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(54) **AIR CONDITIONER INDOOR UNIT**

(57) Disclosed is an air conditioner indoor unit, including a fresh air device (2000) having a fresh air outlet (2220). The air conditioner indoor unit further includes an indoor unit panel (50) configured to shield an air outlet of the air conditioner indoor unit, and the indoor unit panel has a receiving hole (53) communicating with the fresh air outlet (2220). The receiving hole (53) is located at a side of the fresh air device (2000) proximate to the air outlet. The air conditioner indoor unit of the present invention solves a problem of poor fluidity of fresh air flow at the fresh air outlet of the air conditioner indoor unit in prior art.

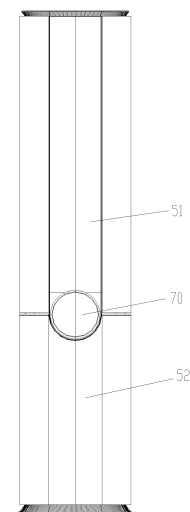


FIG. 1

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Description

Technical Field

[0001] The present invention relates to a field of household appliances, in particular, to an air conditioner indoor unit.

Technical Background

[0002] In recent years, due to a rapid expansion of an economic scale and a rapid urbanization process, air pollution is becoming more and more serious, and perennial fog and haze weather has appeared in most cities in China. Increase of PM2.5 concentration directly leads to a frequent occurrence of the dust and haze weather and a sharp increase of toxic and harmful substances in fog, which has seriously threatened human health. In this case, a conventional and comfort household air conditioner cannot meet requirements of people, and health, comfort, and environmental protection have become development goals of modern air conditioners.

[0003] For an ordinary air conditioner, in order to ensure an air conditioning effect thereof, it is required that an air-conditioned room must be closed. As a result, indoor fine dust, smoke, bacteria, virus, and waste gas increase continuously, and oxygen content decreases continuously, so that air quality becomes worse and worse. In recent years, with people's increasing attention to an "air conditioning disease", it has begun to require people not to stay in an air-conditioned room for a long time, and to open windows to let in fresh air, or to supplement fresh air to the room by means of leakage through gaps between doors and windows under a negative pressure formed by indoor exhaust, so as to improve the indoor environment.

[0004] At present, there is not only a single purifier of air filtration system, but also a purifier of pure fresh air system which combines a total heat exchanger and an air filter system for energy saving, which can be used to solve an indoor air pollution problem.

[0005] Development trend of air conditioner requires the following functions in addition to that of an ordinary air conditioner:

- (1) Exchanging fresh air;
- (2) Eliminating pollution and purifying air;
- (3) Energy saving and heat recovery.

Summary of the Invention

[0006] A main objective of the present invention is to provide an air conditioner indoor unit, so as to solve the problem of poor fluidity of fresh air at a fresh air outlet of an air conditioner indoor unit in the prior art.

[0007] In order to achieve the above objective, the present invention provides an air conditioner indoor unit including a fresh air device having a fresh air outlet. The

air conditioner indoor unit further includes an indoor unit panel configured to shield an air outlet of the air conditioner indoor unit, and the indoor unit panel has a receiving hole communicating with the fresh air outlet, and the receiving hole is located at a side of the fresh air device proximate to the air outlet.

[0008] Further, the air conditioning indoor unit further includes an air baffle portion. At least portion of the air baffle portion is disposed inside the receiving hole. The air baffle portion has a first position and a second position, and the air baffle portion is movably disposed between the first position and the second position. The air baffle portion closes and blocks the receiving hole when the air baffle portion is located at the first position. The air baffle portion is separated from the receiving hole when the air baffle portion is moved to the second position to allow the fresh air device to blow air through a gap between the receiving hole and the air baffle portion.

[0009] Further, the air baffle portion includes an air baffle member. The air baffle member is adjustably disposed in the receiving hole, and the air baffle member closes and blocks the receiving hole when the air baffle portion is located at the first position; and the air baffle member is separated from the indoor unit panel when the air baffle portion is located at the second position.

[0010] Further, the receiving hole includes a tapered hole section, and an outer wall surface of the air baffle member matches an inner wall surface of the tapered hole section.

[0011] Further, the air baffle portion includes a covering member connected to the air baffle member and located at a side of the air baffle member away from the fresh air device. The covering member is provided over and covers the air baffle member to shield the air baffle member.

[0012] Further, the covering member has a disk structure, and an outer surface of the covering member is flush with the indoor unit panel.

[0013] Further, the air conditioner indoor unit includes an air out duct housing. The out duct housing is disposed inside the indoor unit panel, and has an air out duct. One end of the air out duct communicates with the fresh air outlet, and another end of the air out duct communicates with the receiving hole to allow fresh air to enter the receiving hole through the air out duct.

[0014] Further, the air baffle member includes an air baffle body portion and a receiving portion connected to the air baffle body portion. The receiving portion is located at a side of the air baffle body portion proximate to the fresh air device. The receiving portion is disposed under the air out duct. And the air baffle body portion is disposed in front of the air out duct. The fresh air blows from a gap between the receiving hole and the air baffle body portion through the air out duct when the air baffle member is located at the second position.

