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(54) GUIDE RAIL STRUCTURE, SURFACE FRAME ASSEMBLY, SURFACE FRAME, AIR CONDITIONER INDOOR UNIT, AND AIR CONDITIONER

(57) The present disclosure provides a guiding rail structure, a face frame assembly, a face frame, an indoor unit of an air conditioner, and an air conditioner. The guiding rail structure includes a connecting member, a first guiding member, and a second guiding member. The first guiding member is disposed on at least one side of the connecting member, and one end of the first guiding member is arc-shaped. The second guiding member is disposed on at least one side of the connecting member and facing the arc end of the first guiding member. The second guiding member and the first guiding member are cooperated with the connecting member to form a sliding rail, and the guiding rail structure is detachably connected to the face frame.

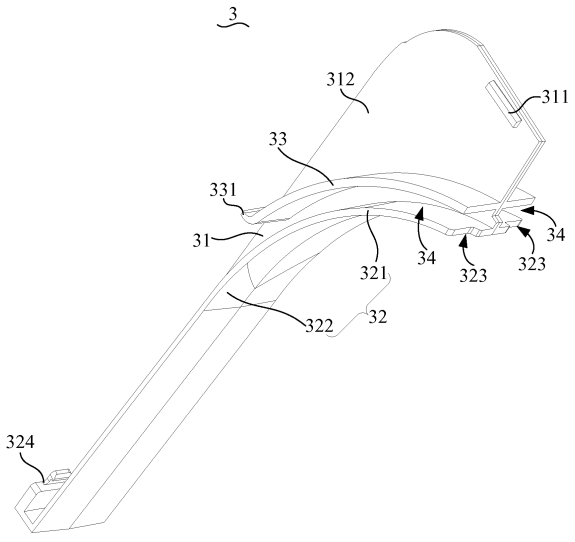

FIG. 1

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Description

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] The present disclosure claims the priorities of Chinese Patent Applications with Nos. 201920267861.4 and 201910159486.6, entitled "GUIDING RAIL STRUCTURE, FACE FRAME ASSEMBLY, FACE FRAME, INDOOR UNIT OF AIR CONDITIONER, AND AIR CONDITIONER", filed on March 3, 2019, which are hereby incorporated by reference in their entirety.

TECHNICAL FIELD

[0002] The present disclosure relates to the technical field of air conditioner, and in particular, to a guiding rail structure and a face frame, a face frame assembly applying the guiding rail structure, an indoor unit of an air conditioner applying the face frame assembly or the face frame, and an air conditioner.

BACKGROUND

[0003] An air conditioner is an appliance that is configured to provide treated air directly to a closed space or area. As people's requirements are highly increasing on environmental comfort degree, the functions of air conditioners are becoming abundant.

[0004] Nowadays, some air conditioners have the function of automatically cleaning the filter screen, while others do not. The face frame of the air conditioner with the above function is normally not provided with a guiding rail structure on which the filter screen is mounted manually. However, the filter screen guiding rail structure of the air conditioner with the function of manually cleaning the filter screen is usually integrally formed with the face frame, the automatic cleaning filter screen assembly cannot be mounted to the filter screen guiding rail structure. As such, the face frames in the two kinds of air conditioners need to be processed by different face frame molds, resulting in low mold utilization rate and complicated production process, further leading to high production cost, and low production efficiency.

SUMMARY

[0005] The main objective of the present disclosure is to provide a guiding rail structure, which aims to solve the problem that a face frame with the function of automatically cleaning the filter screen and another face frame with the function of manually cleaning the filter screen cannot be manufactured by the same mold, for improving the cleaning the filter screen utilization rate, production efficiency, further simplifying the production process and reducing the production cost.

[0006] In order to achieve the above objective, the present disclosure provides a guiding rail structure, detachably connected to a face frame. The guiding rail structure includes:

a connecting member;
a first guiding member, disposed on at least one side of the connecting member, and one end of the first guiding member is arc-shaped; and
a second guiding member, disposed on at least one side of the connecting member and facing the arc end of the first guiding member, the second guiding member and the first guiding member are cooperated with the connecting member to form a sliding rail, and the guiding rail structure is detachably connected to the face frame.

[0007] In an embodiment, the first guiding member includes an arc section facing the second guiding member, and an extension section connected to the arc section, and a distance between the second guiding member and the arc section is constant or substantially constant.

[0008] In an embodiment, a hook is disposed at one end of the extension section away from the arc section, and the extension section is connected to the face frame through the hook; and/or
a limiting groove is defined in one end of the arc section away from the extension section, and the face frame is abutted against and limited in the limiting groove when the guiding rail structure is mounted on the face frame; and/or
at least one protrusion is disposed at one end of the second guiding member away from the extension section, and the second guiding member is clamped to the face frame through the protrusion; and/or
at least one side of the connecting member is provided with a buckle, and the connecting member is clamped to the face frame through the buckle.

[0009] In an embodiment, a guiding portion is disposed at one end of the second guiding member near the extension section, and extended away from the first guiding member.

[0010] In an embodiment, the connecting member includes a first limiting plate corresponding to the arc section, and extended towards a side of the second guiding member opposite to the arc section, and the first limiting plate is abutted against the face frame when the guiding rail structure is mounted on the face frame.

[0011] In an embodiment, the connecting member includes a first limiting plate corresponding to the arc section, and extended towards a side of the arc section opposite to the first guiding member, and a second limiting plate corresponding to the arc section, and extended towards a side of the arc section opposite to the second guiding member. The first limiting plate and/or the second limiting plate further include a limiting platform, and the limiting platform is abutted against the face frame when the guiding rail structure is mounted on the face frame.

[0012] In an embodiment, the first guiding member is one of two first guiding members, and the second guiding member is one of two second guiding members, and the two first guiding members are respectively disposed on opposite sides of the connecting member, and the two second guiding members are respectively disposed on opposite sides of the connecting member.

[0013] In an embodiment, the connecting member, the first guiding member and the second guiding member are integrated with each other.

[0014] The present disclosure further provides a face frame assembly, including a face frame defining an air inlet, an air inlet grille disposed near the air inlet, and a guiding rail structure detachably connected to the air inlet grille and/or the face frame. The guiding rail structure includes:

a connecting member;
a first guiding member, disposed on at least one side of the connecting member, and one end of the first guiding member is arc-shaped; and
a second guiding member, disposed on at least one side of the connecting member and facing the arc end of the first guiding member, the second guiding member and the first guiding member are cooperated with the connecting member to form a sliding rail, and the guiding rail structure is detachably connected to the face frame; and
the connecting member is abutted against an inner surface of the air inlet grille.

[0015] In an embodiment, the face frame further includes a filter screen mounting opening spaced apart from the air inlet, and a supporting member near the filter screen mounting opening. An end of the supporting member near the air inlet is abutted against an end of the first guiding member near the filter screen mounting opening.

[0016] In an embodiment, a limiting protrusion is disposed on the end of the supporting member near the air inlet, the first guiding member defines a limiting groove, and the limiting protrusion is abutted against and limited in the limiting groove.

[0017] In an embodiment, the face frame includes a guiding section near the air inlet and facing the supporting member, and the guiding section is cooperated with the supporting member to form a slide; and an end of the guiding section near the air inlet is abutted against an end of the second guiding member near the filter screen mounting opening, and the sliding rail is in communication with the slide.

[0018] In an embodiment, a guiding protrusion is disposed at an end of the guiding section away from the air inlet, and the guiding protrusion is extended along a direction away from the supporting member.

[0019] In an embodiment, the guiding protrusion and the guiding section have a circular arc transition.

[0020] In an embodiment, the inner surface of the air inlet grille and/or an inner wall of the face frame near the filter screen mounting opening is provided with a plurality of fastening members; and the air inlet grille and/or the face frame is detachably connected to at least one member selected form the connecting member, the first guiding member, or the second guiding member, through the fastening members.

[0021] The present disclosure further provides a face frame, including an air inlet, a filter screen mounting opening, and a filter screen mounting structure. The filter screen mounting structure includes a first mounting structure in the air inlet, and a second mounting structure in the filter screen mounting opening. The first mounting structure is detachably connected to the face frame, and the first mounting structure is cooperated with the second mounting structure to define a sliding groove for mounting the filter screen.

[0022] The present disclosure further provides an indoor unit of an air conditioner, including a chassis, a face frame connected to the chassis and including an air inlet, a guiding rail structure detachably connected to the air inlet grille, and a filter screen. The guiding rail structure includes:

a connecting member;
a first guiding member, disposed on at least one side of the connecting member, and one end of the first guiding member is arc-shaped; and
a second guiding member, disposed on at least one side of the connecting member and facing the arc end of the first guiding member, the second guiding member and the first guiding member are cooperated with the connecting member to form a sliding rail, and the guiding rail structure is detachably connected to the face frame; and

the filter screen is movably mounted on the sliding rail and located near the air inlet.

[0023] The present disclosure further provides an indoor unit of an air conditioner, including a chassis, a face frame assembly connected to the chassis, and a filter screen, the face frame assembly including a face frame defining an air inlet, an air inlet grille disposed near the air inlet, and a guiding rail structure detachably connected to the air inlet grille and/or the face frame. The guiding rail structure includes:

a connecting member;
a first guiding member, disposed on at least one side of the connecting member, and one end of the first guiding member is arc-shaped; and
a second guiding member, disposed on at least one side of the connecting member and facing the arc end of the first guiding member, the second guiding member and the first guiding member are cooperated with the connecting member to form a sliding rail, and the guiding rail structure is detachably connected to the face frame;
the connecting member is abutted against an inner surface of the air inlet grille; and
the chassis is cooperated with the face frame assembly to form a mounting cavity, the guiding rail structure is located in the mounting cavity, and the filter screen is movably mounted on the sliding rail and located near the air inlet.

[0024] The present disclosure further provides an indoor unit of an air conditioner, including a chassis, a face frame connected to the chassis, and a filter screen. The face frame includes a filter screen mounting structure, an air inlet, and a filter screen mounting opening. The filter screen mounting structure includes a first mounting structure in the air inlet and a second mounting structure in the filter screen mounting opening; and the first mounting structure is detachably connected to the face frame, and the first mounting structure is cooperated with the second mounting structure to define a sliding groove for mounting the filter screen; and
the filter screen is movably mounted at the filter screen mounting structure and located near the air inlet.

[0025] The present disclosure further provides an air conditioner, including an outdoor unit and an indoor unit connected to the outdoor unit through a pipeline;
the indoor unit of the air conditioner including a chassis, a face frame connected to the chassis and including an air inlet, a guiding rail structure detachably connected to the air inlet grille, and a filter screen, the guiding rail structure including:

a connecting member;
a first guiding member, disposed on at least one side of the connecting member, and one end of the first guiding member is arc-shaped; and
a second guiding member, disposed on at least one side of the connecting member and facing the arc end of the first guiding member, the second guiding member and the first guiding member are cooperated with the connecting member to form a sliding rail, and the guiding rail structure is detachably connected to the face frame;
the filter screen is movably mounted on the sliding rail and located near the air inlet; or
the indoor unit of the air conditioner including a chassis, a face frame assembly connected to the chassis, and a filter screen, the face frame assembly including a face frame defining an air inlet, an air inlet grille disposed near the air inlet, and a guiding rail structure detachably connected to the air inlet grille and/or the face frame, the guiding rail structure including:

a connecting member;
a first guiding member, disposed on at least one side of the connecting member, and one end of the first guiding member is arc-shaped; and
a second guiding member, disposed on at least one side of the connecting member and facing the arc end of the first guiding member, the second guiding member and the first guiding member are cooperated with the connecting member to form a sliding rail, and the guiding rail structure is detachably connected to the face frame;
the connecting member is abutted against an inner surface of the air inlet grille; and
the chassis is cooperated with the face frame assembly to form a mounting cavity, the guiding rail structure is located in the mounting cavity, and the filter screen is movably mounted on the sliding rail and located near the air inlet; or
the indoor unit of the air conditioner including a chassis, a face frame connected to the chassis, and a filter screen. The face frame includes a filter screen mounting structure, an air inlet, and a filter screen mounting opening, the filter screen mounting structure includes a first mounting structure in the air inlet and a second mounting structure in the filter screen mounting opening; and the first mounting structure is detachably connected to the face frame, and the first mounting structure is cooperated with the second mounting structure to define a sliding groove for mounting the filter screen; and
the filter screen is movably mounted at the filter screen mounting structure and located near the air inlet.

[0026] In the technical solutions of the present disclosure, the guiding rail structure is applied to the face frame. By providing the guiding rail structure as a separate component that is detachably mounted on the face frame, the face frame manufactured by the same face frame mold can be set as an automatic cleaning filter screen air conditioner or as a manual cleaning filter screen air conditioner, improving the utilization rate and production efficiency of the face frame mold, simplifying the production process, and reducing the production cost. Further, the guiding rail structure includes a connecting member, a first guiding member, and a second guiding member. The first guiding member is facing the second guiding member, and the first guiding member is cooperated with the second guiding member to form the sliding rail. When the guiding rail structure is mounted on the face frame, it is advantageous for mounting the filter screen on the face frame or detaching the filter screen from the face frame through the sliding rail. Further, the guiding rail structure is detachably connected to the face frame through the connecting member and/or the first guiding member and/or the second guiding member, which facilitates the quick and stable disassembly and assembly of the guiding rail structure.

BRIEF DESCRIPTION OF THE DRAWINGS

[0027] In order to more clearly illustrate the embodiments of the present disclosure or the technical solutions in the related art, the drawings used in the embodiments or the related art will be briefly described below. Obviously, the drawings in the following description are only some embodiments of the present disclosure. It will be apparent to those skilled in the art that other figures can be obtained from the structures illustrated in the drawings without the inventive effort.

