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(71) Applicants:
- **GD Midea Air-Conditioning Equipment Co., Ltd.**
  Foshan, Guangdong 528311 (CN)
- **Midea Group Co., Ltd.**
  Foshan, Guangdong 528311 (CN)

(72) Inventor: **GUO, QuLuan**
Guangdong 528311 (CN)

(74) Representative: **Lam, Alvin**
Maucher Jenkins
26 Caxton Street
London SW1H 0RJ (GB)

(54) AIR CONDITIONING INDOOR UNIT AND AIR CONDITIONER

(57) Disclosed are an indoor unit of air conditioner, and an air conditioner. The indoor unit includes: a housing defining a fresh air hole; and a fresh air panel assembly defining an air outlet structure corresponding to the fresh air hole, and mounted on the housing. the fresh air panel is configured to open or close the fresh air hole.

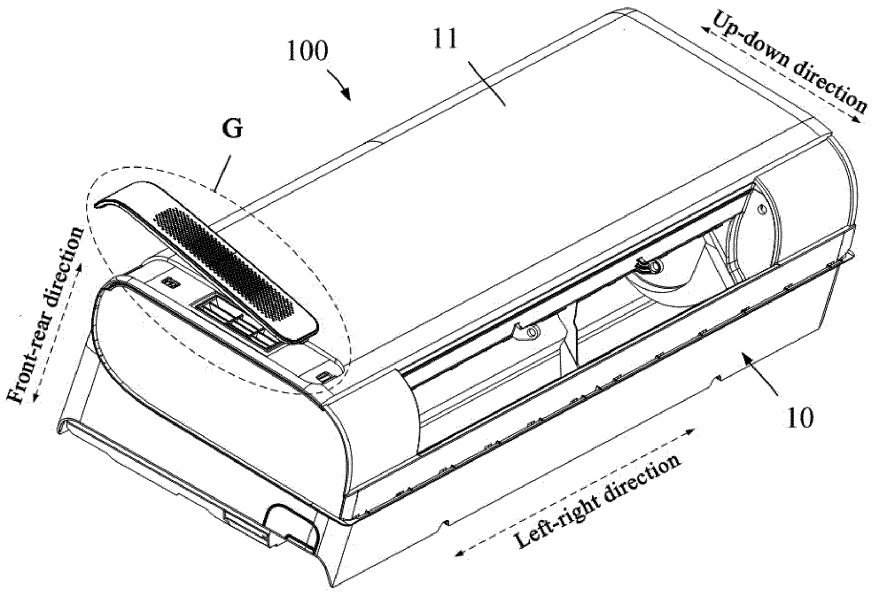

Fig. 17

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Description

CROSS REFERENCE TO RELATED APPLICATION

[0001] The present application claims the priority of the Chinese patent application No. 201920269177.X, entitled "Indoor unit of air conditioner, and air conditioner", filed March 3, 2019, and the Chinese patent application No. 201920267805.0, entitled "Indoor unit of air conditioner, and air conditioner", filed March 3, 2019, the entire contents of which are hereby incorporated by reference.

TECHNICAL FIELD

[0002] The present disclosure relates to the technical field of air conditioners, in particular to an indoor unit of air conditioner, and an air conditioner.

BACKGROUND

[0003] In the related technology, the indoor unit of the air conditioner includes a housing and a fresh air module. The housing includes an entire panel unit, and the fresh air module is installed in the housing., and the entire panel unit is provided with an air outlet structure (such as an air dispersion micro-holes structure, an air outlet screen and the like) corresponding to an air outlet passage of the fresh air module.

[0004] After the indoor unit has been used for a long time, the air outlet structure of the fresh air tends to be dirty and blocked. Then the overall panel unit needs to be removed for cleaning, which makes the cleaning process troublesome and time consuming, inconvenient for the users.

SUMMARY

[0005] The main purpose of the present disclosure is to provide an indoor unit of an air conditioner, aiming at ease the process of cleaning the ventilation outlet structure in the related technologies.

[0006] In order to achieve the above object, the indoor unit of air conditioner of the present disclosure includes:

a housing defining a fresh air hole; and
a fresh air panel assembly defining an air outlet structure corresponding to the fresh air hole, and disposed at the fresh air hole in an open or close manner when the fresh air panel assembly is mounted on the housing.

[0007] The present disclosure further proposes an air conditioner, which includes an outdoor unit and an indoor unit connected with the outdoor unit. In which, the indoor unit of the air conditioner comprises:

a housing defining a fresh air hole; and
a fresh air panel assembly defining an air outlet structure corresponding to the fresh air hole, and disposed at the fresh air hole in an open or close manner when the fresh air panel assembly is mounted on the housing.

[0008] According to the indoor unit of air conditioner of the present disclosure, the fresh air panel assembly is disposed at the fresh air hole in an open or closed manner, to clean the fresh air panel assembly, so that the cleaning process of the fresh air panel assembly can be simplified, and the cleaning efficiency can be improved.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] In order to explain the embodiment of the present disclosure or the technical solution of the prior art more clearly, the following will briefly introduce the drawings necessary in the description of the embodiments or the prior art. Obviously, the drawings in the following description are only some embodiments of the present disclosure. For those ordinary skill in the art, other drawings can be obtained according to the structure shown in these drawings without any creative effort.

Fig. 1 is a schematic structural diagram of an indoor unit of an air conditioner according to some embodiments of the present disclosure;
Fig. 2 is an enlarged view at portion A in Fig. 1;
Fig. 3 is a schematic structural view of the indoor unit in Fig. 1 when the entire panel unit of the indoor unit is in an open manner;

Fig. 4 is a schematic structural diagram of the fresh air panel assembly in Fig. 1;
Fig. 5 is an exploded structural schematic diagram of the fresh air panel assembly in Fig. 4;
Fig. 6 is an enlarged view of an assembling process of the buckling protrusion and the buckling hole at portion B in Fig. 4;
Fig. 7 is another schematic structural view of the installing plate in Fig. 5 in another state;
Fig. 8 is an enlarged view at portion C in Fig. 7;
Fig. 9 is an enlarged view of the buckling hole in Fig. 7;
Fig. 10 is a top view of the fresh air panel assembly in Fig. 4, in which the fresh air panel and the installing plate are not completely assembled;
Fig. 11 is a schematic cross sectional view of the fresh air panel assembly taken along line I-I in Fig. 10;
Fig. 12 is an enlarged view at portion D in Fig. 11;
Fig. 13 is an enlarged view of the right end in Fig. 11;
Fig. 14 is a schematic cross-sectional view of the fresh air panel assembly in another state, in which the fresh air panel and the installing plate are completely assembled;
Fig. 15 is an enlarged view at portion E in Fig. 14;
Fig. 16 is an enlarged view at portion F in Fig. 14;
Fig. 17 is a schematic structural diagram of the indoor unit of the air conditioner according to a first embodiment of the present disclosure;
Fig. 18 is an enlarged view at portion G in Fig. 17;
Fig. 19 is a schematic structural diagram of the fresh air panel assembly in Fig. 17;
Fig. 20 is a schematic structural diagram of the indoor unit of the air conditioner according to a second embodiment of the present disclosure;
Fig. 21 is an enlarged view at portion H in Fig. 20;
Fig. 22 is a schematic structural diagram of the fresh air panel assembly in Fig. 20;
Fig. 23 is a structural diagram of a part of the installing plate in Fig. 22, in which the first magnet is ready for assembling.
Fig. 24 is a top view of the entire panel unit in Fig. 1;
Fig. 25 is a schematic cross-sectional view of the entire panel unit taken along line II-II in Fig. 24;
Fig. 26 is an enlarged view at portion I in Fig. 25;
Fig. 27 is a schematic structural diagram of at least an embodiment of an indoor unit of an air conditioner of the present disclosure;
Fig. 28 is an enlarged view at portion A in Fig. 27;
Fig. 29 is an enlarged view at portion B in Fig. 27;
Fig. 30 is a schematic structural view of the indoor unit of the air conditioner in Fig. 27, in which the panel is in an open manner;
Fig. 31 is an enlarged view at portion C in Fig. 30;
Fig. 32 is an exploded schematic view of a part of the indoor unit of the air conditioner in Fig. 27;
Fig. 33 is an enlarged view at portion D in Fig. 32;
Fig. 34 is an exploded view of the panel of Fig. 27;
Fig. 35 is an enlarged view at portion E in Fig. 34;
Fig. 36 is an enlarged view at portion F in Fig. 34;
Fig. 37 is a schematic structural view of the panel in Fig. 27;
Fig. 38 is an enlarged view at portion G in Fig. 37;
Fig. 39 is a schematic structural view of the panel decorating strip in Fig. 32;
Fig. 40 is an enlarged view at portion H in Fig. 39;
Fig. 41 is a schematic structural view of the indoor unit of the air conditioner in Fig. 27 in another perspective;
Fig. 42 is an enlarged view at portion I in Fig. 41;
Fig. 43 is a schematic structural view of the end plate in Fig. 41.

Description of reference numerals:

Reference Numeral	Name	Reference Numeral	Name
100	Indoor unit of air conditioner	22	Installing plate
10	Housing	221	Air vent
11	Entire panel unit/panel	222	Base plate
111	Fresh air hole	223	Decorating side plate

(continued)

Reference Numeral	Name	Reference Numeral	Name
112	Inserting slot	224	Buckling hole
113	Positioning protrusion	2241	Locking protrusion
114	Accommodating groove	2242	Installing clearance
115	Sealing ring protrusion	225	Anti-reverse groove
20	Fresh air panel assembly	226	Aligning groove
21	Fresh air panel	2261	Inner guiding side wall
211	Air outlet structure	227	Anti-fall protrusion
212	Buckling protrusion	228	Strengthening sink groove
2121	Connecting protrusion	229	Inserting tongue
2122	Limiting protrusion	2291	Tongue root portion
2123	Buckling slot	2292	Inserting and connecting portion
2124	Strengthening protrusion	2030	Inserting buckle
213	Anti-reverse protrusion	2031	Positioning groove
214	Hook	2032	Magnetic installing groove
2141	Supporting protrusion	2033	Magnet passing hole
2142	Blocking protrusion	2034	Magnetic boss
21421	Anti-fall groove	2035	Sealing ring groove
2143	Hook groove	31	First magnet
215	Strengthening rib	32	Second magnet
216	Abutting protrusion	40	Fresh air module
116	Panel body	1172	Buckle
1161	First end surface	1173	Decorating portion
1162	Inserting slot	1174	Inserting and engaging portion
1163	Positioning hole	1175	Second end surface
1164	Buckling slot	1176	Mounting hole
1165	Side surface	12	End plate
117	Panel decorating strip	13	End plate decorating strip
1171	Positioning buckle	131	Notch

(continued)

Reference Numeral	Name	Reference Numeral	Name
11711	Inclined surface	50	Face frame

Note:
1. When claiming the content of Application No. 201920267805.0 in the present disclosure, some reference numerals have been amended in order to avoid confusion caused by double reference numeral of its technical features in Application No. 201920269177.X. The corresponding amendments are as follows: the reference numeral of panel is changed from 10 to 11; the reference numeral of panel body is changed from 11 to 116; the reference number of first end surface is changed from 111 to 1161; the reference numeral of inserting slot is changed from 112 to 1162; the reference numeral of positioning hole is changed from 113 to 1163; the reference numeral of buckling slot is changed from 114 to 1164; the reference number of side surface is changed from 115 to 1165; the reference numeral of panel decorating strip is changed from 12 to 117; the reference numeral of positioning buckle is changed from 121 to 1171; the reference numeral of inclined surface is changed from 1211 to 11711; the reference numeral of buckle is changed from 122 to 1172; the reference numeral of decorating portion is changed from 123 to 1173; the reference numeral of inserting and engaging portion is changed from 124 to 1174; the reference number of second end surface is changed from 125 to 1175; the reference numeral of mounting hole is changed from 126 to 1176; reference numeral of end plate is changed from 20 to 12; the reference numeral of end plate decorating strip is changed from 30 to 13; reference numeral of notch is changed from 31 to 131; reference numeral of face frame is not changed.

[0010] The implementation, functional characteristics and advantages of the present disclosure will be further described with reference to the attached drawings in combination with embodiments.

DETAILED DESCRIPTION OF THE EMBODIMENTS

[0011] As following, the technical solution in the embodiments of the present disclosure will be described clearly and completely with reference to the drawings in the embodiment of the present disclosure. Obviously, the described embodiment is only a part of the embodiment of the present disclosure, not all of the embodiments.

[0012] It should be noted that if directional indications (such as up, down, left, right, front, back, etc.) are involved in the embodiments of the present disclosure, the directional indications are only used to explain the relative positional relationship and movement between the components in a certain posture (as shown in the drawings), and if the specific posture changes, the directional indications will change accordingly.

[0013] In addition, the meaning of " and/or" appearing in the full text is to include three parallel schemes, taking " a and/or b" as some embodiments, including solution of a or b, or solution that both a and b satisfy at the same time. In addition, the technical solutions between the various embodiments may be combined with each other, but must be based on what one of ordinary skill in the art can achieve. When the combination of technical solutions is contradictory or impossible to achieve, it should be considered that the combination of such technical solutions does not exist and is not within the protection scope required by the present disclosure.

[0014] The present disclosure proposes an indoor unit of air conditioner. As shown in Fig. 4, the indoor unit of the air conditioner includes a fresh air module 40 configured for introducing outdoor air into the room (i.e., conveying fresh air to the room) and providing continuous and fresh air (i.e., fresh air) for a closed indoor space, thereby increasing the oxygen content of the indoor air and reducing air conditioner sickness. Optionally, the fresh air module can also be configured to exhaust the indoor air.

[0015] Optionally, the fresh air module includes a ventilation housing (not shown) installed in the housing of the indoor unit, and a ventilation fan assembly (not shown) installed in the ventilation housing. The ventilation housing has a ventilation inlet and a ventilation outlet, the ventilation inlet is communicated with the outdoor, the ventilation outlet is communicated with the indoor, the ventilation inlet is communicated with the ventilation outlet, and the ventilation fan assembly is positioned between the fresh air inlet and the ventilation outlet for providing power for the fresh air flow.

[0016] It can be understood that the indoor unit of the air conditioner can be a cabinet unit, a ceiling machine, a wall-mounted indoor unit, a vertical mounted indoor unit, etc. The following description will take the wall-mounted indoor unit as an example, but the present disclosure is not limited to the wall-mounted indoor unit of the air conditioner.

[0017] In at least one embodiment of the present disclosure, as shown in Figs. 1-3, 17, 18, 20, and 21, the indoor unit of air conditioner 100 includes:

a housing 10 provided with a fresh air hole 111; and
a fresh air panel assembly 20 having an air outlet structure 211. The fresh air panel assembly 20 is mounted on the

housing 10, and the air outlet structure 211 is disposed corresponding to the fresh air hole 111.

[0018] Specifically, the fresh air hole 111 is an outlet for ventilation system. The fresh air panel assembly 20 is installed on the housing 10 and can cover the fresh air hole 111 to prevent dust. Moreover, by providing the air outlet structure 211 corresponding to the fresh air hole 111 on the fresh air panel assembly 20, the fresh air can be processed to meet requirements of different users.

[0019] In a specific embodiment, as shown in Fig. 2, the air outlet structure 211 may be an air dispersing micro-holes, that is, the fresh air panel assembly 20 is provided with a plurality of air distribution micro-holes distributed at intervals (the air dispersing micro-holes penetrating through the fresh air panel assembly 20), so that breezeless air can be supplied, and the user experience can be improved. Alternatively, the air outlet structure 211 may also be an air outlet screen (not shown), so that the air can be flown out while the manufacturing difficulty and production cost can be reduced regarding the fresh air panel assembly 20. Of course, according to practical requirements, the air outlet structure 211 may be provided in other structural forms, which are not repeated herein.

[0020] Specifically, the housing 10 includes an entire panel unit 11, the fresh air hole 111 is disposed on the entire panel unit 11, and the fresh air panel assembly 20 is installed on the entire panel unit 11.

[0021] In the present disclosure, the structure and installing manner of the fresh air panel assembly 20 are further improved respectively. Of course, the two improvements can also be combined. Specifically, for the fresh air panel assembly 20, the fresh air panel assembly 20 may be provided integrally formed that is directly mounted on the housing 10; or, the fresh air panel assembly 20 includes a fresh air panel 21 and an installing plate 22 which are separately provided, the fresh air panel 21 is mounted on the installing plate 22, and the installing plate 22 and/or the fresh air panel 21 are installed on the housing 10. For the installation of the fresh air panel assembly 20, the fresh air panel assembly 20 is arranged at the fresh air hole 111 in an open or closed manner; or, the fresh air panel assembly 20 is non-detachably disposed at the fresh air hole 111. The following will be described separately or in combination.

[0022] It should be noted that the fresh air panel assembly 20 can be arranged in a regular shape, such as rectangular, square, or waist, to facilitate the design, manufacture, and assembly of the fresh air panel assembly 20. Of course, the fresh air panel assembly 20 can also be configured in an irregular shape.

[0023] In order to facilitate the description of the buckle structure between the fresh air panel 21 and the installing plate 22, the fresh air panel assembly 20 will be described taking a rectangular structure or a rectangular-like structure as an example. Optionally, both the fresh air panel 21 and the installing plate 22 are rectangular or rectangular-like.

[0024] A specific description is provided hereinafter of the case where "the fresh air panel assembly 20 includes the fresh air panel 21 and the installing plate 22 separately arranged".

[0025] Further, as shown in Figs. 4 and 5, the fresh air panel assembly 20 includes:

a fresh air panel 21, wherein the air outlet structure 211 is arranged on the fresh air panel 21; and

an installing plate 22, the fresh air panel 21 is mounted on the surface of the installing plate 22, the installing plate 22 is provided with an air vent 221 penetrating through the installing plate 22, and the air vent 221 is arranged corresponding to the air outlet structure 211. The air vent 221 can allow fresh air to pass through, so that the influence of the installing plate 22 on the ventilation can be avoided.

[0026] During production, after the fresh air panel assembly 20 is produced in a preliminary phase (e.g. after demoulding), its appearance does not meet the standard and cannot be directly applied to the product. As such, different parts of the fresh air panel assembly 20 need to be treated with different processes to meet the design requirements. For example, the inner and outer surfaces of the fresh air panel assembly 20 need to be sprayed, while the periphery of the fresh air panel assembly 20 needs to be electroplated. In the present disclosure, the fresh air panel 21 and the installing plate 22 are separately assembled, so that the fresh air panel 21 can be sprayed and the installing plate 22 can be electroplated. Optionally, spraying is carried out on the surface of the fresh air panel 21, such as spraying Ash gold on the surface of the fresh air panel 21. Electroplating is performed on the periphery of the installing plate 22, such as plating mocha gold on the periphery of the installing plate 22.

[0027] It can be understood that in the present disclosure, by setting the fresh air panel assembly 20 to include the fresh air panel 21 and the installing plate 22 which are separately connected, the fresh air panel 21 and the installing plate 22 can be processed in different processes respectively. The processing of the fresh air panel assembly 20 can be simplified while meeting different design requirements, improving the production efficiency.

[0028] It should be specifically noted that when the fresh air panel assembly 20 is configured to include the fresh air panel 21 and the installing plate 22 which are separately connected, the fresh air panel assembly 20 can be disposed at the fresh air hole 111 in an open or closed manner, or can be non-detachably (e.g., by welding, etc.) covered at the fresh air hole 111.

[0029] Of course, in other modifications, the fresh air panel assembly 20 can also be provided as an integrated structure.

[0030] Further, the fresh air panel 21 is disposed attaching and in contact the surface of the installing plate 22. As

such, the gap between the fresh air panel 21 and the installing plate 22 can be made rather small or even without gap, thus avoiding air leakage and noise.

[0031] Further, as shown in Figs. 3-5, the fresh air panel 21 is installed on the outer surface of the installing plate 22. The outer surface of the installing plate 22 refers to the surface of the installing plate 22 facing away from the housing 10, while the inner surface of the installing plate 22 refers to the surface of the installing plate 22 facing the housing 10. Similarly, the outer surface of the fresh air panel 21 refers to the surface facing away from the fresh air panel 21 and facing away from the housing 10, while the inner surface of the fresh air panel 21 refers to the surface facing towards the fresh air panel 21 and facing towards the housing 10.

[0032] As such, by mounting the fresh air panel 21 on the outer surface of the installing plate 22, the air outlet structure 211 can be placed at the outer surface the air vent 221, thereby enabling the air outlet structure 211 to supply the fresh air to the room.

[0033] Further, as shown in Figs. 4, 5, and 7, the installing plate 22 includes a base plate 222 and a decorating side plate 223 provided on the outer surface of the base plate 222. The vent 221 is provided on the base plate 222, and the fresh air panel 21 is mounted on the outer surface of the base plate 222. The fresh air panel 21 is placed at an inner side of the decorating side plate 223. The inner side of the decorating side plate 223 refers to the side of the decorating side plate 223 facing the center of the base plate 222.

[0034] Thus, with the installing plate 22 including the base plate 222 and the decorating side plate 223 provided on the outer surface of the decorative plate, an installing space can be defined between the base plate 222 and the decorating side plate 223. The fresh air panel 21 is installed on the outer surface of the base plate 222 and is located at the inner side of the decorating side plate 223, to allow the fresh air panel 21 to be installed at such space, thereby protecting the fresh air panel 21.

[0035] Specifically, the decorating side plate 223 is provided at the edge of the base plate 222. As such, it is convenient to reduce the size of the installing plate 22.

[0036] Specifically, the side of the fresh air panel 21 is disposed close or adjacent to the decorating side plate 223. As such, the assembly compactness can be improved between the fresh air panel 21 and the installing plate 22, and the design can be rationally improved. The fresh air panel assembly 20 can be designed rationally with a mini size.

[0037] Specifically, the decorating side plate 223 may be electroplated. As such, by providing the decorating side plate 223, the peripheral edge of the installing plate 22 can be easily electroplated, and the electroplating effect can also be easily displayed.

[0038] Further, as shown in Fig. 5, the fresh air panel 21 and the installing plate 22 are connected through a buckle structure. Typically, the buckle structure is easy to be produced and does not damage the structure of the fresh air panel assembly 20. Moreover, the desired connection can be implemented much easier by the mutually engaged buckle structure. Moreover, the assembling of the buckle structure is simple, convenient and firm.

[0039] The following is a detailed description of the buckle structure between the fresh air panel 21 and the installing plate 22. It should be understood that the buckle structure between the fresh air panel 21 and the installing plate 22 is not limited by the following description.

[0040] Specifically, as shown in Figs. 4-6, the inner surface of the fresh air panel 21 is provided with a buckling protrusion 212, and the installing plate 22 is provided with a buckling hole 224, and the buckling protrusion 212 is clamped in the buckling hole 224. As such, the fresh air panel 21 and the installing plate 22 can be the primary installed and positioned through the engagement of the buckling protrusions 212 and the buckling holes 224.

[0041] Further, as shown in Figs. 5 and 6, the buckling protrusion 212 includes a connecting protrusion 2121 protruding on the inner surface of the fresh air panel 21, and a limiting protrusion 2122 laterally protruding on the connecting protrusion 2121. The limiting protrusion 2122 is opposite to the fresh air panel 21, and a buckling slot 2123 is defined between the connecting protrusion 2121, the limiting protrusion 2122, and the fresh air panel 21.

[0042] As shown in Figs. 5, 6 and 9, the inner wall of the buckling hole 224 is convexly provided with a locking protrusion 2141. An installing clearance 2242 is formed between the locking protrusion 2141 and the inner side wall of the buckling hole 224. And the locking protrusion 2141 is buckled with the buckling slot 2123. The installing clearance 2242 is configured for passing through the buckling protrusion 212.

[0043] Specifically, the buckling slot 2123 has an entrance. As shown in Fig. 6, when installing the fresh air panel 21 and the installing plate 22, the buckling protrusion 212 can be first entered into the installing clearance of the buckling hole 224, and then the fresh air panel 21 and the installing plate 22 can be driven to move relatively so that the locking protrusion 2141 moves into the buckling slot 2123 through the entrance of the buckling slot 2123. As such, the limiting protrusion 2122 limits the movement of the locking protrusion 2141, so that the fresh air panel 21 and the installing plate 22 can be buckled with each other.

