch 1, wobei das erste Hilfsluftauslassgitter mit der Endabdeckung einstückig ausgebildet ist. 50
3. Gehäuseanordnung nach Anspruch 1 oder 2, wobei eines von dem zweiten Hilfsluftauslassgitter und der Endabdeckung eine Aussparung definiert und das andere mit einem mit der Aussparung zusammengepassten Schnapper versehen ist. 55
4. Gehäuseanordnung nach Anspruch 3, wobei das zweite Hilfsluftauslassgitter mit einer Vielzahl von Schnappern (43) versehen ist, wobei die Vielzahl von Schnappern entlang einer Erstreckungsrichtung des zweiten Hilfsluftauslassgitters in Abständen angeordnet ist und die Endabdeckung eine Vielzahl von mit den Schnappern zusammengepassten Aussparungen umfasst.
5. Gehäuseanordnung nach einem der Ansprüche 1 bis 4, wobei die Endabdeckung eine Befestigungsnut (26) definiert, das erste Hilfsluftauslassgitter eine die Befestigungsnut definierende untere Wand bildet und das zweite Hilfsluftauslassgitter in der Befestigungsnut angeordnet ist.
6. Gehäuseanordnung nach einem der Ansprüche 1 bis 5, wobei das erste Hilfsluftauslassgitter eine Form aufweist, die der des zweiten Hilfsluftauslassgitters entspricht.
7. Gehäuseanordnung nach einem der Ansprüche 1 bis 6, wobei die den Hilfsluftauslass definierende Endabdeckung einen Hauptkörper (21) und einen Verlängerungsabschnitt (22) umfasst und der Hauptkörper mit dem Verlängerungsabschnitt verbunden ist, der Hauptkörper auf einer linken Seite und/oder einer rechten Seite des Frontrahmens liegt und der Hilfsluftauslass in dem Hauptkörper definiert ist, wobei der Verlängerungsabschnitt vor dem Frontahmen und auf einer linken Seite und/oder einer rechten Seite eines Luftauslasses liegt und der Verlängerungsabschnitt und der Frontrahmen den Hilfsluftkanal dazwischen definieren.
8. Gehäuseanordnung nach einem der Ansprüche 1

bis 7, wobei das erste Hilfsluftauslassgitter eine Vielzahl von ersten Rippen (31) aufweist, die ersten Rippen parallel angeordnet sind und sich in einer Form eines Bogens erstrecken, zwei benachbarte erste Rippen ein erstes Luftauslassdurchgangsloch (32) dazwischen definieren, das zweite Hilfsluftauslassgitter eine Vielzahl von zweiten Rippen (41) aufweist, die zweiten Rippen parallel angeordnet sind und sich in einer Form eines Bogens erstrecken, zwei benachbarte erste Rippen ein zweites Luftauslassdurchgangsloch (42) dazwischen in einer Luftausgangsrichtung definieren, mindestens ein Abschnitt der zweiten Rippe dem ersten Luftauslassdurchgangsloch gegenüberliegt und eine Breite der zweiten Rippe geringer ist als diejenige des ersten Luftauslassdurchgangslochs.

9. Gehäuseanordnung nach Anspruch 8, wobei die Breite des ersten Luftauslassdurchgangslochs in einer dem Hilfsluftkanal benachbarten Richtung allmählich zunimmt.
10. Inneneinheit (100) einer Klimaanlage, umfassend die Gehäuseanordnung nach einem der Ansprüche 1 bis 9.

Revendications

1. Ensemble formant boîtier pour une unité intérieure d'un climatiseur, comportant :

un cadre de face (1) définissant une entrée d'air dans une partie supérieure de celui-ci et une sortie d'air principale (11) dans une partie inférieure de celui-ci ;

deux couvercles d'extrémité (2) agencés au niveau d'une extrémité gauche et d'une extrémité droite du cadre de face respectivement, au moins un couvercle d'extrémité ayant une partie adjacente à la sortie d'air principale, la partie définissant une sortie d'air auxiliaire (23), le couvercle d'extrémité et le cadre de face définissant un canal d'air auxiliaire (24) entre eux, et le canal d'air auxiliaire étant en communication avec la sortie d'air auxiliaire ;

une première grille de sortie d'air auxiliaire (3) agencée au niveau de la sortie d'air auxiliaire ; l'ensemble formant boîtier étant **caractérisé en ce qu'il** comporte par ailleurs une deuxième grille de sortie d'air auxiliaire (4) agencée au niveau d'une partie extérieure de la première grille de sortie d'air auxiliaire (3) et raccordée de manière détachable audit au moins un couvercle d'extrémité.

2. Ensemble formant boîtier selon la revendication 1, dans lequel la première grille de sortie d'air auxiliaire

est formée d'un seul tenant avec le couvercle d'extrémité.

