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(54) **AIR OUTFLOW ASSEMBLY AND AIR CONDITIONER**

(57) An air outlet assembly includes: a panel component (10), a first side plate part (20) and a second side plate part (30), the first side plate part (20) and the second side plate part (30) respectively being disposed at two ends of the panel component (10); a bottom shell part (40) located at a bottom of the panel component (10); and an air outlet frame (50) detachably mounted, by means of a sliding fastener mechanism, on the bottom shell part (40), the first side plate part (20) and the second side plate part (30). Further disclosed is an air conditioner. During actual usage and assembly, when it is necessary to clean the air outlet assembly, only a force exerted on the air outlet frame (50) is required, so that the air outlet frame (50) is pulled out along the sliding fastener mechanism, which may remove the air outlet frame (50) from the bottom shell part (40), the first side plate part (20) and the second side plate part (30). The air outlet assembly has a simple structure and is convenient to be assembled and disassembled.

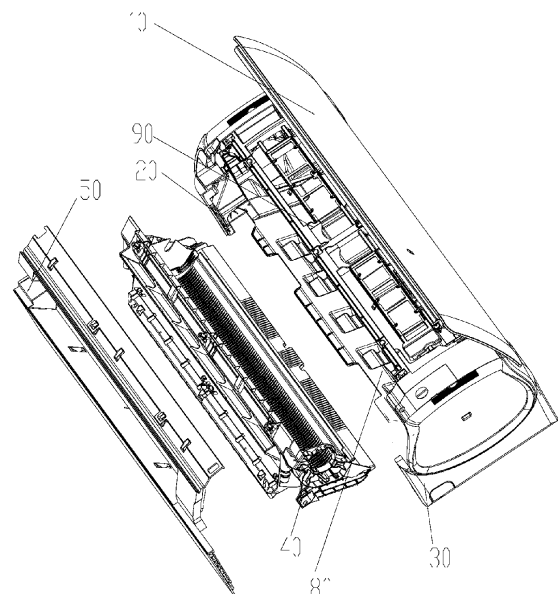


FIG. 1

Description

TECHNICAL FIELD

[0001] The present invention relates to the field of air conditioning technologies, in particular, to an air outlet assembly and an air conditioner.

BACKGROUND

[0002] With gradual improvement of people's living standards, people have higher and higher demands on a living environment. Due to an adjustment effect of an air conditioner on ambient temperature, etc., the air conditioner has been widely used in a comfort adjustment of a room of an ordinary user. However, the air conditioner has a long service life. If the air conditioner is not cleaned in time during use, a large amount of dust may accumulate on internal components such as an air duct system, etc., and the dust may easily lead to a growth of harmful bacteria, making the air conditioner become a secondary pollution source, which directly endangers human health. Therefore, regular cleaning of the air conditioner, especially cleaning of air and water duct systems which are susceptible to pollution, has become an inevitable requirement for maintaining a clean environment.

[0003] Based on urgent needs above-mentioned, people have higher and higher requirements for easy disassembly and assembly of the air conditioner. With a gradual maturity of generalization and modularization technologies of the air conditioner, how to make the disassembly and assembly of the air conditioner more convenient, easy and humanized has become a direction of continuous efforts in this industry. In order to achieve this purpose, an inquiry about the related patents of a removable air conditioner is as follows: a patent, patent number CN105823123A, of Haier introducing a detachable structure. The patent proposes an indoor unit, a housing of which has an access opening for allowing an internal functional component to be loaded into or removed from an interior of the housing, and an access panel whose shape is matched with a shape of the access opening is detachably disposed on the access opening. However, it can be seen from an analysis of this structure that overall reliability of the structure after assembly is not very good since the assembly of the structure only uses a snap-fit attached to a back side, and there are parts split around an air outlet in terms of appearance division, which may easily form an assembly gap. The existence of the assembly gap not only destroys an overall aesthetics of an appearance design, but also affects condensation performance of the air outlet of the air conditioner in operation (the assembly gap is prone to air leakage around the air outlet, and heat exchange of a hot and cold airflow may easily form condensate water which affects use of a user).

SUMMARY

[0004] Main purposes of the present invention is to provide an air outlet assembly and an air conditioner to solve a problem that it is inconvenient to remove an air outlet frame in the prior art.

[0005] In order to achieve the above purposes, according to an aspect of the present invention, an air outlet assembly is provided. The air outlet assembly includes: a panel component, a first side plate part and a second side plate part, and the first side plate part and the second side plate part being disposed at two ends of the panel component; a bottom shell part located at a bottom of the panel component; and an air outlet frame detachably mounted, by means of a sliding fastener mechanism, on the bottom shell part, the first side plate part and the second side plate part.

[0006] Further, the sliding fastener mechanism includes a first sliding fastener assembly including a first sliding fastener and a first sliding chute, one of the first sliding fastener and the first sliding chute is disposed at a bottom of the bottom shell part, and another one of the first sliding fastener and the first sliding chute is disposed on a side of the air outlet frame close to the bottom shell part.

[0007] Further, there are a plurality of first sliding fasteners and a plurality of first sliding chutes, and the plurality of first sliding fasteners and the plurality of first sliding chutes are arranged in sequence along a length direction of the bottom shell part and a length direction of the air outlet frame.

[0008] Further, the first sliding fastener is disposed on the air outlet frame and provided with a latch portion, and an angle between a bottom surface of the air outlet assembly and each one of the first sliding chute and the latch portion is α , and $1^\circ < \alpha < 60^\circ$.

[0009] Further, the sliding fastener mechanism includes a second sliding fastener assembly including a second sliding fastener and a second sliding chute, one of the second sliding fastener and the second sliding chute is disposed at an end of the air outlet frame, and another one of the second sliding fastener and the second sliding chute is disposed on the first side plate part and the second side plate part.

[0010] Further, there are a plurality of second sliding fasteners and a plurality of second sliding chutes, and the plurality of second sliding fasteners and the plurality of second sliding chutes are arranged in sequence along a width direction of the air outlet frame.

[0011] Further, the second sliding chute is disposed on the air outlet frame, the second sliding fastener has an insertion end inserted into the second sliding chute, and an angle between a bottom surface of the air outlet assembly and each one of the insertion end and the second sliding chute is β , and $1^\circ < \beta < 60^\circ$.

[0012] Further, the air outlet frame includes a front panel region, a top water receiving tray region and an air outlet located between the front panel region and the top

water receiving tray region.

[0013] Further, the air outlet frame is provided with a screw hole and fixed on the bottom shell part by a screw passing through the screw hole.

[0014] Further, there are a plurality of screw holes, at least one of the plurality of screw holes is disposed in the front panel region, and the other at least one of the plurality of screw holes is disposed in the top water receiving tray region.