[0044] Thus, by such arrangement, the connection can be simple and convenient between the fresh air panel 21 and the installing plate 22.

[0045] Further, as shown in Fig. 6, the buckling protrusion 212 further includes a strengthening protrusion 2124 protruding on the inner surface of the fresh air panel 21, and the strengthening protrusion 2124 connects the limiting

protrusion 2122 and the fresh air panel 21. As such, the arrangement of the strengthening protrusion 2124, enhances the structural strength of the clamping protrusion 212, increasing the connection strength and stability between the fresh air panel 21 and the installing plate 22.

[0046] Further, as shown in Figs. 5 and 6, the strengthening protrusion 2124 is provided in the extending direction of the 41. As such, the strengthening protrusion 2124 can also position the installation of the locking protrusion 2241.

[0047] Further, as shown in Figs. 5 and 6, the fresh air panel 21 includes a plurality of buckling protrusions 212, and a plurality of buckling holes 224 corresponding to the buckling protrusions 212. The plurality of buckling protrusions 212 are respectively correspondingly buckled with the plurality of buckling holes 224. As such, the connection strength and stability can be further enhanced between the fresh air panel 21 and the installing plate 22.

[0048] Further, the buckling protrusions 212 may be regularly distributed; As such, the design and manufacture of the fresh air panel 21 can be facilitated.

[0049] Further, as shown in Figs. 5 and 6, the buckling protrusions 212 are provided in two rows. It can be understood that the manufacturing difficulty increases with the number of the buckling protrusions 212. Therefore, by arranging two rows of buckling protrusions 212, the connection strength and stability between the fresh air panel 21 and the installing plate 22 can be ensured, and waste as well as the increase in manufacturing difficulty can be avoided. Of course, the buckling protrusion 212 can be designed in other regular distribution patterns.

[0050] Furthermore, the two rows of buckling protrusions 212 are respectively arranged on opposite sides of the fresh air panel 21. As such, interference can be avoided between the buckling protrusion 212 and other structures such as the air outlet structure 211,enabling a minimizing design of the fresh air panel 21.

[0051] Specifically, the two rows of buckling protrusions 212 are respectively arranged on the two longer sides of the fresh air panel 21. Correspondingly, the buckling holes 224 are also provided with two rows and are respectively arranged on the two longer sides of the installing plate 22. As such, by arranging the clamping structure of the buckling protrusion 212 and the buckling hole 224 on the longer side of the fresh air panel assembly 20, the connection strength and stability can be conveniently improved between the long side of the fresh air panel 21 and the long side of the installing plate 22, improving the connection strength and stability between the fresh air panel 21 and the installing plate 22.

[0052] It can be understood that the orientation of the entrance of the buckling slot 2123 defined by the plurality of buckling protrusions 212 should be kept consistent to ensure the uniformity for assembling, thereby simplifying the assembling process.

[0053] Further, the locking protrusion 2141 is positioned in the longitudinal direction of the fresh air panel assembly 20. As such, by driving the fresh air panel 21 and the installing plate 22 to move relatively in the longitudinal direction of the fresh air panel assembly 20, the locking protrusion 2141 can move into the buckling slot 2123 through the entrance of the buckling slot 2123. Of course, the locking protrusion 2141 can be positioned in other directions.

[0054] Further, as shown in Figs. 5-8 and 11-16, one of the inner side surface of the fresh air panel 21 and the outer surface of the installing plate 22 is provided with an anti-reverse protrusion 213, and the other is provided with an anti-reverse groove 225. The anti-reverse protrusion 213 is inserted into the anti-reverse groove 225. As such, by providing the anti-reverse protrusion 213 and the anti-reverse groove 225 which are engaged with each other, the fresh air panel 21 and the installing plate 22 can be prevented from moving in an opposite direction, thus preventing the buckling protrusion 212 from separating from the buckling hole 224.

[0055] It should be understood that in the specific embodiment, the thickness of the fresh air panel 21 and the installing plate 22 are both relatively small, and the structural strength of the components such as the buckle structure on the fresh air panel 21 and the installing plate 22 is relatively weak. If the fresh air panel 21 and the installing plate 22 are repeatedly disassembled, the fresh air panel 21 and the installing plate 22 are easily damaged. Therefore, if the fastening structure between the fresh air panel 21 and the installing plate 22 is designed as a detachable structure, the user is easier to damage the fresh air panel assembly 20 during the disassembly process. However, in the present disclosure, by arranging the anti-reverse protrusion 213 and the anti-reverse groove 225 engaging with each other, the buckling structure between the fresh air panel 21 and the installing plate 22 can be made difficult to disassemble or non-detachable so as to reduce the risk of damaging the fresh air panel assembly 20. Additionally, erroneous removal can be prevented (that is, to prevent the fresh air panel 21 or the installing plate 22 from being accidentally removed when the fresh air panel assembly 20 needs to be removed from the housing 10).

[0056] Specifically, as shown in Fig. 5, the anti-reverse protrusion 213 is provided on the inner side of the fresh air panel 21, and the anti-reverse groove 225 is provided on the outer side of the installing plate 22.

[0057] Further, as shown in Figs. 7, 8, and 11-16, the outer surface of the installing plate 22 is also provided with an aligning groove 226 adjacent to the anti-reverse groove 225, and the aligning groove 226 is configured to guide the anti-fall protrusion 213 to slide into the anti-reverse groove 225. As such, the installation difficulty between the fresh air panel 21 and the installing plate 22 can be reduced.

[0058] It can be understood that since the fresh air panel 21 and the installing plate 22 are installed in a sliding fit manner, there is a misalignment between the anti-reverse protrusion 213 and the anti-reverse groove 225 when the fresh air panel 21 is initially positioned (i.e., when the buckling protrusion 212 extends into the mounting gap of the

buckling hole 224). If the aligning groove 226 is not provided, the anti-reverse protrusion 213 will directly abut against the outer surface of the installing plate 22, thus increasing the installation difficulty between the fresh air panel 21 and the installing plate 22.

[0059] According to the present disclosure, by arranging the aligning groove 226, when the primary positioning is performed (i.e., when the buckling protrusion 212 enters into the installing clearance of the buckling hole 224), the anti-reverse protrusion 213 is inserted into the alignment protrusion, thus facilitating the primary alignment of the fresh air panel 21 and the installation plate 22, and further reducing the installation difficulty between the fresh air panel 21 and the installation plate 22. When the fresh air panel 21 and the installing plate 22 move relative to each other, the anti-fall protrusion 213 slides from the aligning groove 226 to the anti-reverse groove 225, thereby completing the installation between the fresh air panel 21 and the installing plate 22.

[0060] In a specific embodiment, modifications can be made to the aligning groove 226 and/or the anti-fall protrusion 213 to guide the anti-reverse protrusion 213 to slide from the aligning groove 226 to the anti-reverse groove 225, which will be described in detail hereinafter.

[0061] Specifically, as shown in Figs. 7, 8, and 11-16, the aligning groove 226 is provided with a guiding inner wall 2261 adjacent to the anti-reverse groove 225, and the guide inner wall surface is at least partially inclined towards the direction adjacent to the anti-reverse groove 225. Such arrangement may guide the anti-reverse protrusion 213 to slide from the aligning groove 226 into the anti-reverse groove 225.

[0062] Optionally, the inner guiding side wall 2261 is disposed inclined towards the direction adjacent to the anti-reverse groove 225. As such, the guiding effect can be enhanced.

[0063] Specifically, when the anti-reverse protrusion 213 is disposed in the anti-reverse groove 225, the anti-fall protrusion 213 has an outer guiding side surface (not shown) located on a side away from the aligning groove 226, and the guide outer side surface is at least partially inclined towards the direction adjacent to the aligning groove 226. Such arrangement may guide the anti-reverse protrusion 213 to slide from the aligning groove 226 into the anti-reverse groove 225.

[0064] Optionally, the outer guiding side is obliquely disposed towards a direction close to the aligning groove 226. As such, the guiding effect can be enhanced.

[0065] Specifically, the depth of the aligning groove 226 is smaller than the depth of the anti-reverse groove 225. As arrangement may further guide the anti-reverse protrusion 213 to slide from the aligning groove 226 into the anti-reverse groove 225.

[0066] Further, as shown in Figs. 5 and 8, the anti-reverse protrusion 213 has an elongated shape, and the anti-reverse groove 225 and the aligning groove 226 are both provided correspondingly. As such, the structural strength of the anti-reverse protrusion 213 can be enhanced, thereby enhancing the connection strength between the fresh air panel 21 and the installing plate 22.

[0067] Specifically, the extending direction of the anti-reverse protrusion 213 is set at an angle relative to the movement direction when the fresh air panel 21 and the installing plate 22 are installed, and the angle is usually set at 90 degrees or close to 90 degrees. Such arrangement would reduce the relative moving distance between the fresh air panel 21 and the installing plate 22 during installation, not only simplifying the assembling process, but also minimizing the size of the design.

[0068] Optionally, the anti-reverse protrusion 213 is extended in the width direction of the fresh air panel assembly 20.

[0069] Further, as shown in Figs. 4, 5, and 10-16, the inner side surface of the fresh air panel 21 is provided with a buckling hook 214 which includes a supporting protrusion 2141 protruding from the inner side surface of the fresh air panel 21, and a blocking protrusion 2142 laterally protruding from the supporting protrusion 2141. The buckling hook groove with an inlet is formed between the supporting protrusion 2141, the blocking protrusion 2142, and the fresh air panel 21. One side of the installing plate 22 is buckled with the buckling hook214 groove. As such, one side of the installing plate 22 can be limited in the groove of the buckling hook 214, thereby improving the connection strength and stability of the fresh air panel 21 and the installing plate 22.

[0070] Specifically, the buckling hook 214 is disposed close to the edge of the fresh air panel 21, which is beneficial to realize miniaturization design.

[0071] Further, as shown in Figs. 11, 12, 15, and 16, the side face of the blocking protrusion 2142 facing the inner side face of the fresh air panel 21 is provided with an anti-fall groove 21421, one side of the installing plate 22 is provided with an anti-fall protrusion 227, and the anti-drop protrusion 227 is provided in the anti-fall groove 21421. As such, one side of the installing plate 22 can be prevented from separating from the buckling hook 214 groove, thereby enhancing the connection strength between one side of the installing plate 22 and the buckling hook 214 groove.

[0072] Further, as shown in Figs. 4 and 5, the fresh air panel includes a plurality of buckling hook 214 at one side of the installing plate 22 in the extending direction. As such, the connection strength and stability can be further enhanced between the fresh air panel 21 and the installing plate 22.

[0073] Optionally, the buckling hook 214 is provided on a shorter side of the fresh air panel 21. As such, the buckling structure of the clamping buckling hook 214 and one side of the installing plate 22 can be better cooperate with the

buckling structure of the buckling protrusion 212 and the buckling hole 224. The connection can be achieved of the fresh air panel 21 and the installing plate 22 in a multiple point/multiple orientation, thereby improving the connection strength and stability of the fresh air panel 21 and the installing plate 22.

[0074] Further, the inner side surface of the fresh air panel 21 is also provided with an abutting protrusion 216, the abutting protrusion 216 is disposed adjacent to the buckling protrusion 212, and one side of the installing plate 22 is abutted against the abutting protrusion 216. Specifically, the abutting protrusion 216 is provided on a shorter side of the fresh air panel 21.

[0075] Specifically, as shown in Figs. 4 and 5, the anti-reverse protrusion 213 is disposed close to the other shorter side of the fresh air panel 21.

[0076] Further, as shown in Figs. 5 and 7, one of the fresh air panel 21 and the installing plate 22 is provided with a strengthening rib 215, the other one is provided with a strengthening sink groove 228. The strengthening rib 215 is provided in the strengthening sink groove 228. As such, the structural strength of the fresh air panel 21 and the installing plate 22 can be enhanced respectively, and the damage risk can be reduced.

[0077] Specifically, as shown in Figs. 5 and 7, the strengthening ribs 215 are provided on the inner surface of the fresh air panel 21, and the strengthening sink groove 228 is provided on the outer surface of the installing plate 22.

[0078] Specifically, as shown in Figs. 5 and 7, a side of the installing plate 22 is recessed inwards to form a strengthening sink groove 228.

[0079] Specifically, as shown in Figs. 5 and 7, the strengthening ribs 215 may be extended along the longitudinal direction of the fresh air panel 21. The strengthening sink groove 228 may be extended along the longitudinal of the installing plate 22. Optionally, a plurality of strengthening ribs 215 are provided at intervals in the longitudinal direction of the fresh air panel 21, and a plurality of strengthening sink grooves 228 are provided at intervals in the longitudinal direction of the installing plate 22. As such, the structural strength of the fresh air panel 21 and the installing plate 22 can be further enhanced. Optionally, the strengthening ribs 215 are disposed close to the longer side of the fresh air panel 21, and the strengthening sink grooves 228 are disposed close to the longer side of the installing plate 22.

[0080] It should be particularly emphasized that through the above structural arrangement, the connection between the fresh air panel 21 and the installing plate 22 can be made difficult or even non-detachable, thus lowering the risk of users in damaging the fresh air panel assembly 20. Moreover, it can also prevent accidental disassembling.

[0081] Further, as shown in Figs. 4 and 5, the fresh air panel assembly 20 is a bent piece. More specifically, the fresh air panel 21 is a bent piece, and the installing plate 22 is also a bent piece. As such, the shape of the fresh air panel assembly 20 can be adapted to the appearance of the indoor unit 100 of the air conditioner. In addition, setting the fresh air panel assembly 20 as a bent piece helps to improve the connection strength between the fresh air panel assembly 20 and the housing 10.

[0082] Of course, when the length of the fresh air panel assembly 20 is relatively short, it can also be arranged without bending, i.e. In a flat shape or similar.

[0083] The following is a specific description of the case where the fresh air panel assembly 20 is disposed at the fresh air hole 111 in an open or closed manner

[0084] Further, as shown in Figs. 17, 18, 20, and 21, the fresh air panel assembly 20 is disposed at the fresh air hole 111 in an open or closed manner.

[0085] Specifically, the fresh air panel assembly 20 has at least an state of air supply when the fresh air hole 111 is covered, and a cleaning state when the fresh air hole 111 is opened. In the air supply state, the air outlet structure 211 corresponds to the fresh air hole 111 to supply air for indoors. In the cleaning state, the fresh air panel assembly 20 and/or the fresh air hole 111 can be cleaned.

[0086] According to the indoor unit 100 of air conditioner of the present disclosure, the fresh air panel assembly 20 is disposed at the fresh air hole 111 in an open or closed manner, to clean the fresh air panel assembly 20, so that the cleaning process of the fresh air panel assembly 20 can be simplified, and the cleaning efficiency can be improved.

[0087] It should be particularly noted that when the fresh air panel assembly 20 is disposed at the fresh air hole 111 in an open or closed manner, the fresh air panel assembly 20 may be an integrally formed structure or may include a fresh air panel 21 and a installing plate 22 which are separately disposed.

[0088] In a specific embodiment, there are many structural forms for realizing "the fresh air panel assembly 20 is arranged at the fresh air hole 111 in an open or closed manner", which will be described in the following example. However, it should be pointed out that those skilled in the art will think of more implementations based on the present disclosure of the present disclosure.

[0089] Further, as shown in Figs. 17, 18, 20, and 21, the fresh air panel assembly 20 is detachably connected to the housing 10 so that the fresh air panel assembly 20 can be disposed at the fresh air hole 111 in an open or closed manner. Specifically, the fresh air panel assembly 20 is detachably connected to the entire panel unit 11.

[0090] Thus, by detachable connection between the fresh air panel assembly 20 and the housing 10, the fresh air panel assembly 20 can be detached from the housing 10 during cleaning, so that the fresh air panel assembly 20 is separated from the housing 10. Thus the cleaning of the fresh air panel assembly 20 is not limited by position, but also

the convenience and safety can be improved of cleaning the fresh air panel assembly 20 by users. It is also possible to prevent the fresh air panel assembly 20 from interfering with the cleaning of the fresh air hole 111, thereby improving the convenience of cleaning the fresh air hole 111.

[0091] In a specific embodiment, the detachable connection of the fresh air panel assembly 20 and the housing 10 may include one or more of screw connection, a buckle connection, a magnetic connection, etc. In which, the detachable connection between the fresh air panel assembly 20 and the housing 10 is realized through a buckle structure, and the connection between the fresh air panel assembly 20 and the housing 10 may be simple and convenient.

[0092] In the first embodiment of the indoor unit 100 of air conditioner of the present disclosure, the fresh air panel assembly 20 is connected with the housing 10 through a buckle structure, which will be described in detail hereinafter.

[0093] Further, as shown in Figs. 17-19, one end of the fresh air panel assembly 20 is connected to the housing 10 through a buckle structure. Specifically, one end of the fresh air panel assembly 20 is connected with the entire panel unit 11 through a buckle structure. As such, one end of the fresh air panel assembly 20 can be connected to the housing 10.

[0094] Specifically, as shown in Figs. 18 and 19, one end of the fresh air panel assembly 20 is provided with an inserting tongue 229, and the housing 10 is provided with an inserting slot 112. The inserting tongue 229 is inserted into the inserting slot 112, and the inserting slot 112 is arranged on the entire panel unit 11. As such, the connection between one end of the fresh air panel assembly 20 and the housing 10 can be realized by providing the inserting tongue 229 and the inserting slot 112, simplifying the structure of the fresh air panel assembly 20. The connection between the fresh air panel assembly 20 and the housing 10 is further simple and convenient.

[0095] Specifically, when the fresh air panel assembly 20 includes a fresh air panel 21 and a installing plate 22. The fresh air panel assembly 20 is optionally inserted on the installing plate 22.

[0096] Further, as shown in Figs. 13, 18 and 19, the inserting tongue 229 is disposed on the inner surface of the fresh air panel assembly 20. The inserting tongue 229 includes a tongue root portion 2291 protruding on the inner surface of the fresh air panel assembly 20, and an inserting and connecting portion 2292 laterally protruding on the tongue root portion 2291. The inserting and connecting portion 2292 is extended away from the other end of the fresh air panel assembly 20, and the slot periphery of the inserting slot 112 is sandwiched between the inserting and connecting portion 2292 and the fresh air panel 21. Specifically, the inserting tongue 229 is provided on the inner surface of the installing plate 22.

[0097] It can be understood that the wall of the housing 10 (i.e. the entire panel unit 11) has a certain thickness. When the housing wall thickness at the inserting slot 112 is relatively thin, the inserting and connecting portion 2292 can be inserted inside the wall of the housing 10, sandwiching the inserting slot periphery of the inserting slot 112 between the inserting and connecting portion 2292 and the fresh air panel 21. When the thickness of the wall of the housing 10 forming the inserting slot 112 is relatively thick, the side wall of the inserting slot 112 can be provided with a receiving recess, and the inserting and connecting portion 2292 is inserted into the receiving recess, sandwiching the periphery of the inserting slot 112 between the inserting and connecting portion 2292 and the fresh air panel 21.

[0098] As such, by arranging the inserting tongue 229 on the inner surface of the fresh air panel assembly 20 and completely inserting the inserting tongue 229 into the inserting slot 112, interference can be avoided that the fitting between inserting tongue 229 and the inserting slot 112 on the fitting of other parts of the fresh air panel assembly 20 between the housing 10. Further the sealing performance between the fresh air panel assembly 20 and the housing 10 can be improved, so as to avoid noise and condensation. In addition, the inserting tongue 229 and the inserting slot 112 are hidden structures, preventing dust but also improving the aesthetics of the indoor unit 100 of the air conditioner.

[0099] Further, as shown in Fig. 17, the inserting tongue 229 is provided at the lower end of the fresh air panel assembly 20. As such, the inserting tongue 229 can be held in the inserting slot 112 under self gravity of the fresh air panel assembly 20, improving the installation stability of the fresh air panel assembly 20. The lower end of the fresh air panel assembly 20 refers to the lower end when the wall-mounted indoor unit of air conditioner is installed on the wall.

[0100] Further, as shown in Figs. 18 and 19, the other end of the fresh air panel assembly 20 is connected to the housing 10 through a buckle structure. The other end of the fresh air panel assembly 20 is connected with the entire panel unit 11 through a buckle structure. As such, the other end of the fresh air panel assembly 20 can be detachably connected to the housing 10.

[0101] Specifically, the inserting buckle 2030 is disposed on the inner side of the fresh air panel assembly 20.

[0102] Further, as shown in Figs. 18 and 19, the other end of the fresh air panel assembly 20 is provided with an inserting buckle 2030, and the housing 10 is provided with a buckle hole (not shown). The inserting buckle 2030 is buckled in the buckle hole. Specifically, the inserting buckle 2030 is provided on the installing plate 22, and the buckle hole is provided on the entire panel unit 11.

[0103] Specifically, when the fresh air panel assembly 20 is a bent piece, the inserting buckle 2030 can be optionally provided at the bending section of the fresh air panel assembly 20. As such, the connection strength can be improved.

[0104] By such arrangement, the two ends of the fresh air panel assembly 20 can be respectively connected to the housing 10, so that the fresh air panel assembly 20 can be buckled to the housing 10.

[0105] Further, as shown in Figs. 18 and 19, a positioning and guiding structure is provided between the fresh air

panel assembly 20 and the housing 10, configured for positioning and guiding the fresh air panel assembly 20. Such arrangement helps to position the fresh air panel assembly 20 when installing the fresh air panel assembly 20, thereby improving the installation efficiency of the fresh air panel assembly 20.

[0106] Specifically, the positioning and guiding structure is provided between the inner surface of the fresh air panel assembly 20 and the entire panel unit 11.

[0107] Further, as shown in Figs. 18 and 19, one of the inner surface of the fresh air panel assembly 20 and the outer surface of the housing 10 is provided with a positioning protrusion 113, and the other one is provided with a positioning groove 2031. Such arrangement enables the positioning and guiding structure to be simple in structure and convenient to operate.

[0108] Specifically, the positioning protrusion 113 is provided on the housing 10, the positioning groove 2031 is provided on the fresh air panel assembly 20. That is, the positioning protrusion 113 is provided on the outer surface of the entire panel unit 11, and the positioning groove 2031 is provided on the inner surface of the installing plate 22.

[0109] Optionally, the positioning protrusion 113 is columnar, such as cylindrical. The positioning groove 2031 may be a circular groove.

[0110] In the second embodiment of the indoor unit 100 of air conditioner of the present disclosure, the fresh air panel assembly 20 is connected with the housing 10 through a combination of a buckle structure and a magnetic device, which will be described in detail hereinafter.

[0111] Further, as shown in Figs. 20 to 23, one end of the fresh air panel assembly 20 is connected to the housing 10 through a buckle structure. Specifically, one end of the fresh air panel assembly 20 is connected with the entire panel unit 11 through a buckle structure. As such, one end of the fresh air panel assembly 20 can be connected to the housing 10.

[0112] Specifically, many specific connecting forms can be performed between one end of the fresh air panel assembly 20 and the housing 10. Reference can be made to the first embodiment of the indoor unit 100 of the air conditioner, which would not be described in detail herein.

[0113] Further, as shown in Figs. 21 to 23, the other end of the fresh air panel assembly 20 is connected to the housing 10 through a magnetic device. Specifically, the other end of the fresh air panel assembly 20 is connected to the entire panel unit 11 through a magnetic device. As such, the connection between the other end of the fresh air panel assembly 20 and the housing 10 can be made simpler and more convenient.

[0114] Further, as shown in Figs. 22 and 23, the inner surface of the fresh air panel assembly 20 is provided with a first magnet 31, and the housing 10 is provided with a second magnet 32 engaged with the first magnet 31. Specifically, the first magnet 31 is disposed on the inner surface of the installing plate 22, and the second magnet 32 is disposed on the entire machine panel 11.

[0115] Optionally, at least one of the first magnet 31 and the second magnet 32 is a magnet (permanent magnet); in which, when one of the magnets is a magnet, the other can be a metal piece such as iron, nickel, or cobalt piece. In at least one embodiment, the first magnet 31 and the second magnet 32 are both set as magnets (permanent magnets).