3. Ensemble formant boîtier selon la revendication 1 ou la revendication 2, dans lequel l'un parmi la deuxième grille de sortie d'air auxiliaire et le couvercle d'extrémité définit une fente, et l'autre comporte un bouton-pressure adapté à la fente.
4. Ensemble formant boîtier selon la revendication 3, dans lequel la deuxième grille de sortie d'air auxiliaire comporte une pluralité de boutons-pressure (43), la pluralité de boutons-pressure sont espacés les uns par rapport aux autres le long d'une direction d'extension de la deuxième grille de sortie d'air auxiliaire, et le couvercle d'extrémité définit une pluralité de fentes adaptées aux boutons-pressure.
5. Ensemble formant boîtier selon l'une quelconque des revendications 1 à 4, dans lequel le couvercle d'extrémité définit une rainure de montage (26), la première grille de sortie d'air auxiliaire constitue une paroi inférieure définissant la rainure de montage, et la deuxième grille de sortie d'air auxiliaire est agencée dans la rainure de montage.
6. Ensemble formant boîtier selon l'une quelconque des revendications 1 à 5, dans lequel la première grille de sortie d'air auxiliaire est dans une forme correspondant à celle de la deuxième grille de sortie d'air auxiliaire.
7. Ensemble formant boîtier selon l'une quelconque des revendications 1 à 6, dans lequel le couvercle d'extrémité définissant la sortie d'air auxiliaire comporte un corps principal (21) et une partie d'extension (22), et le corps principal est raccordé à la partie d'extension, le corps principal est situé au niveau d'un côté gauche et/ou d'un côté droit du cadre de face, et la sortie d'air auxiliaire est définie dans le corps principal, la partie d'extension est située devant le cadre de face et au niveau d'un côté gauche et/ou d'un côté droit d'une sortie d'air, et la partie d'extension et le cadre de face définissent un canal d'air auxiliaire entre eux.
8. Ensemble formant boîtier selon l'une quelconque des revendications 1 à 7, dans lequel la première grille de sortie d'air auxiliaire a une pluralité de premières nervures (31), les premières nervures sont agencées en parallèle et s'étendent en une forme d'arc, deux premières nervures adjacentes définissent un premier trou traversant de sortie d'air (32) entre elles, la deuxième grille de sortie d'air auxiliaire a une pluralité de deuxièmees nervures (41), les deuxièmees nervures sont agencées en parallèle et s'étendent en une forme d'arc, deux premières nervures adjacentes définissent un deuxième trou tra-

versant de sortie d'air (42) entre elles, dans une direction de sortie d'air, au moins une partie de la deuxième nervure est opposée au premier trou traversant de sortie d'air, et une largeur de la deuxième nervure est inférieure à celle du premier trou traversant de sortie d'air. 5

9. Ensemble formant boîtier selon la revendication 8, dans lequel la largeur du premier trou traversant de sortie d'air augmente progressivement dans une direction adjacente au canal d'air auxiliaire. 10

10. Unité intérieure (100) d'un climatiseur comportant l'ensemble formant boîtier selon l'une quelconque des revendications 1 à 9. 15

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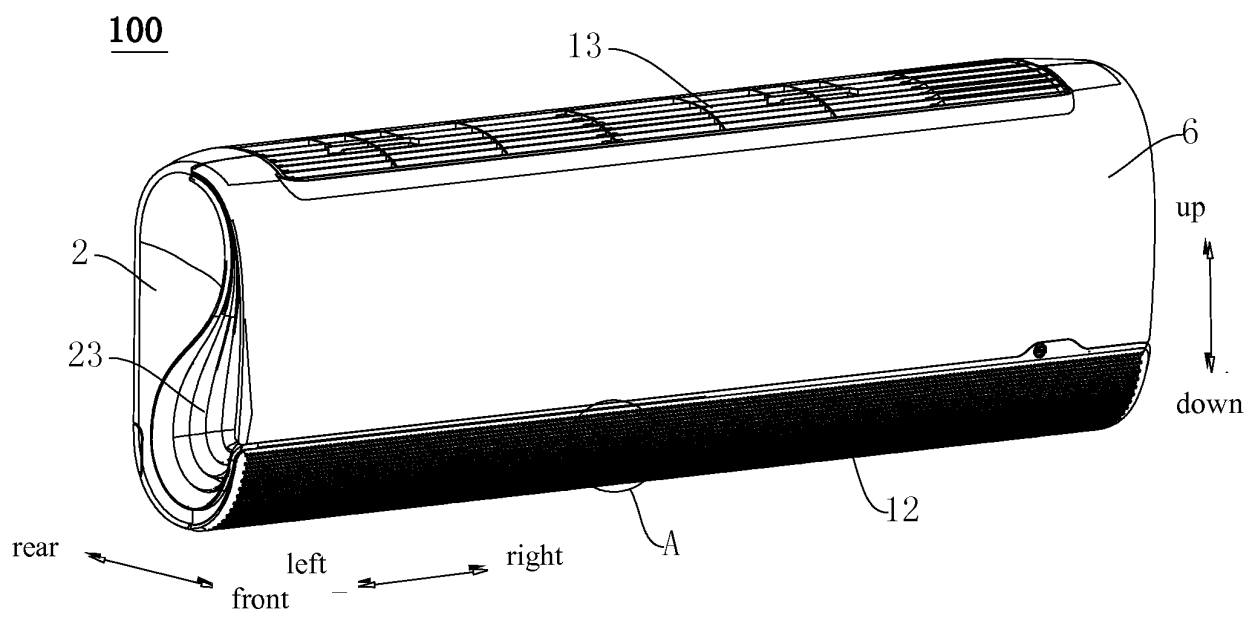