FIG. 1 is a schematic structural view of a guiding rail structure according to an embodiment of the present disclosure;
FIG. 2 is a schematic structural view of the guiding rail structure according to another embodiment of the present disclosure;
FIG. 3 is a schematic structural view of the guiding rail structure according to still another embodiment of the present disclosure;
FIG. 4 is a schematic structural view of a face frame assembly according to an embodiment of the present disclosure;
FIG. 5 is an enlarged view of portion A in FIG. 4;
FIG. 6 is an enlarged view of portion B in FIG. 4;
FIG. 7 is a schematic structural view of the face frame assembly from another perspective according to an embodiment of the present disclosure;
FIG. 8 is an enlarged view of portion C in FIG. 7;
FIG. 9 is an enlarged view of portion D in FIG. 7;
FIG. 10 is an enlarged view of portion E in FIG. 7;
FIG. 11 is a schematic structural view of a face frame according to an embodiment of the present disclosure;
FIG. 12 is an enlarged view of portion F in FIG. 11;
FIG. 13 is an enlarged view of portion G in FIG. 11;
FIG. 14 is a schematic structural view of an indoor unit of an air conditioner according to an embodiment of the present disclosure;
FIG. 15 is a schematic structural view of the indoor unit of the air conditioner according to another embodiment of the present disclosure; and
FIG. 16 is a partial structural schematic view of the indoor unit of the air conditioner in FIG. 15.

Description of reference numerals:

Label	Name	Label	Name
100	Face frame assembly	313	Second limiting plate
1	Face frame	314	Limiting platform
11	Air inlet	32	First guiding member
12	Filter screen mounting opening	321	Arc section
13	Supporting member	322	Extension section
131	Limiting protrusion	323	Limiting groove
14	Guiding section	324	Hook
141	Guiding protrusion	33	Second guiding member

(continued)

Label	Name	Label	Name
15	Slide	331	Guiding portion
16	Baffle	34	Sliding rail
2	Air inlet grille	500	Filter screen
21	Fastening member	510	Limiting baffle
3	Guiding rail structure	600	Chassis
31	Connecting member	700	Cleaning assembly
311	Buckle	800	Indoor unit of an air conditioner
312	First limiting plate		

[0028] The realization of the objective, functional characteristics, advantages of the present disclosure are further described with reference to the accompanying drawings.

DETAILED DESCRIPTION OF THE EMBODIMENTS

[0029] The technical solutions of the embodiments of the present disclosure will be clearly and completely described in the following with reference to the accompanying drawings. It is obvious that the embodiments to be described are only a part rather than all of the embodiments of the present disclosure. All other embodiments obtained by persons skilled in the art based on the embodiments of the present disclosure without creative efforts shall fall within the protection scope of the present disclosure.

[0030] It is to be understood that, all of the directional instructions in the embodiments of the present disclosure (such as top, bottom, left, right, front, rear...) can only be used for explaining relative position relations, moving condition of the elements under a special form (referring to figures), and so on, if the special form changes, the directional instructions changes accordingly.

[0031] Besides, the meaning of "and/or" appearing in the full text includes three schemes. Take "A and/or B" as an example, including the A scheme, or the B scheme, or the scheme in which both A and B are simultaneously satisfied.

[0032] In addition, the descriptions, such as the "first", the "second" in the present disclosure, can only be used for describing the aim of description, and cannot be understood as indicating or suggesting relative importance or impliedly indicating the number of the indicated technical character. Therefore, the character indicated by the "first", the "second" can express or impliedly include at least one character. Besides, the technical solution of each embodiment can be combined with each other, however the technical solution must base on that the ordinary skill in that art can realize the technical solution, when the combination of the technical solutions is contradictory or cannot be realized, it should consider that the combination of the technical solutions does not exist, and is beyond the protection scope of the present disclosure.

[0033] The present disclosure provides a guiding rail structure 3, detachably connected to a face frame assembly 100. In the present disclosure, the face frame assembly 100 includes a face frame 1. The face frame 1 may automatically clean the filter screen air conditioner or manually clean the filter screen air conditioner. Specially, the face frame 1 has a frame structure or a cover structure, and the face frame 1 includes an air inlet 11, and the face frame assembly 100 further includes an air inlet grille 2, and the air inlet grille 2 is disposed near the air inlet 11. The air inlet grille 2 and the face frame 1 may also be arranged separately, that is, the air inlet grille 2 is detachably connected to the air inlet 11 of the face frame 1, for example, a detachable connection manner such as a snap connection, a plug fit, a screw connection, or a pin connection is used, which is not limited herein.

[0034] Referring to FIG. 1, FIG. 2, FIG. 3, FIG. 5, FIG. 6, FIG. 8, FIG. 9 and FIG. 10, in the embodiments of the present disclosure, the guiding rail structure includes a connecting member 31, a first guiding member 32, and a second guiding member 33. The first guiding member 32 is disposed on at least one side of the connecting member 31, and one end of the first guiding member 32 is arc-shaped. The second guiding member 33 is disposed on at least one side of the connecting member 31 and facing the arc end of the first guiding member 32. The second guiding member 33 and the first guiding member 32 are cooperated with the connecting member 31 to form a sliding rail 34, and the guiding rail structure 3 is detachably connected to the face frame 1.

[0035] It should be understood that the detachable connection manner of the guiding rail structure 3 and the face frame 1 may be a snap connection, a plug fit, a screw connection or a pin connection. That is, the guiding rail structure 3 is detachably connected to the face frame 1 through the connecting member 31 and/or the first guiding member 32

and/or the second guiding member 33. The connecting member 31 and the first guiding member 32 and the second guiding member 33 as a whole are detachably connected to the face frame 1. In the present embodiment, the connecting member 31 may be a plate-like structure or a block-like structure, and the connecting member 31 functions as a mounting, fixing, supporting, and connecting. When the guiding rail structure 3 is mounted on the face frame 1, in order to prevent the connecting member 31 from affecting the amount of air entering the air inlet 11, optionally, the connecting member 31 is a plate-like structure. At the air inlet 11 of the face frame 1, the extending direction of the connecting member 31 is the same as the air inlet direction of the air inlet 11. That is, the thickness direction of the connecting member 31 is perpendicular to the air inlet direction.

[0036] Specially, in order to match the shape of the guiding rail structure 3 with the shape of the air inlet 11 of the face frame 1, the shape contour of the connecting member 31 is the same as that of the air inlet 11 of the face frame 1, that is, when the guiding rail structure 3 is mounted in the air inlet 11 of the face frame 1, the connecting member 31 is abutted against the inner wall of the face frame 1 and/or the air inlet grille. In order to facilitate the installation of the filter screen 500, a mounting space is defined between the first guiding member 32 and the inner wall of the face frame 1 and/or the air inlet grille. When the filter screen 500 is received in the mounting space, both sides of the filter screen 500 may be abutted against the first guiding member 32, the inner wall of the face frame 1 and/or the air inlet grille.

[0037] It should be understood that one end of the first guiding member 32 is arranged in an arc shape, which is advantageous for the same contour shape as the inner wall of the face frame 1 and/or the air inlet grille, such that the mounting of the guiding rail structure 3 to the air inlet 11 of the face frame 1 does not affect the installation of other components of the air conditioner. In order to smoothly install the filter screen 500 in the mounting space, the second guiding member 33 is facing the arc end of the first guiding member 32, the second guiding member 33 and the first guiding member 32 are cooperated with the connecting member 31 to form the sliding rail 34. This facilitates the movement of the filter screen 500 into or out of the mounting space through the sliding rail 34, thereby improving the installation efficiency.

[0038] In the present embodiment, the arc-shaped structure of the second guiding member 33 is similar to the arc-shaped structure of the first guiding member 32, that is, the second guiding member 33 has the same bending curvature as the first guiding member 32, that is to say, the distance between the respective corresponding points between the second guiding member 33 and the first guiding member 32 is constant or substantially constant. It should be understood that the arrangement of the second guiding member 33 is advantageous for guiding the filter screen 500. During the installation of the filter screen 500 in the mounting space, the filter screen 500 is prevented from being caught or caught at the bent corner of the face frame 1.

[0039] In the present embodiment, depending on the different mounting position of the guiding rail structure 3 at the air inlet 11 of the face frame 1, the number of the first guiding member 32 and the second guiding member 33 disposed on the opposite side surfaces of the connecting member 31 is different. As shown in FIG. 1, FIG. 5 and FIG. 9, when the guiding rail structure 3 is installed in the middle of the air inlet 11 of the face frame 1, the two first guiding members 32 are respectively disposed on opposite sides of the connecting member 31, and the two second guiding members 33 are respectively disposed on opposite sides of the connecting member 31. At this time, the first guiding member 32 on one side of the connecting member 31 and the first guiding member 32 on the other side are disposed correspondingly, the second guiding member 33 on one side of the connecting member 31 and the second guiding member 33 on the other side are disposed correspondingly. As shown in FIG. 2, FIG. 3, FIG. 6, FIG. 8 and FIG. 10, when the guiding rail structure 3 is mounted at the left end or the right end of the air inlet 11 of the face frame 1, the first guiding member 32 and the second guiding member 33 are disposed on only one side of the connecting member 31.

[0040] In the present embodiment, one guiding rail structure 3, two guiding rail structures 3 or three guiding rail structures 3 are detachably mounted in the air inlet 11 of the face frame 1. It can be understood that when the one guiding rail structure 3 is detachably mounted in the air inlet 11 of the face frame 1, a first guiding member 32 and a second guiding member 33 are disposed on opposite side surfaces of the connecting member 31 of the guiding rail structure 3, that is, the opposite side surfaces of the connecting member 31 are both formed with a sliding rail 34. At this time, the left end or the right end of the air inlet 11 on the face frame 1 is formed with a filter screen sliding rail integrally disposed on the face frame 1. The filter screen sliding rail is cooperated with the sliding rail 34 to mount the filter screen 500. When the two guiding rail structures 3 are detachably mounted in the air inlet 11 of the face frame 1, that is, the guiding rail structure 3 is mounted at the left end and the right end of the air inlet 11 of the face frame 1, one side surface of the connecting member 31 in each of the guiding rail structures 3 is provided with a first guiding member 32 and a second guiding member 33. At this time, the sliding rails 34 of the two guiding rail structures 3 are oppositely disposed, and the two sliding rails 34 of the two guiding rail structure 3 opposite to each other are cooperated with the filter screen 500. When the three guiding rail structures 3 are detachably mounted in the air inlet 11 of the face frame 1, as shown in FIG. 4 and FIG. 7, the middle, left end and right end of the air inlet 11 of the face frame 1 are all provided with the guiding rail structure 3. The opposite side surfaces of the connecting member 31 of the guiding rail structure 3 mounted at the middle of the air inlet 11 of the face frame 1 is provided with a first guiding member 32 and a second guiding member 33, that is, the opposite side surfaces of the connecting member 31 are both provided with the sliding

rails 34. The opposite side surfaces of the connecting member 31 of the guiding rail structure 3 mounted at the left end and the right end of the air inlet 11 of the face frame 1 is provided with a first guiding member 32 and a second guiding member 33. At this time, the sliding rail 34 of the guiding rail structure 3 mounted at the left end of the air inlet 11 of the face frame 1 is cooperated with the sliding rail 34 on the side of the connecting member 31 of the guiding rail structure 3 mounted at the middle of the air inlet 11 of the face frame 1 to mount the filter screen 500, and the sliding rail 34 of the guiding rail structure 3 mounted at the right end of the air inlet 11 of the face frame 1 is cooperated with the sliding rail 34 on the another side of the connecting member 31 of the guiding rail structure 3 mounted at the middle of the air inlet 11 of the face frame 1 to mount the filter screen 500, thereby reducing the length of the filter screen 500, and avoiding the problem that the filter screen 500 is too long to cause inconvenience for disassembly and assembly.

[0041] The guiding rail structure 3 of the present disclosure is applied to the face frame 1, by providing the guiding rail structure 3 as a separate component that is detachably mounted on the face frame 1, the face frame 1 manufactured by the same face frame 1 mold can be set as an automatic cleaning filter screen air conditioner or as a manual cleaning filter screen air conditioner, improving the utilization rate and production efficiency of the face frame 1 mold, simplifying the production process, and reducing the production cost. In an embodiment, the guiding rail structure 3 includes a connecting member 31, a first guiding member 32, and a second guiding member 33. The first guiding member 32 is facing the second guiding member 33, and the first guiding member 32 is cooperated with the second guiding member 33 to form the sliding rail 34. When the guiding rail structure 3 is mounted on the face frame 1, it is advantageous for mounting the filter screen 500 on the face frame 1 or detach the filter screen 500 from the face frame 1 through the sliding rail 34. In an embodiment, the guiding rail structure 3 is detachably connected to the face frame 1 through the connecting member 31 and/or the first guiding member 32 and/or the second guiding member 33, which facilitates the quick and stable disassembly and assembly of the guiding rail structure 3.

[0042] In an embodiment, as shown in FIG. 1, FIG. 2 and FIG. 3, in the present embodiment, the first guiding member 32 includes an arc section 321 and an extension section 322 connected to the arc section 321. The second guiding member 33 is facing the arc section 321, and the distance between the second guiding member 33 and the arc section 321 is constant or substantially constant.

[0043] It should be understood that the extension section 322 of the first guiding member 32 and the inner wall of the air inlet grille 2 at the air inlet 11 of the face frame 1 define a sliding rail or a mounting space to mount the filter screen 500. The arc section 321 of the first guiding member 32 and the second guiding member 33 are arranged to be cooperated with the shape contour of the face frame 1 to realize the guiding installation of the filter screen 500. That is, the arc section 321 of the first guiding member 32 is cooperated with the second guiding member 33 to form the sliding rail 34. When the filter screen 500 is mounted, the filter screen 500 enters the sliding rail or the mounting space defined by the extension section 322 and the inner wall of the air inlet grille 2 through the sliding rail 34 formed by the cooperation of the arc section 321 and the second guiding member 33; when the screen 500 is disassembled, the filter screen 500 moves out of the sliding rail or the mounting space defined by the extension section 322 and the inner wall of the air inlet grille 2 through the sliding rail 34 formed by the cooperation of the arc section 321 and the second guiding member 33.