[0015] Further, the air outlet assembly further includes a base part mounted at the bottom of the panel component and a middle frame part mounted on the panel component, and the bottom shell part is detachably mounted on the base part.

[0016] According to another aspect of the present invention, an air conditioner is provided, and the air conditioner includes the air outlet assembly above described.

[0017] Through applying the technical solutions of the present invention, during actual usage and assembly, when it is necessary to clean the air outlet assembly, only a force exerted on the air outlet frame is required, so that the air outlet frame may be removed from the bottom shell part, the first side plate part and the second side plate part by pulling out the air outlet frame along the sliding fastener mechanism. The air outlet assembly has a simple structure and is convenient to be assembled and disassembled. In addition, in the present invention, since the air outlet frame is connected to the bottom shell part, the first side plate part and the second side plate part through the sliding fastener mechanism, assembly stability of the air outlet assembly in the present invention can be effectively improved.

BRIEF DESCRIPTION OF DRAWINGS

[0018] The drawings forming part of the present application are used to provide a further understanding of the present invention, the exemplary embodiments of the present invention and their descriptions are used to explain the present invention, and do not constitute an undue limitation on the present invention. In the drawings:

FIG. 1 schematically shows an exploded view of an air outlet assembly of the present invention;
 FIG. 2 schematically shows a first front view of an air outlet assembly of the present invention;
 FIG. 3 schematically shows a first perspective view of an air outlet frame of the present invention;
 FIG. 4 schematically shows a front view of an air outlet frame of the present invention;
 FIG. 5 schematically shows a front view when an air outlet frame of the present invention is assembled on a bottom shell part;
 FIG. 6 schematically shows a second perspective view of an air outlet frame of the present invention;
 FIG. 7 schematically shows a second front view of an air outlet assembly of the present invention;
 FIG. 8 schematically shows an A-A view of the air

outlet assembly in FIG. 7;

FIG. 9 schematically shows a B-B view of the air outlet assembly in FIG. 7;

FIG. 10 schematically shows an enlarged view of the region II of the air outlet assembly in FIG. 9;

FIG. 11 schematically shows a C-C view of the air outlet assembly in FIG. 7;

FIG. 12 schematically shows an enlarged view of the region I of the air outlet assembly in FIG. 11;

FIG. 13 schematically shows a perspective view of a first side plate part of the present invention; and
 FIG. 14 schematically shows a perspective view of a second side plate part of the present invention.

[0019] The above drawings include the following reference signs:

[0020] panel component 10; first side plate part 20; second side plate part 30; bottom shell part 40; air outlet frame 50; front panel region 51; top water receiving tray region 52; air outlet 53; screw hole 54; first sliding fastener assembly 60; first sliding fastener 61; latch portion 611; first sliding chute 62; second sliding fastener assembly 70; second sliding fastener 71; insertion end 711; second sliding chute 72; base part 80; middle frame part 90; and screw 100.

DETAILED DESCRIPTION

[0021] It should be noted that embodiments in the present application and features in the embodiments may be combined with each other without conflict. The present invention will be described in detail below with reference to the drawings and in conjunction with the embodiments.

[0022] It should be noted that terms used herein are only for describing specific embodiments, and are not intended to limit exemplary implementations according to the present application. As used herein, unless otherwise clearly indicated by the context, a singular form is also intended to include a plural form. In addition, it will also be appreciated that when terms of "comprising" and/or "including" are used in this specification, it is indicated that there are features, steps, operations, devices, assembly, and/or combinations thereof.

[0023] It should be noted that terms such as "first", "second", etc., in the specification, claims and above drawings of the present application are intended to distinguish similar objects, and are not necessarily to describe a specific order or a sequential order. It should be understood that terms used in this way may be interchanged under appropriate conditions, such that the embodiments of the present application described herein can be, for example, implemented in an order other than those illustrated or described herein. In addition, terms of "include", "have" and any variations thereof are intended to cover non-exclusive inclusions, for example, processes, methods, systems, products or equipment that include a series of steps or units do not need to clearly list those steps or units, but may include other steps or

units not explicitly listed or inherent to these processes, methods, products, or equipment.

[0024] For convenience of description, spatial relative terms, such as "on.....", "above.....", "on an upper surface of", "upper", etc., may be used herein to describe a spatial position relationship between a device or feature with other devices or features as shown in the drawings. It will be appreciated that the spatial relative terms are intended to contain different orientations in usage or operation in addition to orientations of the device described in the drawings. For example, if a device in the drawings is inverted, the device described as "above another device or structure" or "on another device or structure" may then be located as "below another device or structure" or "below another device or structure". Thus, the exemplary terms "above....." may include both "above....." and "below....." orientations. The device may also be located in other different modes (rotated by 90 degrees or located in other orientations), and the spatial relative description used herein are explained accordingly.

[0025] Referring to FIG. 1 to FIG. 14, according to an embodiment of the utility model, an air outlet assembly is provided. The air outlet assembly in this embodiment includes a panel component 10, a first side plate part 20, a second side plate part 30, a bottom shell part 40, an air outlet frame 50, a base part 80 and a middle frame part 90.

[0026] The middle frame part 90 is mounted on the panel component 10, the base part 80 is mounted at a bottom of the panel component 10, the bottom shell part 40 is detachably mounted on the base part 80, the first side plate part 20 and the second side plate part 30 are fixedly disposed at two ends of the panel component 10 respectively, and the air outlet frame 50 is detachably mounted, by means of a sliding fastener mechanism, on the bottom shell part 40, the first side plate part 20 and the second side plate part 30.

[0027] During actual usage and assembly, when it is necessary to clean the air outlet assembly, only a force exerted on the air outlet frame 50 is required, so that the air outlet frame 50 may be removed from the bottom shell part 40, the first side plate part 20 and the second side plate part 30 by pulling out the air outlet frame 50 along the sliding fastener mechanism. The air outlet assembly has a simple structure and is convenient to be assembled and disassembled. In addition, since the air outlet frame 50 in this embodiment is connected to the bottom shell part 40, the first side plate part 20 and the second side plate part 30 through the sliding fastener mechanism, assembly stability of the air outlet assembly in this embodiment can be effectively improved.

[0028] As shown in a combination of FIG. 4 and FIG. 5, in order to improve structural stability of the air outlet assembly in this embodiment, the air outlet frame 50 is provided with a screw hole 54 and is fixed on the bottom shell part 40 by a screw 100 passing through the screw hole 54, so a structure of the air outlet assembly is stable

and reliable. When the air outlet frame 50 needs to be detached, the screw 100 is first detached, and then the air outlet frame 50 is pulled out. When the air outlet frame 50 needs to be mounted, the air outlet frame 50 is first mounted on the bottom shell part 40, the first side plate part 20 and the second side plate part 30 through the sliding fastener mechanism, and then the air outlet frame 50 is fixed on the bottom shell part 40 by using the screw 100.