Fig. 1

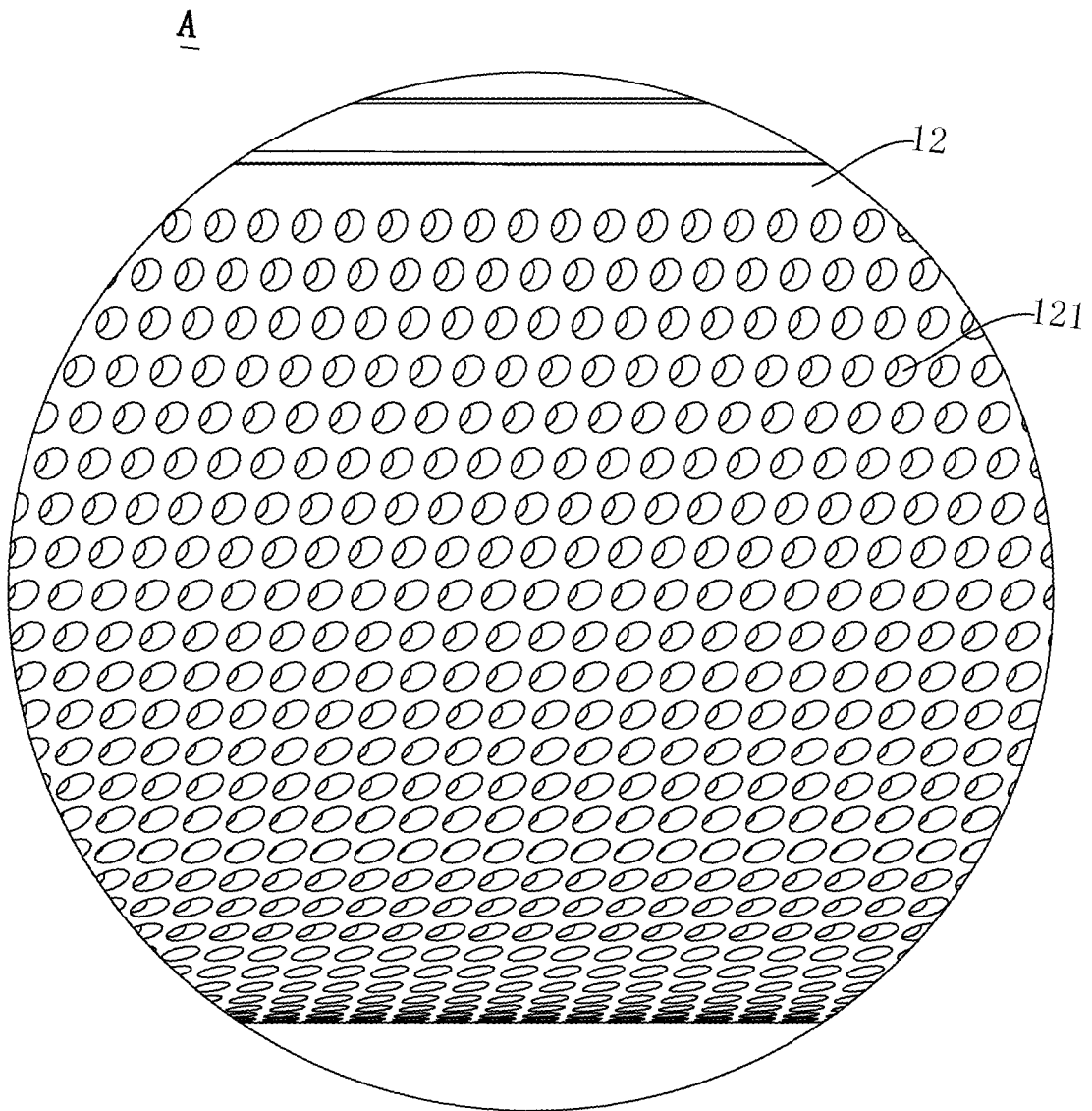


Fig. 2

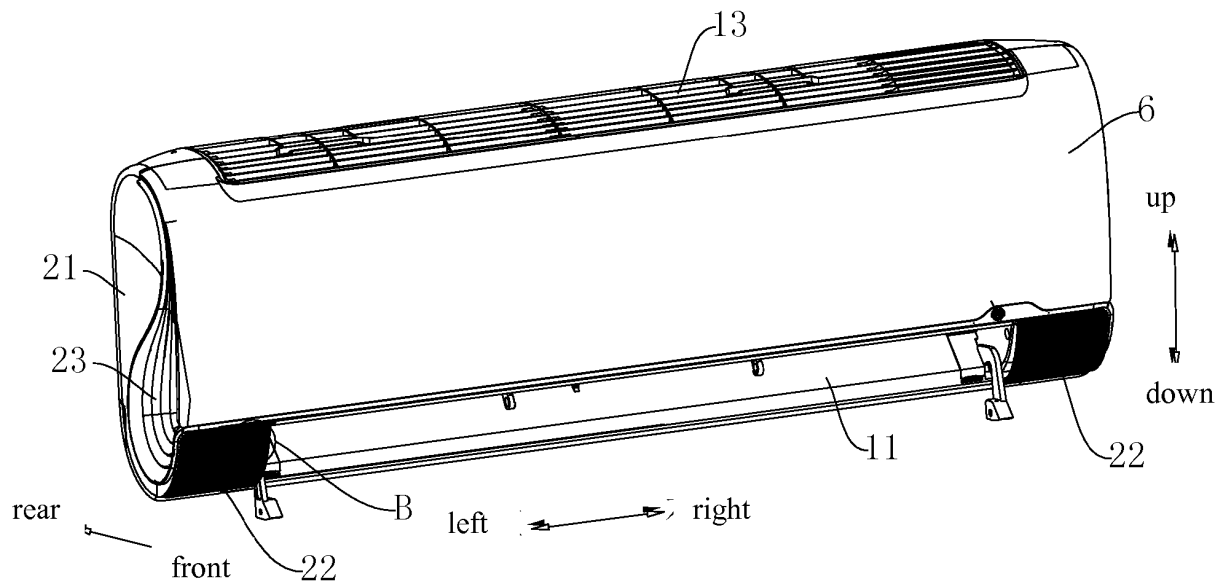