[0044] In other embodiments, the shape, length structure and contour of the second guiding member 33 are the same as the shape, length structure and contour of the first guiding member 32. Thus, the sliding rail 34 formed between the first guiding member 32 and the second guiding member 33 is directly disposed to mount the filter screen 500. Therefore, the wear of the inner wall of the air inlet 11 of the face frame 1 during the installation of the filter screen 500 can be effectively avoided.

[0045] In an embodiment, as shown in FIG. 1, FIG. 2, FIG. 3, FIG. 5, FIG. 6, FIG. 8, FIG. 9 and FIG. 10, in the present embodiment, a hook 324 is disposed at one end of the extension section 322 away from the arc section 321, and the extension section 322 is connected to the face frame 1 through the hook 324.

[0046] It should be understood that a hook 324 is disposed at one end of the extension section 322, a structure matching with the hook 324 is disposed on the air inlet grille 2 at the air inlet 11 of the face frame 1, such as a slot or a hole, such that the guiding rail structure 3 is effectively connected to the face frame 1 to realize the detachable connection between the guiding rail structure 3 and the face frame 1, thereby improving disassembly and assembly efficiency and ease of assembly and disassembly. In other embodiments, the detachable connection between one end of the extension section 322 and the inner wall of the air inlet grille 2 and/or the face frame 1 is exemplified by a snap connection, a plug fit or a screw connection, and is not limited herein.

[0047] In an embodiment, as shown in FIG. 1, FIG. 5 and FIG. 9, in the present embodiment, a limiting groove 323 is disposed at one end of the arc section 321 away from the extension section 322. When the guiding rail structure 3 is mounted on the face frame 1, the limiting groove 323 is abutted against the face frame 1. It should be understood that a limiting groove 323 is disposed at one end of the arc section 321, such that the positioning of the guiding rail structure 3 and the face frame 1 is facilitated, and the stability of the guiding rail structure 3 mounted on the face frame 1 is also facilitated.

[0048] In order to further improve the stability of the guiding rail structure 3 mounted on the face frame 1, in the present embodiment, at least one protrusion is disposed at one end of the second guiding member 33 away from the extension

section 322, and the second guiding member 33 is connected to the face frame 1 through the protrusion. It should be understood that a structure matching with the protrusion is disposed on the inner wall at the air inlet 11 of the face frame 1, such as a slot or a hole, the protrusion of the second guiding member 33 is cooperated with the slot or the hole at the air inlet 11 of the face frame 1, such that the guiding rail structure 3 is effectively connected to the face frame 1 to realize the detachable connection between the guiding rail structure 3 and the face frame 1, thereby improving disassembly and assembly efficiency and ease of assembly and disassembly.

[0049] In an embodiment, as shown in FIG. 1, FIG. 2, FIG. 3, FIG. 5, FIG. 6, FIG. 8, FIG. 9 and FIG. 10, in the present embodiment, at least one side of the connecting member 31 is provided with a buckle 311, and the connecting member 31 is connected to the face frame 1 through the buckle 311.

[0050] It should be understood that the buckle 311 is disposed on the connecting member 31, a structure matching with the buckle 311 is disposed on the inner wall at the air inlet 11 of the face frame 1 and/or the air inlet grille 2, such as a slot or a hole, the buckle 311 on the connecting member is cooperated with the inner wall at the air inlet 11 of the face frame 1 and/or the air inlet grille 2, such that the guiding rail structure 3 is effectively connected to the face frame 1 to realize the detachable connection between the guiding rail structure 3 and the face frame 1, thereby improving disassembly and assembly efficiency and ease of assembly and disassembly. In other embodiments, the detachable connection between the connecting member 31 and the inner wall of the air inlet grille 2 and/or the face frame 1 is exemplified by a snap connection, a plug fit or a screw connection, and is not limited herein.

[0051] In an embodiment, as shown in FIG. 1, FIG. 2, FIG. 5, FIG. 6, FIG. 8, and FIG. 9, in the present embodiment, a guiding portion 331 is disposed at one end of the second guiding member 33 near the extension section 322, and the guiding portion 331 is extended away from the first guiding member 32.

[0052] It should be understood that the guiding portion 331 has a structure that is lifted on the second guiding member 33, that is, the guiding portion 331 is arranged in an arc shape. When the guiding rail structure 3 is mounted in the air inlet 11 of the face frame 1, the end of the guiding portion 331 away from the second guiding member 33 is abutted against the inner wall of the face frame 1 or the inner wall of the air inlet grille 2. Thus, the rail guiding surface can be effectively formed, and the through hole on the filter screen 500 is prevented from being caught by the end of the second guiding member 33 when the filter screen 500 slides along the sliding rail 34, which facilitates the smooth installation and disassembly of the filter screen 500.

[0053] In an embodiment, as shown in FIG. 1, FIG. 5 and FIG. 9, in the present embodiment, the connecting member 31 corresponding to the arc section 321 is formed with a first limiting plate 312, and the first limiting plate 312 extends towards a side of the second guiding member 33 away from the arc section 321. When the guiding rail structure 3 is mounted on the face frame 1, the first limiting plate 312 is abutted against the face frame 1.

[0054] It should be understood that the arrangement of the first limiting plate 312 is beneficial to abut against the inner wall of the face frame 1 to achieve a stop and seal the space on both sides of the first limiting plate 312; on the other hand, it is advantageous to abut against the inner wall of the face frame 1 to improve the mounting stability of the guiding rail structure 3.

[0055] As shown in FIG. 2, FIG. 3, FIG. 6, FIG. 8 and FIG. 10, in the present embodiment, the connecting member 31 corresponding to the arc section 321 is formed with a first limiting plate 312 and a second limiting plate 313. The first limiting plate 312 extends towards the side of the arc section 321 away from the first guiding member 32. The second limiting plate 313 extends towards the side of the arc section 321 away from the second guiding member 33. The first limiting plate 312 and/or the second limiting plate 313 are further provided with a limiting platform 314. When the guiding rail structure 3 is mounted on the face frame 1, the limiting platform 314 is abutted against the face frame 1.

[0056] It should be understood that the arrangement of the first limiting plate 312 and the second limiting plate 313 is beneficial to abut against the inner wall of the face frame 1 to achieve a stop and seal the space on both sides of the first limiting plate 312; on the other hand, it is advantageous to abut against the inner wall of the face frame 1 to improve the mounting stability of the guiding rail structure 3. Specially, as shown in FIG. 6, FIG. 8, FIG. 10 and FIG. 11, a baffle 16 is protruded from the inner wall of the face frame 1. When the guiding rail structure 3 is mounted on the face frame 1, the first limiting plate 312 is abutted against the inner wall of the face frame 1, and the second limiting plate 313 is abutted against the baffle 16 of the face frame 1.

[0057] In an embodiment, as shown in FIG. 1, FIG. 2 and FIG. 3, in the present embodiment, the connecting member 31, the first guiding member 32 and the second guiding member 33 are integrated with each other. It should be understood that the connecting member 31, the first guiding member 32 and the second guiding member 33 of the guiding rail structure 3 are integrated with each other, which effectively improves the processing and production efficiency of the guiding rail structure 3, and also improves the strength of the guiding rail structure 3.

[0058] As shown in FIG. 14, FIG. 15 and FIG. 16, the present disclosure further provides an indoor unit of an air conditioner 800, including a chassis 600, a face frame 1 connected to the chassis 600, at least one of the above-mentioned guiding rail structure 3 and a filter screen 500. The specific structure of the guiding rail structure 3 is referred to the above embodiments. Since the indoor unit of the air conditioner 800 adopts all the technical solutions of all the above embodiments, at least the effects brought by the technical solutions of the foregoing embodiments are not described

herein.

[0059] Specially, the face frame 1 includes an air inlet 11. The guiding rail structure 3 is detachably connected to the air inlet 11, and the filter screen 500 is movably mounted on the sliding rail 34 and located near the air inlet 11.

[0060] As shown in FIG. 4 and FIG. 7, the present disclosure further provides a face frame assembly 100, including a face frame 1, an air inlet grille 2, and at least one of the above-mentioned guiding rail structure 3. The specific structure of the guiding rail structure 3 is referred to the above embodiments. Since the face frame assembly 100 adopts all the technical solutions of all the above embodiments, at least the effects brought by the technical solutions of the foregoing embodiments are not described herein.

[0061] In the present embodiment, as shown in FIG. 4, FIG. 7 and FIG. 11, the face frame 1 includes an air inlet 11, and the air inlet grille 2 is provided at the air inlet 11. The air inlet grille 2 may be integrally formed with the face frame 1, that is, the air inlet grille 2 has a plurality of through holes, and the plurality of through holes form the air inlet 11. The air inlet grille 2 and the face frame 1 may also be arranged separately, that is, the air inlet grille 2 is detachably connected to the air inlet 11 of the face frame 1, for example, by a detachable connection such as a snap connection, a plug fit, a screw connection, or a pin connection. The air inlet grille 2 is fixedly connected to the air inlet 11 of the face frame 1, for example, by a fixed connection such as welding or interference fit, which is not limited herein.

[0062] In an embodiment, in order to improve the disassembly and assembly efficiency and ease of assembly and disassembly of the guiding rail structure 3, the guiding rail structure 3 is detachably connected to the air inlet grille 2 and/or the face frame 1 in the present embodiment. Specially, as shown in FIG. 8, FIG. 9, FIG. 10, FIG. 12 and FIG. 13, the inner surface of the air inlet grille 2 and/or the face frame 1 is provided with a plurality of fastening members 21 adjacent to the inner wall of the filter screen mounting opening 12, and the air inlet grille 2 and/or the face frame 1 are detachably connected to the connecting member 31 and/or the first guiding member 32 and/or the second guiding member 33 through the fastening member 21.

[0063] It should be understood that the plurality of fastening members 21 of the inner surface of the air inlet grille 2 and/or the inner wall of the face frame 1 are cooperated with the buckles 311 of the connecting member 31 of the guiding rail structure 3 and/or the hook 324 of the first guiding member 32 and/or the protrusion of the second guiding member 33, respectively, to realize a snap connection, such that the connecting member 31 is abutted against the inner surface of the air inlet grille 2.

[0064] In an embodiment, as shown in FIG. 4, FIG. 5, FIG. 6, FIG. 7, FIG. 8, FIG. 9, FIG. 10, FIG. 11, FIG. 14, and FIG. 16, in the present embodiment, the face frame 1 is further provided with a filter screen mounting opening 12 spaced apart from the air inlet 11, and the face frame 1 is further provided with a supporting member 13 near the filter screen mounting opening 12. The end of the supporting member 13 near the air inlet 11 is abutted against the end of the first guiding member 32 near the filter screen mounting opening 12.

[0065] It should be understood that it is advantageous to facilitate the support and installation of the filter screen 500 by providing the support portion 13 at the filter screen mounting opening 12. When the guiding rail structure 3 is mounted in the air inlet 11 of the face frame 1, the end of the supporting member 13 near the air inlet 11 is abutted against the end of the first guiding member 32 near the filter screen mounting opening 12. As such, the supporting member 13 and the first guiding member 32 have a continuous smooth transition, thereby avoiding the occurrence of faults or steps, which improves the convenience and efficiency of the installation of the filter screen 500.

[0066] In order to further achieve the positioning of the first guiding member 32, as shown in FIG. 5 and FIG. 9, a limiting protrusion 131 is disposed on an end of the supporting member 13 near the air inlet 11, and the first guiding member 32 is provided with a limiting groove 323. When the guiding rail structure 3 is mounted on the air inlet 11 of the face frame 1, the end of the support portion 13 is abutted against the end of the first guiding member 32. At this time, the limiting protrusion 131 is abutted against the limiting groove 323.

[0067] In an embodiment, as shown in FIG. 5, FIG. 6, FIG. 8, FIG. 9, FIG. 12 and FIG. 13, in the present embodiment, the face frame 1 is further provided with a guiding section 14 near the air inlet 11, the guiding section 14 is facing the supporting member 13, and the guiding section 14 is cooperated with the supporting member 13 to form a slide 15. An end of the guiding section 14 near the air inlet 11 is abutted against an end of the second guiding member 33 near the filter screen mounting opening 12, and the sliding rail 34 is in communication with the slide 15.

[0068] It should be understood that the arrangement of the guiding section 14 facilitates the formation of the guiding rail 15 for guiding the filter screen 500 at the filter screen mounting opening 12, so that the installation efficiency of the filter screen 500 can be improved. Specifically, the end of the guiding section 14 away from the air inlet 11 is provided with a guiding protrusion 141, and the guiding protrusion 141 extends in a direction away from the supporting member 13, that is, the guiding protrusion 141 and the guiding section 14 are arranged in an arc shape. Optionally, the guiding protrusion 141 and the guiding section 14 have a circular arc transition, and the arrangement is favorable for guiding the filter screen 500.

[0069] As shown in FIG. 14, FIG. 15 and FIG. 16, the present disclosure further provides an indoor unit of an air conditioner 800, including a chassis 600, a face frame assembly 100 connected to the chassis 600, and a filter screen 500. The specific structure of the face frame assembly 100 is referred to the above embodiments. Since the indoor unit

of the air conditioner 800 adopts all the technical solutions of all the above embodiments, at least the effects brought by the technical solutions of the foregoing embodiments are not described herein.

[0070] Specially, the face frame assembly 100 is the above-described face frame assembly 100, and the chassis 600 is cooperated with the face frame assembly 100 to form a mounting cavity. The guiding rail structure 3 is located within the mounting cavity, and the filter screen 500 is movably mounted on the sliding rail 34 and is located near the air inlet 11.

[0071] It should be understood that, as shown in FIG. 14, a limiting baffle 510 is protruded from one end of the filter screen 500. The arrangement of the limiting baffle 510 facilitates the operator to remove the filter screen 500 from the face frame 1 through the limiting baffle 510 on the filter screen 500 at the filter screen mounting opening 12. Of course, when the filter screen 500 is mounted in the air inlet 11 of the face frame 1, the limiting baffle 510 is abutted against the inner wall of the filter screen mounting opening 12.