[0116] Further, as shown in Figs. 22 and 23, the inner surface of the fresh air panel assembly 20 is provided with a magnetic installing position, and the first magnet 31 is installed at the magnetic installing position. Specifically, the magnetic installing position is provided on the inner surface of the installing plate 22.

[0117] Further, as shown in Figs. 22 and 23, the magnetic installing position includes a magnetic installing groove 2032 with a lateral opening, the side wall of the magnetic installing groove 2032 opposite to the inner surface of the fresh air panel assembly 20 is provided with a magnet passing hole 2033 which is penetrated through the side wall of the magnet installing groove 2032 opposite to the inner surface of the fresh air panel assembly 20. The first magnet member 31 has a stepped structure and includes a thicker section and a thinner section. The thicker section is installed in the magnetic installing groove 2032 and the thinner section is installed in the magnet passing hole 2033.

[0118] Further, as shown in Figs. 22 and 23, the magnetic installing position further includes a magnetic boss 2034 provided on the inner surface of the fresh air panel assembly 20. The magnetic installing groove 2032 and the magnetic piece through hole 2033 are both provided on the magnetic boss 2034. Thus, the structure of the magnetic installing position can be simplified.

[0119] Specifically, as shown in Figs. 22 and 23, the magnetic boss 2034 is provided on the inner surface of the installing plate 22.

[0120] Specifically, as shown in Fig. 21, the second magnet 32 on the housing 10 is similar to the first magnet on the fresh air panel assembly 20 in structure, which would not be described in detail repeatedly. It should be understood that some modifications can also be made.

[0121] It should be noted that due to the magnetic force between the first magnet 31 and the second magnet 32, a natural positioning would take place between the fresh air panel assembly 20 and the housing 10, and no positioning and guiding structure is neccessary.

[0122] Further, as shown in Figs. 18 and 20, the housing 10 is provided with an accommodating groove 114, and the fresh air hole 111 is provided at the bottom of the accommodating groove 114. The fresh air panel assembly 20 is installed in the receiving groove 114. As such, by arranging the accommodating groove 114 to install the fresh air panel

assembly 20, the fresh air panel assembly 20 can be hidden, not only reducing the risk of being impacted regarding to the fresh air panel assembly 20 during handling and the like, but also reducing the damage probability of the fresh air panel assembly 20. Additionally, such arrangement can prevent dust.

[0123] Specifically, the accommodating groove 114 is provided on the entire panel unit 11.

[0124] Specifically, the outer surface of the fresh air panel assembly 20 is aligned with, or nearly aligned with, or is rounded and transitioned with the outer surface of the entire panel unit 11.

[0125] Further, as shown in Fig. 3, the housing 10 is bent inwards to form the receiving groove 114. As such, at least the structural strength of the housing 10 can be improved.

[0126] Specifically, the entire machine panel 11 is bent inwards to form a receiving groove 114.

[0127] Specifically, as shown in Figs. 18 and 20, the fresh air hole 111, the inserting slot 112, and the positioning protrusion 113 are all disposed at the bottom of the accommodating groove 114.

[0128] In some other embodiments, technical features "the fresh air panel assembly 20 is disposed at the fresh air hole 111 in an open or closed manner" can be implemented through other structural forms. Specifically, in the third embodiment (not shown) of the indoor unit of air conditioner 100, the fresh air panel assembly 20 is rotatably connected with the housing 10, to allow the fresh air panel assembly 20 to be disposed at the fresh air hole 111 in an open or closed manner. The fresh air panel assembly 20 is rotatably connected with the entire panel unit 11.

[0129] Specifically, one side of the fresh air panel assembly 20 can be rotatably connected with the entire panel unit 11, and this side is referred as the first side of the fresh air panel assembly 20.

[0130] It can be understood that the rotatable connection structure of the fresh air panel assembly 20 and the entire panel unit 11 is easy for those skilled in the art to conceive and would not be described in detail herein.

[0131] Specifically, the fresh air panel assembly 20 is detachably connected to the housing 10 at a position away from the first side of the fresh air panel assembly 20. As such, the fresh air panel assembly 20 can be fixed and positioned.

[0132] Further, the fresh air panel assembly 20 is detachably connected to the housing 10 at the second side of the fresh air panel assembly 20. The second side is opposite to the first side of the fresh air panel assembly 20. As such, not only can the connection structure between the fresh air panel assembly 20 and the housing 10 be simplified, but also the connection stability between the fresh air panel assembly 20 and the housing 10 can be improved.

[0133] Specifically, the detachable connection structure between the fresh air panel assembly 20 and the housing 10 is easy for those skilled in the art to conceive and would not be described in detail herein.

[0134] Optionally, the first side of the fresh air panel assembly 20 is an upper side, a left side, or a right side of the fresh air panel assembly 20. Thus, when the fresh air panel assembly 20 is opened, interference can be avoided caused by the fresh air panel assembly 20 to its own cleaning. Of course, the first side of the fresh air panel assembly 20 may also be the lower side of the fresh air panel assembly 20.

[0135] Further, as shown in Figs. 24-26, a sealing structure is provided between the fresh air panel assembly 20 and the housing 10, configured to improve the sealing performance between the fresh air panel assembly 20 and the housing 10. As such, the fresh air delivered by the fresh air module 40 will not leak between the fresh air panel assembly 20 and the housing 10, thus not only reducing the output loss of fresh air, improving the air exchange capacity of the indoor unit 100 of the air conditioner, but also avoiding noise and/or condensation induced by the leakage.

[0136] Further, as shown in Fig. 26, the sealing structure includes a sealing ring protrusion 115 and a sealing ring groove 2035. The seal ring protrusion 115 is an annular protrusion, and the seal ring groove 2035 is an annular groove. Specifically, one of the seal ring protrusions 115 and the seal ring groove 2035 is disposed on the inner surface of the fresh air panel assembly 20, and the other one is disposed on the outer surface of the housing 10. The seal ring protrusions 115 are disposed on the circumference of the fresh air hole 111, and the seal ring protrusions 115 are provided in the seal ring groove 2035. As such, the sealing performance between the fresh air panel assembly 20 and the housing 10 can be improved. The sealing structure is simple and convenient to assemble.

[0137] Specifically, the seal ring protrusion 115 is provided on the outer surface of the housing 10, and the seal ring groove 2035 is provided on the inner surface of the fresh air panel assembly 20. The sealing ring protrusion 115 is provided on the surface of the entire panel unit 11, and the sealing ring groove 2035 is provided on the inner surface of the installing plate 22.

[0138] Further, the seal ring protrusion 115 is abutted against the bottom of the seal ring groove 2035. As such, the sealing performance can be further improved.

[0139] Further, the sealing ring groove 2035 is laterally communicated with the air vent 221. As such, the sealing performance can be further improved.

[0140] Of course, the sealing structure can also be provided in other structures, which would not be repeated herein.

[0141] The entire panel unit 11 (hereinafter referred to as panel 11) will be described below.

[0142] In some embodiments of the present disclosure, as shown in Figs. 27 to 38, the panel 11 includes:

a panel body 116 having an inserting slot 1162 at the end surface (described as the first end surface 1161) of the panel body, and

a panel decorating strip 117 engaged with the inserting slot 1162.

[0143] One of the inserting slot wall of the inserting slot 1162 and the panel decorating strip 117 is provided with a positioning hole 1163, and the other one is provided with a positioning buckle 1171 engaged with and inserted into the positioning hole 1163.

[0144] In the present embodiment, the panel body 116 extends along the transverse direction and has an elongated shape. The end surface of the panel body 116 refers to the left end surface and the right end surface. Namely, the left end surface and the right end surface of the panel body 116 are provided with inserting slots 1162, and each inserting slot 1162 is provided with a panel decorating strip 117. The inserting slot 1162 is also elongated and extended along the first end surface 1161 of the panel body 116. The panel decorating strip 117 has a shape similar to that of the first end surface 1161 of the panel body 116, that is, is elongated.

[0145] In at least one embodiment, the slot wall of the inserting slot 1162 is provided with a positioning hole 1163, and the panel decorating strip 117 is provided with a positioning buckle 1171 which is engaged with the positioning hole 1163. The positioning buckle 1171 being inserted into the positioning hole 1163, can prevent the panel decorating strip 117 from moving in the up-down direction (i.e. the width direction of the panel body 116). Specifically, the positioning hole 1163 is provided close to the upper end of the inserting slot 1162, and the positioning buckle 1171 is also located at the upper end of the panel decorating strip 117. Of course, the positions of the positioning hole 1163 and the positioning buckle 1171 are not limited to the upper end, but may be in the middle or lower end, etc. In addition, the number of positioning holes 1163 and positioning buckles 1171 can be set as needed, and is not limited to one. In some other embodiments, the positioning buckle 1171 may be disposed on the inserting slot wall of the inserting slot 1162, and the positioning hole 1163 may be disposed on the panel decorating strip 117.

[0146] In at least one embodiment, the positioning buckle 1171 is approximately columnar. After inserted into the positioning hole 1163, the positioning buckle 1171 helps to limit the the panel decorating strip 117 in the up-down direction, rather than to limit in the left-right direction. In at least one embodiment, the positioning buckle 1171 is a buckling structure. After inserted into the positioning hole 1163, the positioning buckle 1171 not only can limit the panel decorating strip 117 in the up-down direction, but also can limit the panel decorating strip 117 from separating from the panel body 116.

[0147] In some embodiment of the present disclosure, the positioning is carried out by arranging the positioning buckle 1171 and the positioning hole 1163 between the panel body 116 and the panel decorating strip 117. After the positioning buckle 1171 is inserted into the positioning hole 1163, the panel decorating strip 117 can be prevented from moving along the longitudinal direction of the panel decorating strip 117 relative to the panel body 116, thus ensuring a more accurate positioning and fixation between the panel decorating strip 117 and the panel body 116.

[0148] In at least one embodiment, the slot wall of the inserting slot 1162 includes a bottom wall facing the inserting slot. The positioning hole 1163 is provided on the bottom wall, and the positioning buckle 1171 is provided on the surface of the panel decorating strip 117 facing the panel body 116. It is equivalent to the positioning buckle 1171 being directly inserted into the positioning hole 1163 along the installation direction when the panel decorating strip 117 is installed in the inserting slot 1162. This helps the insertion and engagement between the positioning buckle 1171 and the positioning hole 1163.

[0149] In some embodiment of the present disclosure, the positioning buckle 1171 is tapered in the direction close to the positioning hole 1163; and/or the opening of the positioning hole 1163 is flared in a direction close to the positioning buckle 1171. It should be noted that the meaning of "and/or" appearing in the full text is to include three parallel schemes, taking "a and/or b" as some embodiments, including solution of a or b, or solution that both a and b satisfy at the same time. For example, in at least one embodiment, the positioning buckle 1171 is tapered in the direction close to the positioning hole 1163. Namely, the end of the positioning buckle 1171 is smaller, which can play a guiding role and facilitate the insertion of the positioning buckle 1171 into the positioning buckle 1171. Specifically, one of the side surfaces of the positioning buckle 1171 is an inclined surface 11711, to allow the positioning buckle 1171 being gradually tapered in a direction close to the positioning hole 1163; or, the positioning buckle 1171 is conical or the like. For example, in at least one embodiment, the opening of the positioning hole 1163 is flared in the direction close to the positioning buckle 1171. This means the larger opening can ensure the positioning buckle 1171 to be easily inserted when the positioning buckle 1171 is just inserted into the opening of the positioning hole 1163. As the positioning buckle 1171 moves inwards, the aperture diameter of the positioning hole 1163 gradually decreases, thereby gradually realizing the accurate positioning between the panel body 116 and the panel decorating strip 117. In addition, in at least one embodiment, the positioning buckle 1171 is tapered in the direction close to the positioning hole 1163; and/or the opening of the positioning hole 1163 is flared in a direction close to the positioning buckle 1171.

[0150] In some embodiments of the present disclosure, the opening of the inserting slot 1162 is flared from inside to outside; and/or the thickness of the panel decorating strip 117 gradually decreases in a direction close to the panel body 116. The flared opening of the inserting slot 1162, helps to guide the panel decorating strip 117 and facilitate the insertion of the panel decorating strip 117. Similarly, the decreasing thickness of the panel decorating strip 117 in the direction

close to the panel body 116, also plays a better guiding role in inserting the panel decorating strip 117 into the inserting slot 1162. Specifically, in some embodiments, the panel decorating strip 117 has two inserting-in surfaces distributed along the thickness direction. One inserting-in surface is gradually inclined towards the other inserting-in surface in the direction close to the panel body 116.

[0151] In order to realize the fixation between the panel decorating strip 117 and the panel body 116, in some embodiments, one of the inserting slot walls of the panel decorating strip 117 and the inserting slot 1162 is provided with a buckle 1172, and the other is provided with a buckling slot 1164 which is buckled with the buckle 1172. Optionally, a plurality of buckles 1172 are arranged on the panel decorating strip 117 at intervals along the longitudinal direction, and a plurality of buckling slots 1164 are correspondingly arranged on the slot wall of the inserting slot 1162. The plurality of buckles 1172 are correspondingly buckled with the plurality of buckling slots 1164 one by one. The panel decorating strip 117 is fixed on the panel body of the panel 11 in a buckling manner, which facilitates the disassembly and assembly of the panel decorating strip 117. Moreover, after the panel decorating strip 117 and the panel body 116 are positioned by the positioning structure (positioning holes 1163 and positioning buckles 1171), evenly distributed buckles 1172 and buckling grooves 1164 of the panel body 116 are assembled by limitation. As such, the gap between the panel decorating strip 117 and the bottom wall of the inserting slot 1162 can be ensured, providing convenience for the assembling. Additionally, the arrangement of the plurality of buckles 1172 and the plurality of buckling slots 1164, can improve the installing stability between the panel decorating strip 117 and the panel body 116 of the panel 11. Specifically, in some embodiments, the panel decorating strip 117 is provided with a buckle 1172, and the slot wall of the inserting slot 1162 is provided with a buckling slot 1164 which is buckled with the buckle 1172. The buckling slot 1164 is a through slot penetrating through the slot wall of the inserting slot 1162. Of course, the buckling slot 1164 may not penetrate through the panel body 116.

[0152] Referring to Figs. 31 and 35, in some embodiments, the panel body 116 includes a side surface 1165 adjacent to an end surface of the panel body 116, and the side surface 1165 is close to the end of the panel decorating strip 117. The panel decorating strip 117 includes a decorating portion 1173 and an inserting part 1174 which are connected with each other. The inserting part 1174 is further engaged with and inserted into the inserting slot 1162. The decorating portion 1173 is exposed outside the inserting slot 1162 and takes an elongated shape. The end surface of the decorating portion 1173 (described as the second end surface 1175 hereinafter) is aligned with the side surface 1165. Specifically, in the embodiment where the panel body 116 is positioned in the up-down direction, the side surface 1165 of the panel body 116 refers to the upper side surface 1165 and the lower side surface 1165. In the present embodiment, the upper end surface of the panel decorating strip 117 is aligned with the upper side surface 1165 of the panel body 116. The lower end surface of the panel decorating strip 117 is aligned with the lower side surface 1165 of the panel body 116. After the panel 11 is installed on the face frame of the indoor unit of the air conditioner, if the panel decorating strip 117 is protruded from the panel body 116, the panel decorating strip 117 will interfere with the face frame, causing the installation failure regarding the panel 11. However, if the panel decorating strip 117 is shorter than the panel body 116, a gap between the panel decorating strip 117 and the face frame would induce accumulation of dust. In the present embodiment, due to the arrangement of the positioning buckle 1171 and the positioning hole 1163, the panel decorating strip 117 is prevented from moving up and down. The upper end surface of the panel decorating strip 117 is ensured to be aligned with the upper side surface 1165 of the panel body 116, and the lower end surface of the panel decorating strip 117 is ensured to be aligned with the lower side surface 1165 of the panel body 116, thus avoiding the above-mentioned problems. In the present embodiment, the decorating portion 1173 and the inserting portion 1174 are both elongated. Both ends of the decorating portion 1173 are extended outward, with the length over the length of the inserting portion 1174. That is, the length of the decorating portion 1173 is greater than the length of the inserting portion 1174, and the excess part of the decorating portion 1173 beyond the inserting portion 1174 is abutted against the end surface of the panel body 116, avoiding the gap between the two.

[0153] Please refer to Fig. 39 and Fig. 40. In some embodiments, the panel decorating strip 117 is provided with a mounting hole 1176 penetrating through the panel decorating strip 117. The mounting hole 1176 is a process hole for hanging the panel decorating strip 117 during water plating, which can prevent the panel decorating strip 117 from scratching. The mounting hole 1176 can be removed when other molding methods are selected.

[0154] Please refer to Fig. 30, Fig. 41 and Fig. 42. Specifically, the indoor unit of the air conditioner includes a face frame 50, the panel 11 is covered in the front of the face frame 50, and the end plate 12 is provided on the end surface of the face frame 50. In some embodiments, the indoor unit of the air conditioner is a wall-mounted unit, the face frame 50 is extended generally in the transverse direction, and the panel 11 is a front panel 11, which is also extended in the transverse direction. An end plate 12 is provided on both of the left end surface and the right end surface of the face frame 50. It should be noted that in the embodiments of the present disclosure, the end surface of the panel body 116 refers to the end surfaces of both ends of the panel body 116 distributed along the longitudinal direction.

[0155] Referring to Fig. 43, in some embodiments, the indoor unit of the air conditioner further includes an end plate decorating strip 13, which is extended along the circumferential direction of the end plate 12, and forms an annular shape with a notch 131. The panel decorating strip 117 of the panel 11 is disposed in the notch 131 and encloses the circum-

ferential surface of the end plate 12 jointly with the end plate decorating strip 13. In the present embodiment, the adjacent of the end plate 12 and the panel body 116 share a decorating strip, and the decorating strip of the panel body 116 is just inserted into the notch 131 of the end plate decorating strip 13, to enable a better integrity of the entire unit.

[0156] Please refer to Fig. 27. in one embodiment, the indoor unit of the air conditioner further includes a fresh air module 40, which includes a ventilation inlet and a fresh air hole. The ventilation inlet is communicated with the outdoor, and the fresh air hole is communicated with the indoor, so that the fresh air from outdoor can be introduced into the indoor space. Optionally, the fresh air module 40 is arranged at the end of the indoor unit of the air conditioner, which can reduce the influence of fresh air module on the cold or warm air flowing out from the heat exchange air outlet.

[0157] The present disclosure further proposes an air conditioner. The air conditioner comprises an outdoor unit (not shown) and an indoor unit, in which the indoor unit is connected with the outdoor unit. As shown in Figs. 1 to 43, the structure of the indoor unit 100 of the air conditioner can be referred to in the aforementioned embodiments. As the air conditioner takes all the technical solutions of the above embodiments, it has at least all the significance and benefits brought by the technical solution of the above embodiments, and will not be described in detail herein.

[0158] Optionally, the indoor unit of air conditioner 100 and the air conditioner outdoor unit are connected through refrigerant pipes.

[0159] The description aforementioned is only the preferred embodiment of the present disclosure and is not intended to limit the scope of the present disclosure. Any equivalent structural modification made by using the description and drawings of the present disclosure or direct/indirect disclosure in other related technical fields under the concept of the present disclosure shall be included in the protection scope of the present disclosure.

Claims

1. An indoor unit of an air conditioner, comprising:

a housing defining a fresh air hole; and
a fresh air panel assembly defining an air outlet structure corresponding to the fresh air hole, and mounted on the housing, wherein the fresh air panel assembly is configured to open or close the fresh air hole.

2. The indoor unit of claim 1, wherein
the fresh air panel assembly is detachably connected with the housing, and configured to open or close the fresh air hole;
or,
the fresh air panel assembly is rotatably connected with the housing, and configured to open or close the fresh air hole.

3. The indoor unit of claim 2, wherein
in response to a determination that the fresh air panel assembly is detachably connected with the housing, the fresh air panel assembly is connected with the housing through a buckle structure.

4. The indoor unit of claim 2, wherein
in response to a determination that the fresh air panel assembly is detachably connected with the housing, one end of the fresh air panel assembly is connected with the housing through a buckle structure;
or,
an inserting tongue is disposed at an end of the fresh air panel assembly, and an inserting slot is defined in the housing, to allow the inserting tongue to be inserted into the inserting slot.

5. The indoor unit of claim 4, wherein
the inserting tongue is disposed on an inner surface of the fresh air panel assembly, and comprises:

a tongue root portion protruded on the inner surface of the fresh air panel assembly, and
an inserting and connecting portion protruded laterally on the tongue root portion and extended away from another end of the fresh air panel assembly, wherein

a slot periphery of the inserting slot is sandwiched between the inserting portion and the fresh air panel.

6. The indoor unit of claim 4, wherein
the another end of the fresh air panel assembly is connected with the housing through a buckle structure; or, the another end of the fresh air panel assembly comprises an inserting buckle, and the housing defines a buckle hole

to engage with the inserting buckle.

7. The indoor unit of claim 6, wherein
a positioning guide structure is disposed between the fresh air panel assembly and the housing; or,
one of the inner surface of the fresh air panel assembly and an outer surface of the housing comprises a positioning protrusion; while the other defines a positioning groove.

8. The indoor unit of claim 4, wherein
the another end of the fresh air panel assembly is connected with the housing through a magnetic device; or, a first magnet is disposed on the inner surface of the fresh air panel assembly, and a second magnet engaged with the first magnet is disposed on the housing.

9. The indoor unit of claim 2, wherein
in response to a determination that the fresh air panel assembly is rotatably connected with the housing, a first side of the fresh air panel assembly is rotatably connected with the housing, and a part of the fresh air panel assembly remote from the first side is detachably connected with the housing.

10. The indoor unit of claim 1, wherein
the housing defines an accommodating groove which further defines the fresh air hole at a bottom of the accommodating groove, wherein the fresh air panel assembly is installed in the accommodating groove.

11. The indoor unit of claim 10, wherein the housing is bent inwards defining the accommodating groove.

12. The indoor unit of claim 1, wherein
the housing comprises an entire panel unit, where the fresh air hole is disposed; and/or,
the air outlet structure comprises a plurality of air dispersing micro-holes or an air outlet screen; and/or, the fresh air panel assembly is a bending member; and/or, the indoor unit is a cabinet unit or a wall-mounted unit.

13. The indoor unit of claim 1, wherein
a sealing structure is disposed between the fresh air panel assembly and the housing; or,
one of an inner surface of the fresh air panel assembly and an outer surface of the housing comprises a sealing ring protrusion, while the other one defines a sealing ring groove to receive the sealing ring protrusion, wherein the sealing ring protrusion is disposed on a periphery of the fresh air hole.

14. The indoor unit of claim 1, wherein
the fresh air panel assembly comprises:

a fresh air panel comprising the air outlet structure; and
an installing plate defining an air vent penetrating through the installing plate corresponding to the air outlet structure, wherein

the fresh air panel is disposed on a surface of the installing plate;
the installing plate and/or the fresh air panel are installed on the housing.

15. The indoor unit of claim 1, wherein
the housing comprises a panel further comprising:

a panel body defining an inserting slot at an end surface; and
a panel decorating strip in an insertion fit with the inserting slot, wherein

one of a wall of the inserting slot and the panel decorating strip defines a positioning hole, while the other one comprises a positioning buckle fit with the positioning hole.

16. The indoor unit of claim 15, wherein
a slot wall of the inserting slot comprises a bottom wall facing an openning of the inserting slot where the positioning hole is disposed.

17. The indoor unit of claim 15, wherein

the positioning buckle is tapered in a direction close to the positioning hole; and/or, an opening of the positioning hole is flared in a direction close to the positioning buckle.

18. The indoor unit of claim 15, wherein
an opening of the inserting slot is flared in a direction away from the housing; and/or, a thickness of the panel decorating strip is tapered in a direction close to the panel body.

19. The indoor unit of claim 15, wherein
one of the panel decorating strip and the wall of the inserting slot comprises a buckle, while the other one defines a buckling slot engaged with the buckle.