[0015] Further, the receiving portion has a first receiving space, and the air conditioner indoor unit includes a moving portion. The moving portion is connected to the

air out duct housing. At least part of the moving portion is located inside the first receiving space, and the moving portion is in a transmission connection with the air baffle portion to drive the air baffle portion to move.

[0016] Further, an end of the air out duct proximate to the air baffle portion has a strip-shaped passage.

[0017] Further, the strip-shaped passage is arc-shaped. The strip-shaped passage has an arc-shaped curved surface, and the receiving portion has an outer wall surface matching the arc-shaped curved surface. The receiving portion is located under the air out duct when the air baffle portion is located at the first position.

[0018] Further, the indoor unit panel includes a front panel and a lower panel disposed under the front panel. The receiving hole is disposed in the front panel. The front panel has a first end and a second end provided opposite to each other. The front panel has a protrusion protruding from the second end. At least part of the receiving hole is disposed in the protrusion, and the lower panel has a groove matching the protrusion to enable the lower panel to be mounted on the front panel.

[0019] Further, the protrusion has a mounting surface and a blocking surface connected to the mounting surface, an inner side surface of the lower panel fits the mounting surface, and the groove abuts the blocking surface.

[0020] Further, the blocking surface is an arc-shaped curved surface, and the groove is an arc-shaped groove matching the blocking surface.

[0021] Further, the air conditioner indoor unit further includes a cooling and heating device located above the fresh air device. The fresh air outlet is provided at an upper end of the fresh air device.

[0022] Further, the air conditioner indoor unit further includes: an induction device configured to detect an air quality of indoor air; and a light emitting device provided on the covering member and located within the air baffle portion. The light emitting device is in a signal communication with the induction device to receive air quality information detected by the induction device and display light of a corresponding color according to the air quality information.

[0023] By means of providing the receiving hole at the side of the fresh air device proximate to the air outlet, the air conditioner indoor unit of the present invention enables fresh air to blow from the side proximate to the air outlet of the air conditioner indoor unit. Such an arrangement enables air exhaust of the air conditioner to blow fresh air from the fresh air outlet to different positions in the room, thereby avoiding a short circuit between the fresh air and polluted air, and enhancing fluidity of the fresh air.

Brief Description of Drawings

[0024] The accompanying drawings, which form part of the present application, are intended to provide a further understanding of the present invention, and illustrative

embodiments of the present invention and the description thereof are intended to explain the present invention, but not constitute undue limitations on the present invention. In the drawings:

FIG. 1 shows a front view of an embodiment of an air conditioner indoor unit according to the present invention;

FIG. 2 shows a side view of an embodiment of the air conditioner indoor unit according to the present invention;

FIG. 3 shows a top view of an embodiment of the air conditioner indoor unit according to the present invention;

FIG. 4 shows an exploded view of an embodiment of the air conditioner indoor unit according to the present invention;

FIG. 5 shows a sectional view of the air conditioner indoor unit according to the present invention from a first visual angle;

FIG. 6 shows a sectional view of the air conditioner indoor unit according to the present invention from a second visual angle;

FIG. 7 shows a sectional view of the air conditioner indoor unit according to the present invention from a third visual angle;

FIG. 8 shows an assembled view of an evaporator portion and an air intake panel portion of the air conditioner indoor unit according to the present invention;

FIG. 9 shows an exploded view of the evaporator portion and the air intake panel portion of the air conditioner indoor unit according to the present invention;

FIG. 10 shows an assembled view of air duct portions of the air conditioner indoor unit according to the present invention;

FIG. 11 shows an exploded view of the air duct portions of the air conditioner indoor unit according to the present invention;

FIG. 12 shows an assembled view of a fresh air device and an air outlet structure of the air conditioner indoor unit according to the present invention;

FIG. 13 shows an exploded view of the fresh air device and the air outlet structure of the air conditioner indoor unit according to the present invention;

FIG. 14 shows an assembled view of a front panel of the air conditioner indoor unit according to the present invention;

FIG. 15 shows an exploded view of the front panel of the air conditioner indoor unit according to the present invention;

FIG. 16 shows an assembled view of a lower panel of the air conditioner indoor unit according to the present invention;

FIG. 17 shows an exploded view of the lower panel of the air conditioner indoor unit according to the present invention;

FIG. 18 shows an exploded view of an embodiment of the air outlet structure according to the present invention;

FIG. 19 shows a structural schematic diagram of a moving portion of the air outlet structure according to the present invention from one visual angle;

FIG. 20 shows a structural schematic diagram of a moving member of a moving portion of an air outlet structure according to the present invention;

FIG. 21 shows a structural schematic diagram of a moving portion of an air outlet structure according to the present invention from another visual angle;

FIG. 22 shows an exploded view of another embodiment of the air outlet structure according to the present invention;

FIG. 23 shows a structural schematic diagram of another embodiment of the air outlet structure according to the present invention from one visual angle;

FIG. 24 shows a structural schematic diagram of another embodiment of the air outlet structure according to the present invention from another visual angle;