[0072] In the present disclosure, the indoor unit of the air conditioner 800 can have either a function of automatically cleaning the filter screen or a function of manually cleaning the filter screen. When the indoor unit of the air conditioner 800 has the function of automatically cleaning the filter screen, a cleaning assembly 700 is further disposed in the mounting cavity of the indoor unit of the air conditioner 800. At this time, the guiding rail structure 3 is not mounted in the air inlet 11 of the face frame 1, the filter screen 500 is mounted in the air inlet 11 of the face frame 1, and the cleaning assembly 700 can drive the filter screen 500 to move and clean the filter screen 500. When the indoor unit of the air conditioner 800 has the function of manually cleaning the filter screen, the cleaning assembly 700 is not disposed in the mounting cavity of the indoor unit of the air conditioner 800. At this time, the guiding rail structure 3 is mounted in the air inlet 11 of the face frame 1, the filter screen 500 may be mounted in the air inlet 11 of the face frame 1 from the sliding rail 15 of the filter screen mounting opening 12 via the sliding rail 34 of the guiding rail structure 3. When the filter screen 500 needs to be disassembled, the filter screen 500 is removed from the air inlet 11 of the face frame 1 through the sliding rails 34 of the guiding rail structure 3 from the slide 15 through the limiting baffle 510 of the filter screen 500.

[0073] The present disclosure further provides a face frame 1. The specific result of the face frame 1 can be referred to FIG. 4, FIG. 7, FIG. 11, FIG. 14, and FIG. 15, and the face frame 1 includes a filter screen mounting structure. Specifically, the face frame 1 has a frame structure or a cover structure, and the face frame 1 includes an air inlet 11 and a filter screen mounting opening 12 which are spaced apart. That is, the upper side of the face frame 1 has an air inlet 11, and the front side of the face frame 1 has a filter screen mounting opening 12. The face frame 1 is further provided with an air inlet grille 2 near the air inlet 11, that is, the air inlet grille 2 is integrally formed at the air inlet 11 of the face frame 1.

[0074] Specially, the filter screen mounting structure includes a first mounting structure in the air inlet and a second mounting structure in the filter screen mounting opening. It can be understood that the filter screen mounting structure is composed of two parts of the first mounting structure and the second mounting structure. That is, one end of the first mounting structure is detachably connected to one end of the second mounting structure, and one end of the first mounting structure is abutted against one end of the second mounting structure to make the filter screen mounting structure as a whole. In the present application, the first mounting structure may be the above-mentioned guiding rail structure 3, or may be a structure in which the filter screen is installed, which is not limited herein.

[0075] Further, the filter screen mounting structure has a mounting space for the filter screen 500 to be mounted. The mounting space may be a space structure formed by the filter screen mounting structure itself, or a space structure formed by the cooperation of the filter screen mounting structure and the air inlet grille 2, which is not limited herein. Specifically, the first mounting structure is formed with a sliding rail 34, and the second mounting structure is formed with a slide 15. When one end of the first mounting structure is abutted against one end of the second mounting structure, the sliding rail 34 and the slide 15 communicate to define the mounting space for the filter screen 500 to be mounted.

[0076] The face frame 1 of the present disclosure detachably connects the first partial mounting structure in the air inlet 11 to the face frame 1 by splitting the filter screen mounting structure into two parts. As such, the face frame 1 can automatically clean the filter screen or manually clean the filter screen, which improves the utilization and production efficiency of the face frame 1 mold, simplifies the production process, and reduces the production cost. Besides, the first mounting structure in the air inlet 11 and the second mounting structure in the filter screen mounting opening 12 are used to facilitate manual disassembly and cleaning of the filter screen, thereby improving the convenience of use of the face frame 1.

[0077] As shown in FIG. 14, FIG. 15 and FIG. 16, the present disclosure further provides an indoor unit of an air conditioner 800, including a chassis 600, a face frame 1 connected to the chassis 600 and a filter screen 500. The specific structure of the face frame 1 is referred to the above embodiments. Since the indoor unit of the air conditioner 800 adopts all the technical solutions of all the above embodiments, at least the effects brought by the technical solutions of the foregoing embodiments are not described herein. Specifically, the filter screen 500 is movably mounted to the filter screen mounting structure and located near the air inlet 11.

[0078] The present disclosure further provides an outdoor unit and an indoor unit 800 as described above and an outdoor unit connected to the indoor unit 800 through a pipeline. The specific structure of the indoor unit of the air conditioner 800 refers to the above embodiments. Since all the technical solutions of all the above embodiments are

adopted in the air conditioner, at least all the effects brought by the technical solutions of the above embodiments are not described herein.

[0079] The above are only alternative embodiments of the present disclosure, and thus do not limit the scope of the present disclosure. The equivalent structure or equivalent process transformations made by the present specification and the drawings are directly or indirectly applied to other related technical fields, and are included in the scope of the present disclosure.

Claims

1. A guiding rail structure, detachably connected to a face frame, **characterized in that**, the guiding rail structure comprises:

   a connecting member;
   a first guiding member, disposed on at least one side of the connecting member, wherein one end of the first guiding member is arc-shaped; and
   a second guiding member, disposed on at least one side of the connecting member and facing the arc end of the first guiding member,
   wherein the second guiding member and the first guiding member are cooperated with the connecting member to form a sliding rail.

2. The guiding rail structure according to claim 1,
   wherein the first guiding member comprises:

   an arc section facing the second guiding member; and
   an extension section connected to the arc section, and

   wherein a distance between the second guiding member and the arc section is constant or substantially constant.

3. The guiding rail structure according to claim 2,
   wherein a hook is disposed at one end of the extension section away from the arc section, and the extension section is connected to the face frame through the hook; and/or
   wherein a limiting groove is defined in one end of the arc section away from the extension section, and the face frame is abutted against and limited in the limiting groove when the guiding rail structure is mounted on the face frame; and/or
   wherein at least one protrusion is disposed at one end of the second guiding member away from the extension section, and the second guiding member is clamped to the face frame through the protrusion; and/or
   wherein at least one side of the connecting member is provided with a buckle, and the connecting member is clamped to the face frame through the buckle.

4. The guiding rail structure according to claim 2, further comprising:
   a guiding portion disposed at one end of the second guiding member near the extension section, and extended away from the first guiding member.

5. The guiding rail structure according to claim 2,
   wherein the connecting member comprises:
   a first limiting plate corresponding to the arc section, and extended towards a side of the second guiding member opposite to the arc section, and

   wherein the first limiting plate is abutted against the face frame when the guiding rail structure is mounted on the face frame.

6. The guiding rail structure according to claim 2,
   wherein the connecting member comprises:

   a first limiting plate corresponding to the arc section, and extended towards a side of the arc section opposite to the first guiding member; and
   a second limiting plate corresponding to the arc section, and extended towards a side of the arc section opposite

to the second guiding member,

wherein the first limiting plate and/or the second limiting plate further comprise a limiting platform, and
wherein the limiting platform is abutted against the face frame when the guiding rail structure is mounted on the face frame.

7. The guiding rail structure according to claim 1,
wherein the first guiding member is one of two first guiding members, and the second guiding member is one of two second guiding members, and
wherein the two first guiding members are respectively disposed on opposite sides of the connecting member, and the two second guiding members are respectively disposed on opposite sides of the connecting member.

8. The guiding rail structure according to claim 1,
wherein the connecting member, the first guiding member and the second guiding member are integrated with each other.

9. A face frame assembly, comprising a face frame defining an air inlet, an air inlet grille disposed near the air inlet, and a guiding rail structure detachably connected to the air inlet grille and/or the face frame, **characterized in that**, the guiding rail structure comprises:

a connecting member;
a first guiding member, disposed on at least one side of the connecting member, and one end of the first guiding member is arc-shaped; and
a second guiding member, disposed on at least one side of the connecting member and facing the arc end of the first guiding member,
wherein the second guiding member and the first guiding member are cooperated with the connecting member to form a sliding rail; and
wherein the connecting member is abutted against an inner surface of the air inlet grille.

10. The face frame assembly according to claim 9,
wherein the face frame further comprises:

a filter screen mounting opening spaced apart from the air inlet, and
a supporting member near the filter screen mounting opening; and

wherein an end of the supporting member near the air inlet is abutted against an end of the first guiding member near the filter screen mounting opening.

11. The face frame assembly according to claim 10, further comprising:

a limiting protrusion disposed on the end of the supporting member near the air inlet,
wherein the first guiding member defines a limiting groove, and the limiting protrusion is abutted against and limited in the limiting groove.

12. The face frame assembly according to claim 10,
wherein the face frame comprises:
a guiding section near the air inlet and facing the supporting member, and the guiding section is cooperated with the supporting member to form a slide; and
wherein an end of the guiding section near the air inlet is abutted against an end of the second guiding member near the filter screen mounting opening, and the sliding rail is in communication with the slide.

13. The face frame assembly according to claim 12, further comprising:
a guiding protrusion disposed at an end of the guiding section away from the air inlet, and extended along a direction away from the supporting member.

14. The face frame assembly according to claim 13,
wherein the guiding protrusion and the guiding section have a circular arc transition.

15. The face frame assembly according to claim 12,
wherein the inner surface of the air inlet grille or an inner wall of the face frame near the filter screen mounting opening is provided with a plurality of fastening members, or the inner surface of the air inlet grille and an inner wall of the face frame near the filter screen mounting opening are both provided with a plurality of fastening members; and
wherein the air inlet grille and/or the face frame is detachably connected to at least one member selected form the connecting member, the first guiding member, or the second guiding member, through the fastening members.

16. A face frame, comprising:

an air inlet;
a filter screen mounting opening; and
a filter screen mounting structure, comprising:

a first mounting structure near the air inlet and detachably connected to the face frame; and
a second mounting structure in the filter screen mounting opening, and
wherein the first mounting structure is cooperated with the second mounting structure to define a sliding groove for mounting the filter screen.

17. An indoor unit of an air conditioner, comprising: a chassis, a face frame connected to the chassis and comprising an air inlet, a guiding rail structure detachably connected to the air inlet, and a filter screen, **characterized in that**, the guiding rail structure detachably connected to the face frame comprises:

a connecting member;
a first guiding member, disposed on at least one side of the connecting member, and one end of the first guiding member is arc-shaped; and
a second guiding member, disposed on at least one side of the connecting member and facing the arc end of the first guiding member,
wherein the second guiding member and the first guiding member are cooperated with the connecting member to form a sliding rail; and
wherein the filter screen is movably mounted on the sliding rail and located near the air inlet.

18. An indoor unit of an air conditioner, comprising: a chassis, a face frame assembly connected to the chassis, and a filter screen, the face frame assembly comprising a face frame defining an air inlet, an air inlet grille disposed near the air inlet, and a guiding rail structure detachably connected to the air inlet grille and/or the face frame, **characterized in that**, the guiding rail structure comprises:

a connecting member;
a first guiding member, disposed on at least one side of the connecting member, and one end of the first guiding member is arc-shaped; and
a second guiding member, disposed on at least one side of the connecting member and facing the arc end of the first guiding member,
wherein the second guiding member and the first guiding member are cooperated with the connecting member to form a sliding rail;
wherein the connecting member is abutted against an inner surface of the air inlet grille; and
wherein the chassis is cooperated with the face frame assembly to form a mounting cavity, the guiding rail structure is located in the mounting cavity, and the filter screen is movably mounted on the sliding rail and located near the air inlet.

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

a chassis;
a face frame connected to the chassis; and
a filter screen,
wherein the face frame comprising

an air inlet;
a filter screen mounting opening; and
a filter screen mounting structure detachably connected to the face frame and comprising:

a first mounting structure near the air inlet; and
a second mounting structure in the filter screen mounting opening; and

wherein the first mounting structure is cooperated with the second mounting structure to define a sliding groove for mounting the filter screen; and
wherein the filter screen is movably mounted at the filter screen mounting structure and located near the air inlet.

20. An air conditioner, comprising
an outdoor unit; and
an indoor unit connected to the outdoor unit through a pipeline and comprising:

a chassis, a face frame connected to the chassis and comprising an air inlet, a guiding rail structure detachably connected to the air inlet, and a filter screen, and the guiding rail structure detachably connected to the face frame and comprising:

a connecting member;
a first guiding member, disposed on at least one side of the connecting member, and one end of the first guiding member is arc-shaped; and
a second guiding member, disposed on at least one side of the connecting member and facing the arc end of the first guiding member, wherein the second guiding member and the first guiding member are cooperated with the connecting member to form a sliding rail;

wherein the filter screen is movably mounted on the sliding rail and located near the air inlet; or

the indoor unit comprising:

a chassis, a face frame assembly connected to the chassis, and a filter screen, the face frame assembly comprising a face frame defining an air inlet, an air inlet grille disposed near the air inlet, and a guiding rail structure detachably connected to the air inlet grille and/or the face frame and comprising:

a connecting member;
a first guiding member, disposed on at least one side of the connecting member, and one end of the first guiding member is arc-shaped; and
a second guiding member, disposed on at least one side of the connecting member and facing the arc end of the first guiding member,

wherein the second guiding member and the first guiding member are cooperated with the connecting member to form a sliding rail, and the guiding rail structure is detachably connected to the face frame;
wherein the connecting member is abutted against an inner surface of the air inlet grille; and
wherein the chassis is cooperated with the face frame assembly to form a mounting cavity, the guiding rail structure is located in the mounting cavity, and the filter screen is movably mounted on the sliding rail and located near the air inlet; or

the indoor unit comprising:

a chassis;
a filter screen; and
a face frame connected to the chassis and comprising

an air inlet;
a filter screen mounting opening; and
a filter screen mounting structure detachably connected to the face frame and comprising:

a first mounting structure near the air inlet; and
a second mounting structure in the filter screen mounting opening; and
wherein the first mounting structure is cooperated with the second mounting structure to define a sliding groove for mounting the filter screen; and

wherein the filter screen is movably mounted at the filter screen mounting structure and located near the air inlet.