20. The indoor unit of claim 15, wherein
the panel body comprises:
a side surface adjacent to an end surface of the panel body and close to an end portion of the panel decorating strip, wherein the panel decorating strip comprises: a decorating portion, and an inserting and engaging portion connected with the decorating portion, wherein the inserting and engaging portion is inserted into and engaged with the inserting slot; the decorating portion having a strip shape is exposed out from the inserting slot; an end surface of the decorating portion is aligned with the side surface.

21. The indoor unit of claim 15, wherein
the panel body is positioned along an up-down direction;
the inserting slot is disposed at each of a left end surface and a right end surface of the panel body; and each inserting slot is provided with the panel decorating strip.

22. The indoor unit of air conditioner of claim 15, wherein
the panel decorating strip defines a mounting hole penetrating through the panel decorating strip.

23. The indoor unit of claim 15, wherein the indoor unit further comprises: an end plate arranged on an end surface of the panel; and an end plate decorating strip extended along a circumferential direction of the end plate and forming an annular shape with a notch, wherein the panel decorating strip of the panel is disposed in the notch and configured to enclose the circumference of the end plate jointly with the end plate decorating strip.

24. An air conditioner, comprising:

an outdoor unit; and
an indoor unit connected with the outdoor unit, and comprising:

a housing defining a fresh air hole, and
a fresh air panel assembly defining an air outlet structure corresponding to the fresh air hole, and is disposed at the fresh air hole in an open or closed manner, when mounted on the housing.

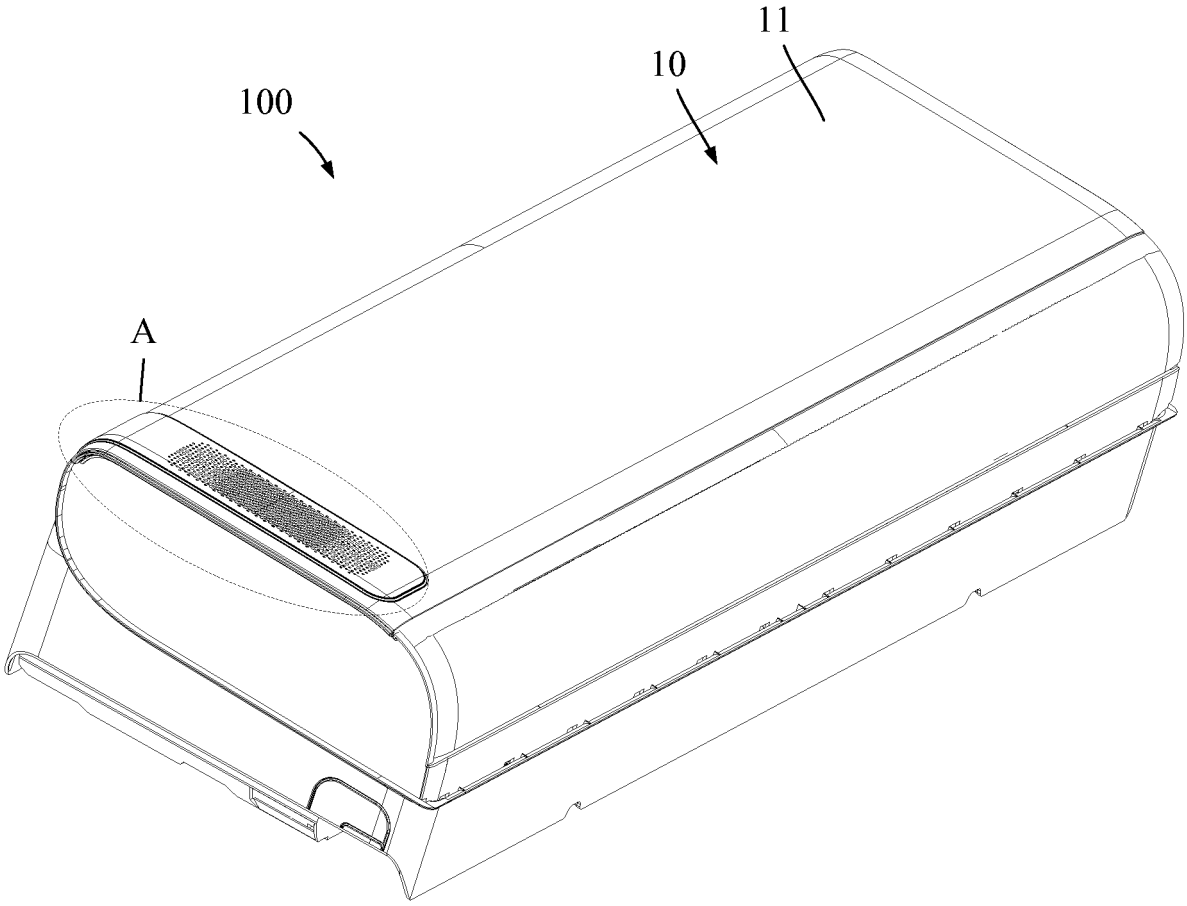


Fig. 1

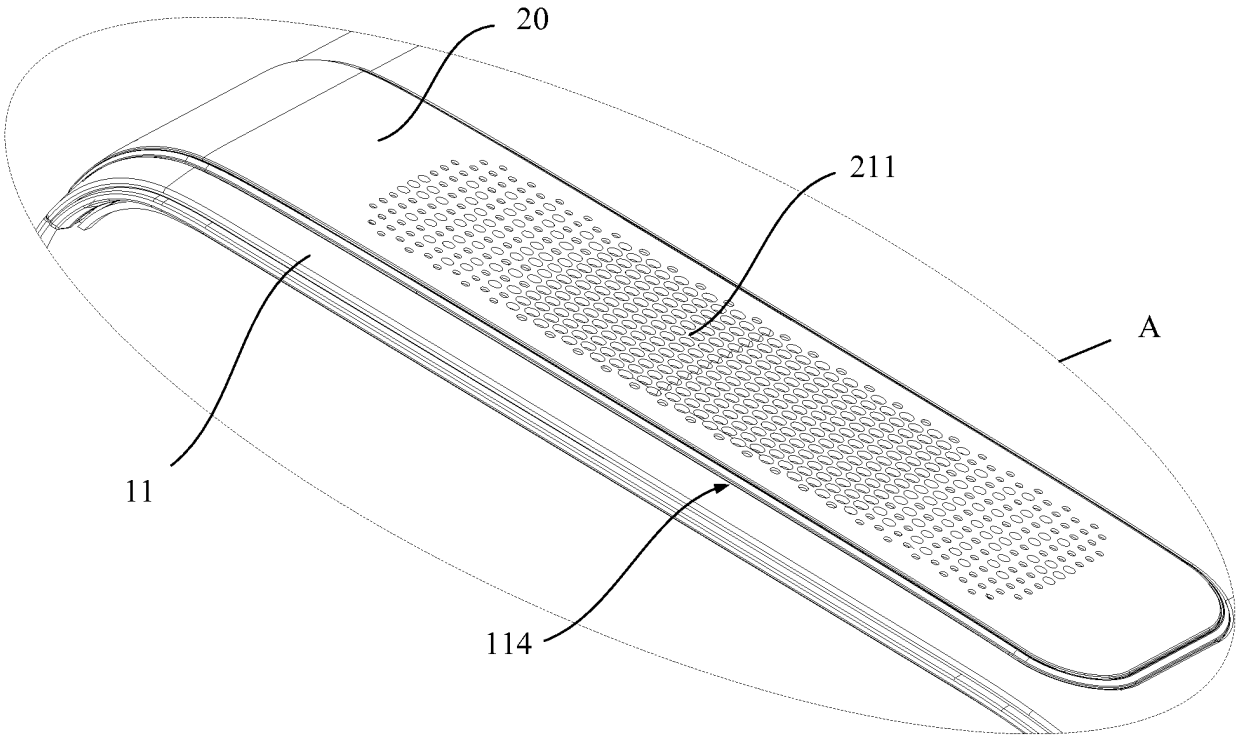


Fig. 2

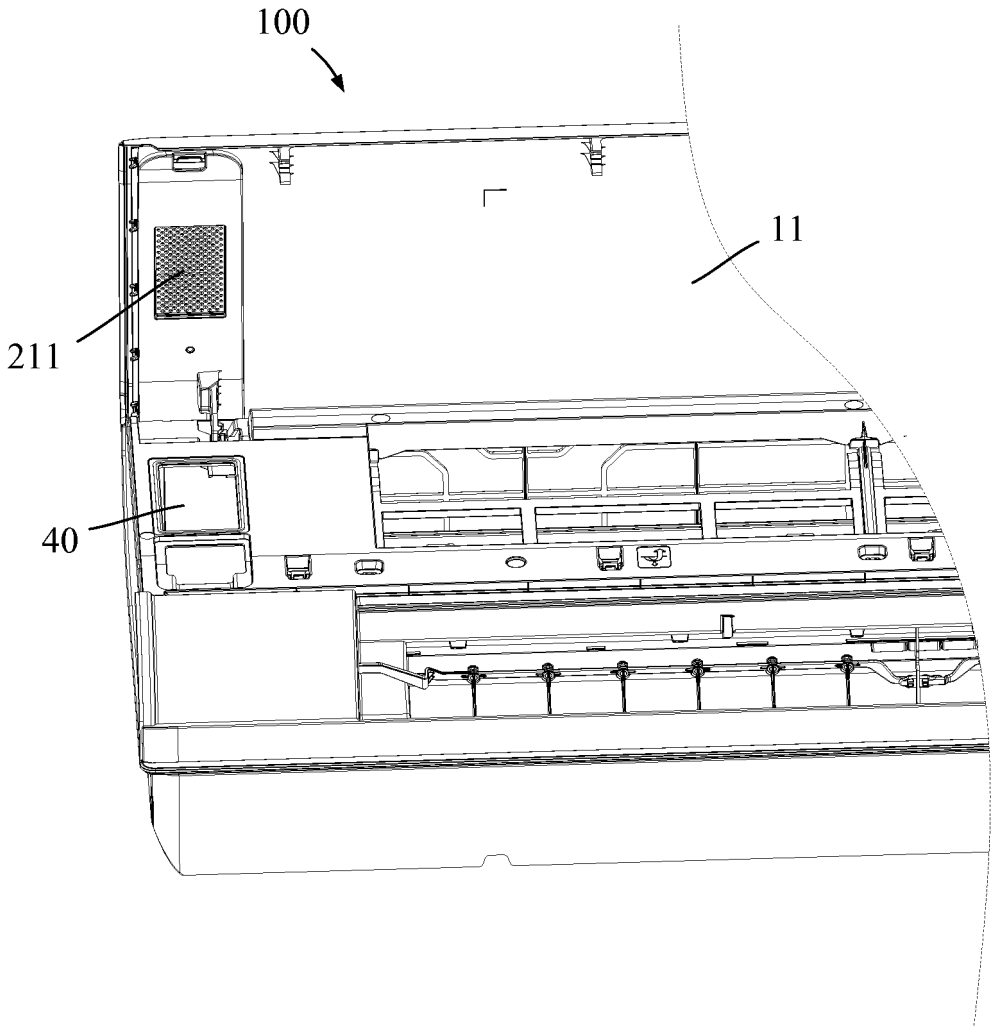


Fig. 3

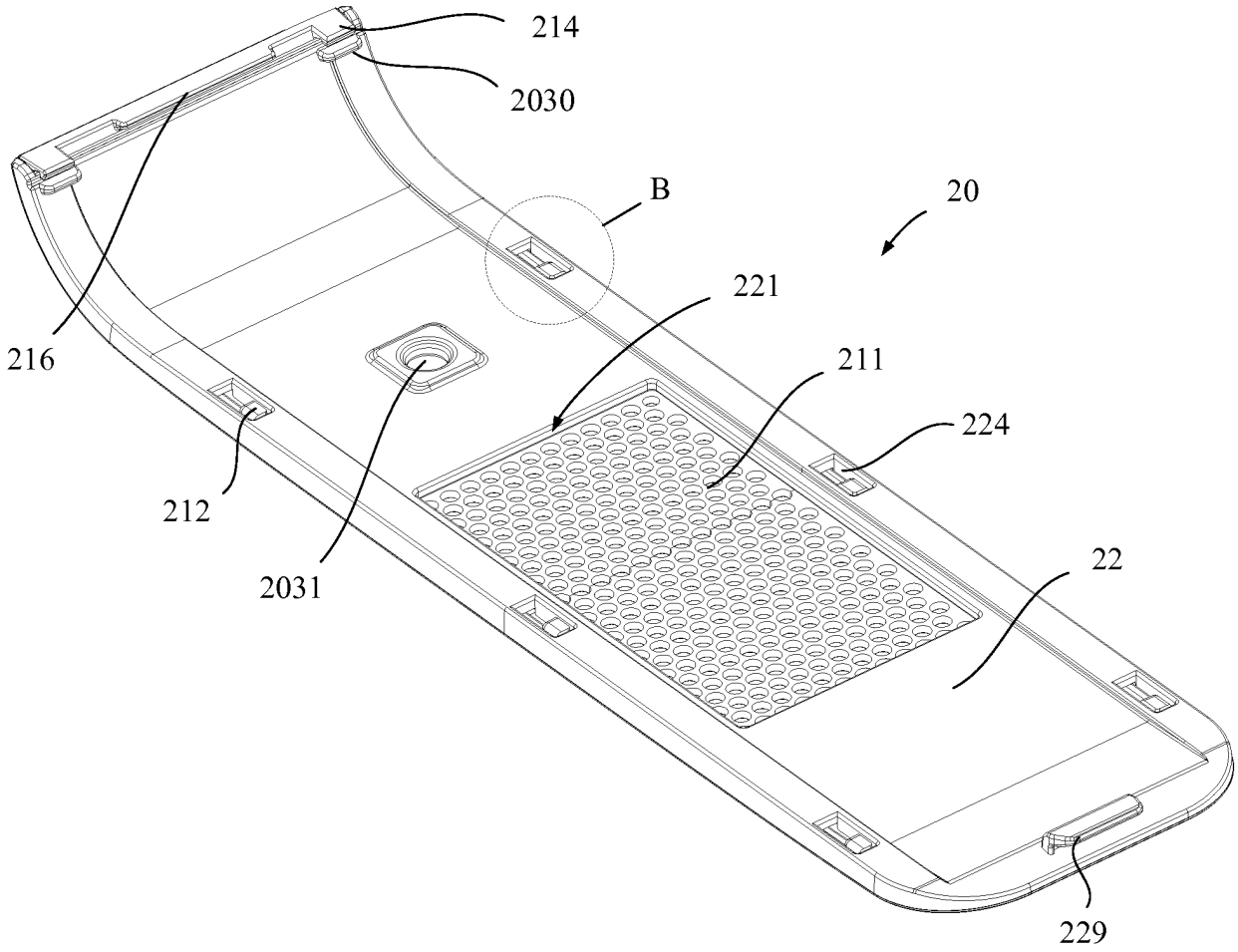
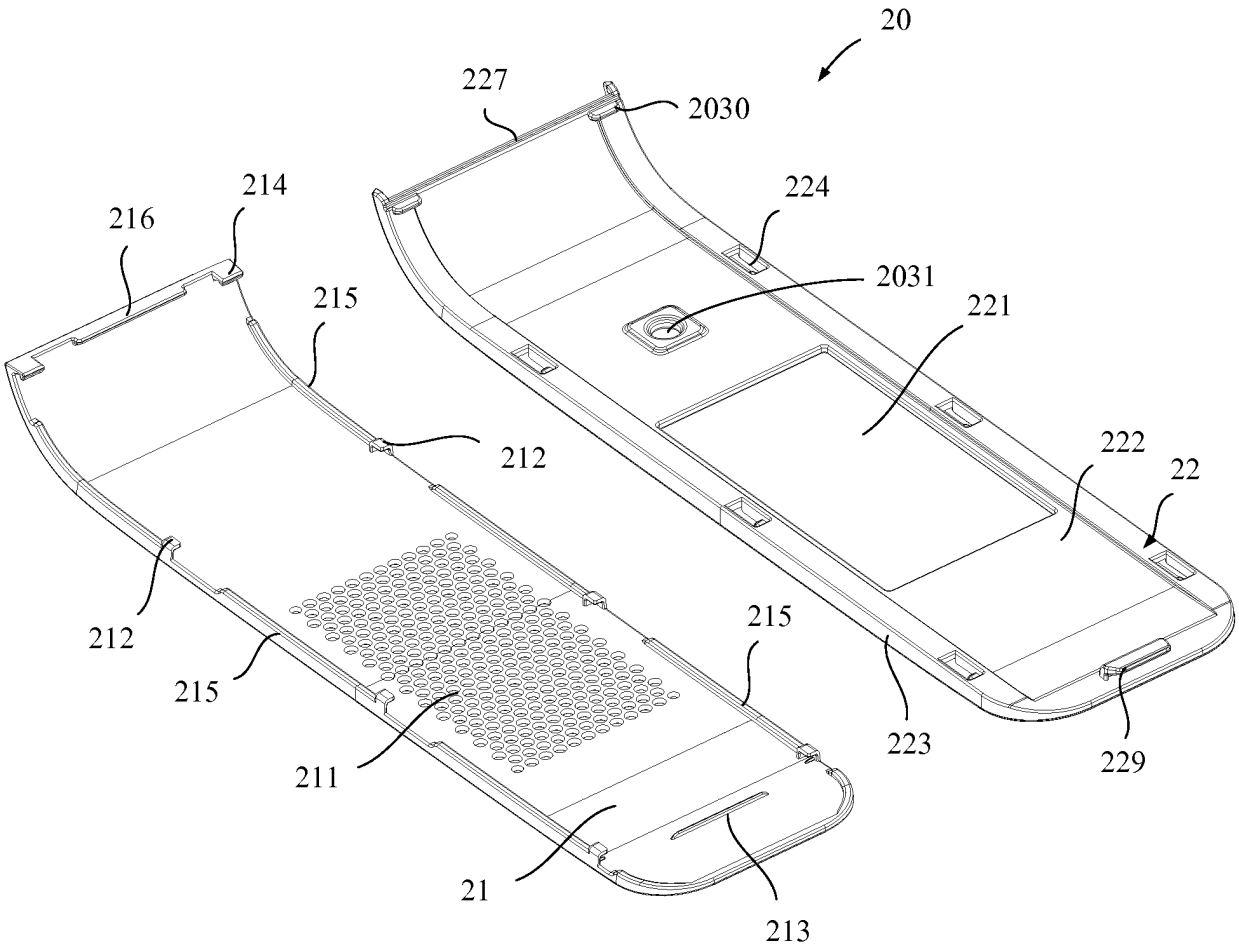


Fig. 4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227
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Fig. 5