FIG. 25 shows a structural schematic diagram of an air baffle member of the air outlet structure according to the present invention;

FIG. 26 shows a front view of the air baffle member of the air outlet structure according to the present invention;

FIG. 27 shows a side view of the air baffle member of the air outlet structure according to the present invention from one visual angle;

FIG. 28 shows a side view of the air baffle member of the air outlet structure according to the present invention from another visual angle;

FIG. 29 shows a structural schematic diagram of a covering member of the air outlet structure according to the present invention;

FIG. 30 shows a front view of the covering member of the air outlet structure according to the present invention;

FIG. 31 shows a side view of the covering member of the air outlet structure according to the present invention from one visual angle;

FIG. 32 shows a side view of the covering member of the air outlet structure according to the present invention from another visual angle;

FIG. 33 is a schematic view illustrating the covering member mounted on the air baffle member of the air outlet structure according to the present invention; and

FIG. 34 is a schematic view illustrating the covering member being removed from the air baffle member of the air outlet structure according to the present invention.

[0025] Where, the above accompanying drawings include the following reference signs:

10. air baffle member; 12. air baffle body portion; 13. receiving portion; 20. covering member; 30. moving portion; 50. indoor unit panel; 51. front panel; 511. protrusion; 52. lower panel; 53. receiving hole; 60. air out duct housing; 61. air out duct; 70. air baffle portion; 1000. cooling and heating device; 1100. air intake panel portion; 1200. evaporator portion; 1300. air duct portion; 1400. air out frame portion; 1600. top cover; 2000. fresh air device; 2100. fresh air housing; 2200. fresh air passage; 2210. fresh air inlet; 2220. fresh air outlet; 2300. polluted air passage; 2310. polluted air inlet; 2320. polluted air outlet; 2400. heat exchange core; 2500. motor; 2600. fresh air blade; 2700. air exhaust blade; 2800. first filter screen; 2900. second filter screen; 31. support member; 311. first sliding groove; 312. rolling portion; 313. first stopper; 314. second sliding groove; 315. second stopper; 32. transmission assembly; 321. transmission gear; 322. transmission rack; 323. push rod; 324. retaining ring; 325. first screw; 326. washer; 33. moving member; 331. third receiving space; 333. first sliding portion; 3331. first sliding column; 334. fourth receiving space; 335. rolling groove; 336. first moving block; 34. driving motor; 72. second mounting portion; 721. mounting rod; 722. support plate; 723. second sliding portion; 724. second moving block; 11. second connection assembly; 111. first mounting portion; 1111. adjustable plate; 1112. first support portion; 1113. first mounting plate; 112. second mounting portion; 1121. second support portion; 1122. second mounting plate; 12. air baffle body portion; 13. receiving portion; 20. covering member; 21. first connection assembly; 211. first locking member; 2111. first connection portion; 2112. locking hook; 212. second locking member; 2121. second connection portion; 2122. stopper.

Detailed Description of the Preferred Embodiments

[0026] It should be noted that embodiments of the present application and features in the embodiments may be combined with each other if there is no conflict. Hereinafter, the present invention will be described in detail with reference to the accompanying drawings and in conjunction with the embodiments.

[0027] Please refer to FIG. 1 to 17, the present invention provides an air conditioner indoor unit including a fresh air device 2000. The fresh air device 2000 has a fresh air outlet 2220. The air conditioner indoor unit further includes an indoor unit panel 50 configured to shield an air outlet of the air conditioner indoor unit. The indoor unit panel 50 has a receiving hole 53 which is in communication with the fresh air outlet 2220, and the receiving hole 53 is located at a side of the fresh air device 2000 proximate to the air outlet.

[0028] By means of providing the receiving hole 53 at the side of the fresh air device 2000 proximate to the air outlet, the air conditioner indoor unit of the present invention enables fresh air to blow from the side proximate to the air outlet of the air conditioner indoor unit. Such an arrangement enables air exhaust of the air conditioner to blow fresh air from the fresh air outlet to different positions in the room, thereby avoiding a short circuit between the fresh air and polluted air, and enhancing fluidity of the fresh air.

[0029] In an embodiment, the air conditioner indoor unit further includes an air baffle portion 70. At least part of the air baffle portion 70 is disposed inside the receiving hole 53. The air baffle portion 70 has a first position and a second position, and the air baffle portion 70 may be movably disposed between the first position and the second position, so that the air baffle portion 70 closes and blocks the receiving hole 53 when the air baffle portion 70 is located at the first position, and that the air baffle portion 70 is separated from the receiving hole 53 when the air baffle portion 70 is moved to the second position, thus the fresh air device 2000 may blow air through a gap between the receiving hole 53 and the air baffle portion 70.

[0030] In a specific implementation, the air baffle portion 70 includes an air baffle member 10. The air baffle member 10 is adjustably provided in the receiving hole 53. The air baffle member 10 is closed and blocked in the receiving hole when the air baffle portion 70 is located at the first position. When the air baffle portion 70 is located at the second position, the air baffle member 10 is separated from the indoor unit panel 50.