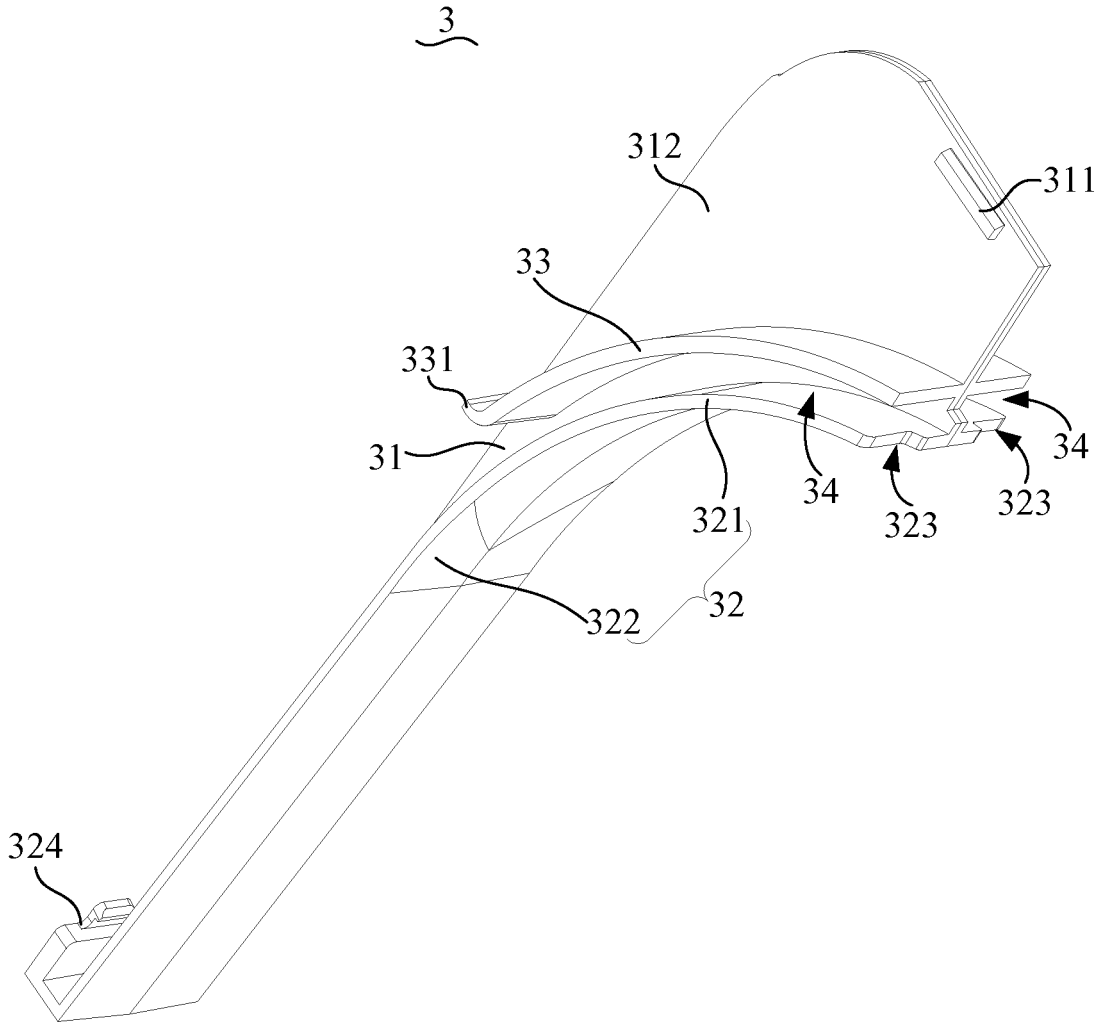

FIG. 1

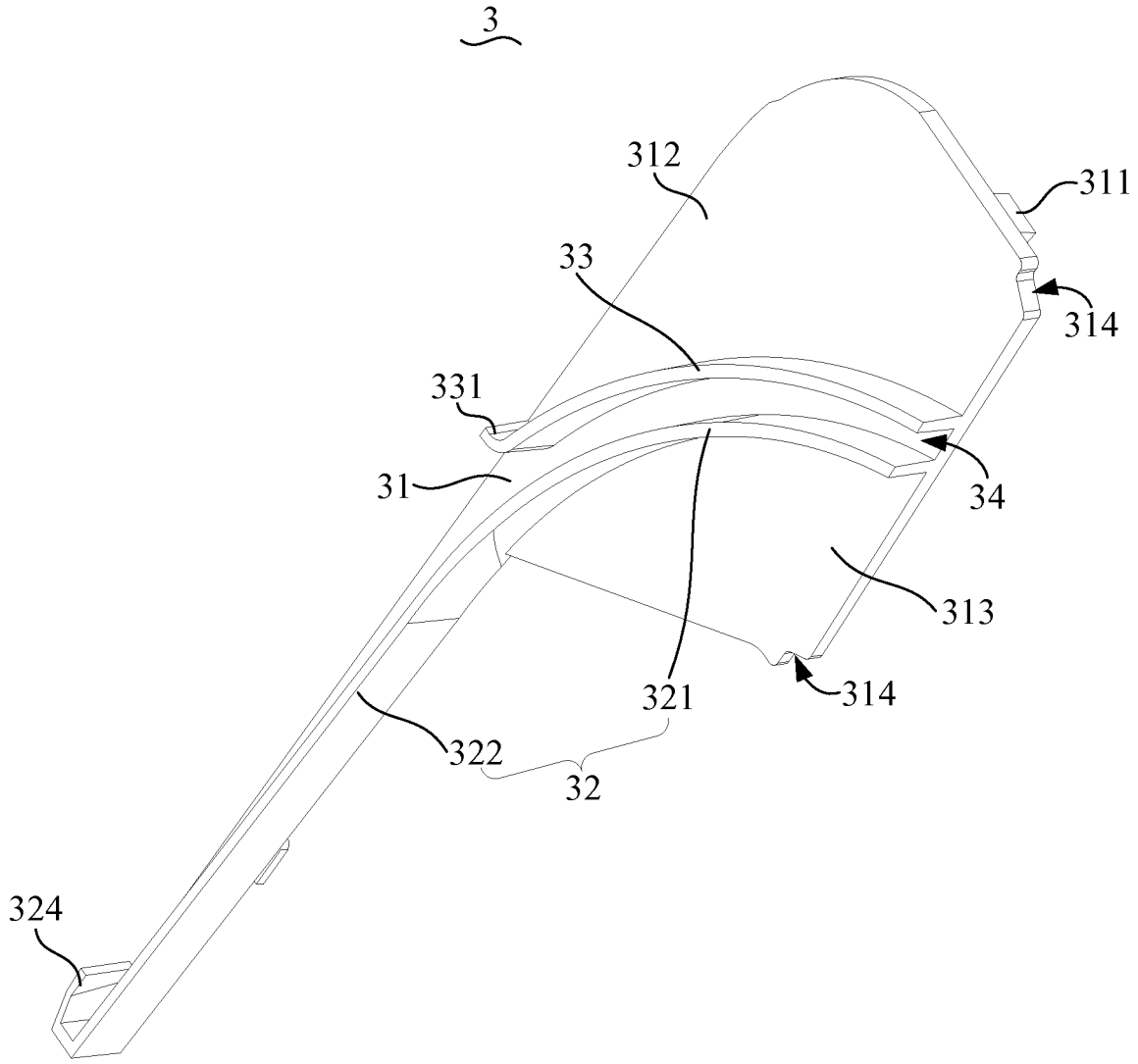

FIG. 2

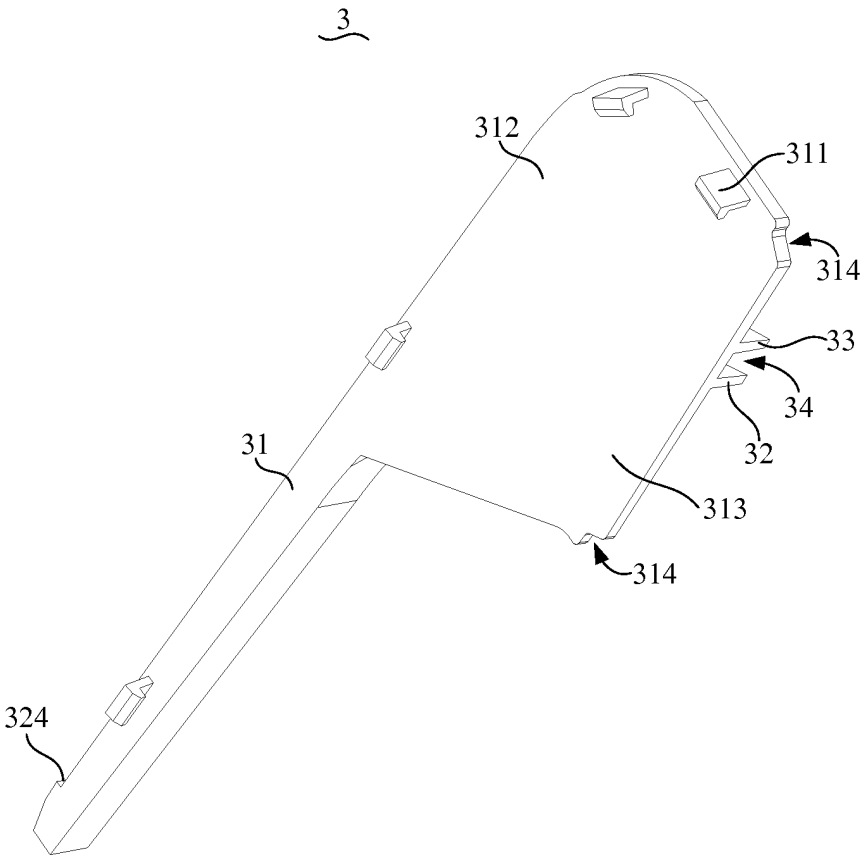
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FIG. 3

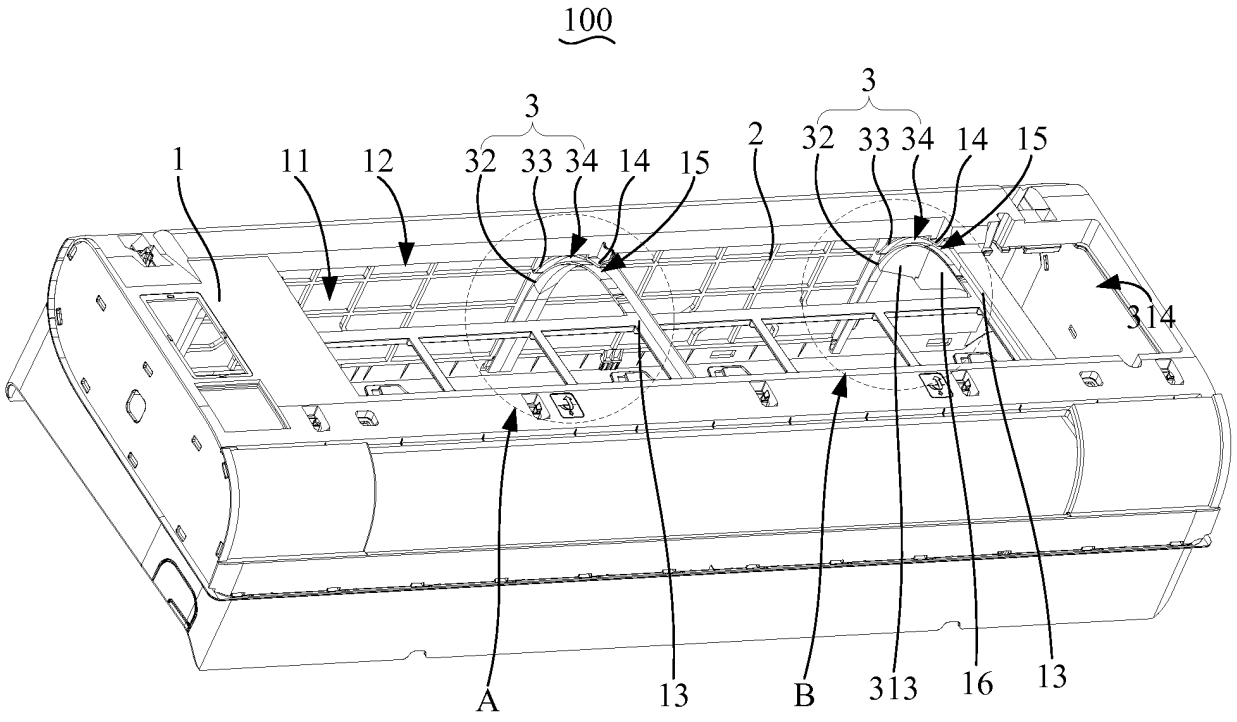
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FIG. 4