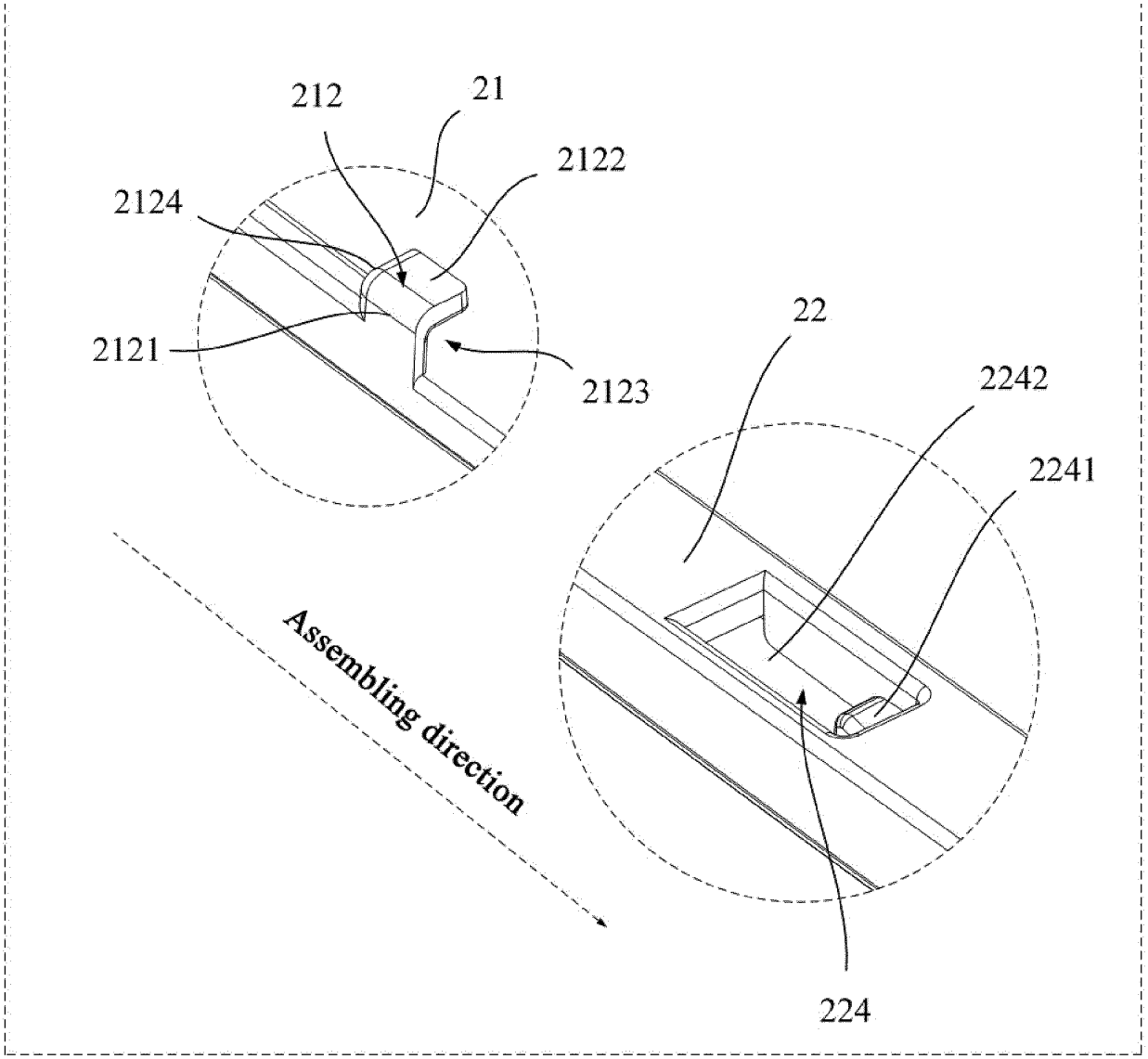

212
21
2122
2124
2121
2123
22
2242
2241
Assembling direction
224

Fig. 6

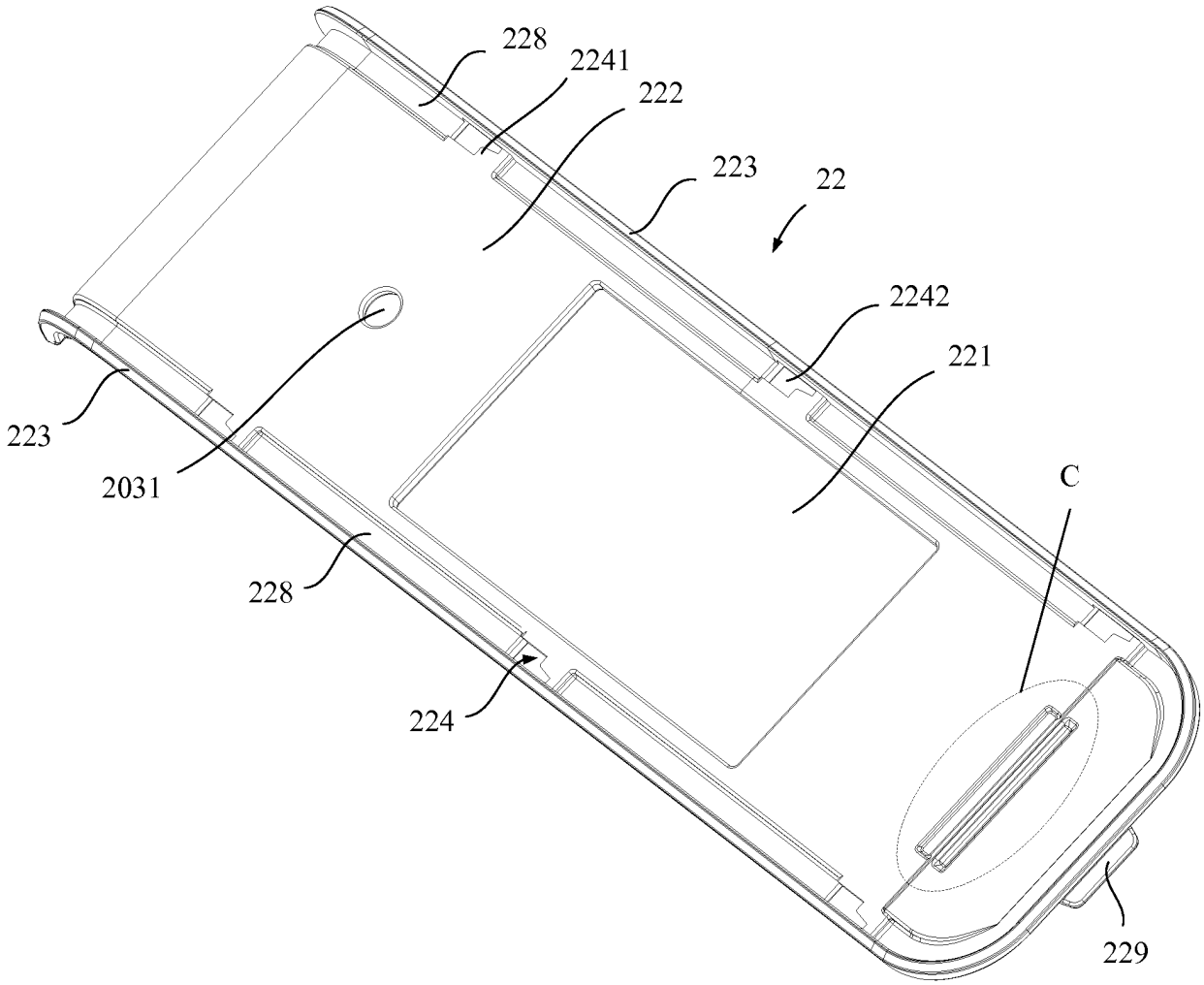


Fig. 7

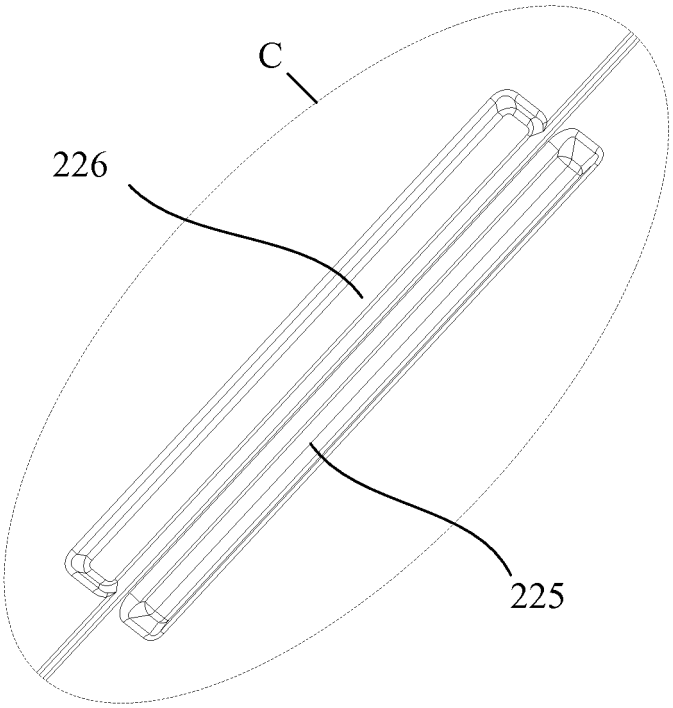


Fig. 8

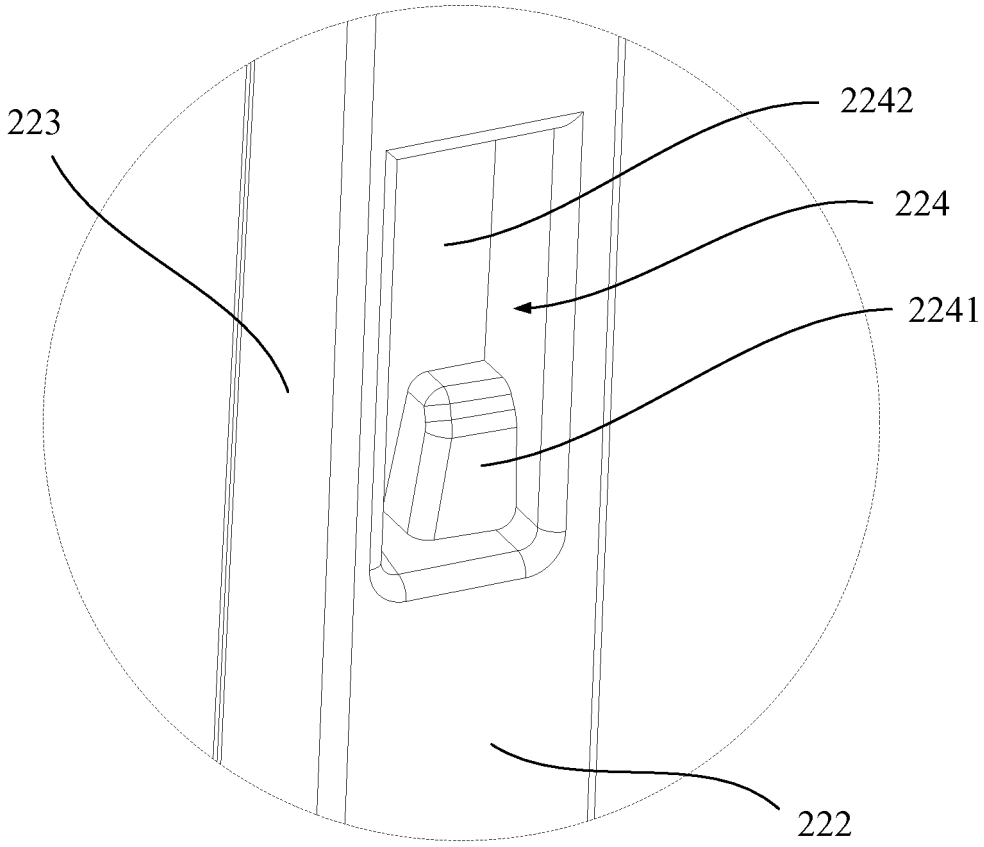


Fig. 9

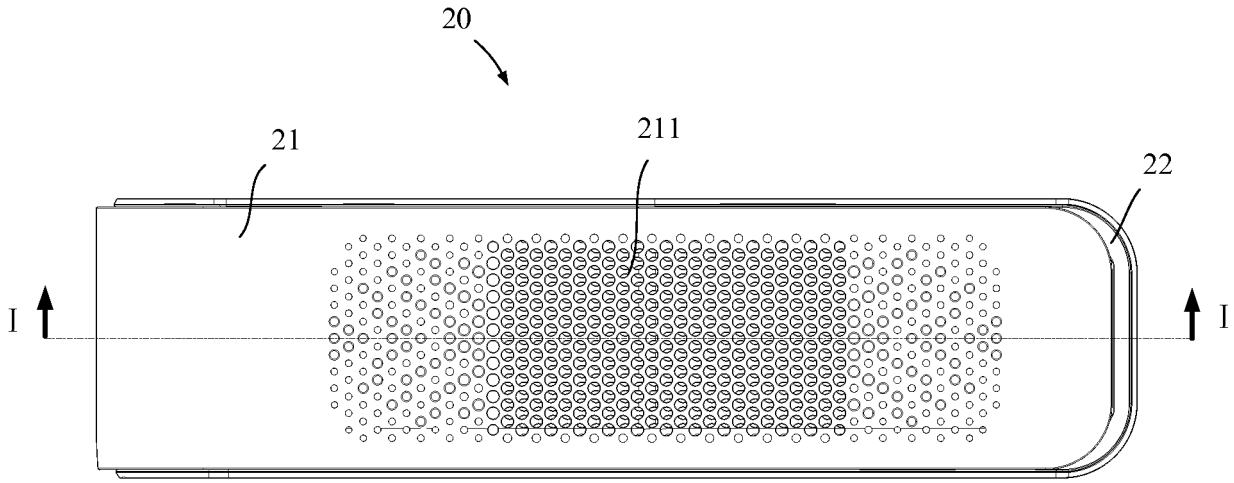


Fig. 10

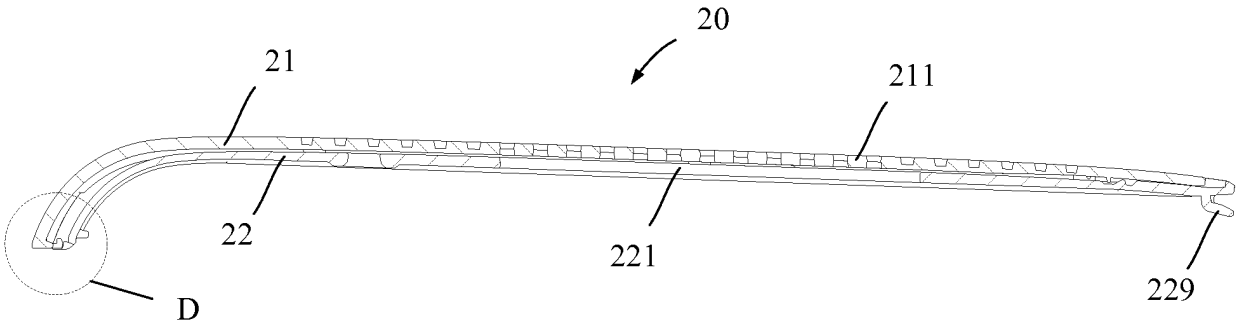


Fig. 11

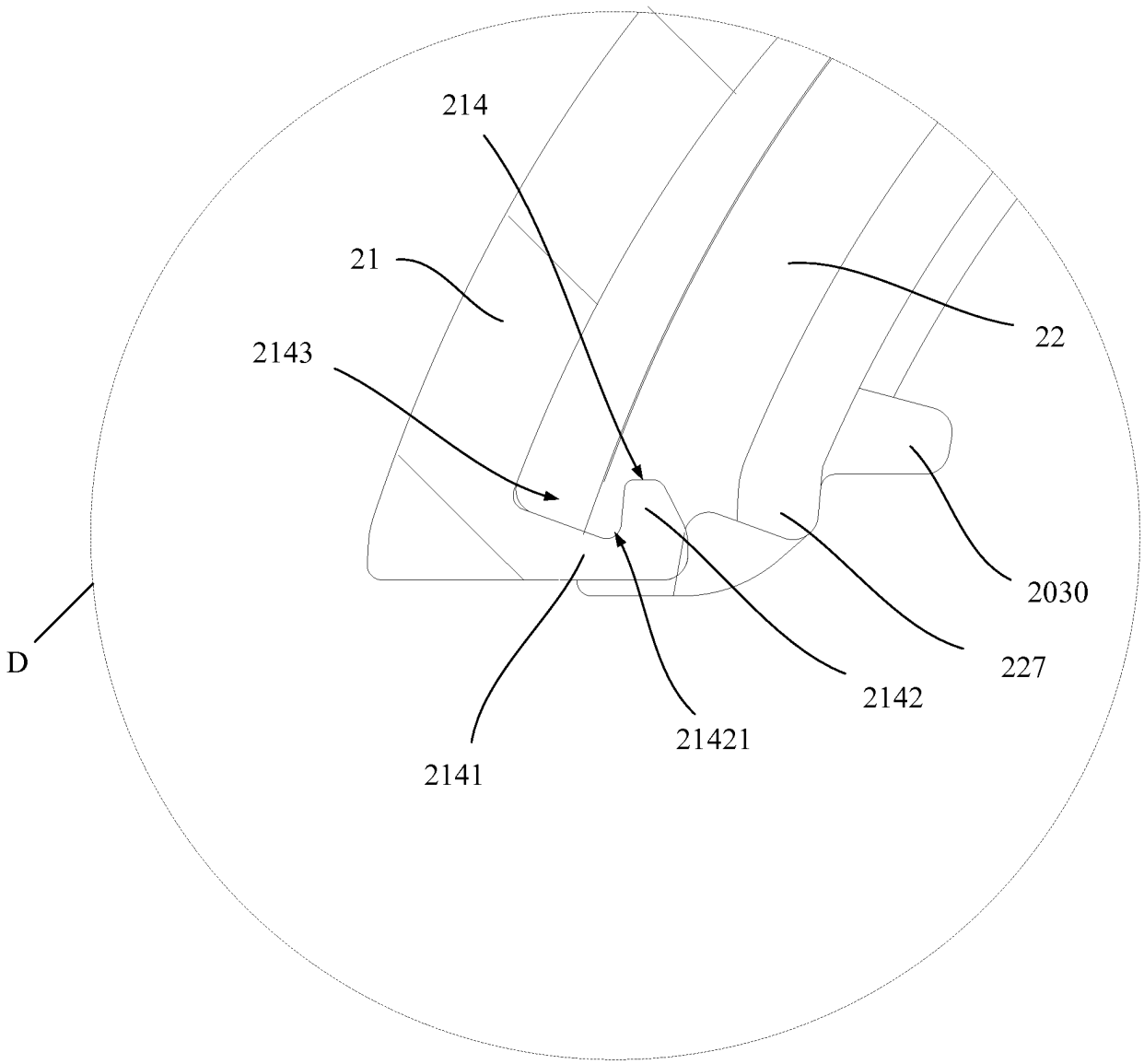


Fig. 12

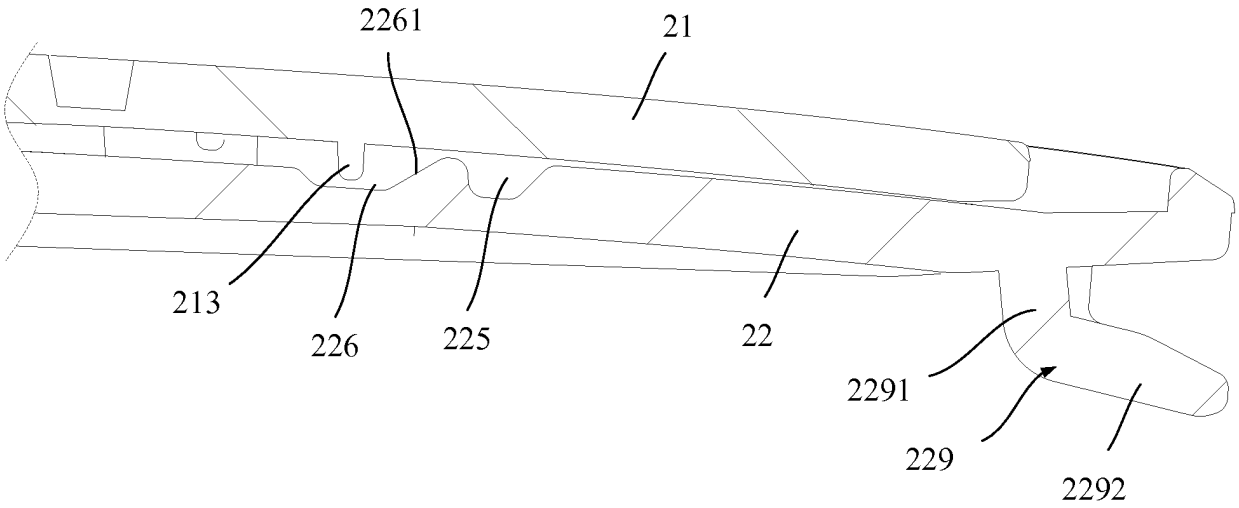
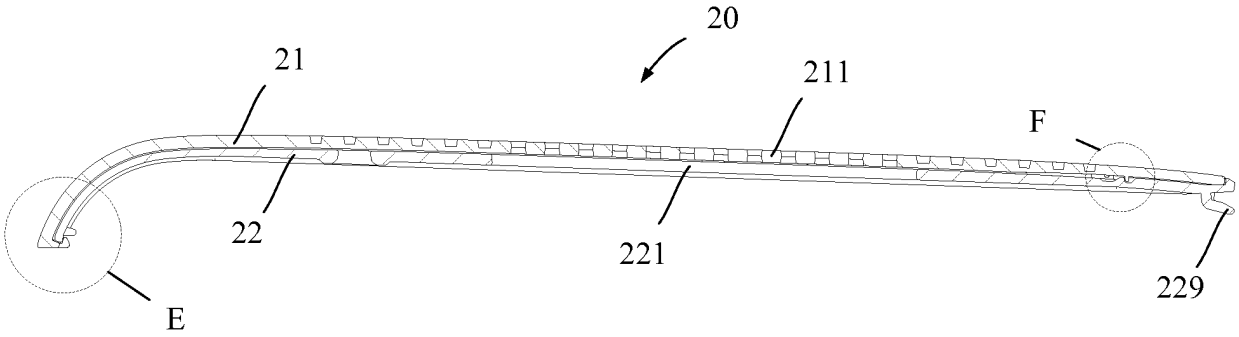


Fig. 13



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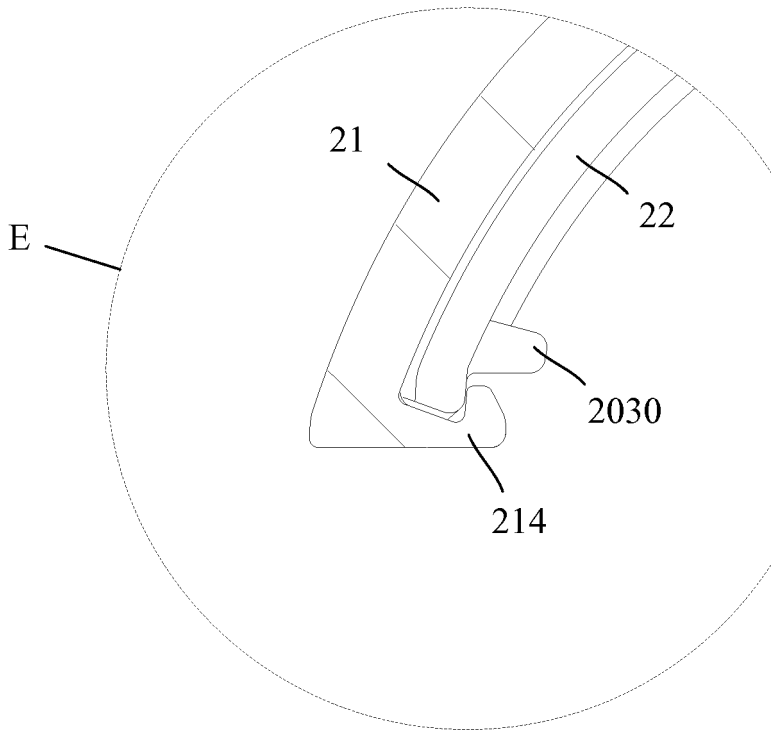

Fig. 15

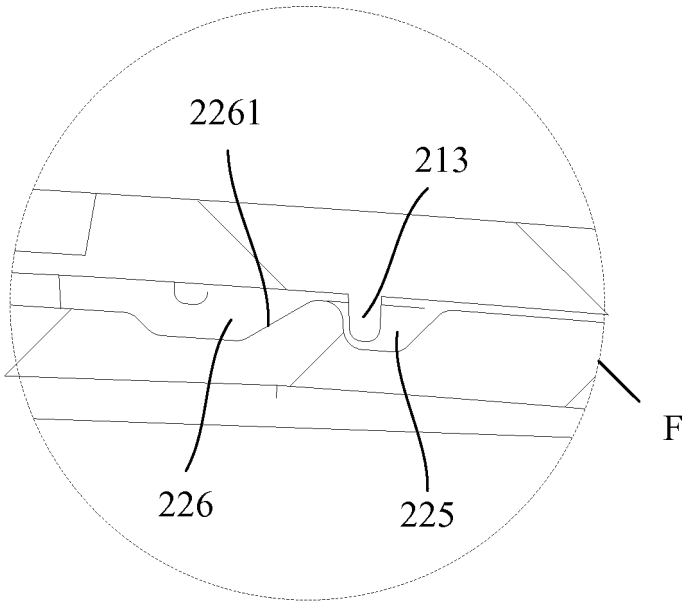

Fig. 16

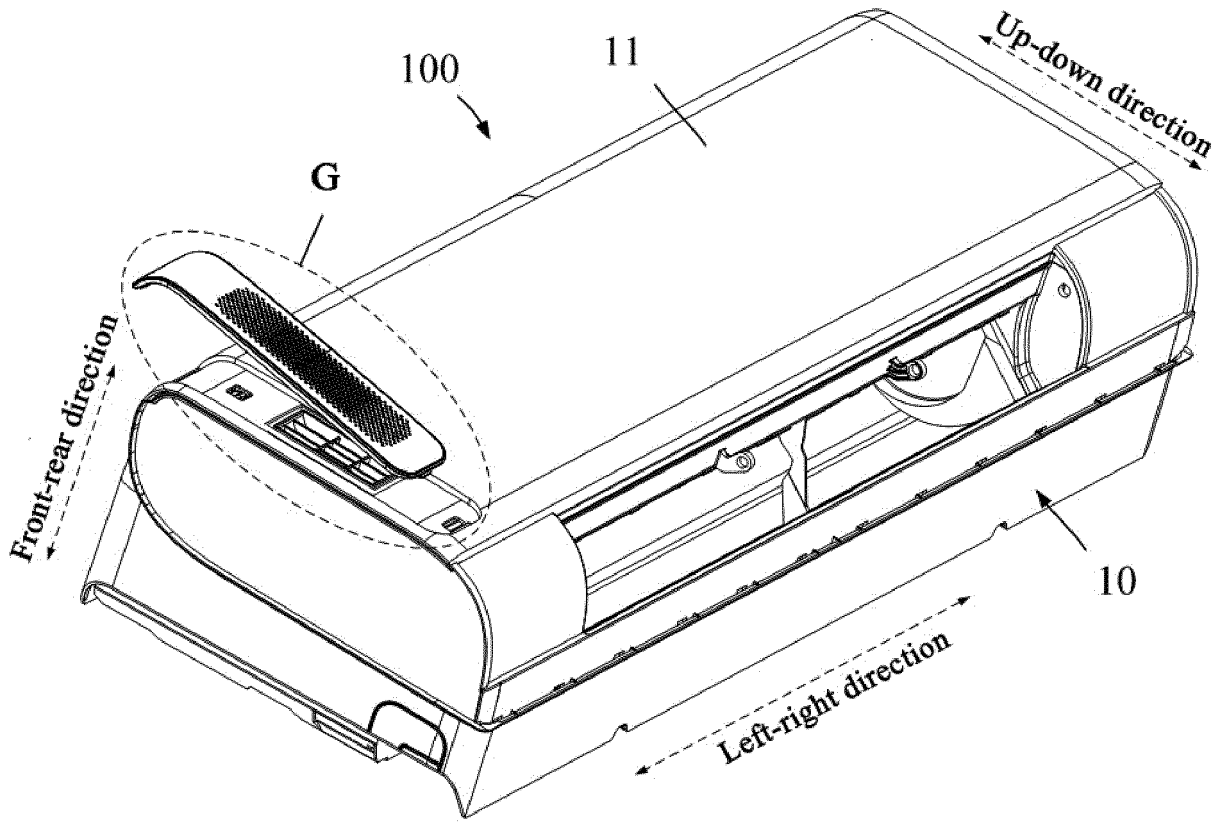
100
11
Up-down direction
G
Front-rear direction
10
Left-right direction