[0031] In a specific implementation, the receiving hole 53 includes a tapered hole section, and an outer wall surface of the air baffle member 10 matches an inner wall surface of the tapered hole section. Such an arrangement enables the fresh air to flow upward and forward, and the exhaust air of the air conditioner indoor unit may blow the fresh air to farther positions.

[0032] In the present embodiment, the air baffle portion 70 includes a covering member 20. The covering member 20 is connected to the air baffle member 10 and located at a side of the air baffle member 10 away from the fresh air device 2000. The covering member 20 is provided over and covers the air baffle member 10, so as to shield the air baffle member 10. In this way, the air baffle member 10 and the covering member 20 constitute a relatively sealed space, thereby protecting a moving mechanism therein, further preventing dust and insects, and reducing noise of movement. Moreover, such an arrangement may prevent a child from possibly touching a moving portion, thereby improving safety.

[0033] In a specific implementation, the covering member 20 has a disk structure, and an outer surface of the covering member 20 is flush with the indoor unit panel 50. Such an arrangement makes the air outlet structure more beautiful.

[0034] In an embodiment, the air conditioner indoor

unit includes an air out duct housing 60. The out duct housing 60 is disposed inside the indoor unit panel 50, and has an air out duct 61. One end of the air out duct 61 communicates with the fresh air outlet 2220, and another end of the air out duct 61 communicates with the receiving hole, so that the fresh air enters the receiving hole through the air out duct 61. The fresh air is air generated by the fresh air device 2000.

[0035] In a specific implementation, the air baffle member 10 includes an air baffle body portion 12 and a receiving portion 13 connected to the air baffle body portion 12. The receiving portion 13 is located at a side of the air baffle body portion 12 proximate to the fresh air device 2000. The receiving portion 13 is disposed under the air out duct 61, and the air baffle body portion 12 is disposed in front of the air out duct 61, so that the fresh air blows from a gap between the receiving hole 53 and the air baffle body portion 12 through the air out duct 61 when the air baffle portion 70 is located at the second position.

[0036] In order to realize a movement of the air baffle portion 70, the receiving portion 13 has a first receiving space. The air conditioner indoor unit includes a moving portion 30 connected to the air out duct housing 60, and at least part of the moving portion 30 is located inside the first receiving space. The moving portion 30 is in a transmission connection with the air baffle portion 70 to drive the air baffle portion 70 to move.

[0037] In a specific implementation, the first receiving space is provided with a moving portion mounting plate, and at least part of the moving portion 30 is fixedly arranged on the moving portion mounting plate, so that the moving portion 30 drives the air baffle member 10 to move.

[0038] In a specific implementation, one end of the air out duct 61 proximate to the air baffle portion 70 has a strip-shaped passage.

[0039] Preferably, the strip-shaped passage is arc-shaped. The strip-shaped passage has an arc-shaped curved surface, and the receiving portion 13 has an outer wall surface matching the arc-shaped curved surface, so that the receiving portion 13 is located under the air out duct 61 when the air baffle portion 70 is located at the first position.

[0040] In a specific implementation, the indoor unit panel 50 includes a front panel 51 and a lower panel 52 disposed under the front panel 51. The receiving hole 53 is disposed in the front panel 51. The front panel 51 has a first end and a second end opposite to each other. The front panel 51 has a protrusion 511 protruding from the second end. At least part of the receiving hole is disposed in the protrusion 511, and the lower panel 52 has a groove matching the protrusion 511, so that the lower panel 52 is mounted on the front panel 51.

[0041] In a specific implementation, the protrusion 511 has a mounting surface and a blocking surface connected to the mounting surface. An inner side surface of the lower plate 52 fits the mounting surface, and the groove abuts against the blocking surface.

[0042] In a specific implementation, the blocking surface is an arc-shaped curved surface, and the groove is an arc-shaped groove matching the blocking surface.

[0043] In an embodiment, the air conditioner indoor unit further includes a cooling and heating device 1000 located above the fresh air device 2000, and the fresh air outlet 2220 is provided at an upper end of the fresh air device 2000.

[0044] In an embodiment, the air conditioner indoor unit further includes an induction device for detecting air quality of indoor air. The air conditioner indoor unit further includes a light emitting device provided over the covering member 20 and located within the air baffle portion 70. The light emitting device is in a signal communication with the induction device, to receive air quality information detected by the induction device, and display light of a corresponding color according to the air quality information so as to inform a user of air quality at this time.

[0045] In an embodiment, the fresh air device 2000 further includes a fresh air housing 2100 in which a fresh air passage 2200 and a polluted air passage 2300 are provided. A fresh air inlet 2210 and a fresh air outlet 2220 communicating with the fresh air passage 2200 and a polluted air inlet 2310 and a polluted air outlet 2320 communicating with the polluted air passage 2300 are provided in the fresh air housing 2100.

[0046] In an embodiment, the fresh air device 2000 further includes a heat exchange core 2400 provided in the fresh air housing 2100, and the heat exchange core 2400 communicates with both the fresh air passage 2200 and the polluted air passage 2300 so that the fresh air in the fresh air passage 2200 and the polluted air in the polluted air passage 2300 exchange heat in the heat exchange core 2400. By combining an ordinary air conditioner with a total heat exchange, the fresh air may be introduced to renew the indoor air, and the indoor polluted air is discharged to improve air quality. The fresh air and the polluted air may exchange energy through a total heat exchanger to recover energy, thereby reducing an energy loss.