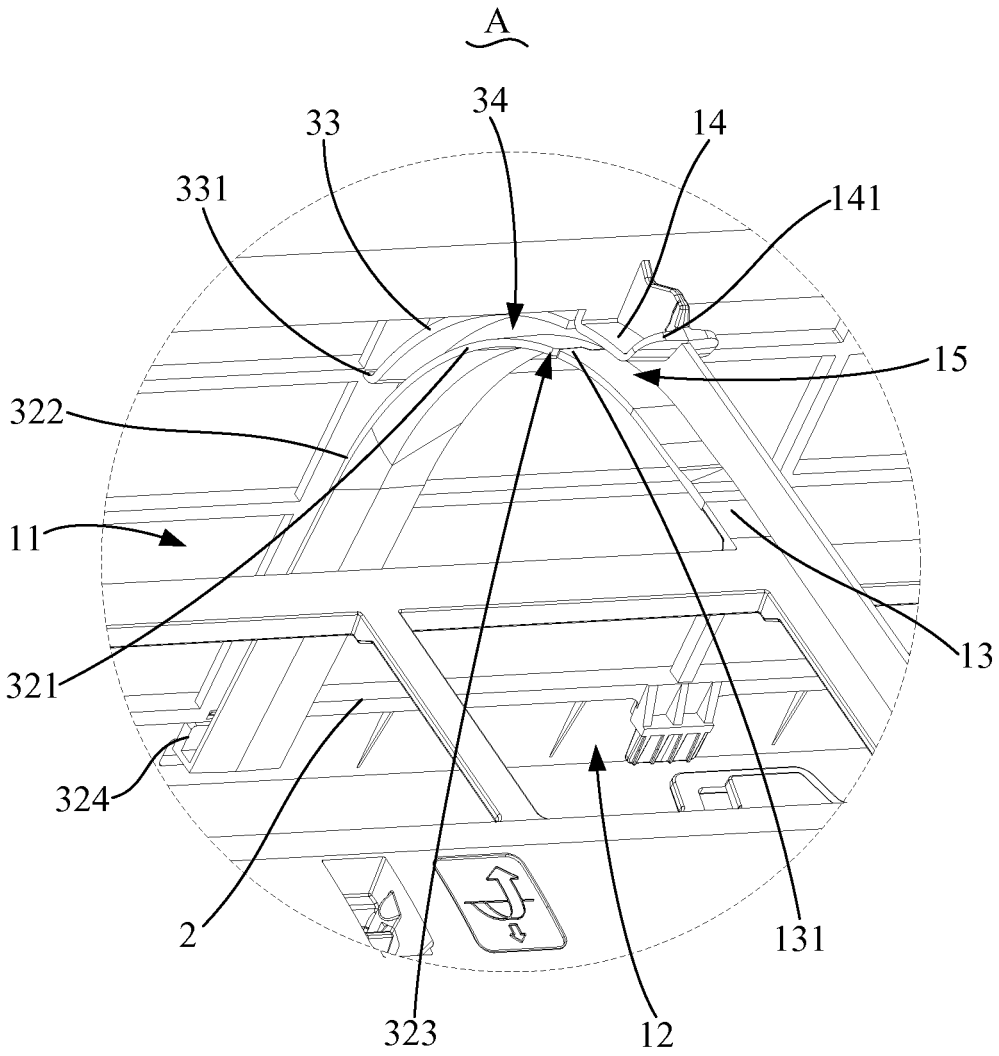

FIG. 5

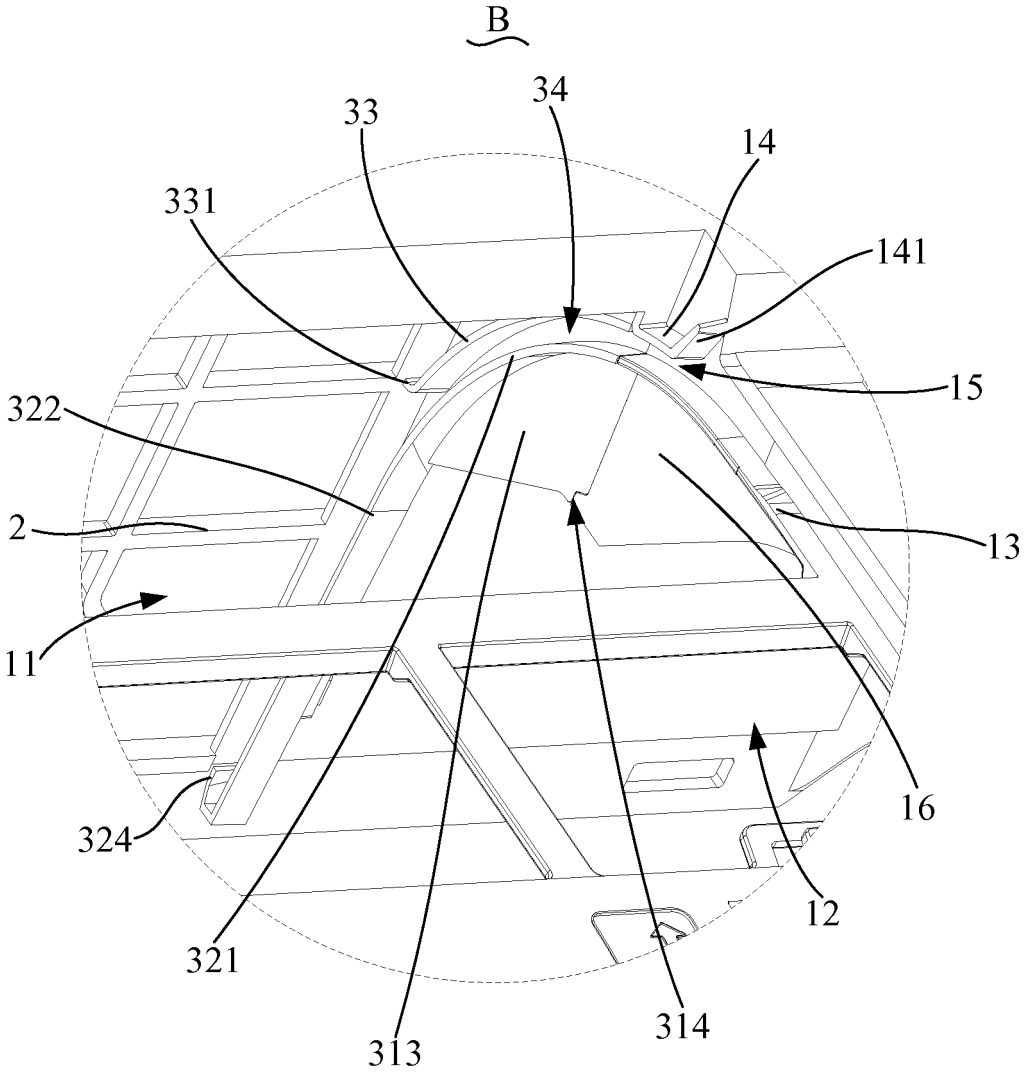

FIG. 6

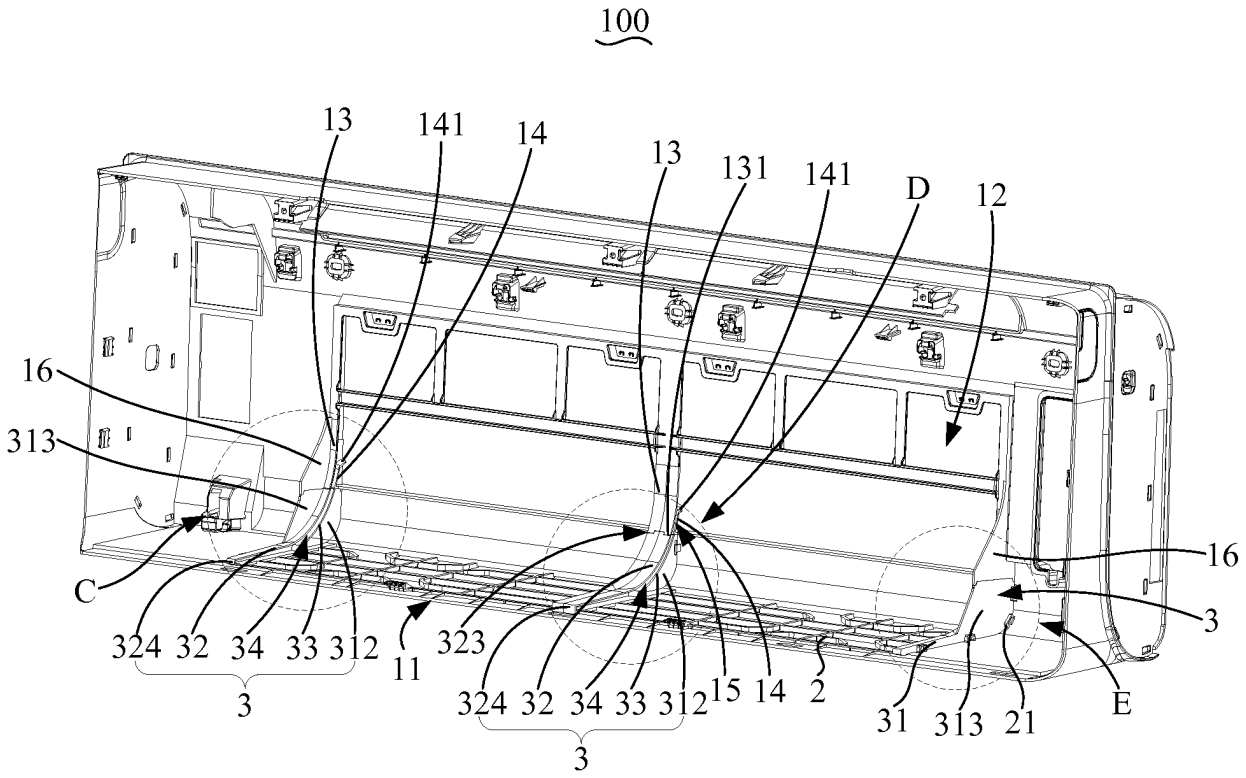
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FIG. 7