[0029] As shown in a combination of FIG. 3 to FIG. 5, the air outlet frame 50 in this embodiment includes a front panel region 51, a top water receiving tray region 52 and an air outlet 53 located between the front panel region 51 and the top water receiving tray region 52. Since the air outlet frame 50 in this embodiment includes the top water receiving tray region 52, in an actual production process, it is not necessary to separately provide a structure for a water receiving tray platen. That is to say, in this embodiment, the water receiving tray platen and a front panel of the air outlet frame 50 is designed as a whole, which is integrally molded by one-time injection, and thus there is no assembly gap, as described in the background, in the top water receiving tray region 52 after the air outlet frame 50 is split. This integral design guarantees appearance integrity of the air outlet assembly, of which an effect is exquisite, and there is no problem of a fusion of a hot airflow and a cold airflow in this region, which fundamentally avoids a hidden danger of condensate water.

[0030] In order to further ensure the assembly stability of the air outlet frame 50, in this embodiment, there are a plurality of screw holes 54, at least one of the plurality of screw holes 54 is disposed in the front panel region 51, and at least one of the plurality of screw holes 54 is disposed in the top water receiving tray region 52. For example, in this embodiment, three screw holes 54 are designed in the top water receiving tray region 52, and two screw holes 54 for fixing are designed in the front panel region 51, such that the air outlet frame 50 may be stably mounted on the bottom shell part 40 by using the screw 100. Of course, in other embodiments of the present invention, other distribution methods of the screw holes 54 may also be used to fix the air outlet frame 50 on the bottom shell part 40, as long as other deformation methods under the concept of the present invention are all within the protection scope of the present invention.

[0031] As shown in a combination of FIG. 7 to FIG. 14, the sliding fastener mechanism of this embodiment includes a first sliding fastener assembly 60, and the first sliding fastener assembly 60 includes a first sliding fastener 61 and a first sliding chute 62. One of the first sliding fastener 61 and the first sliding chute 62 is disposed at a bottom of the bottom shell part 40, and another one of the first sliding fastener 61 and the first sliding chute 62 is disposed on a side of the air outlet frame 50 close to the bottom shell part 40.

[0032] There are a plurality of first sliding fasteners 61 and a plurality of first sliding chutes 62, and the plurality

of first sliding fasteners 61 and the plurality of first sliding chutes 62 are arranged in sequence along a length direction of the bottom shell part 40 and a length direction of the air outlet frame 50, so as to stably position and mount the air outlet frame 50.

[0033] Preferably, in this embodiment, the first sliding fastener 61 is disposed on the air outlet frame 50 and is provided with a latch portion 611. During assembly, the latch portion 611 is inserted into the first sliding chute 62. An angle between a bottom surface of the air outlet assembly and each one of the first sliding chute 62 and the latch portion 611 is α , and $1^\circ < \alpha < 60^\circ$.

[0034] As shown in FIG. 3, there are five first sliding fasteners 61 in this embodiment, and correspondingly, there are also five sliding chutes 62. Of course, in other embodiments of the present invention, the number of the first sliding chutes 62 and the number of the first sliding fasteners 61 may be set to three and so on.

[0035] As shown again in a combination of FIG. 7 to FIG. 14, the sliding fastener mechanism includes a second sliding fastener assembly 70, and the second sliding fastener assembly 70 includes a second sliding fastener 71 and a second sliding chute 72. One of the second sliding fastener 71 and the second sliding chute 72 is disposed at an end of the air outlet frame 50, and another one of the second sliding fastener 71 and the second sliding chute 72 is disposed on the first side plate part 20 and the second side plate part 30.

[0036] Preferably, there are a plurality of, for example two, second sliding fasteners 71 and a plurality of, for example two, second sliding chutes 72, and the plurality of second sliding fasteners 71 and the plurality of second sliding chutes 72 are arranged in sequence along a width direction of the air outlet frame 50.

[0037] Preferably, in this embodiment, the second sliding chute 72 is disposed on the air outlet frame 50, and the second sliding fastener 71 has an insertion end 711 inserted into the second sliding chute 72. An angle between a bottom surface of the air outlet assembly and each one of the insertion end 711 and the second sliding chute 72 is β , and $1^\circ < \beta < 60^\circ$.

[0038] During assembly, in the air conditioner, all of the base part 80, the bottom shell part 40, the first side plate part 20, the second side plate part 30, and the middle frame part 90, etc. are well assembled structures. In this case, the air outlet frame 50 is directly attached to the whole machine through the sliding fastener mechanism from a front of the air conditioner. A specific analysis is as follows.

[0039] First, it can be seen from an analysis of FIG. 3 and FIG. 13 that the second sliding chutes 72 at the two ends of the air outlet frame 50 are respectively engaged to the second sliding fasteners 71 on the first side plate part 20 and the second side plate part 30. A snap-fit connection state is shown in FIG. 11, and a partial enlarged analysis of snap-fit assembly in the two regions is shown in FIG. 12, a front end of the sliding fastener 71 bears against a guiding slope on the second sliding chute 72

to make the sliding fastener 71 slide into the second sliding chute 72. Since a hooking angle of the second sliding fastener 71 and a hanging angle of the second sliding chute 72 have the same angle, for example 24 degrees, a mating surface of the second sliding fastener 71 is parallel to a mating surface of the second sliding chute 72, so as to make the second sliding chute 72 and the second sliding fastener 71 fit each other. An angle between this mating surface of the second sliding chute 72 or the second sliding fastener 71 and a horizontal is an acute angle, which can play a certain hooking effect in terms of mechanical properties. Therefore, this connection structure can play a preliminary hooking and correcting assembly function. Due to an optimal design of the hooking angle of the second sliding fastener 71, the angle between this mating surface of the second sliding chute 72 or the second sliding fastener 71 and a horizontal does not form a larger inclination angle, which keeps a propulsive force direction during assembly and a conventional assembly operation force direction within a range, and therefore, it is relatively easy to realize an assembly operation.

[0040] Second, the first sliding fasteners 61 on a front of a back of the front panel of the air outlet frame 50 shown in FIG. 3 are respectively matched with the first sliding chutes 62 on a front of the bottom shell part 40 shown in FIG. 5, and the assembly situation is shown in FIG. 9. A partial enlarged view of matching the first sliding chute 62 with the first sliding fastener 61 is shown in FIG. 10, a lower edge opening angle of the first sliding chute 62 of 20 degrees is matched with a hooking angle of the first sliding fastener 61 of 21 degrees, which can smoothly guide the first sliding fastener 61 on the back of the panel of the air outlet frame 50 into the first sliding chute 62 during an assembly process, and achieves a certain pulling and tightening effect, such that the front panel region 51 of the air outlet frame 50 fits better with the whole machine, so as to avoid an appearance problem of distortion due to warping deformation of the front panel region 51 of the air outlet frame 50.