[0047] The air conditioner indoor unit of the present invention mainly includes two portions, i.e. an upper portion and a lower portion. The upper portion is the cooling and heating device 1000, and the lower portion is the fresh air device 2000. Assembly and disassembly of various parts of the air conditioner indoor unit are shown in FIGS. 8 to 17.

[0048] In an embodiment, the cooling and heating device 1000 includes an air intake panel portion 1100, an evaporator portion 1200, an air duct portion 1300, an air out frame portion 1400, and a top cover 1600.

[0049] In a specific implementation, the air intake panel portion 1100 includes an air inlet panel and an air inlet filter screen.

[0050] In a specific implementation, the evaporator portion 1200 includes an evaporator, a side plate, an evaporator bracket, and a water receiving tray.

[0051] In a specific implementation, the air duct portion

1300 includes an air duct, a cross-flow fan, an air out panel, a sweeping blade, an air passage driving motor, and an air passage driving gear.

[0052] In a specific implementation, the evaporator portion 1200 is fixed to the air intake panel portion 1100 by upper, lower, left and right screws.

[0053] In a specific implementation, the air duct portion 1300 is fixed to the evaporator portion 1200 and the air intake panel portion 1100 by snaps provided at left and right sides.

[0054] In an embodiment, as shown in FIGS. 5 and 6, the fresh air device 2000 further includes a motor 2500, fresh air blades 2600, air exhaust blades 2700, a first filter screen 2800, and a second filter screen 2900.

[0055] In an embodiment, in the fresh air device, the motor 2500 drives the fresh air blades 2600 and the air exhaust blades 2700 to rotate, and indoor polluted air is discharged to the outdoors through the polluted air passage 2300 and the heat exchange core 2400. Outdoor fresh air is introduced into the indoors through the fresh air passage 2200, the first filter screen 2800, the heat exchange core 2400, and the first filter screen 2800. The polluted air and the fresh air exchange sensible heat and latent heat in the heat exchange core 2400.

[0056] For example, in summer, an outdoor air temperature is higher than an indoor air temperature, and the fresh air passes through the heat exchange core 2400, and part of energy is transferred to indoor polluted air and discharged from the indoors, thus achieving a cooling effect.

[0057] For example, in winter, an outdoor air temperature is lower than an indoor air temperature, and the fresh air absorbs part of energy from the polluted air through the heat exchange core 2400 to achieve an effect of increasing temperature.

[0058] In this way, it can be realized that a temperature of introduced fresh air is not too high or too low, thus avoiding causing a serious increase of load or human body discomfort after introduction of the fresh air. What's more, the polluted air discharged transfers part of energy to the fresh air or absorbs part of energy from the fresh air, thereby avoiding an energy waste.

[0059] In an embodiment, when the fresh air passes through the first filter screen 2800 and the second filter screen 2900, a cleaning effect can be achieved, thereby improving quality of indoor air. The fresh air blows upward and forward through the fresh air outlet 2220, and may be brought to farther locations by air blowing from a fan of the cooling and heating device 1000, thereby preventing the short circuit between the fresh air and the polluted air.

[0060] In an embodiment, please refer to FIGS. 18 to 24, the air conditioner indoor unit includes an air outlet structure connected to the fresh air device 2000. The air outlet structure includes an air baffle portion 70, an air out duct housing 60, and a moving portion 30.

[0061] In an embodiment, at least portion of the moving portion 30 is connected to the air baffle portion 70. The

moving portion 30 moves in an extending direction of the receiving hole to drive the air baffle portion 70 to move between the first position and the second position, so as to close and block the receiving hole when the air baffle portion 70 moves to the first position, and separate the air baffle portion 70 from the receiving hole when the air baffle portion 70 moves to the second position, thereby allowing the air conditioner indoor unit to blow air through a gap between the receiving hole and the air baffle portion 70. By providing the air baffle portion 70 and the moving portion 30, and by arranging the moving portion 30 to move in the extending direction of the receiving hole, the air baffle portion 70 is driven to extend and contract. The moving portion 30 may drive the air baffle portion 70 to extend and contract conveniently and quickly. The air conditioner indoor unit has a simple structure, operates stably and reliably, and saves the cost, and the assembly efficiency thereof is higher.

[0062] Where, the moving portion 30 enables the air baffle portion 70 to extend outward when the air conditioner indoor unit works, and enables the air baffle portion 70 to retract into the indoor unit panel 50, making the appearance aligned and beautiful when the air conditioner indoor unit stops working.

[0063] In an embodiment, the moving portion 30 includes a support member 31 connected to the air out duct housing 60, and the air baffle portion 70 is movably provided relative to the support member 31 and slidably connected to the support member 31 to support the air baffle portion 70.

[0064] In order to achieve extension and contraction of the air baffle portion 70, the moving portion 30 further includes a transmission assembly 32 which is in transmission connection with the air baffle portion 70, to drive the air baffle portion 70 to move.