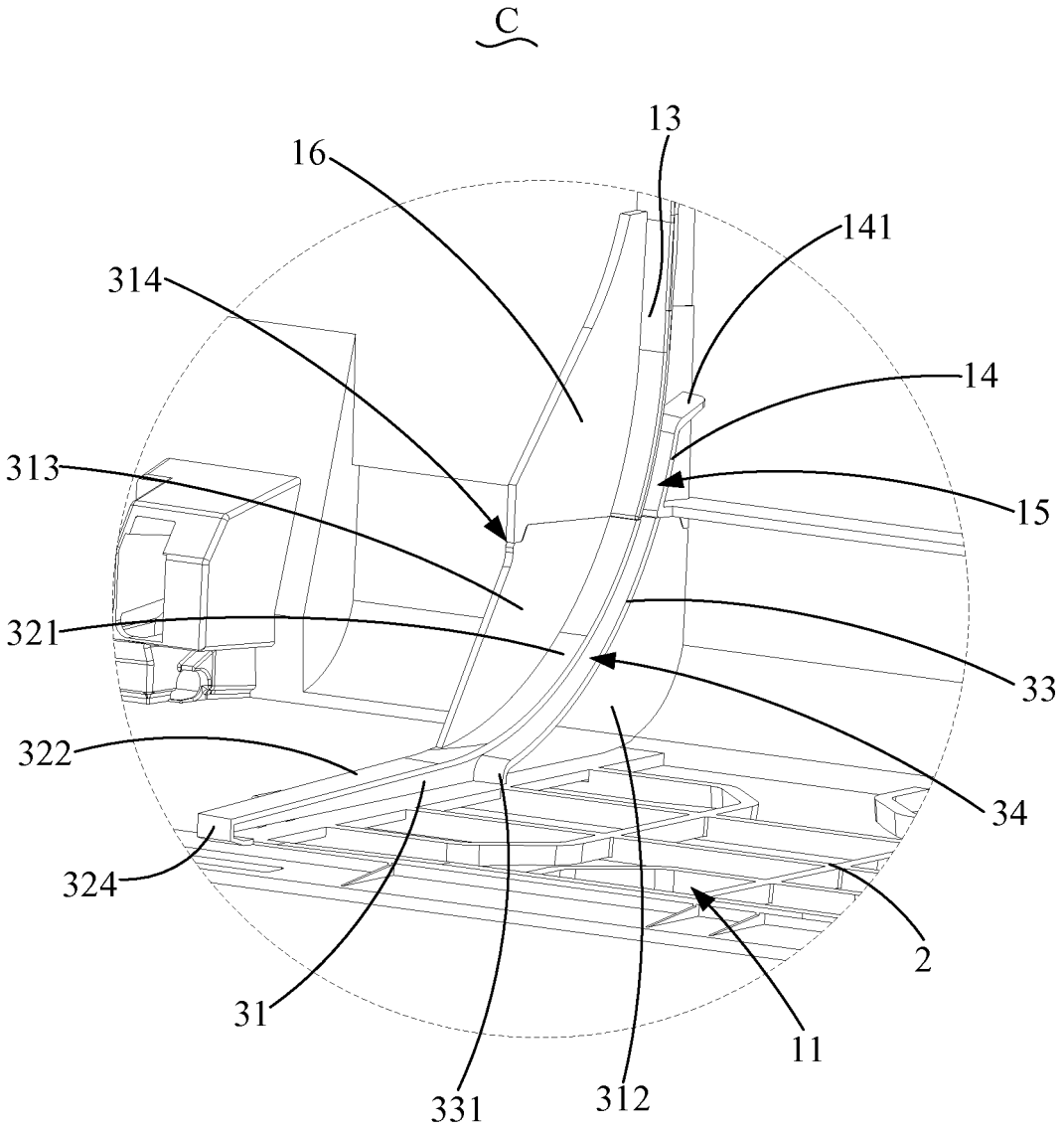

FIG. 8

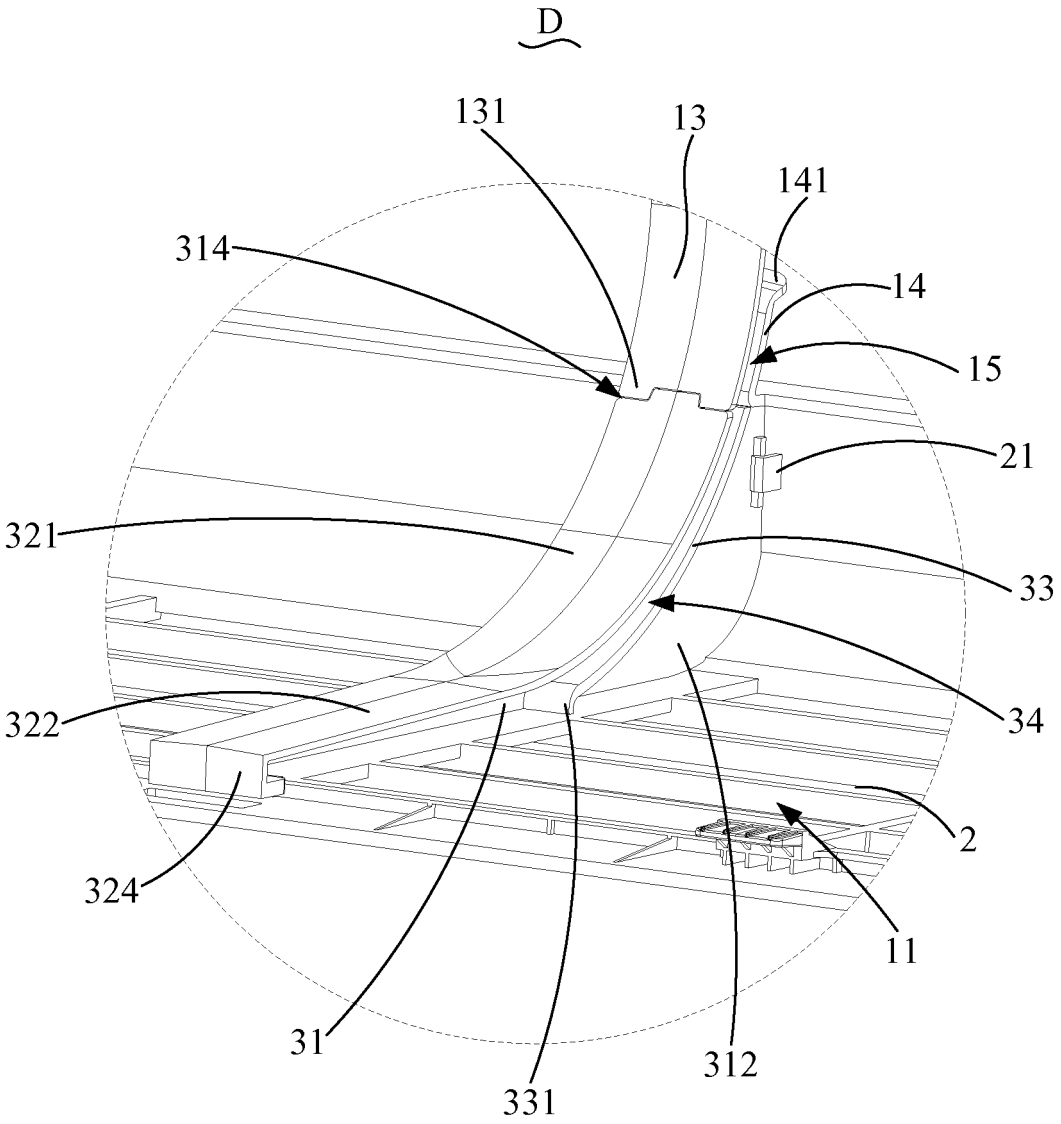

FIG. 9

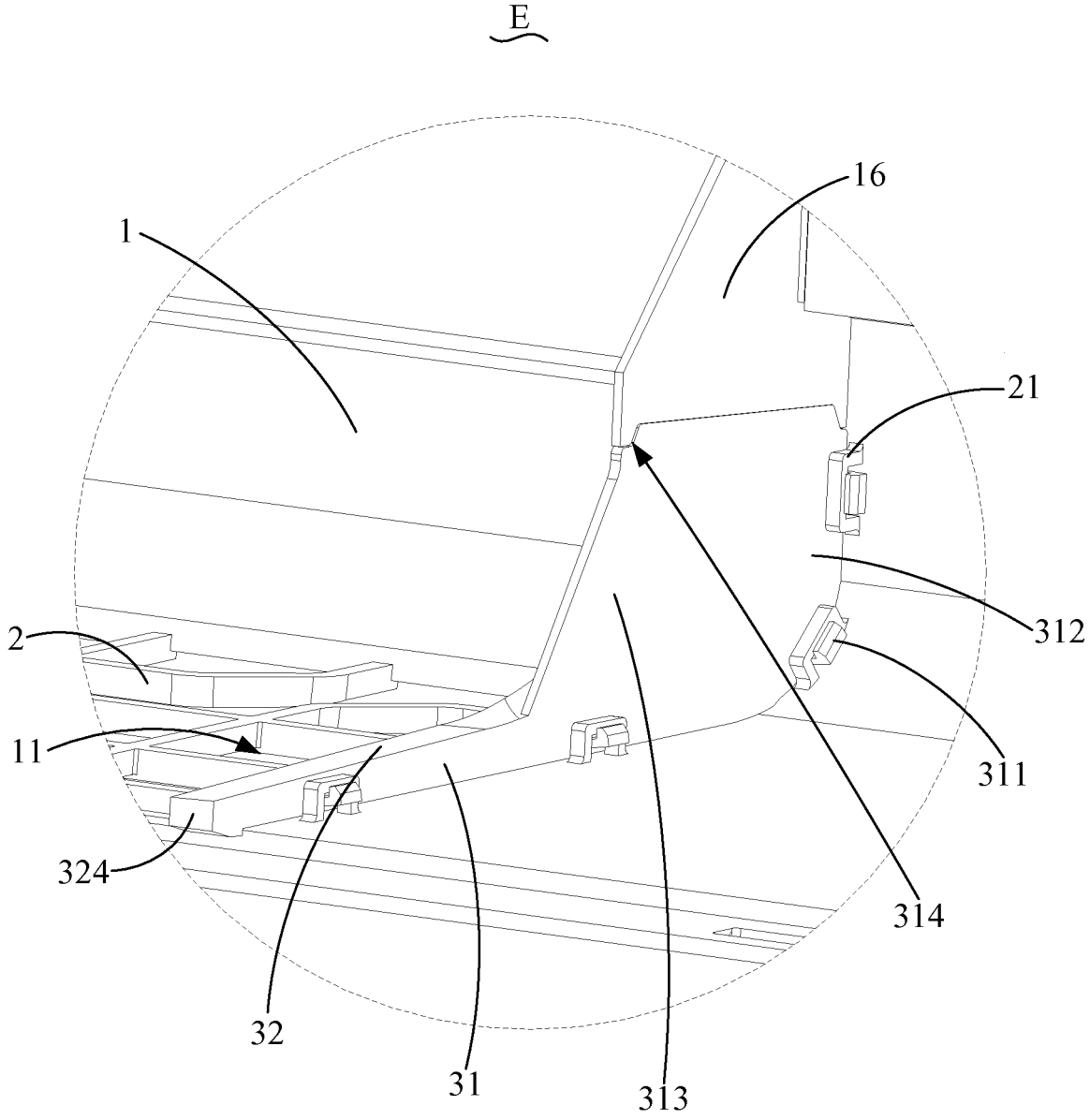

FIG. 10

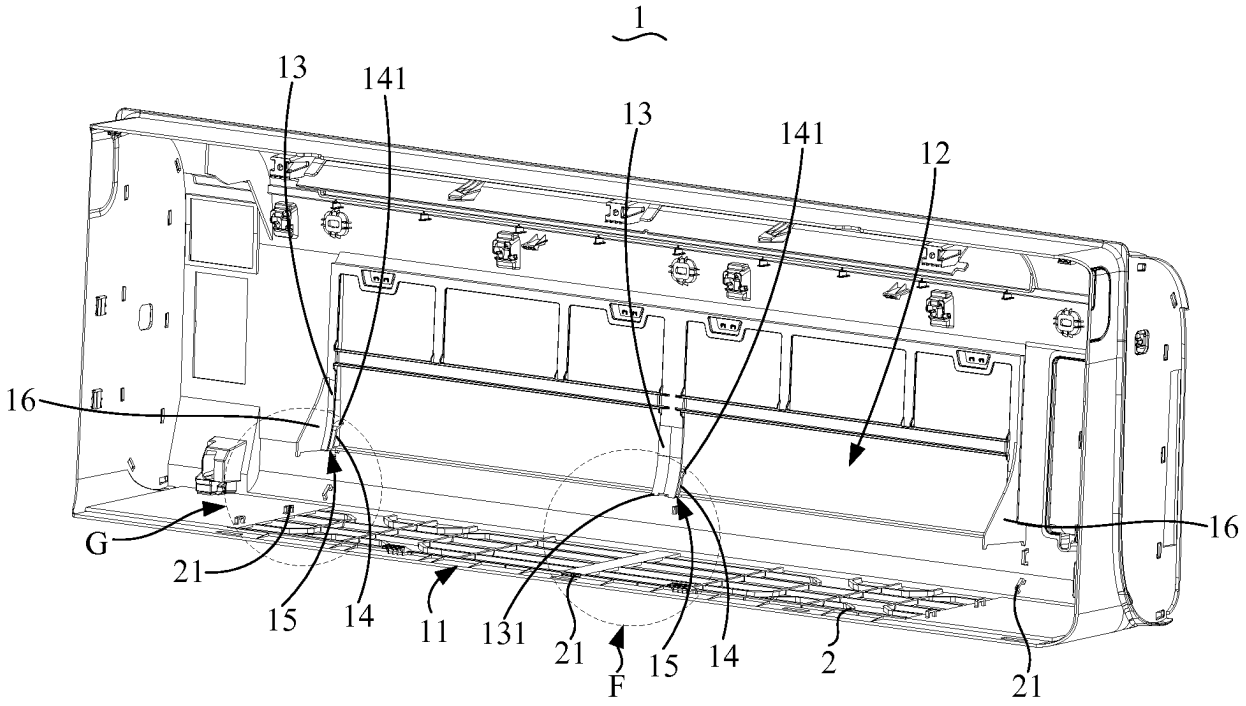

FIG. 11

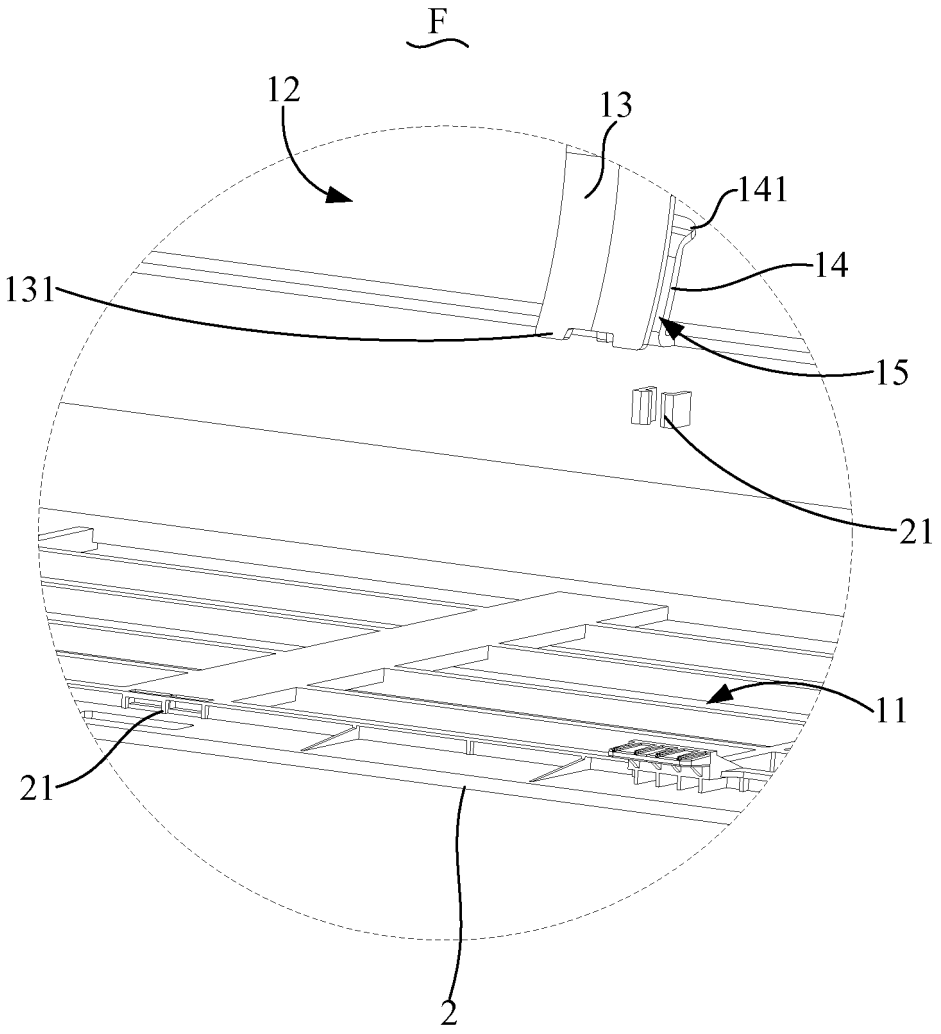

FIG. 12

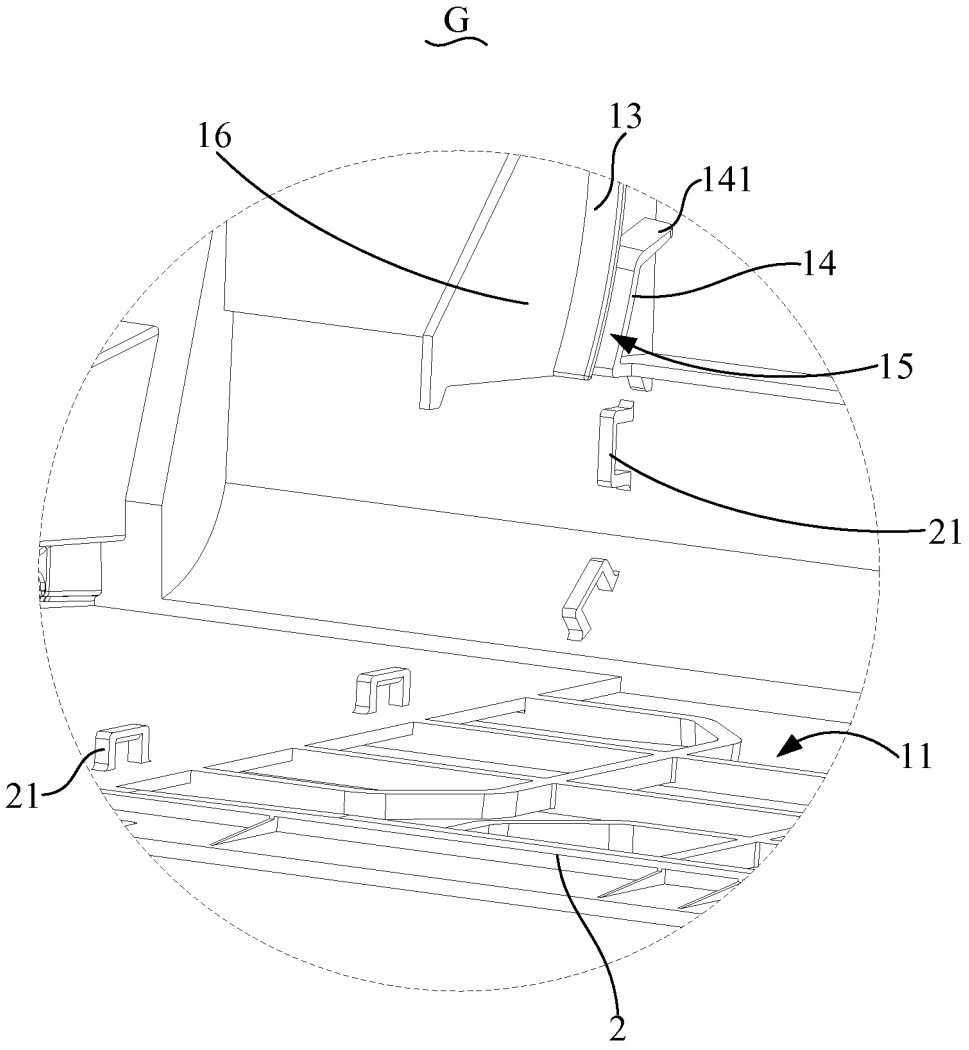

FIG. 13

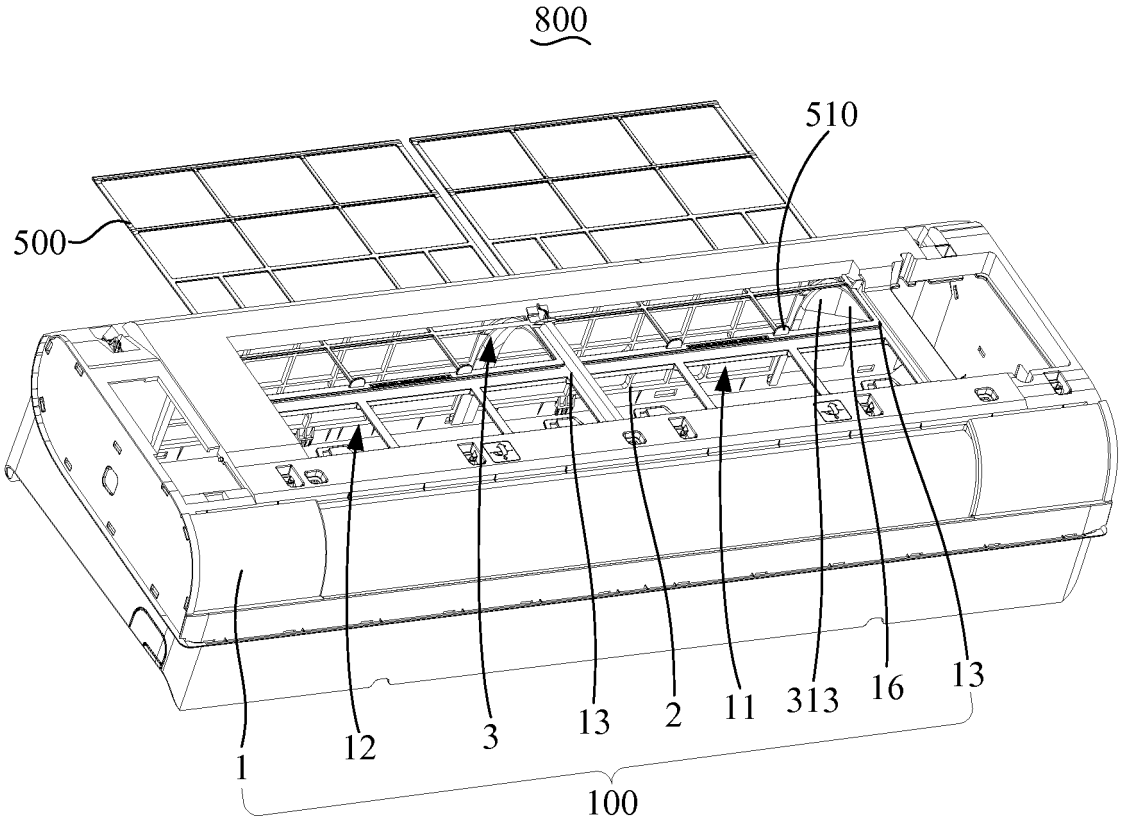

FIG. 14

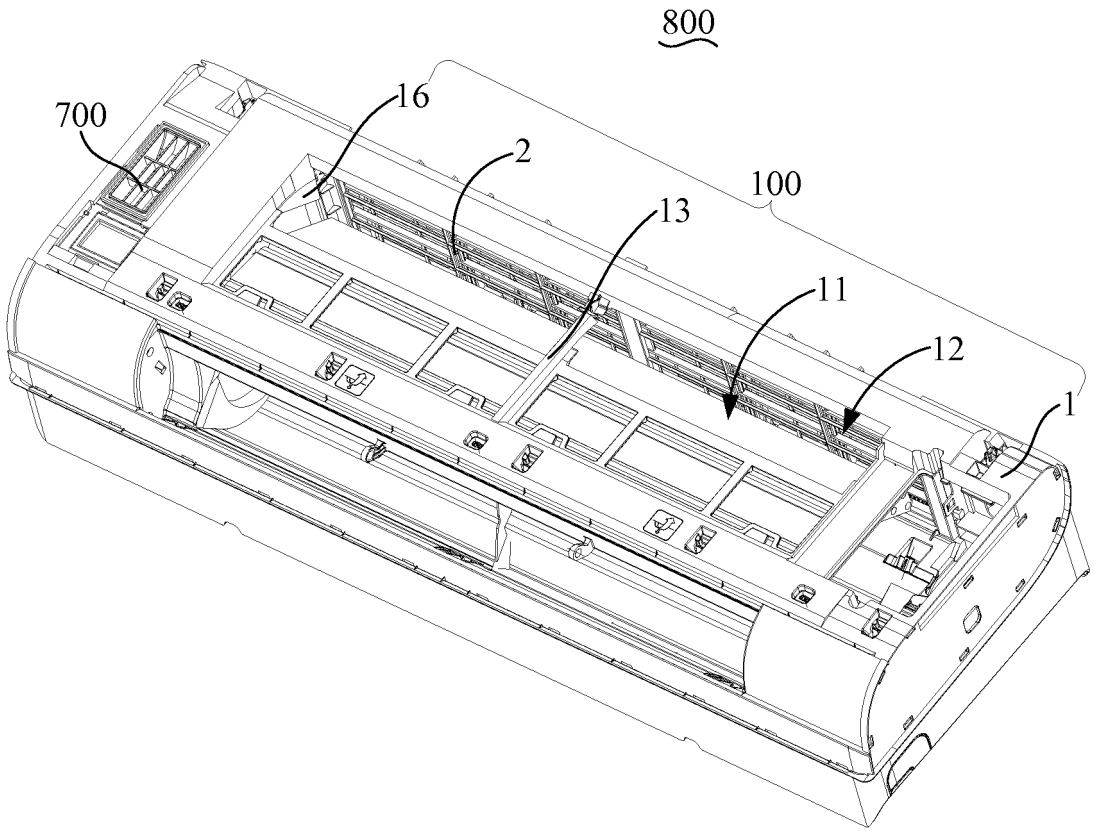

FIG. 15

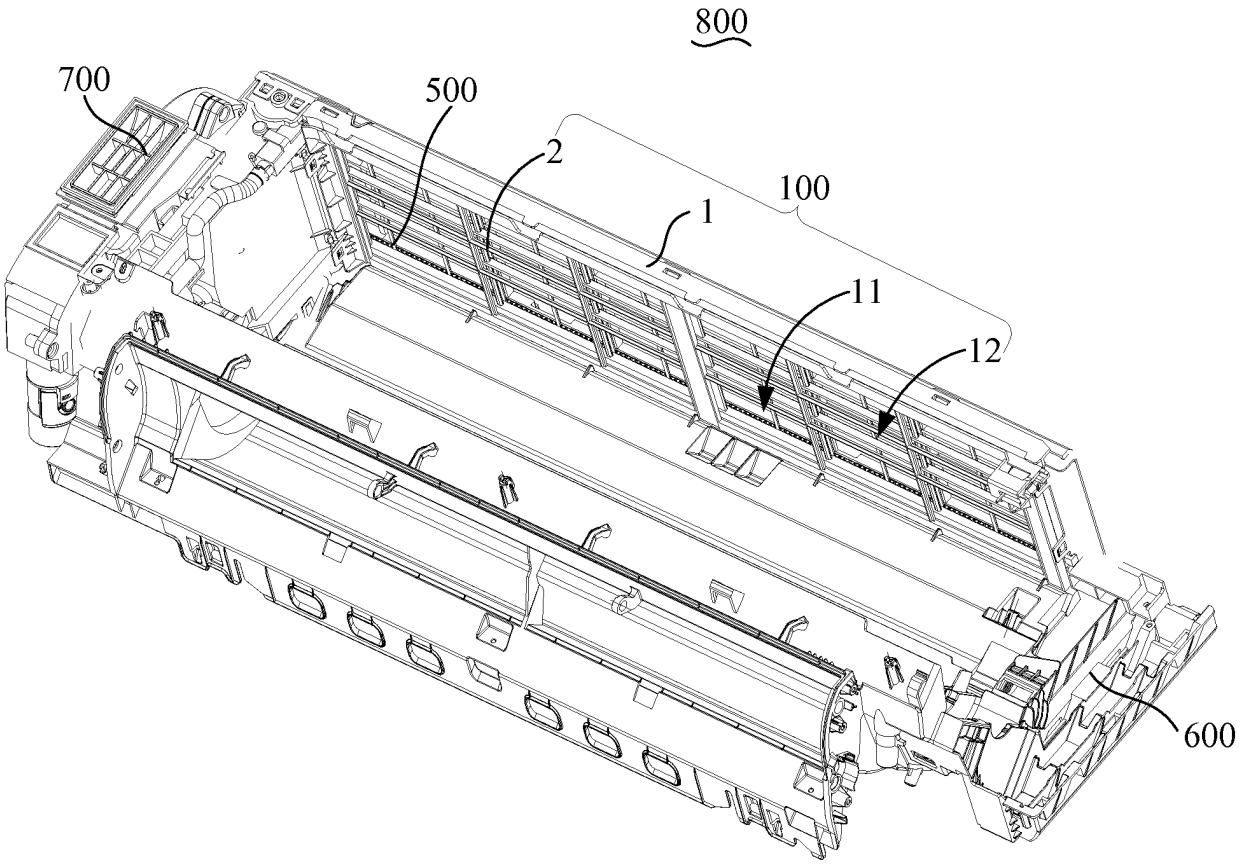

FIG. 16

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2019/112441

A. CLASSIFICATION OF SUBJECT MATTER

F24F 13/28(2006.01)i; F24F 1/0073(2019.01)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, CNTXT, CNKI, VEN: 导轨, 滑轨, 滑槽, 框架, 支架, 安装架, 可拆卸, 滤网, 弧形, 室内机, rail, groove, slit, frame, detach+, demount, filter, arc, indoor

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	CN 207962845 U (GUANGDONG MIDEA REFRIGERATION EQUIPMENT CO., LTD. et al.) 12 October 2018 (2018-10-12) description, paragraphs [0049]-[0079], and figures 1-3	1-20
Y	CN 207555785 U (GUANGDONG MIDEA REFRIGERATION EQUIPMENT CO., LTD. et al.) 29 June 2018 (2018-06-29) description, paragraphs [0040]-[0065], and figures 1-13	1-20
Y	CN 207299464 U (GUANGDONG MIDEA REFRIGERATION EQUIPMENT CO., LTD. et al.) 01 May 2018 (2018-05-01) description, paragraphs [0030]-[0043], and figure 1	1-20
PX	CN 109764524 A (GUANGDONG MIDEA REFRIGERATION EQUIPMENT CO., LTD. et al.) 17 May 2019 (2019-05-17) claims 1-14, description, paragraphs [0054]-[0100], and figures 1-16	1-20
A	JP 4763574 B2 (MITSUBISHI ELECTRIC CORP.) 31 August 2011 (2011-08-31) entire document	1-20