[0041] Third, after the first sliding fastener assembly 60 and the second sliding fastener assembly 70 above described are hooked into suitable positions, a basic assembly of the air outlet frame 50 is achieved. However, the first sliding fastener assembly 60 and the second sliding fastener assembly 70 are not enough to complete an assembly of fastening the air outlet frame. Therefore, three screw holes 54 for fastening are designed in the top water receiving tray region 52 of the air outlet frame 50, and two screw holes 54 for fixing are designed in the front panel region 51 of the air outlet frame 50. After the assembly of the first sliding fastener assembly 60 and the second sliding fastener assembly 70 are completed, all assembly hole for housing each screw 100 of the air outlet frame 50 are automatically aligned to the screw holes 54. In this case, the screw 100 for fastening is directly mounted into a corresponding screw hole 54, and thus an entire assembly operation of the air outlet frame 50 is completed.

[0042] The hanging angle of the second sliding chute 72 and the hooking angle of the first sliding fastener 61 designed on the two ends of the air outlet frame 50 are verified by actual prototypes. They have a good fixing effect and convenient disassembly, which can not only meet integrity and micro-deformation requirements proposed for an appearance, but also improve reliability of the entire assembly.

[0043] Based on the above analysis, by adopting this structure design of the air outlet frame in a design of the modular air conditioner, the water receiving tray platen is integrated with the front panel of the air outlet frame, and a fixing solution of matching and fastening each of the first sliding fastener assembly and the second sliding fastener assembly with a screw is adopted, which not only achieves requirements of a beautiful appearance of the air outlet frame, but also improves a condensation performance, and ensures reliability of a fasten connection of the whole machine, so as to ensure that the air outlet frame can still be closely connected to the whole machine after multiple disassembly and assembly. In addition, an optimized snap-fit matching angle can make a disassembly angle directly fall into an actual controllable range of the assembly operation, which greatly facilitates a disassembly and assembly operation of actual production and after-sales maintenance.

[0044] In order to realize a detachable operation of the air outlet frame, the applicant has filed an all-snap-fit design which does not require fastening screws in an early stage. In this design, a structure of guide-hook and lever-limiting is used to fix an air outlet frame. This assembly is relatively cumbersome during assembly, the fastening effect is not good, and the reliability of the whole machine after assembly is unstable. In the early stage, the applicant has filed a patent related to an appearance and assembly of an air outlet frame assembly of which a front panel region of the air outlet frame is detachable. However, this solution has problems such as many production parts, low production efficiency, inconvenient production management, and the like.

[0045] According to another aspect of the present invention, an air conditioner is provided, and the air conditioner includes the air outlet assembly described in the above embodiments.

[0046] From the above description, it can be seen that the above embodiments of the present invention achieve technical effects as follows.

[0047] Based on a design concept of the modular air conditioner, this design invents an integral air outlet frame which is connected to the first and second side plate parts through a snap-fit and fastened to the bottom shell part with the screws. This structure not only facilitates the disassembly and maintenance of internal parts for an air and water duct system (bottom shell parts), but also obtains a better appearance effect and a better condensation performance at the air outlet. The air outlet frame is a main structure for blocking the bottom shell parts of the air and water duct system to be moved out

of the whole machine. The air outlet frame not only plays a role of exhausting and guiding air, but also is a main appearance component facing the users, and its structural design may directly affect the final appearance effect of the whole machine.

[0048] The air outlet assembly of the present invention realizes the quick disassembly and assembly of internal parts for the air duct and the water duct, which is convenient for after-sales maintenance, cleaning and disassembly, and can ensure a better appearance effect. The design of the sliding fastener mechanism takes into account a fixing effect and a convenience of disassembly, and has a good assembly performance.

[0049] The foregoing descriptions are merely the preferred embodiments of the present invention, and are not intended to limit this invention. For those skilled in the art, the present invention may have various changes and variations. Any modification, equivalent replacement, improvement, etc. made within the spirit and principles of this invention shall be included within the scope of protection of this invention.

Claims

1. An air outlet assembly, comprising:

a panel component (10), a first side plate part (20) and a second side plate part (30), and the first side plate part (20) and the second side plate part (30) being disposed at two ends of the panel component (10);

a bottom shell part (40) located at a bottom of the panel component (10); and an air outlet frame (50) detachably mounted, by means of a sliding fastener mechanism, on the bottom shell part (40), the first side plate part (20) and the second side plate part (30).

2. The air outlet assembly according to claim 1, wherein the sliding fastener mechanism comprises a first sliding fastener assembly (60) comprising a first sliding fastener (61) and a first sliding chute (62), one of the first sliding fastener (61) and the first sliding chute (62) is disposed at a bottom of the bottom shell part (40), and another one of the first sliding fastener (61) and the first sliding chute (62) is disposed on a side of the air outlet frame (50) close to the bottom shell part (40).

3. The air outlet assembly according to claim 2, wherein there are a plurality of first sliding fasteners (61) and a plurality of first sliding chutes (62), and the plurality of first sliding fasteners (61) and the plurality of first slide grooves (62) are arranged in sequence along a length direction of the bottom shell part (40) and a length direction of the air outlet frame (50).

4. The air outlet assembly according to claim 2, wherein the first sliding fastener (61) is disposed on the air outlet frame (50) and provided with a latch portion (611), and an angle between a bottom surface of the air outlet assembly and each one of the first sliding chute (62) and the latch portion (611) is a , and $1^\circ < a < 60^\circ$. 5
5. The air outlet assembly according to claim 1, wherein the sliding fastener mechanism comprises a second sliding fastener assembly (70) comprising a second sliding fastener (71) and a second sliding chute (72), one of the second sliding fastener (71) and the second sliding chute (72) is disposed at an end of the air outlet frame (50), and another one of the second sliding fastener (71) and the second sliding chute (72) is disposed on the first side plate part (20) and the second side plate part (30). 10 15
6. The air outlet assembly according to claim 5, wherein there are a plurality of second sliding fasteners (71) and a plurality of second sliding chutes (72), and the plurality of second sliding fasteners (71) and the plurality of second sliding chutes (72) are arranged in sequence along a width direction of the air outlet frame (50). 20 25
7. The air outlet assembly according to claim 5, wherein the second sliding chute (72) is disposed on the air outlet frame (50), the second sliding fastener (71) has an insertion end (711) inserted into the second sliding chute (72), and an angle between a bottom surface of the air outlet assembly and each one of the insertion end (711) and the second sliding chute (72) is b , and $1^\circ < b < 60^\circ$. 30 35
8. The air outlet assembly according to any one of claims 1 to 7, wherein the air outlet frame (50) comprises a front panel region (51), a top water receiving tray region (52) and an air outlet (53) located between the front panel region (51) and the top water receiving tray region (52). 40
9. The air outlet assembly according to claim 8, wherein the air outlet frame (50) is provided with a screw hole (54) and fixed on the bottom shell part (40) by a screw (100) passing through the screw hole (54). 45
10. The air outlet assembly according to claim 9, wherein there are a plurality of screw holes (54), at least one of the plurality of screw holes (54) is disposed in the front panel region (51), and at least one of the plurality of screw holes (54) is disposed in the top water receiving tray region (52). 50 55
11. The air outlet assembly according to any one of claims 1 to 7, further comprising a base part (80) mounted at the bottom of the panel component (10) and a middle frame part (90) mounted on the panel component (10), wherein the bottom shell part (40) is detachably mounted on the base part (80).
12. An air conditioner, comprising an air outlet assembly, wherein the air outlet assembly is the air outlet assembly according to any one of claims 1 to 11.