Fig. 3

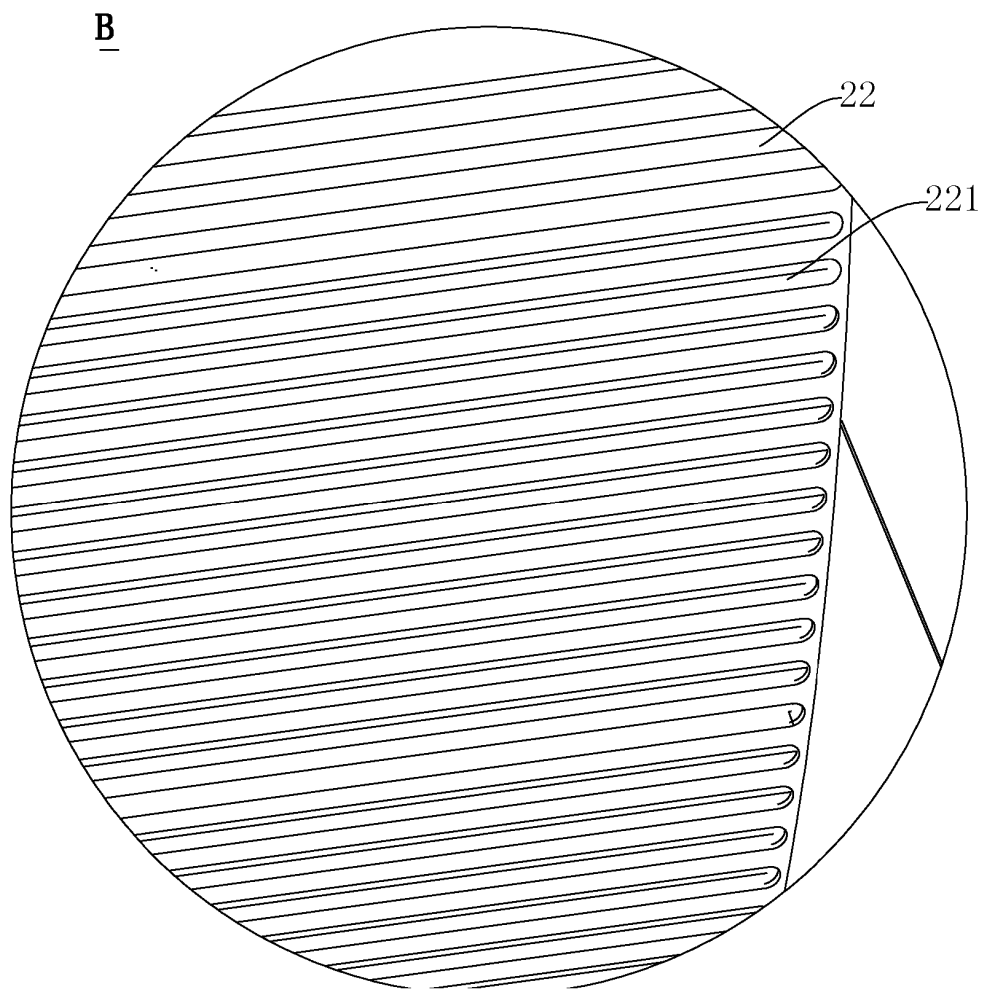


Fig. 4

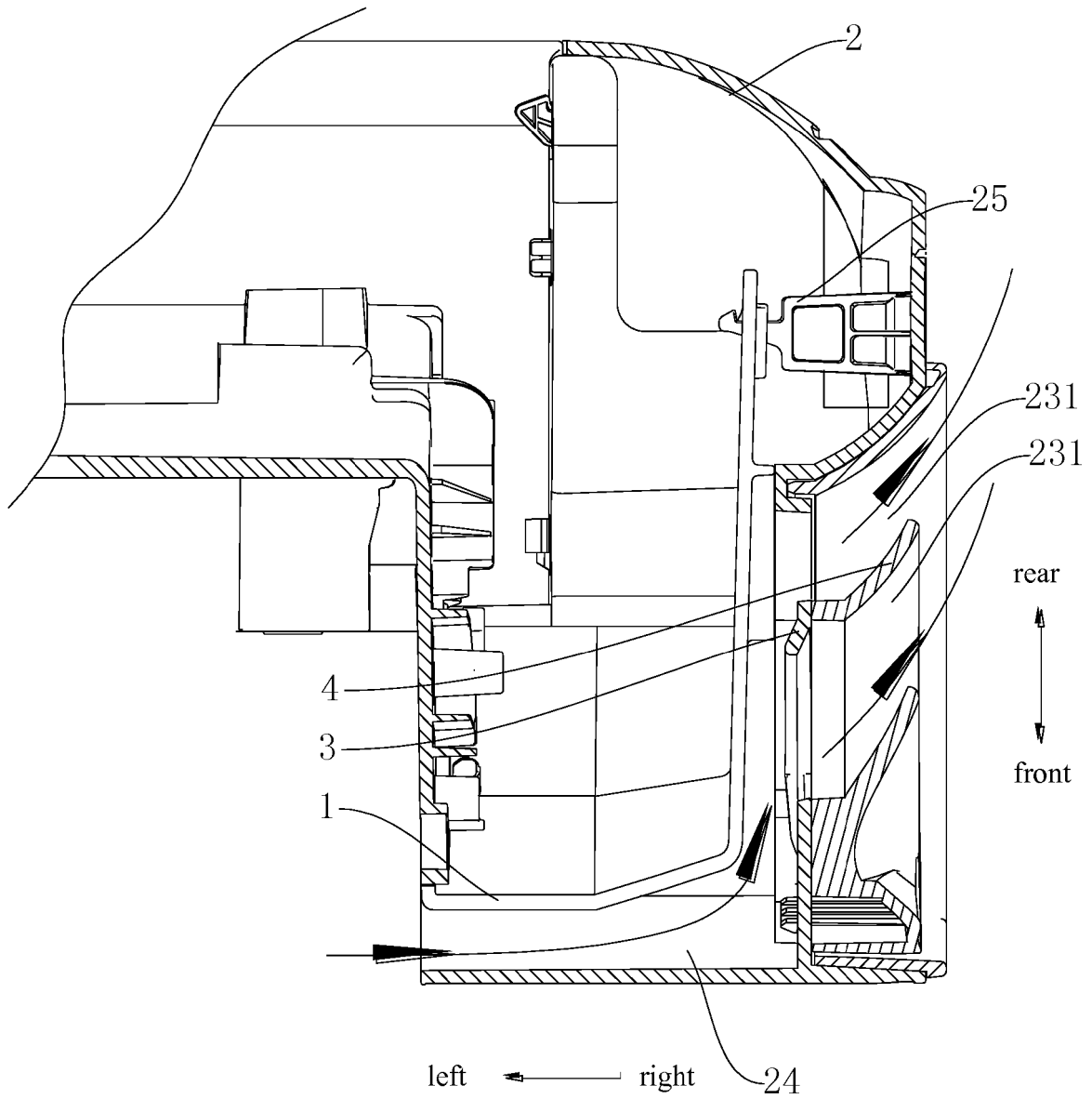