Fig. 17

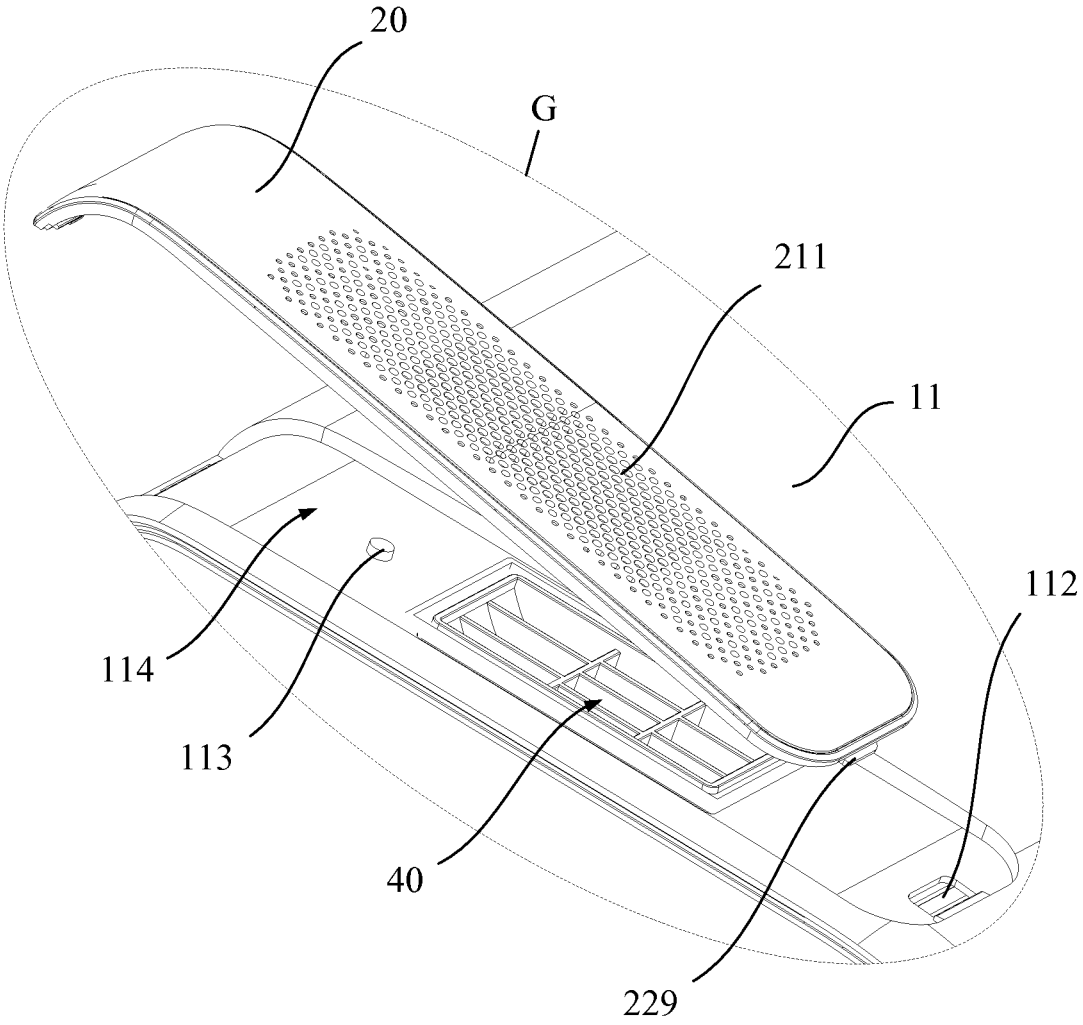

Fig. 18

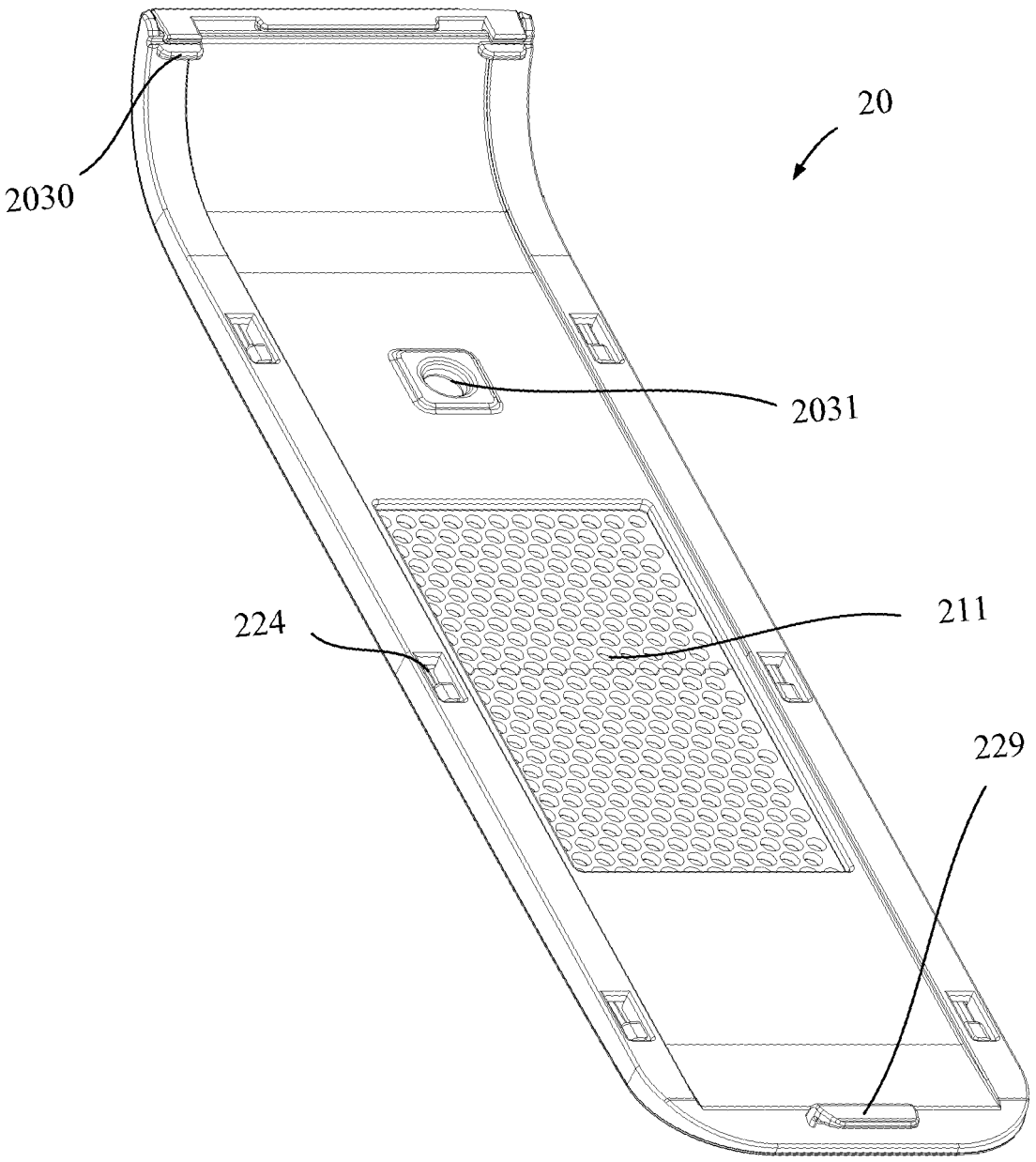

Fig. 19

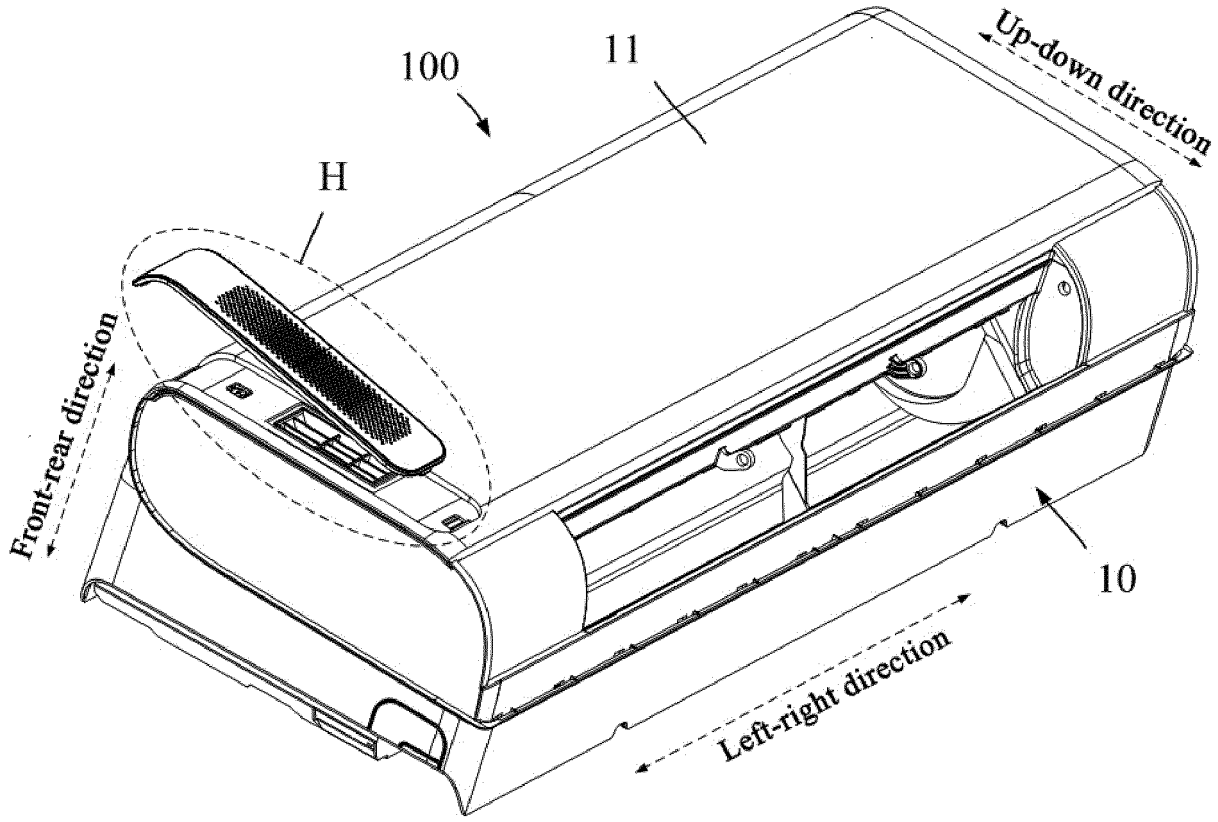
100
11
H
Up-down direction
Front-rear direction
10
Left-right direction