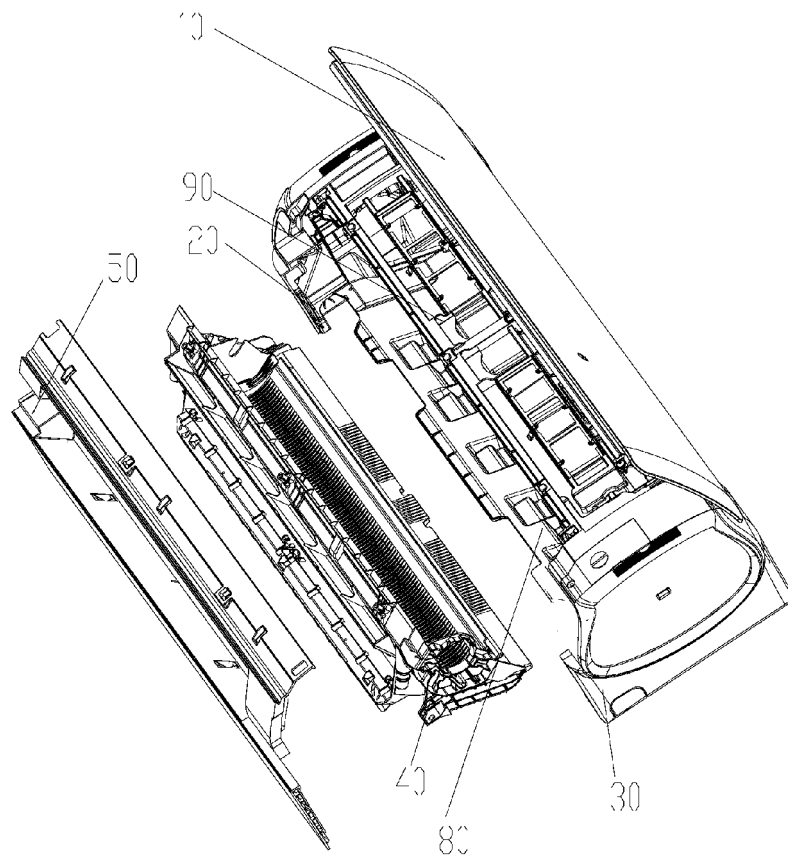


FIG. 1

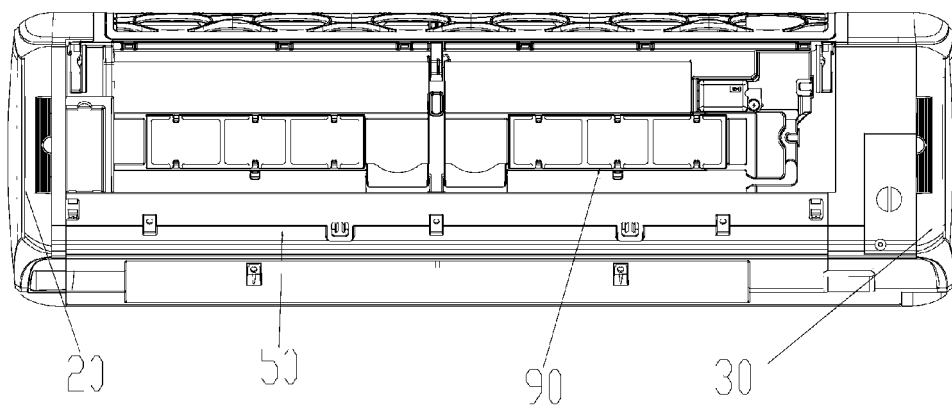


FIG. 2

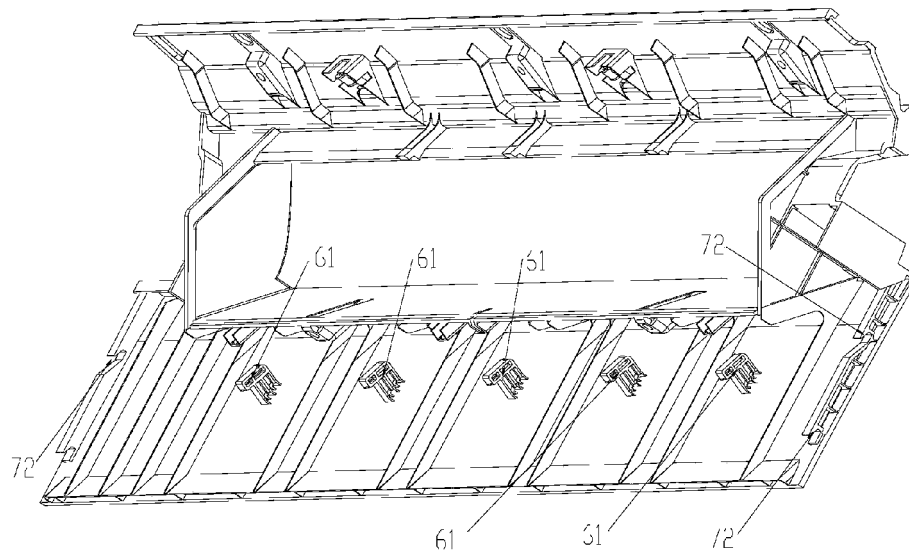


FIG. 3

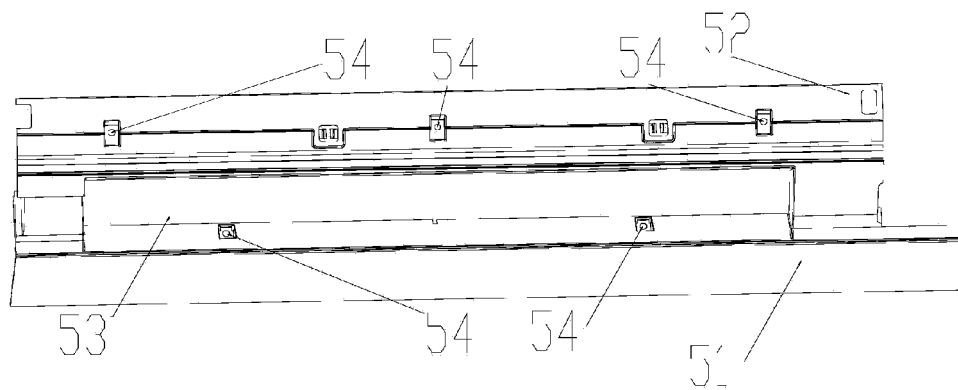


FIG. 4

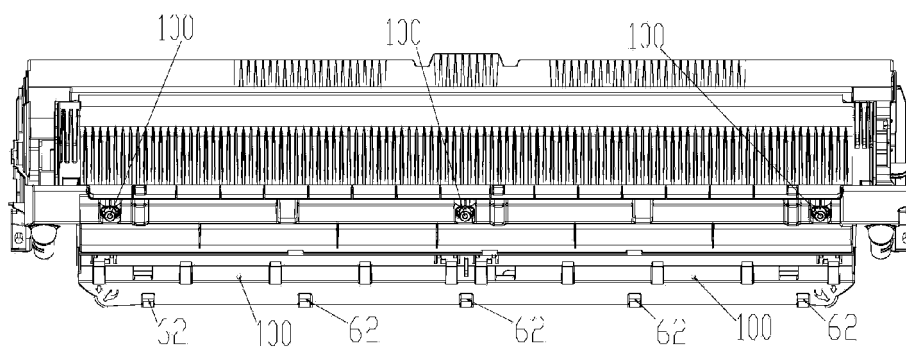


FIG. 5

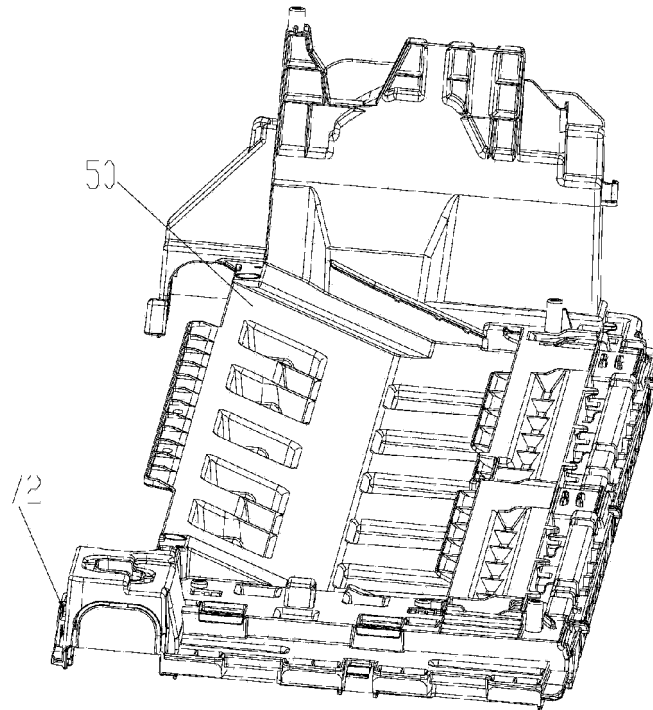


FIG. 6

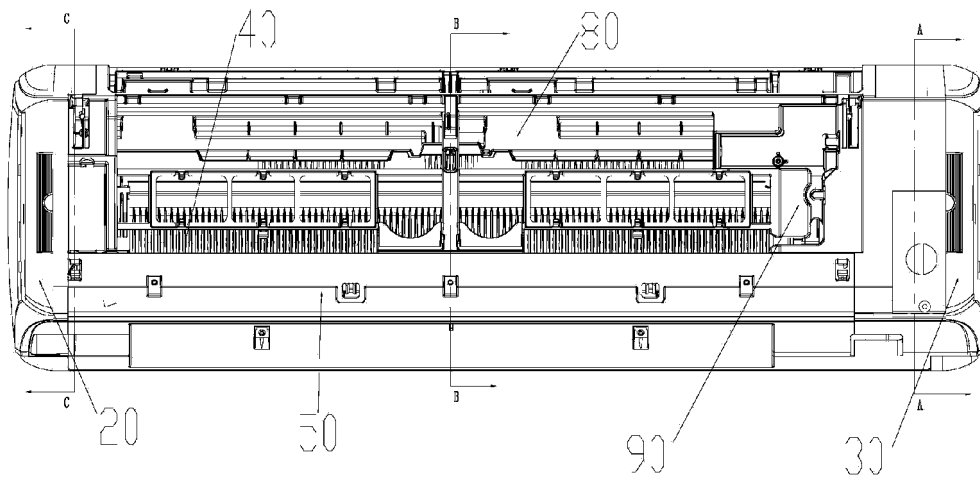


FIG. 7

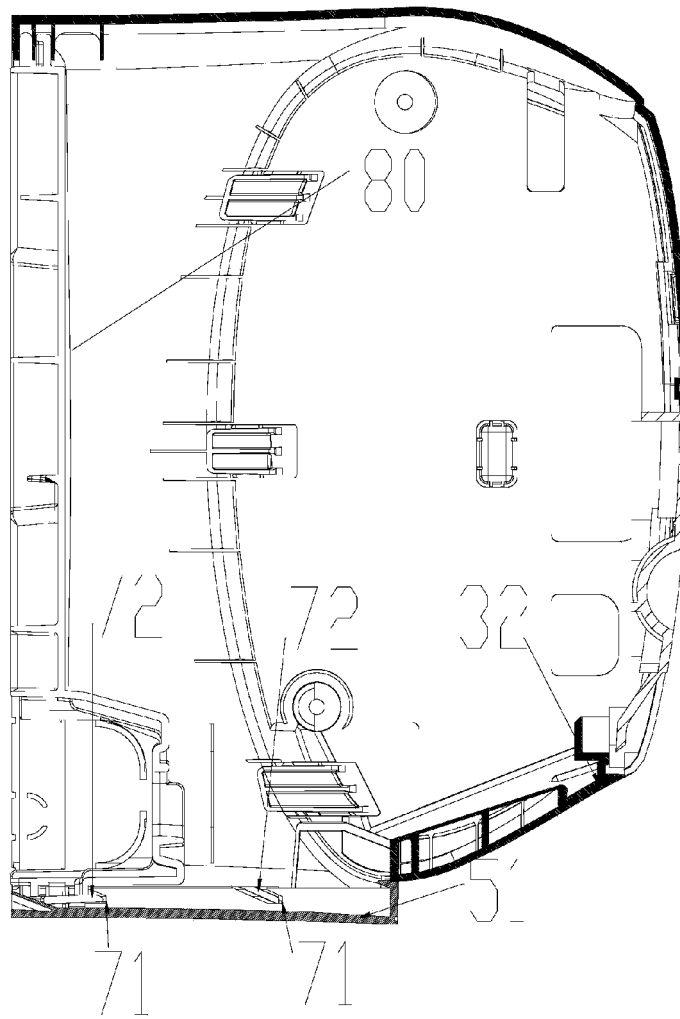


FIG. 8

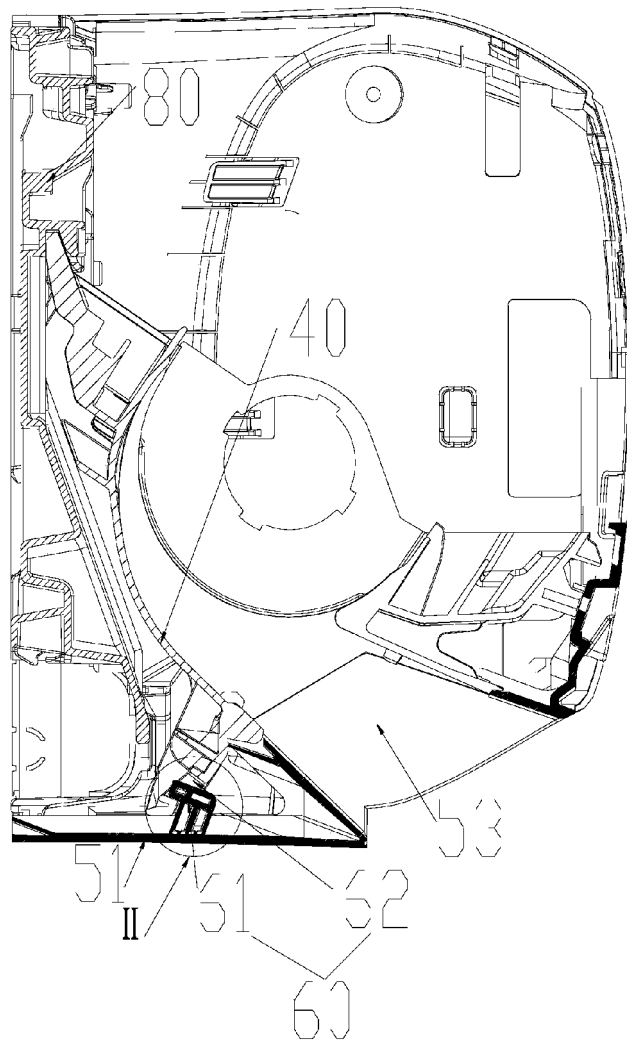


FIG. 9

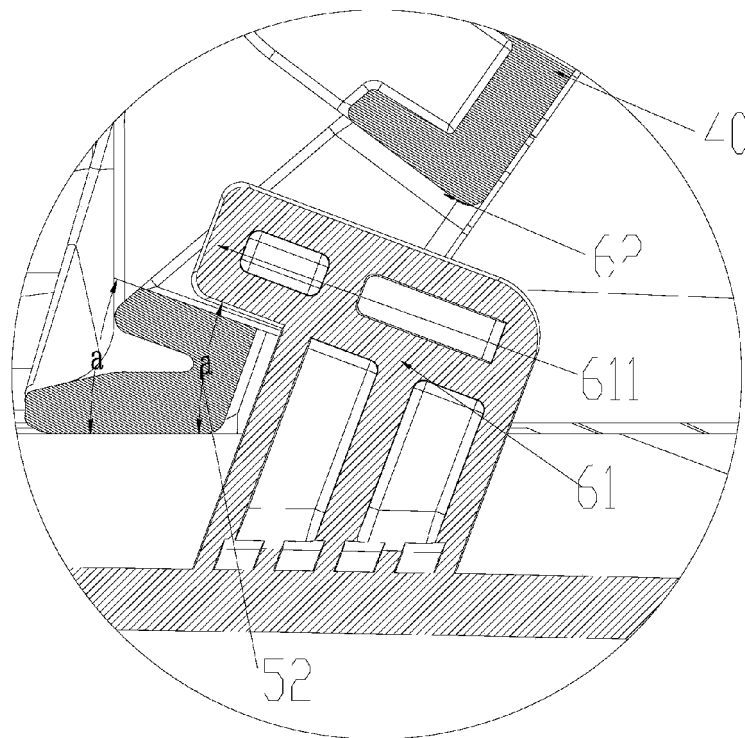


FIG. 10

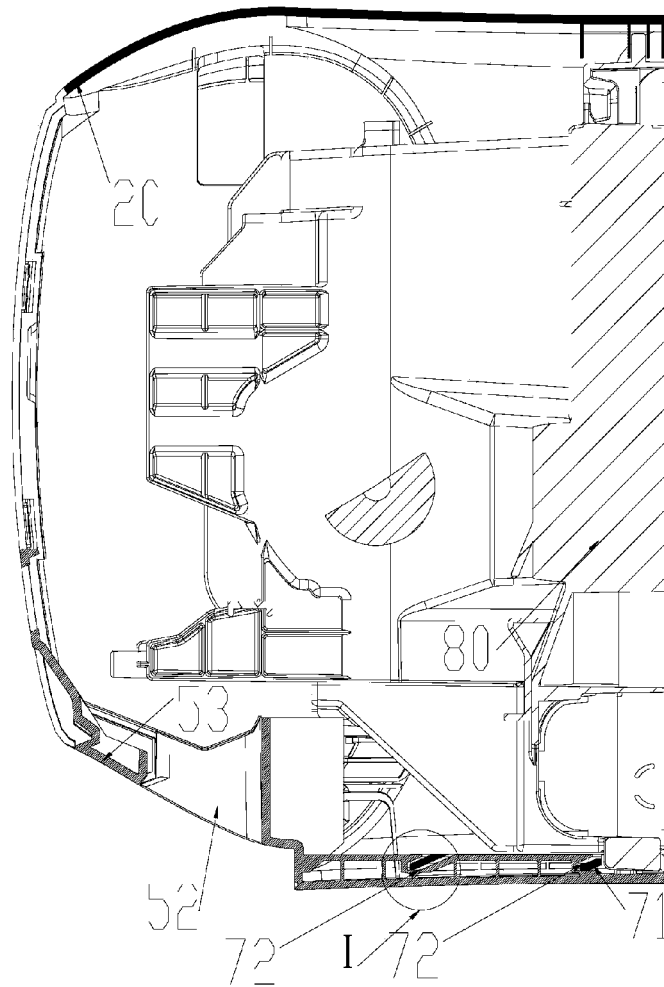


FIG. 11

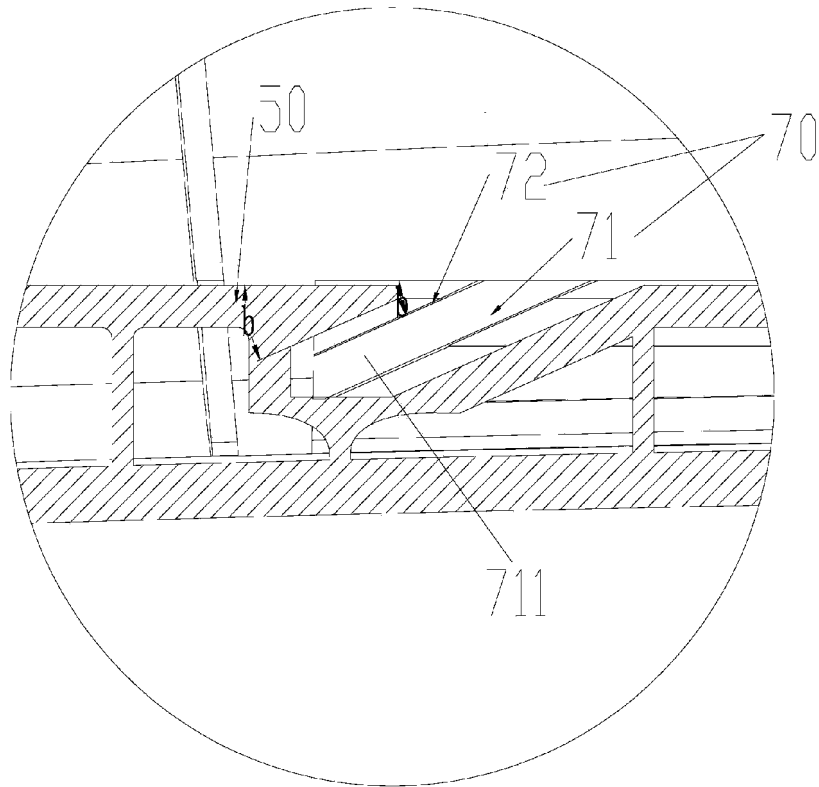


FIG. 12

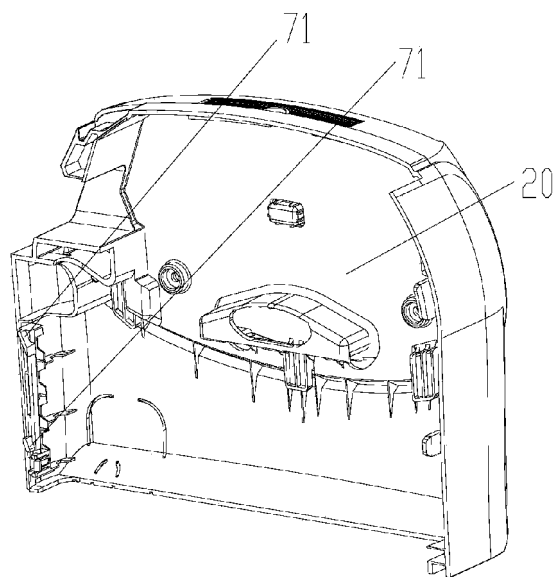


FIG. 13

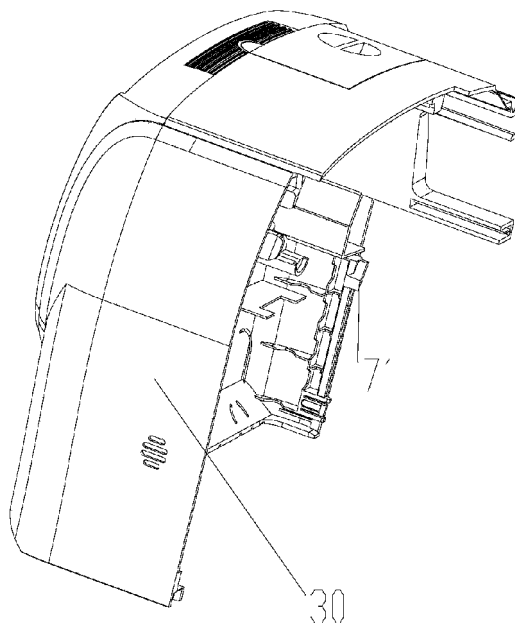


FIG. 14

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2018/119837

5	A. CLASSIFICATION OF SUBJECT MATTER		