Fig. 5

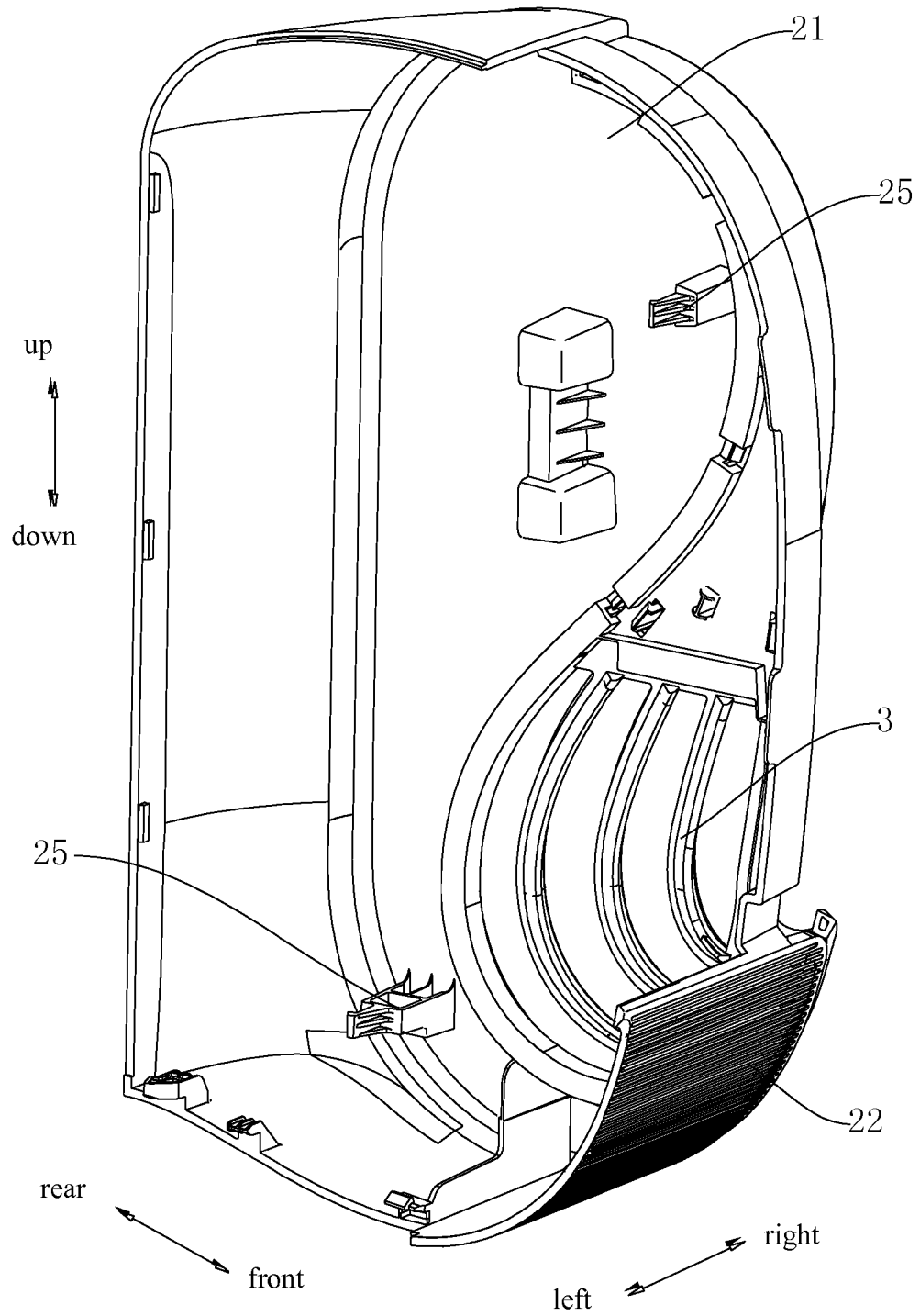


Fig. 6

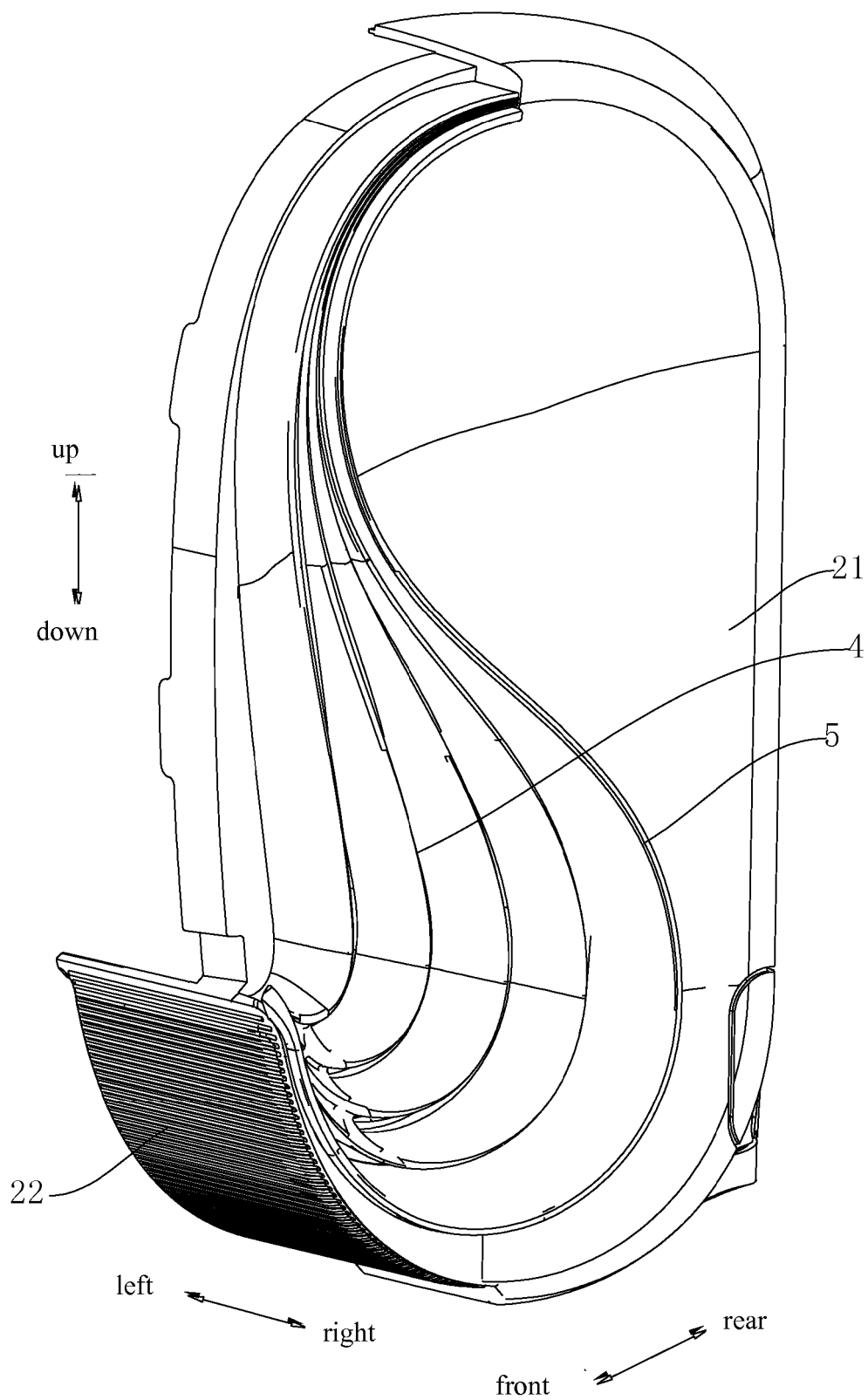