Fig. 20

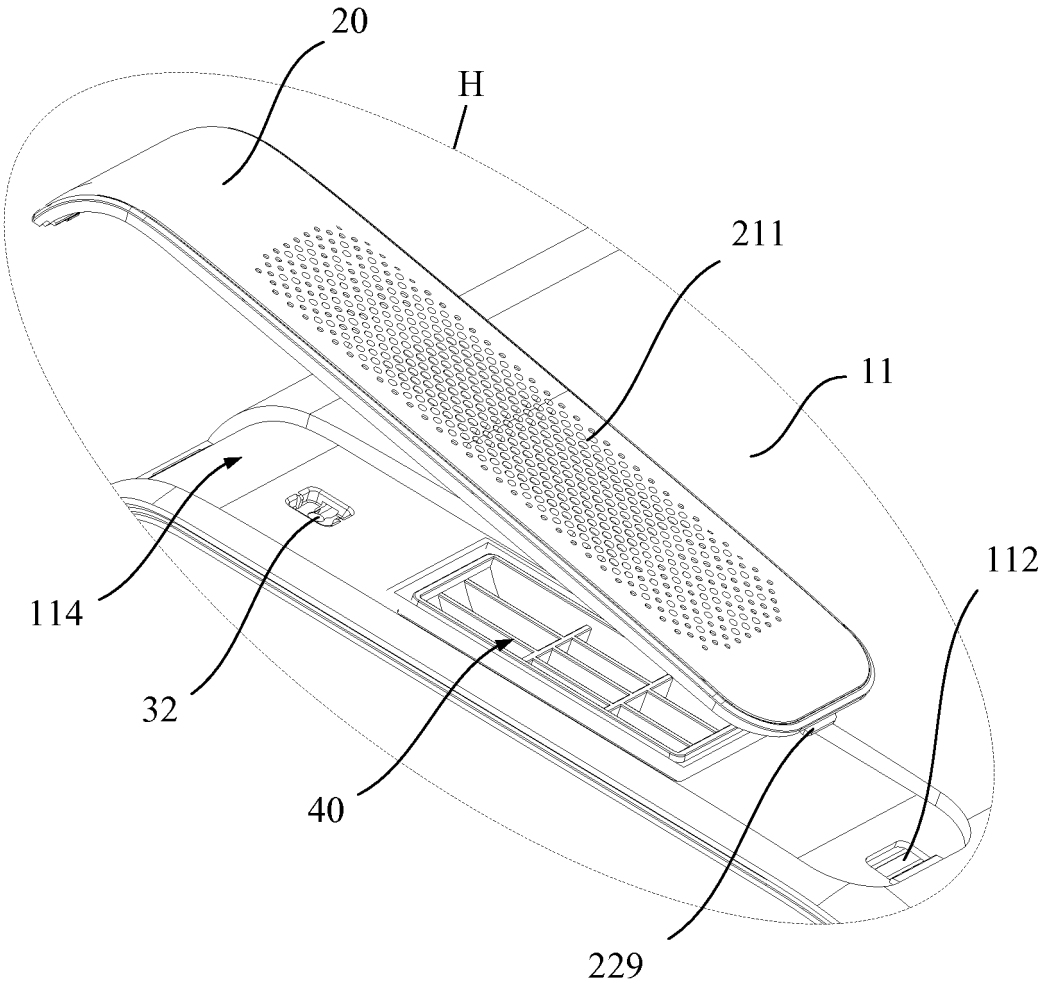

Fig. 21

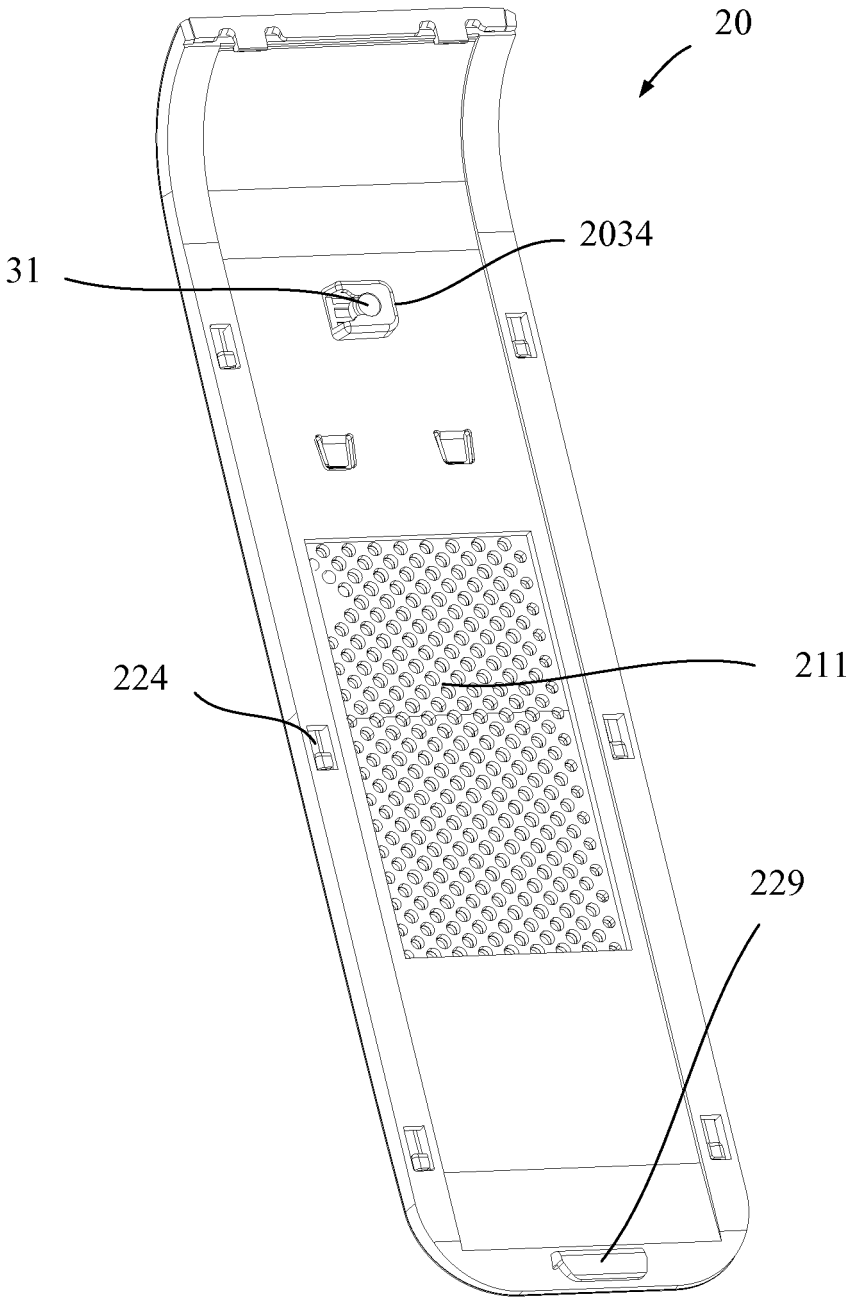

Fig. 22

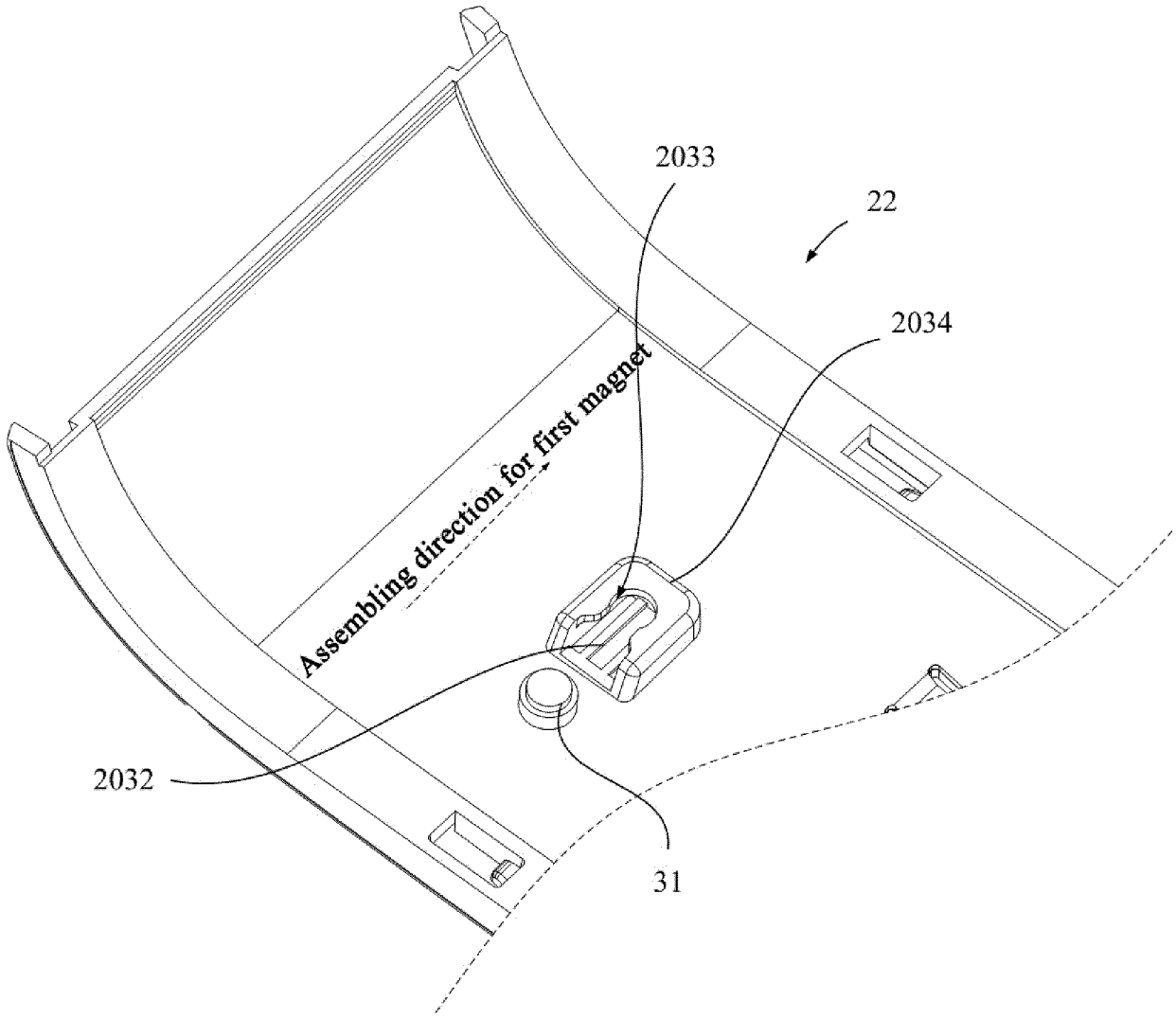

Fig. 23

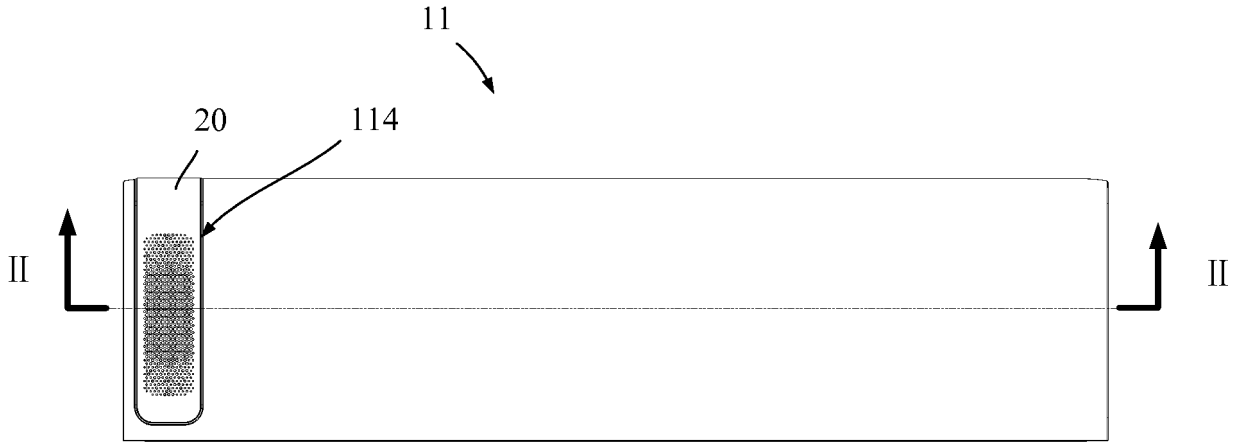

Fig. 24

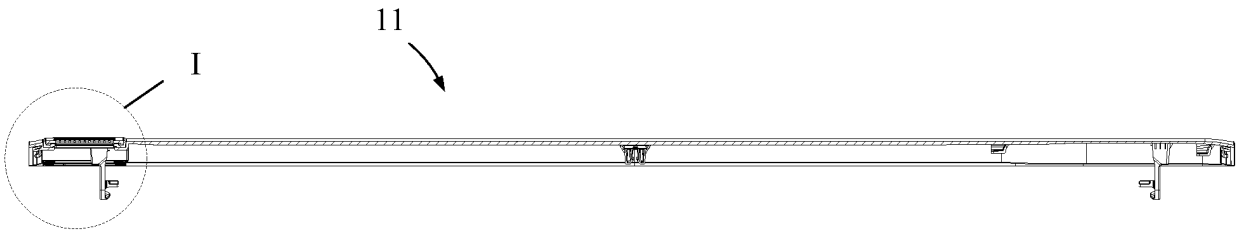

Fig. 25

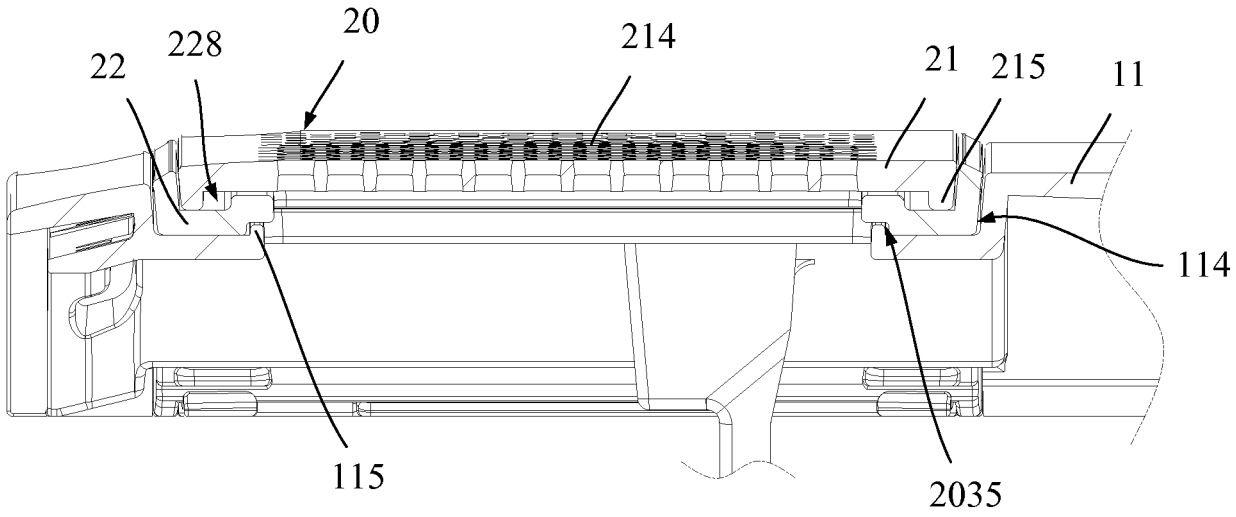

Fig. 26

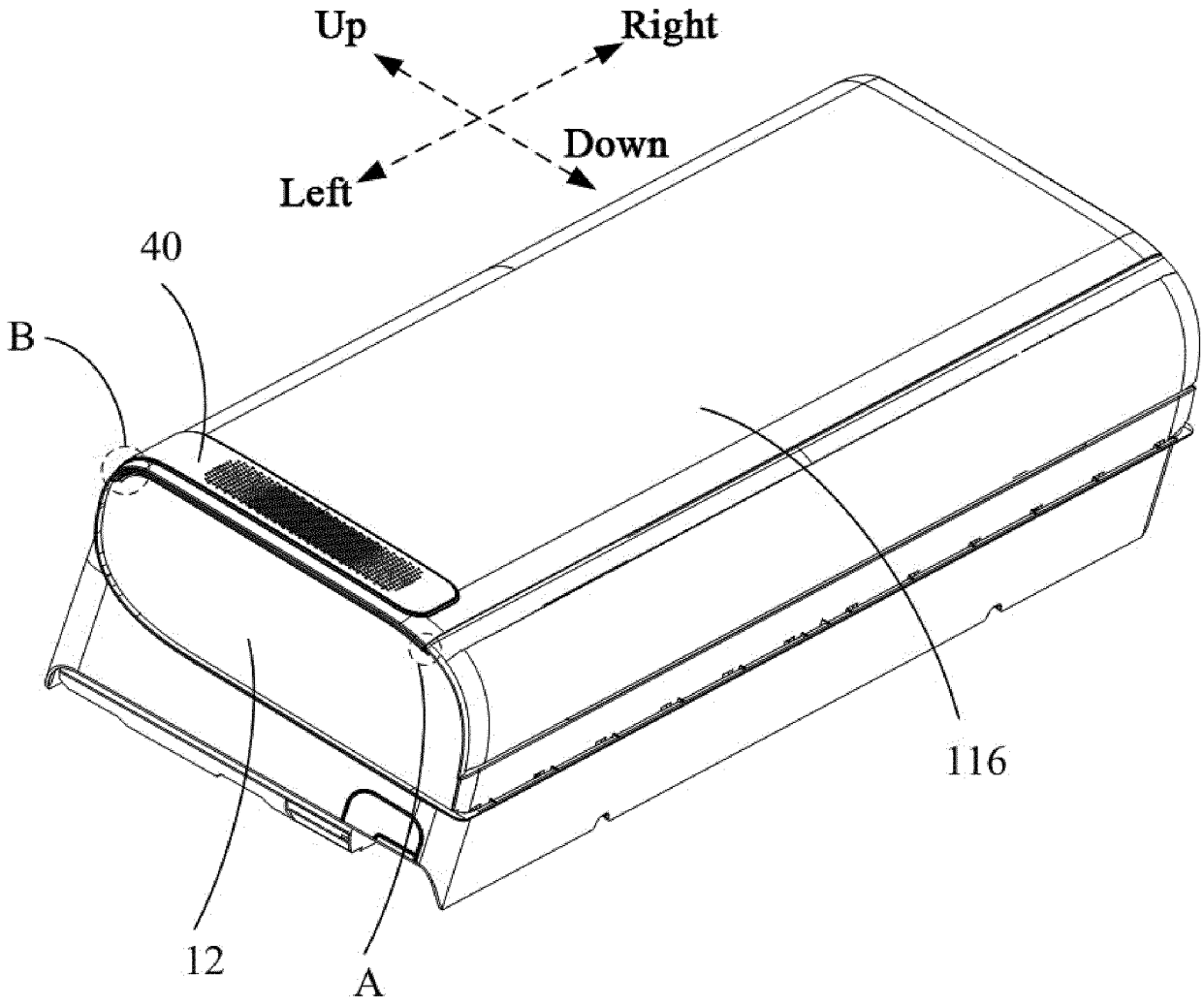

Fig. 27

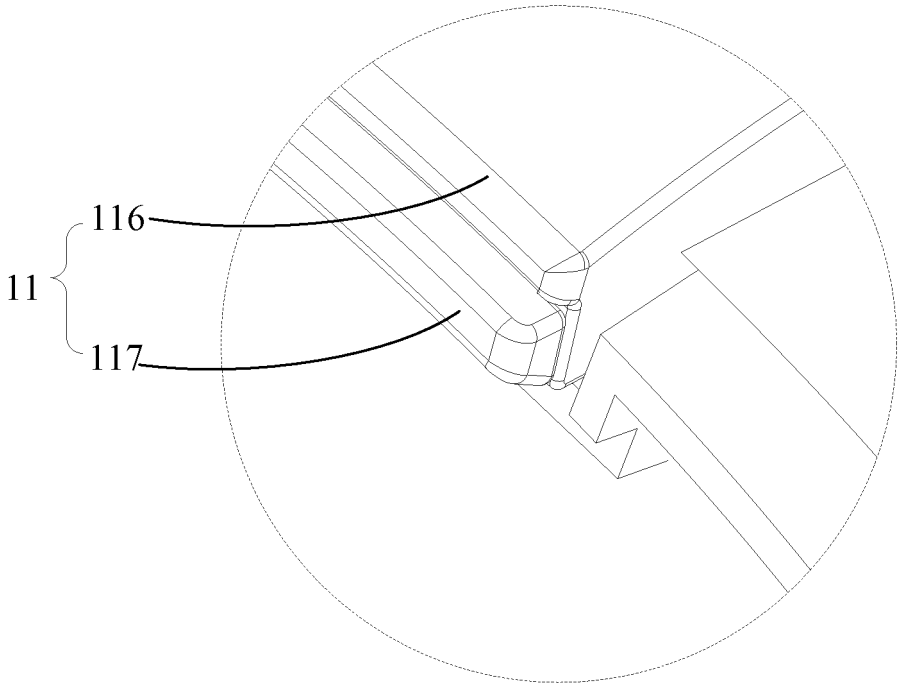

Fig. 28

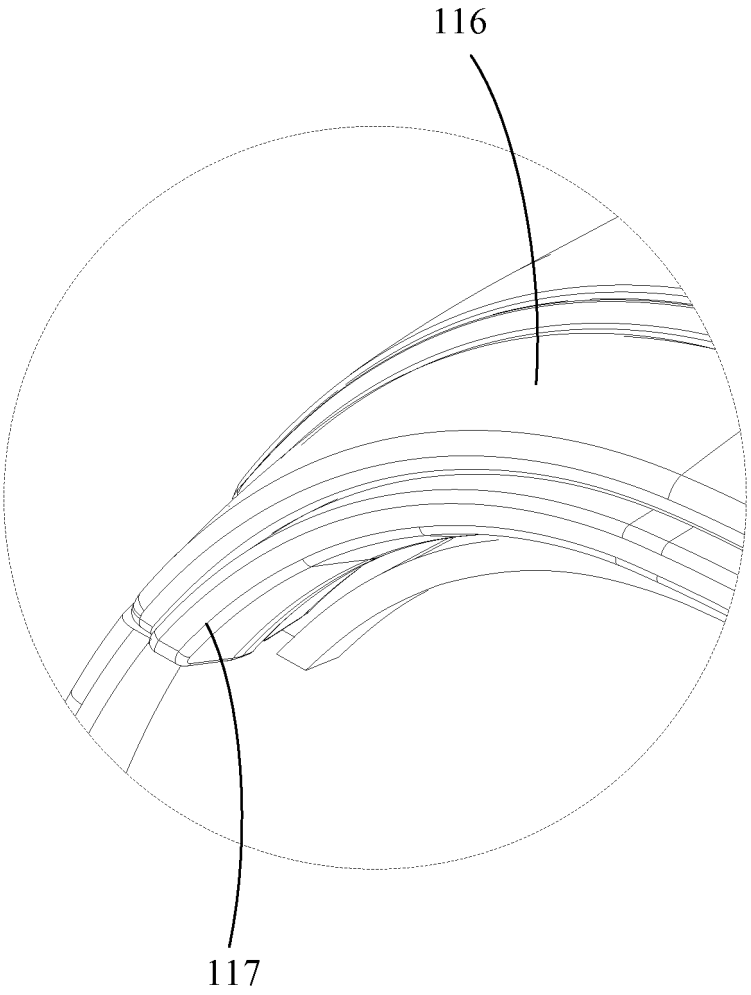

Fig. 29

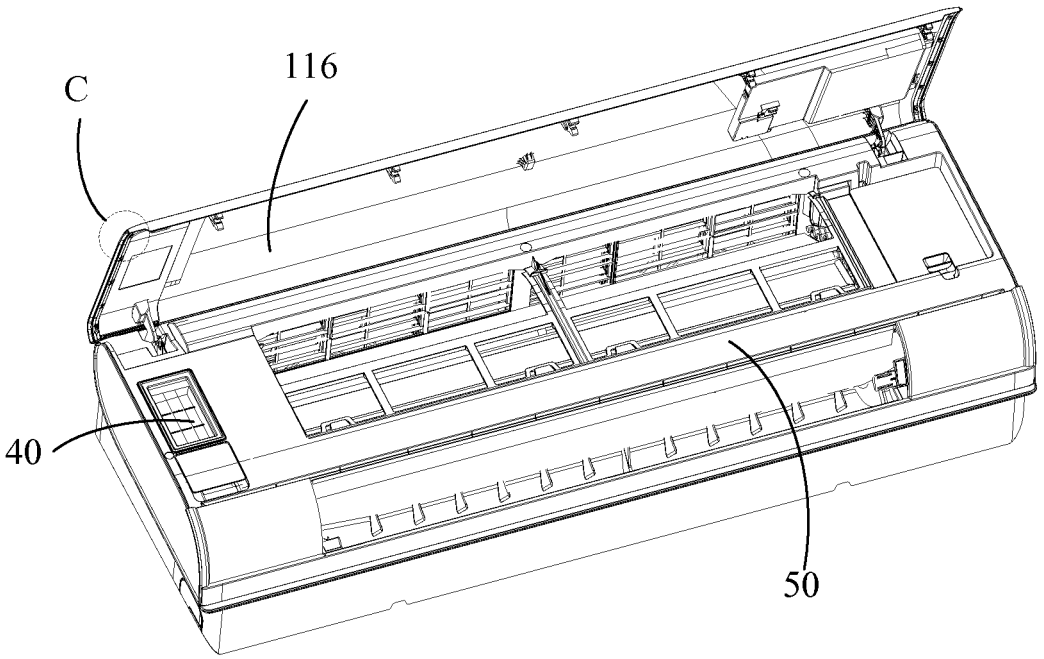

Fig. 30

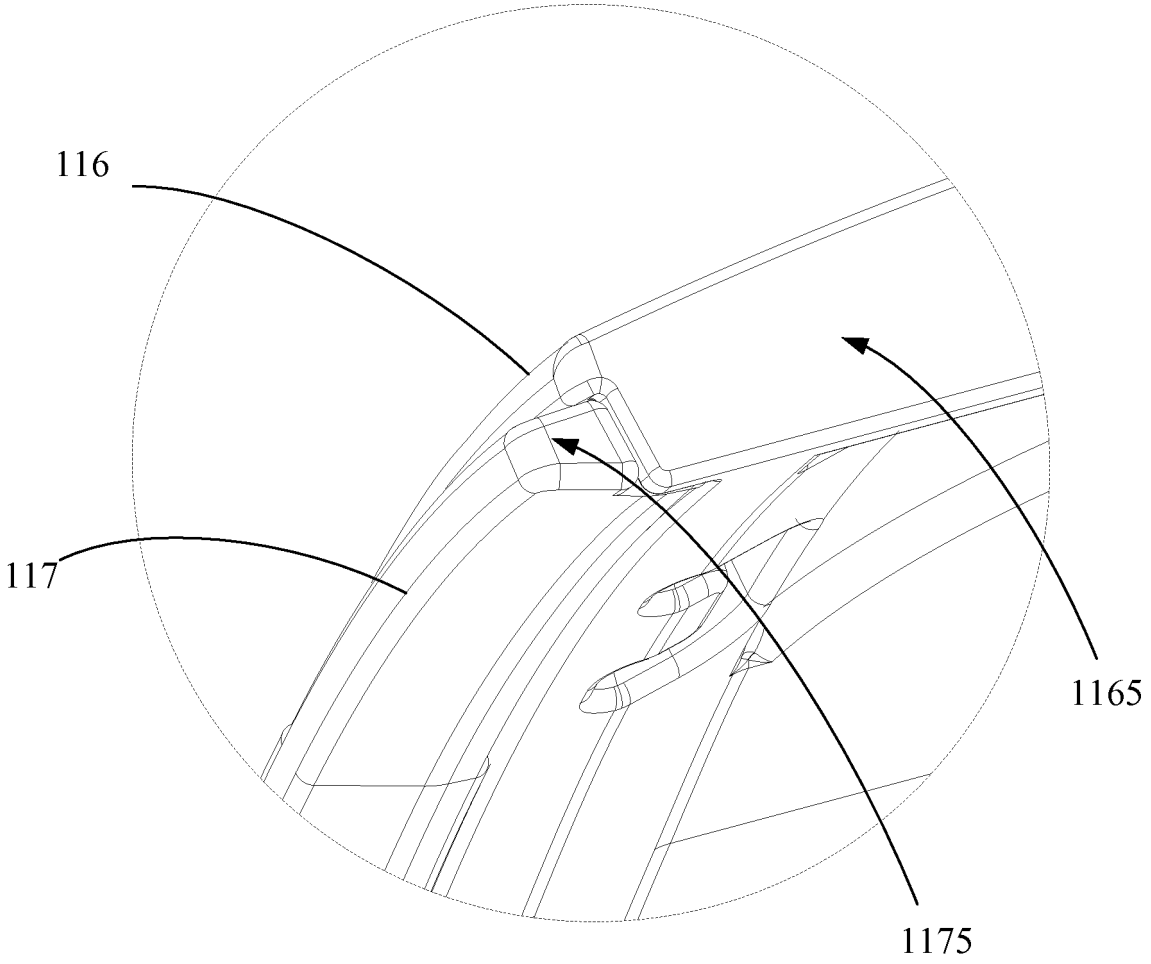

Fig. 31

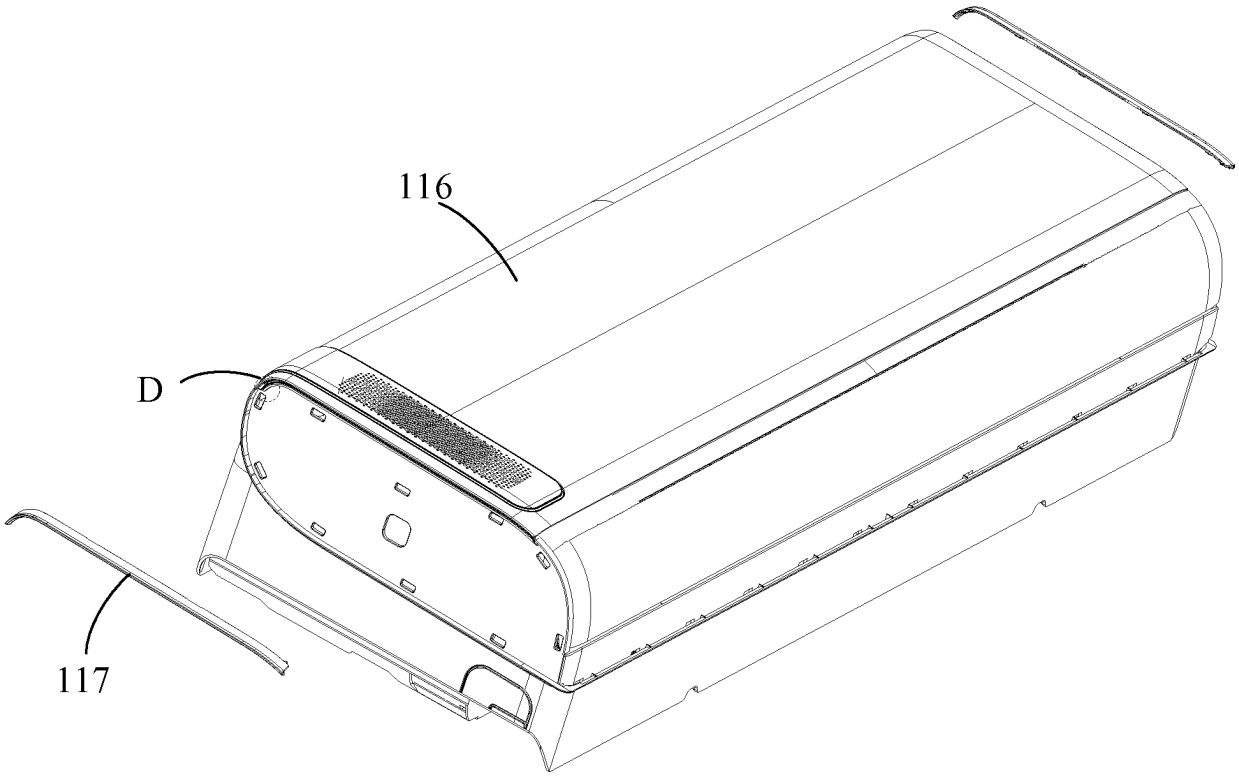

Fig. 32

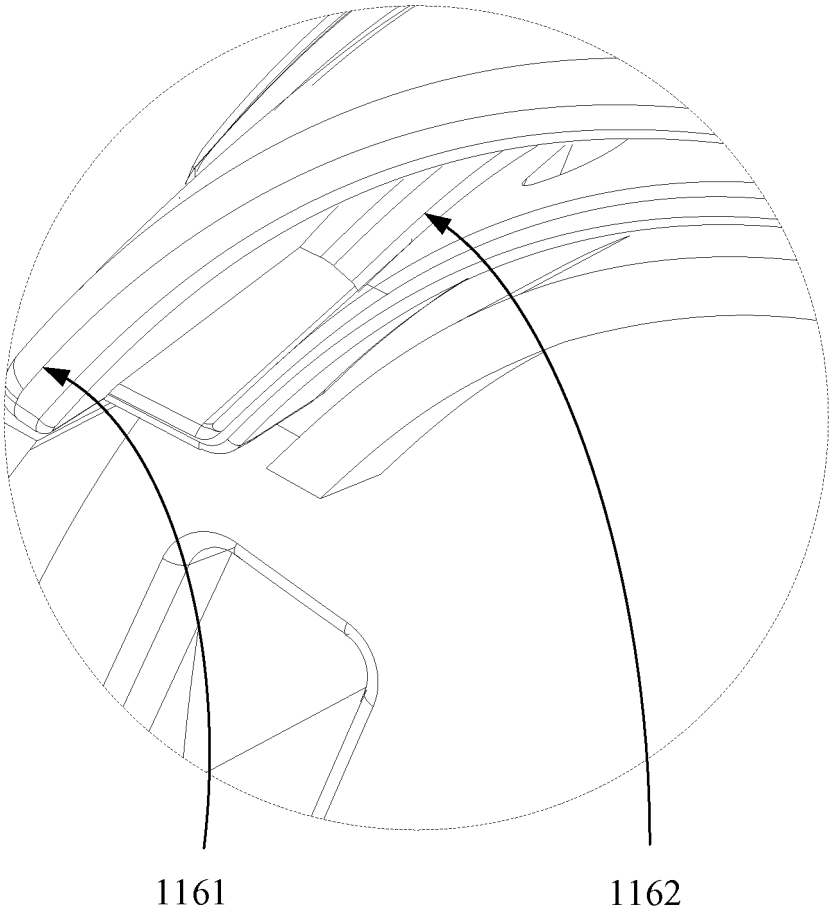

Fig. 33

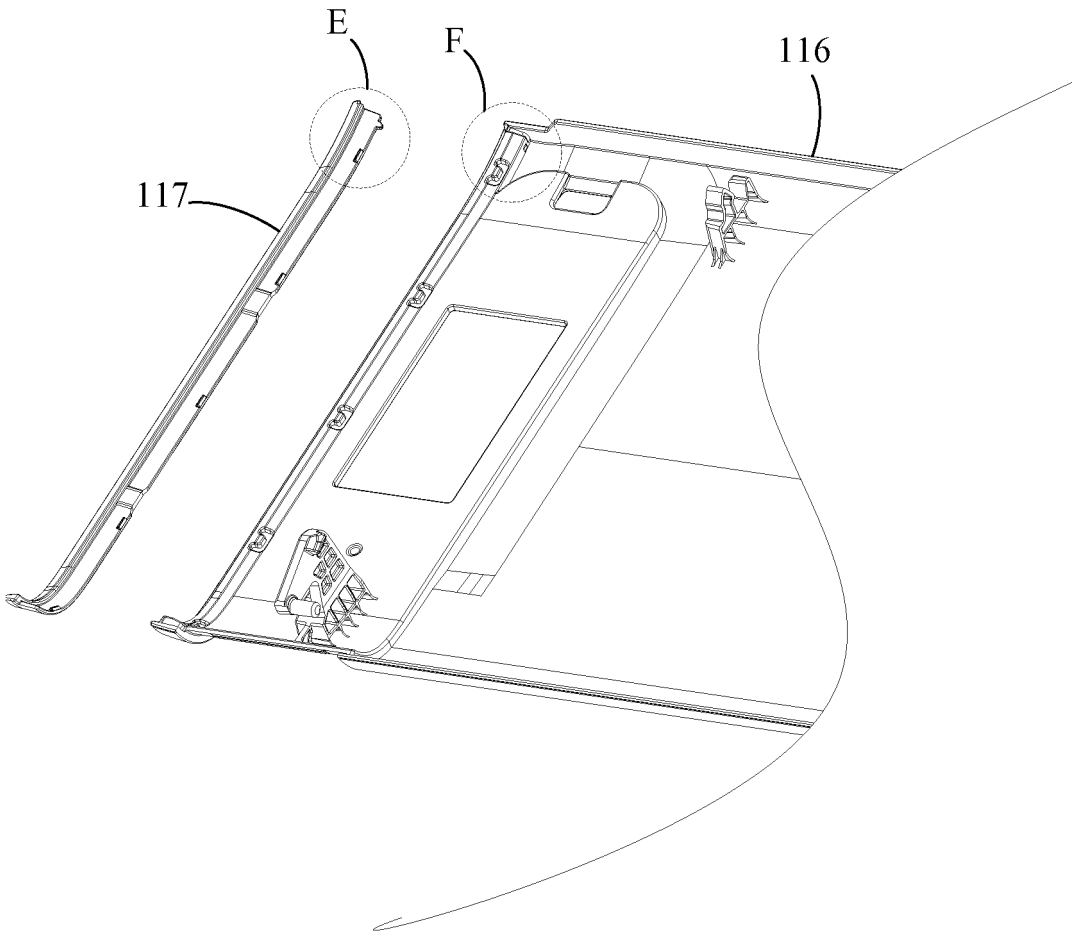

Fig. 34

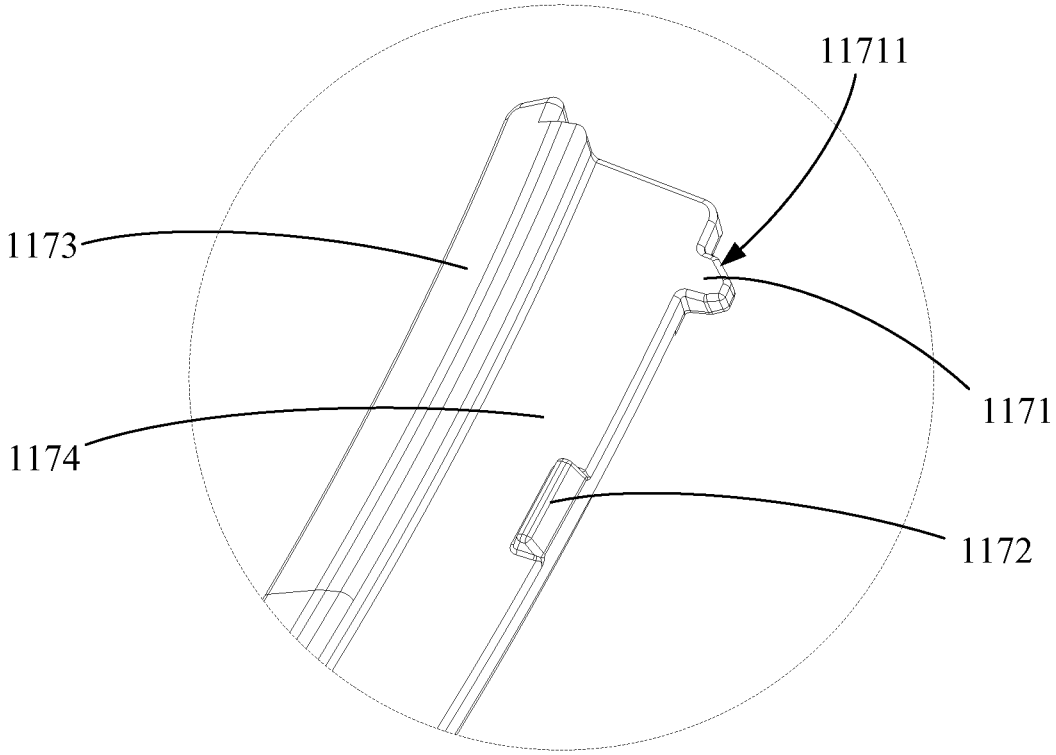

Fig. 35

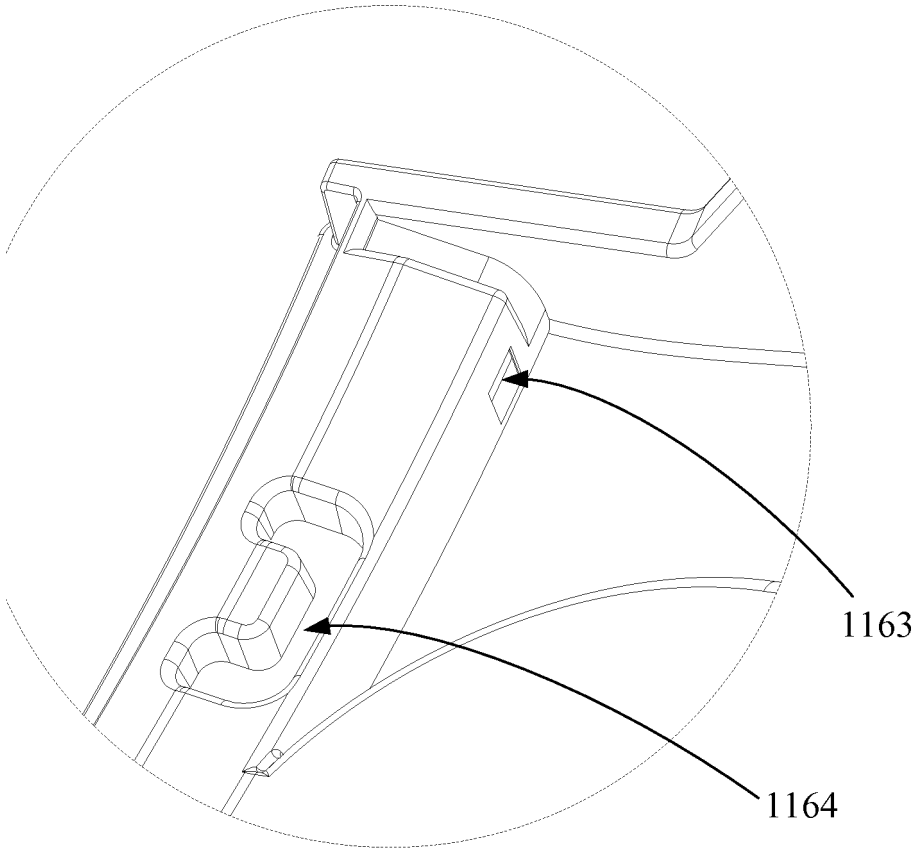

Fig. 36

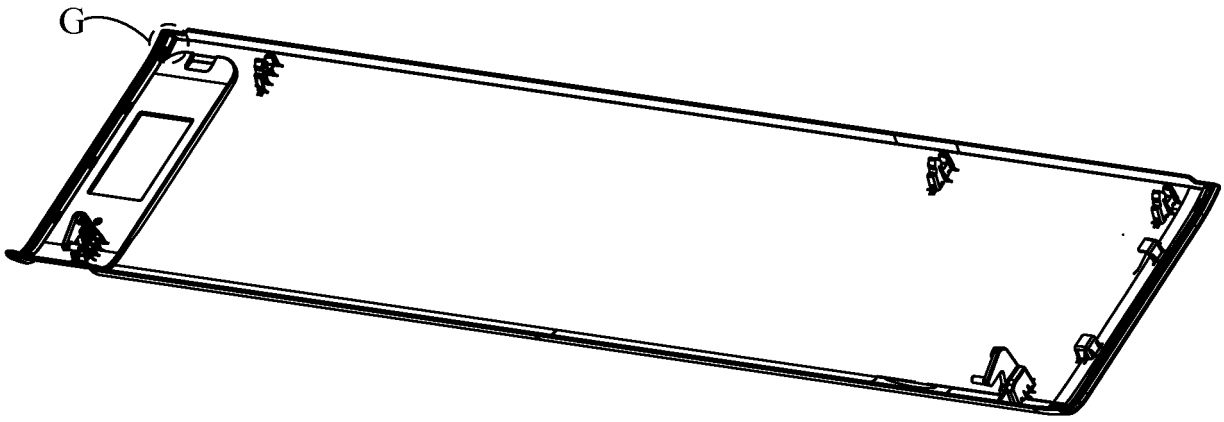

Fig. 37

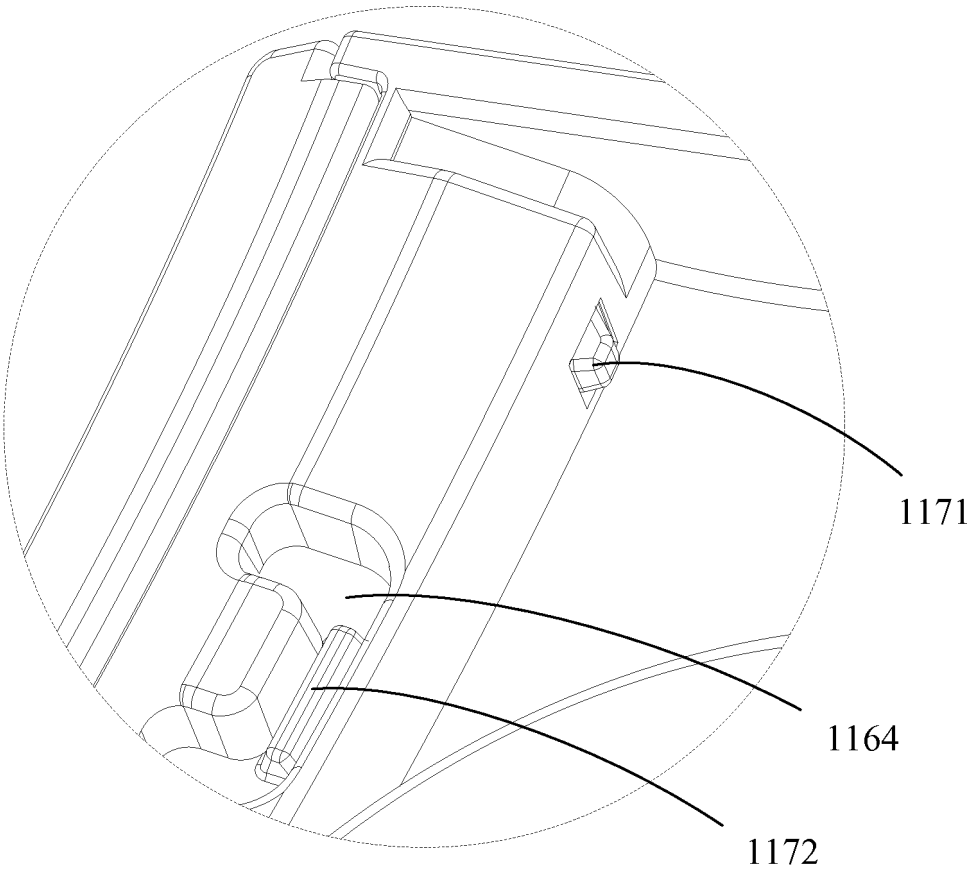

Fig. 38

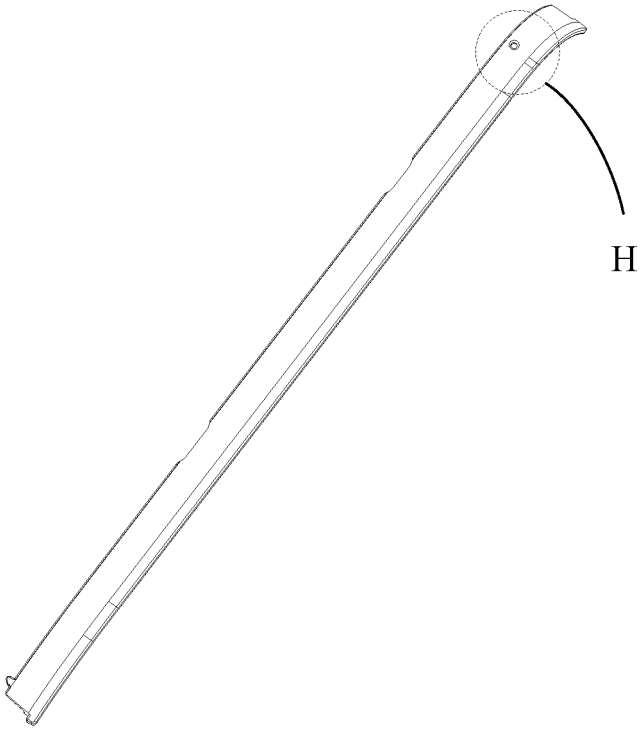

Fig. 39

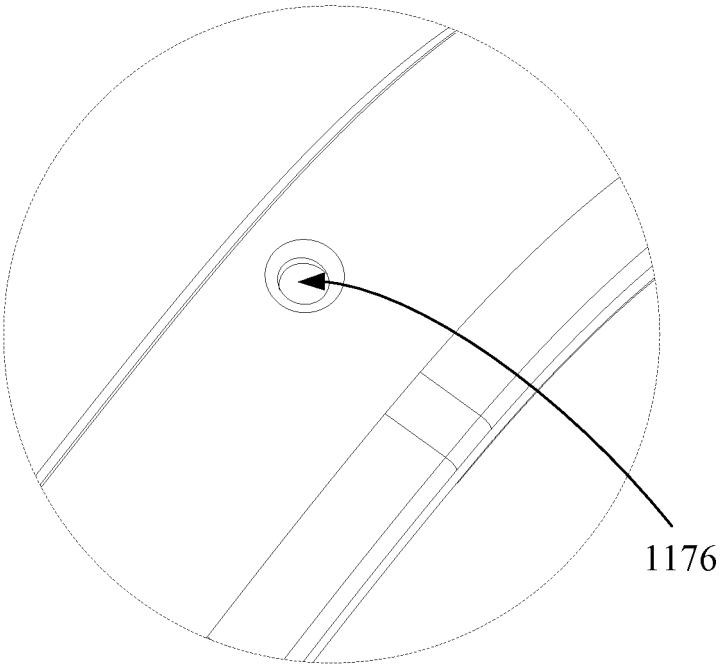

Fig. 40

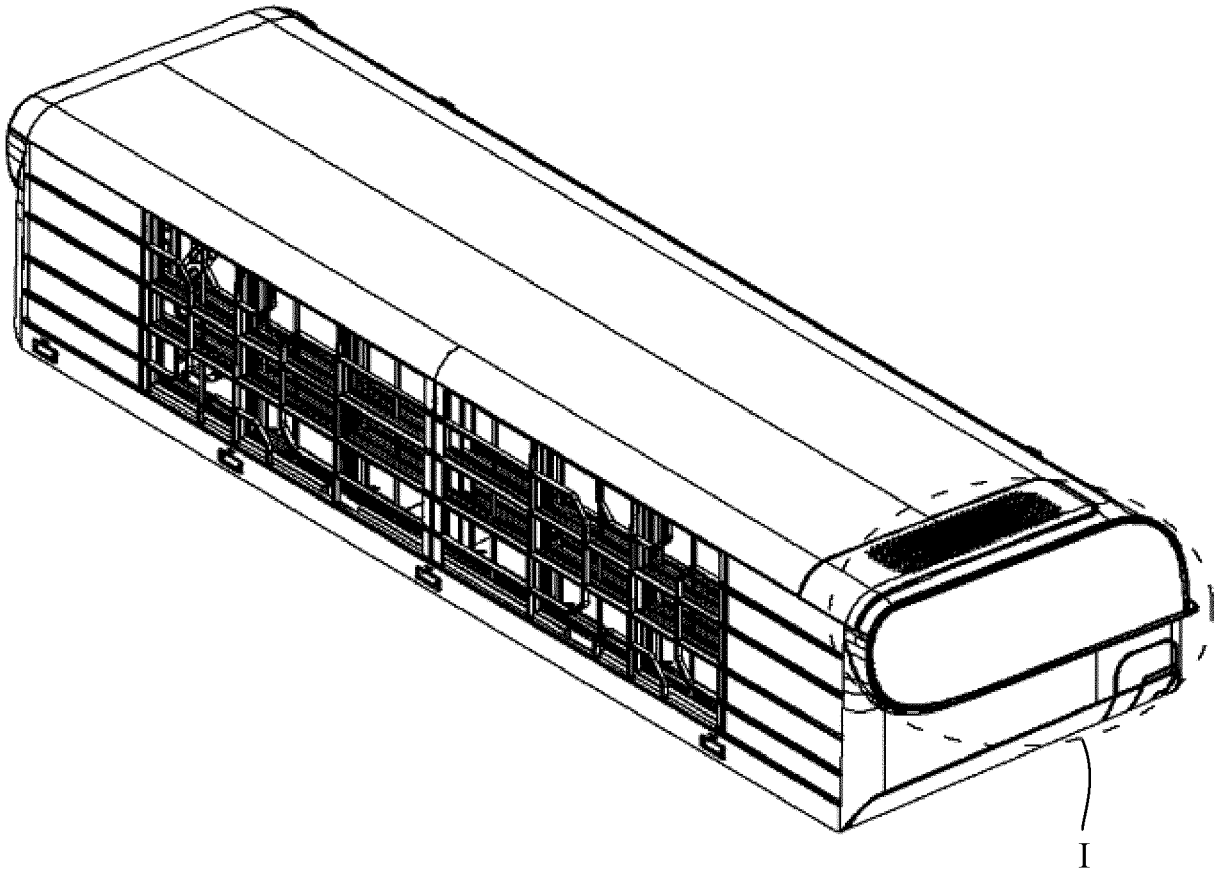

Fig. 41

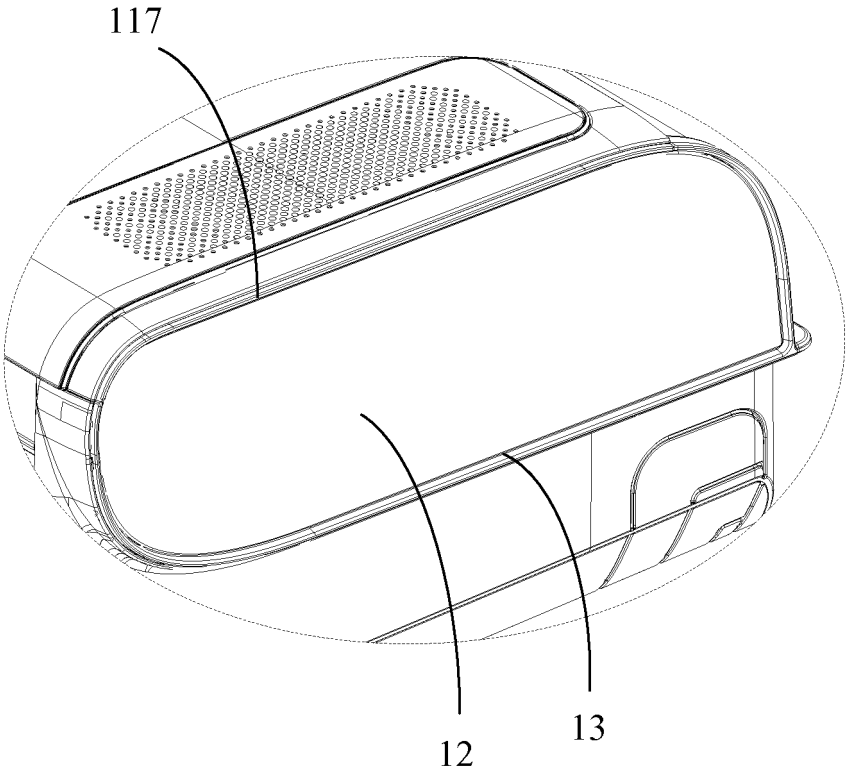

Fig. 42

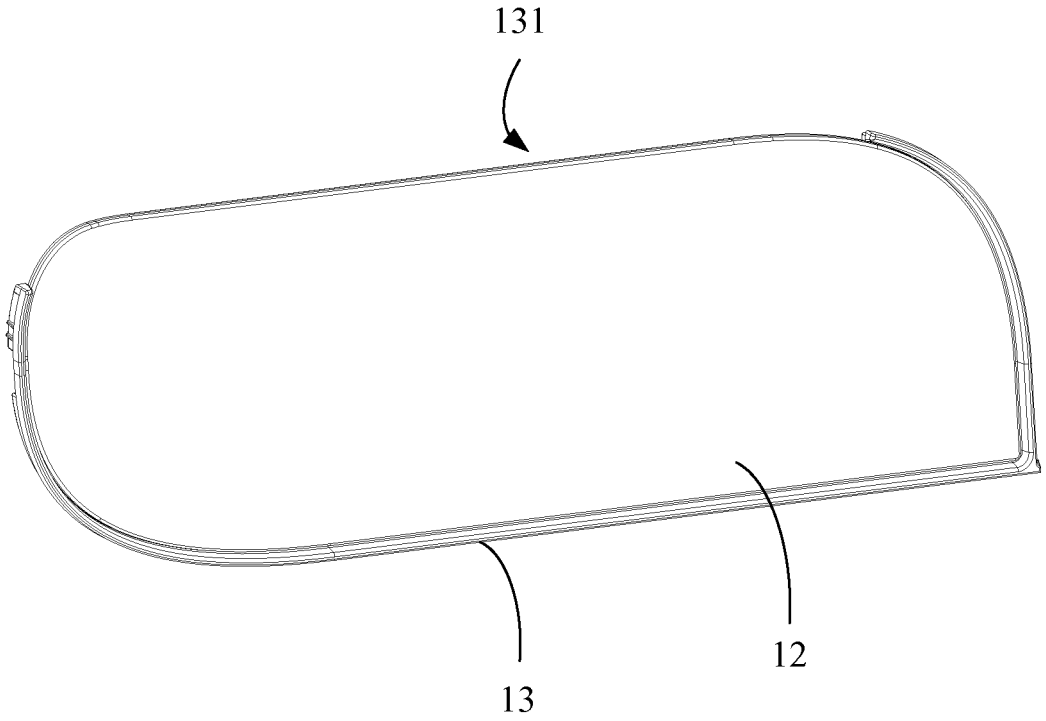

Fig. 43

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2019/112435

A. CLASSIFICATION OF SUBJECT MATTER

F24F 1/0007(2019.01)i; F24F 13/20(2006.01)i

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

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

F24F

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

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

CNABS, CNKI, DWPI, SIPOABS, EPODOC: 室内机, 新风, 出口, 开合, 拆卸, 面板, indoor w unit, indoor w machine, fresh w air, port, open+ w close+, disassembly, panel, plate

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
PX	CN 209181118 U (GD MIDEA AIR-CONDITIONING EQUIPMENT CO., LTD. et al.) 30 July 2019 (2019-07-30) description, paragraphs [0042]-[0071], and figures 1-9	1, 12
PX	CN 109827315 A (GD MIDEA AIR-CONDITIONING EQUIPMENT CO., LTD. et al.) 31 May 2019 (2019-05-31) description, paragraphs [0051]-[0088], and figures 1-27	1, 12