	F24F 1/00(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		
10	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		
15	Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) CNABS, CNTXT, VEN: 出风, 框, 底盘, 底壳, 壳体, 滑扣, 滑动, 拆卸, outlet, frame, chassis, shell, casing, base, slid+, detach+		
	C. DOCUMENTS CONSIDERED TO BE RELEVANT		
20	Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
	Y	CN 106765594 A (MIDEA GROUP WUHAN REFRIGERATION EQUIPMENT CO., LTD. ET AL.) 31 May 2017 (2017-05-31) description, paragraphs [0033]-[0043], and figures 1-8	1-12
25	Y	CN 107543298 A (GREE ELECTRIC APPLIANCES, INC. OF ZHUHAI) 05 January 2018 (2018-01-05) description, paragraphs [0055]-[0075], and figures 1-21	1-12
	Y	CN 107655190 A (GREE ELECTRIC APPLIANCES, INC. OF ZHUHAI) 02 February 2018 (2018-02-02) description, paragraphs [0035]-[0054], and figures 1-12	1-12
30	Y	CN 106705242 A (GD MIDEA AIR-CONDITIONING EQUIPMENT CO., LTD. ET AL.) 24 May 2017 (2017-05-24) description, paragraphs [0037]-[0054], and figures 1-7	1-12
	Y	CN 106705239 A (GD MIDEA AIR-CONDITIONING EQUIPMENT CO., LTD. ET AL.) 24 May 2017 (2017-05-24) description, paragraphs [0040]-[0058], and figures 1-9	1-12
35	PX	CN 208012043 U (GREE ELECTRIC APPLIANCES, INC. OF ZHUHAI) 26 October 2018 (2018-10-26) claims 1-12	1-12
	☒ Further documents are listed in the continuation of Box C. ☒ See patent family annex.		
40	* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "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 "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family
45	Date of the actual completion of the international search 13 February 2019		Date of mailing of the international search report 07 March 2019
50	Name and mailing address of the ISA/CN State Intellectual Property Office of the P. R. China No. 6, Xitucheng Road, Jimenqiao Haidian District, Beijing 100088 China		Authorized officer
55	Facsimile No. (86-10)62019451		Telephone No.

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C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP 2014163556 A (FUJITSU GENERAL LTD.) 08 September 2014 (2014-09-08) entire document	1-12
A	CN 102472508 A (SHARP CORPORATION) 23 May 2012 (2012-05-23) entire document	1-12

INTERNATIONAL SEARCH REPORT
Information on patent family members

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CN 107543298 A	05 January 2018	None	
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		EP 3376124 A1	19 September 2018
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REFERENCES CITED IN THE DESCRIPTION

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