[0065] In an embodiment, the transmission assembly 32 includes a transmission gear 321 and a transmission rack 322 meshing with the transmission gear 321. The transmission gear 321 is in transmission connection with the transmission rack 322, and the air baffle portion 70 is connected with the transmission rack 322, so that the air baffle portion 70 moves under the action of the transmission gear 321 and the transmission rack 322. Such an arrangement makes the air conditioner outdoor unit have a simple structure and operate stably and reliably, and to be installed conveniently, thereby saving the cost.

[0066] In an embodiment, as shown in FIG. 18, the moving portion 30 further includes a support member 31 to which the air baffle portion 70 is slidably connected, and a moving member 33. The moving member 33 is slidably connected to the supporting member 31 and positioned above the supporting member 31. The transmission rack 322 is arranged on the moving member 33, and the air baffle portion 70 is fixedly connected to the moving member 33, so that the air baffle portion 70 moves under the drive of the moving portion 33.

[0067] In a specific implementation, the moving member 33 has a third receiving space 331 in which the trans-

mission gear 321 is disposed, and the transmission rack 322 is provided on an inner wall of the third receiving space 331.

[0068] In order to drive the transmission gear 321 to rotate, as shown in FIG. 18, the moving portion 30 further includes a driving motor 34 fixedly connected to the support member 31, and the driving motor 34 is in a transmission connection with the transmission gear 321, so that the driving motor 34 drives the transmission gear 321 to rotate.

[0069] In a specific implementation, the driving motor 34 is provided at a side of the support member 31 away from the moving member 33, and the support member 31 has a through hole, so that the driving shaft of the driving motor 34 passes through the through hole and is connected to the transmission gear 321.

[0070] In a specific implementation, a motor mounting portion of the driving motor 34 is wrapped with a rubber washer and fixed to the support member 31 by screws, so as to effectively reduce noise caused by vibration of the driving motor 34. The motor mounting portion is a mounting corner bracket.

[0071] In a specific implementation, the driving shaft is installed and matches the transmission gear 321 by means of cutting edges, and is locked by a retaining ring 324 to prevent the transmission gear 321 from falling off.

[0072] In an embodiment, the support member 31 has a first sliding groove 311, and the moving member 33 has a first sliding portion 333 matching the first sliding groove 311. At least part of the first sliding portion 333 is slidably provided within the first sliding groove 311. Such an arrangement of the first sliding groove 311 can guide movement of the moving member 33 and prevent the moving member 33 from moving up and down.

[0073] In a specific implementation, as shown in FIG. 19, the moving member 33 includes a moving member body portion. The first sliding portion 333 is connected with the moving member body portion. The moving member body portion has a first end and a second end arranged opposite to each other. Two first sliding portions 333 are provided. One first sliding portion 333 is disposed at the first end of the moving member body portion, and another first sliding portion 333 is disposed at the second end of the moving member body portion. There are two first sliding grooves 311, and the two first sliding grooves 333 are arranged to be in one-to-one correspondence with the two first sliding grooves 311, and each first sliding portion 333 is slidably arranged in a corresponding first sliding groove 311.

[0074] In a specific implementation, as shown in FIG. 20, the first sliding portion 333 has a plurality of first sliding columns 3331. The plurality of first sliding columns 3331 are provided and spaced apart in an extension direction of the first sliding portion 333. Each first sliding column 3331 extends in a width direction of the first sliding portion 333, and each first sliding column 3331 protrudes from an end surface of the first sliding portion 333 away from the moving member body portion, so that the first sliding

portion 333 is in contact with a groove bottom of the first sliding groove 311 by means of the first sliding columns 3331.

[0075] In a specific implementation, outer surfaces of at least part of the first sliding columns 3331 which protrude from the end surface of the first sliding portion 333 away from the moving member main body portion are spherical crown surfaces. Such an arrangement can reduce frictional resistance between the moving member 33 and the first sliding groove 311.

[0076] In a specific implementation, at least part of the first sliding columns 3331 which protrude from the end surface of the first sliding portion 333 away from the moving member body portion each are at least part of a spherical structure.

[0077] Preferably, at least part of the first sliding columns 3331 which protrude from the end surface of the first sliding portion 333 away from the moving member body portion each are hemispherical.

[0078] In a specific implementation, the first sliding columns 3331 each protrude from two side walls of the first sliding portion 333, so that the two side walls of the first sliding portion 333 are in contact with groove walls of the first sliding grooves 311 by means of the first sliding columns 3331. Such an arrangement can reduce frictional resistance between the moving member 33 and the first sliding groove 311.

[0079] In an embodiment, one groove wall of the first sliding groove 311 is positioned over the first sliding portion 333 to stop the first sliding portion 333, thereby preventing the first sliding portion 333 from jumping up and down.