X	CN 109282358 A (GREE ELECTRIC APPLIANCES, INC. OF ZHUHAI) 29 January 2019 (2019-01-29) description, paragraphs [0026]-[0042], and figures 1-3	1, 10-14, 24
Y	CN 109282358 A (GREE ELECTRIC APPLIANCES, INC. OF ZHUHAI) 29 January 2019 (2019-01-29) description, paragraphs [0026]-[0042], and figures 1-3	2-9, 15-23
Y	CN 105865003 A (GREE ELECTRIC APPLIANCES, INC. OF ZHUHAI) 17 August 2016 (2016-08-17) description, paragraphs [0034]-[0046], and figures 1-8	2-9, 15-23
Y	CN 206131375 U (DAIKIN INDUSTRIES, LTD.) 26 April 2017 (2017-04-26) description, paragraphs [0024]-[0042], and figures 1-6	2-9, 15-23

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

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"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
08 January 2020	**17 January 2020**
Name and mailing address of the ISA/CN **China National Intellectual Property Administration (ISA/CN)** **No. 6, Xitucheng Road, Jimenqiao Haidian District, Beijing 100088** **China**	Authorized officer
Facsimile No. **(86-10)62019451**	Telephone No.

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2019/112435

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 2019033610 A1 (GD MIDEA AIR CONDITIONING EQUIPMENT CO., LTD. et al.) 21 February 2019 (2019-02-21) entire document	1-24

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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/CN2019/112435

Patent document cited in search report	Publication date (day/month/year)	Patent family member(s)	Publication date (day/month/year)
CN 209181118 U	30 July 2019	None	
CN 109827315 A	31 May 2019	None	
CN 109282358 A	29 January 2019	None	
CN 105865003 A	17 August 2016	None	
CN 206131375 U	26 April 2017	None	
WO 2019033610 A1	21 February 2019	None	

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REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- CN 201920269177 X **[0001]**
- CN 201920267805 **[0001]**
- WO 201920267805 A **[0009]**
- WO 201920269177 X **[0009]**