A	CN 208238204 U (AUX AIR CONDITIONING CO., LTD.) 14 December 2018 (2018-12-14) entire document	1-20

☑ 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
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
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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
13 January 2020	**21 January 2020**

Name and mailing address of the ISA/CN	Authorized officer
China National Intellectual Property Administration (ISA/CN) **No. 6, Xitucheng Road, Jimenqiao Haidian District, Beijing 100088** **China**	
Facsimile No. **(86-10)62019451**	Telephone No.

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2019/112441

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	CN 207688396 U (GUANGDONG MIDEA REFRIGERATION EQUIPMENT CO., LTD. et al.) 03 August 2018 (2018-08-03) entire document	1-20

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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/CN2019/112441

Patent document cited in search report	Publication date (day/month/year)	Patent family member(s)	Publication date (day/month/year)
CN 207962845 U	12 October 2018	None	
CN 207555785 U	29 June 2018	None	
CN 207299464 U	01 May 2018	None	
CN 109764524 A	17 May 2019	None	
JP 4763574 B2	31 August 2011	JP 2008111579 A	15 May 2008
CN 208238204 U	14 December 2018	None	
CN 207688396 U	03 August 2018	None	

Form PCT/ISA/210 (patent family annex) (January 2015)

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- CN 201920267861 **[0001]**
- CN 201910159486 **[0001]**