Fig. 7

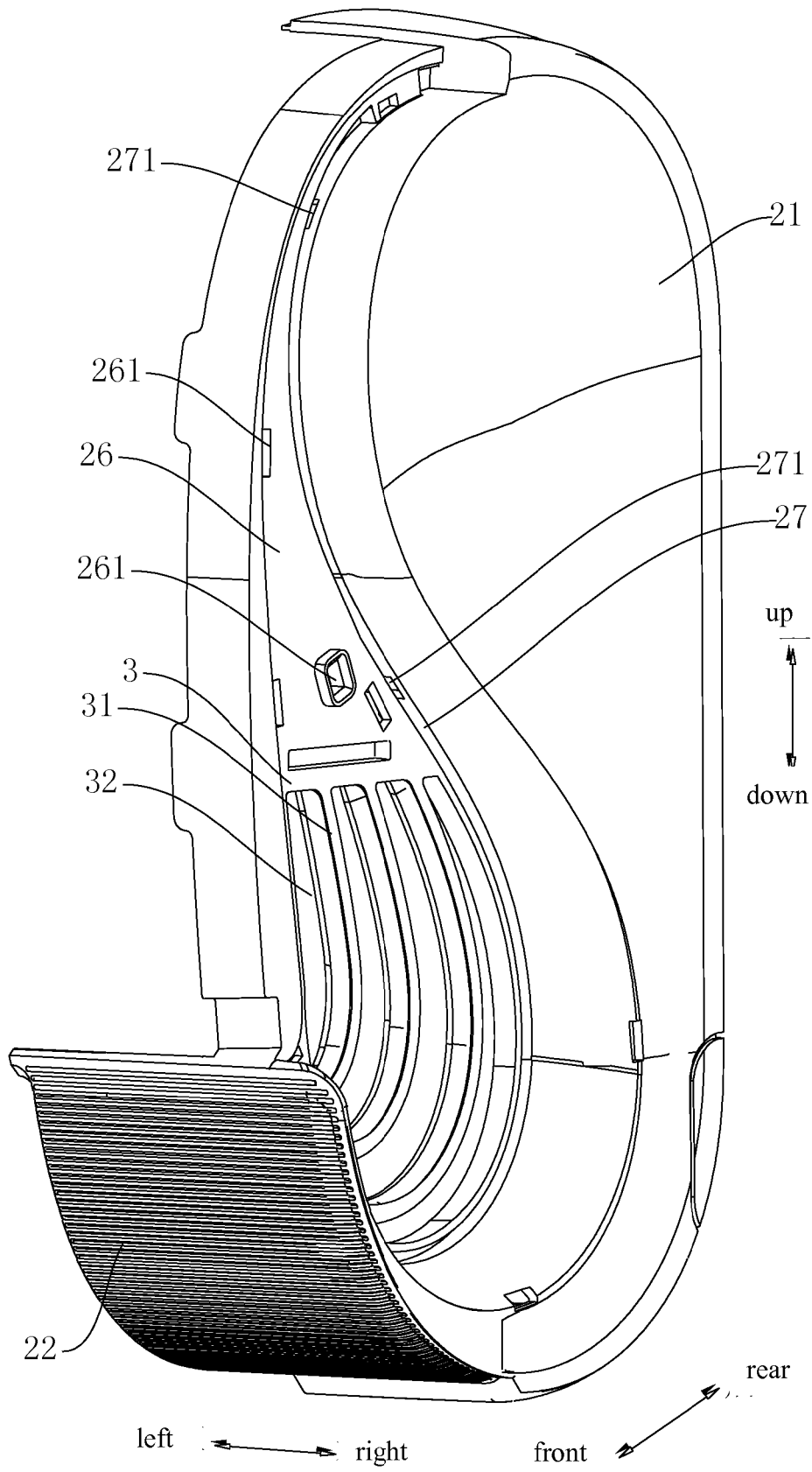


Fig. 8

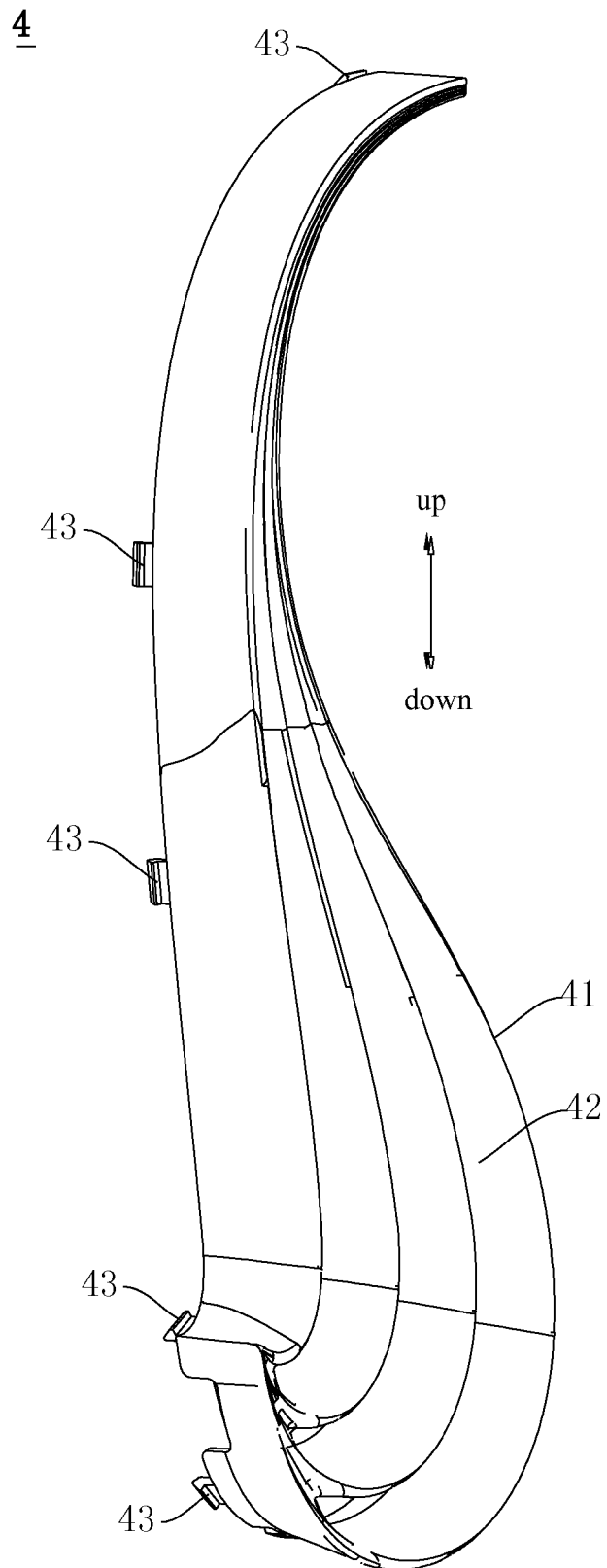