[0080] In an embodiment, as shown in FIG. 18, a rolling portion 312 is disposed on the support member 31, and the moving member 33 has a fourth receiving space 334 in which the rolling portion 312 is disposed. A rolling groove 335 matching the rolling portion 312 is disposed on an inner wall of the fourth receiving space 334, and the rolling portion 312 is rotatably arranged in the rolling groove 335. The arrangement of the rolling portion 312 may assist the moving member 33 to move, and may also restrict displacement of the moving member 33 in a direction perpendicular to the movement direction.

[0081] Preferably, the rolling portion 312 is a roller.

[0082] In a specific implementation, there are two rolling grooves 335, and the two rolling grooves 335 are arranged opposite to each other at both sides of the rolling portion 312. The rolling groove 335 is configured to cooperate with the rolling portion 312 to restrict a displacement of the moving member 312 in a direction perpendicular to the movement direction. The rolling portion 312 is in rolling contact with the moving member 33 when the moving member 33 moves forward and backward, thereby effectively reducing frictional resistance during a movement of the moving member 33.

[0083] In a specific implementation, a vertical column stands on the support member 31 for mounting the rolling portion 312. The rolling portion 312 is mounted to the

vertical column by a first screw 325.

[0084] In a specific implementation, a washer 326 is provided between the first screw 325 and the rolling portion 312 so that the rolling portion 312 smoothly rolls.

[0085] In order to limit a final position of the moving member when the moving member 33 is pushed out, as shown in FIG. 21, the moving member 33 has a first moving block 336, and the support member 31 is provided with a first stopper 313. The first stopper 313 is disposed at an end of the support member 31 proximate to the air baffle portion 70, so as to stop the first moving block 336.

[0086] In another embodiment, as shown in FIG. 22, the transmission assembly 32 includes a push rod 323. At least part of the push rod 323 moves in an extension direction of the receiving hole, and an end of the push rod 323 is connected to the air baffle portion 70, so that the push rod 323 drives the air baffle portion 70 to move.

[0087] Preferably, the push rod 323 is an electric push rod. The electric push rod is an electric telescopic machine. An end of the electric push rod is mounted on the air out duct housing 60 by screws, and a telescopic rod at another end of the electric push rod is electrically driven to extend and retract. The telescopic rod is hinged to a mounting rod 721 of the air baffle portion 70, so as to drive the air baffle portion 70 to move.

[0088] In a specific implementation, as shown in FIG. 23, the moving portion 30 includes the support member 31. The air baffle portion 70 is provided with a second mounting portion 72 including the mounting rod 721 and two support plates 722. One end of the mounting rod 721 is connected to one support plate 722, and another end of the mounting rod 721 is connected to another support plate 722. The push rod 323 is connected to the mounting rod 721. The air baffle portion 70 is slidably connected to the support member 31 by two support plates 722.

[0089] In a specific implementation, as shown in FIG. 24, the support member 31 has a second sliding groove 314. Each support plate 722 has a second sliding portion 723 matching the second sliding groove 314. There are two second sliding grooves 314. The two second sliding portions 723 are arranged to be in one-to-one correspondence with the two second sliding grooves 314. At least part of each second sliding portion 723 is slidably arranged in a corresponding second sliding groove 314. The second sliding grooves 314 functions as a guide.

[0090] In an embodiment, one groove wall of the second sliding groove 314 is disposed over the second sliding portion 723 to stop the second sliding portion 723, thereby preventing the second sliding portion 723 from jumping up and down.

[0091] In order to limit a final position of the air baffle portion 70 when the air baffle portion 70 is pushed out, at least one support plate 722 is provided with a second moving block 724. The support member 31 is provided with a second stopper 315, and the second stopper 315 is disposed at an end of the support member 31 proximate to the air baffle portion 70, so as to stop the second moving block 724.

[0092] In an embodiment, the electric push rod is a telescopic mechanism. Compared with a gear and rack pushing mechanism, the electric push rod has a simpler structure and has higher assembly efficiency.

[0093] In an embodiment, please refer to FIGS. 25 to 34, in a specific implementation, the covering member 20 has an operation-waiting position and an installation position. The covering member 20 is detachably disposed on the air baffle member 10, so that the covering member 20 and the air baffle member 10 are positioned when the covering member 20 is at the operation-waiting position, and that the covering member 20 is fixedly connected with the air baffle member 10 when the covering member 20 is at the installation position. During the installation of the covering member 20, the covering member 20 is moved from the operation-waiting position to the installation position, to complete the installation of the covering member 20. When the covering member 20 is removed, the covering member 20 is moved from the installation position to the operation-waiting position, so as to complete removal of the covering member 20.

[0094] In order to realize a connection between the air baffle member 10 and the covering member 20, a side of the covering member 20 proximate to the air baffle member 10 is provided with a first connecting assembly 21. The air baffle member 10 includes the air baffle body portion 12. A side of the air baffle body portion 12 proximate to the covering member 20 is provided with a second connecting assembly 11 matching the first connecting assembly 21. The first connecting assembly 21 is connected to the second connecting assembly 11 so that the covering member 20 is connected to the air baffle member 10 by means of the first connecting assembly 21 and the second connecting assembly 11. Such an arrangement makes the assembly structure have smooth inner and outer sides, and not easy to deform and more beautiful in structure.