Fig. 9

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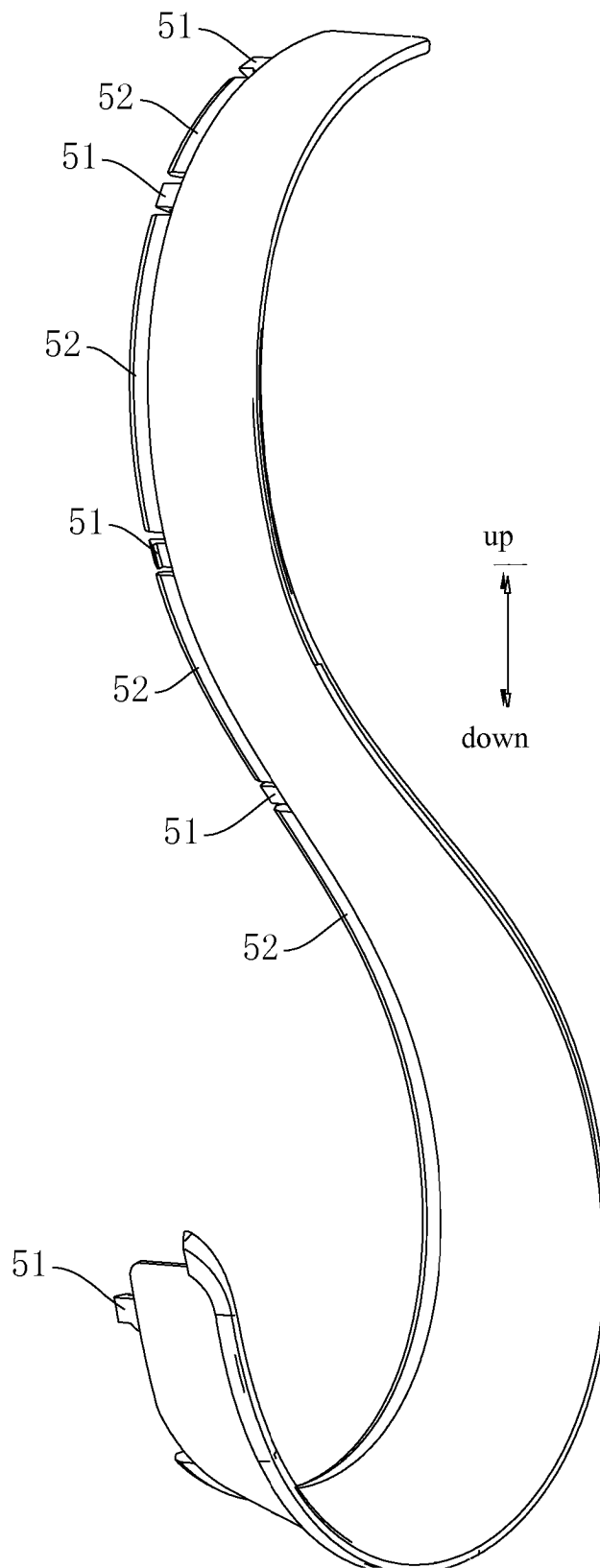


Fig. 10

REFERENCES CITED IN THE DESCRIPTION

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