[0095] In a specific implementation, the second connecting assembly 11 includes a first mounting portion 111, and the first connecting assembly 21 includes a first locking member 211 that matches the first mounting portion 111. When the covering member 20 is located at the installation position, the first locking member 211 is locked in the first mounting portion 111. The first mounting portion 111 is adjustably arranged on the air baffle body portion 12, so that the air baffle body portion 12 is locked in or separated from the first mounting portion 111 by adjusting the first mounting portion 111.

[0096] Preferably, the first mounting portion 111 is located at a lower side of the first receiving space.

[0097] In a specific implementation, an adjustable gap is defined in the air baffle body portion 12, and the adjustable gap surrounds an adjusting plate 1111. By pushing the adjusting plate 1111, the first mounting portion 111 is forced to move, so as to separate the air baffle body portion 12 from the first mounting portion 111. In this way, disassembly by means of pressing the adjusting plate 1111 is convenient, simple and highly efficient.

[0098] Where, in the process of locking the first locking member 211 in the first mounting portion 111, the covering member 20 moves from the operation-waiting position to the installation position, and when the first mounting portion 111 is pressed to move toward the covering member 20, the first mounting portion 111 is separated from the first locking member 211, so that the covering member 20 moves from the installation position to the operation-waiting position.

[0099] In a specific implementation, the adjustable gap includes a plurality of split slots each extending from one end surface of the air baffle body portion 12 to another end surface.

[0100] In a specific implementation, a plurality of split slots penetrate through the air baffle main body 12.

[0101] In a specific implementation, the plurality of split slots includes a first split slot, a second split slot, and a third split slot. The first split slot is arranged in parallel with the second split slot. One end of the third split slot communicates with one end of the first split slot, and another end of the third split slot communicates with one end of the second split slot, so as to enclose the adjusting plate 1111 as a rectangular plate.

[0102] In a specific implementation, the first locking member 211 has a first connection portion 2111 and a locking hook 2112 vertically connected to the first connection portion 2111. The first mounting portion 111 includes a first support portion 1112 and a first mounting plate 1113 connected to the first support portion 1112. The first support portion 1112 is connected to the adjusting plate 1111. The first mounting plate 1113 has a first through hole, so that the locking hook 2112 is locked in the first through hole when the covering member 20 is located at the installation position.

[0103] Where, the locking hook 2112 is located at a side of the first mounting plate 1113 proximate to the fresh air passage when the covering member 20 is located at the operation-waiting position, and the locking hook 2112 is locked in the first through hole when the covering member 20 is located at the installation position.

[0104] In an embodiment, the second connecting member 11 includes a plurality of second mounting portions 112. The plurality of second mounting portions 112 are provided and spaced apart around the center of the air baffle body portion 12. The first connecting assembly 21 includes a plurality of second locking members 212. The plurality of second locking members 212 are arranged to be in a one-to-one correspondence with the plurality of second mounting portions 112. Each second locking member 212 is locked in a corresponding second mounting portion 112.

[0105] Preferably, there are three second mounting portions 112. One second mounting portion 112 is located at an upper side of the first receiving space and is opposite to the first mounting portion 111, and other two second mounting portions 112 are provided oppositely at left and right sides of the first receiving space.

[0106] In a specific implementation, the second locking

member 212 has a second connecting portion 2121 and a stopper 2122 vertically connected to the second connecting portion 2121. The second mounting portion 112 has a second support portion 1121 and a second mounting plate 1122 connected to the second support portion 1121. The second support portion 1121 is connected to the air baffle member 10. The second mounting plate 1122 is provided with a second through hole. At least portion of the stopper 2122 passes through the second through hole and is locked to the second mounting portion 112. During the installation of the covering member 20, it is highly efficient to assembly the covering member 20 by means of pushing and sliding the covering member 20 down.

[0107] In a specific implementation, the air baffle member 10 and the cover 20 are made of plastic material. Such an arrangement is less cost.

[0108] From the above description, it can be seen that the above embodiments of the present invention achieve the following technical effects.

[0109] In the air conditioner indoor unit of the present invention, the receiving hole 53 is disposed at the side of the fresh air device 2000 proximate to the air outlet, thereby enabling the fresh air to blow at the side proximate to the air outlet of the air conditioned indoor unit. Such an arrangement enables the exhaust air of the air conditioner to blow fresh air at the fresh air outlet to different positions in a room, thereby avoiding the short circuit between the fresh air with and the polluted air, and enhancing fluidity of the fresh air.

[0110] What described above are merely preferred embodiments of the present invention, but they are not intended to limit the present invention. For those skilled in the art, various modifications and variations may be made to the present invention. Any modification, equivalent replacement, improvement and so on made within the spirit and principles of the present invention shall be included within the scope of protection of the invention.

Claims

1. An air conditioner indoor unit comprising a fresh air device (2000), the fresh air device (2000) having a fresh air outlet (2220), **characterized in that** the air conditioner indoor unit further comprises an indoor unit panel (50) configured to shield an air outlet of the air conditioner indoor unit; the indoor unit panel has a receiving hole (53); the receiving hole (53) communicates with the fresh air outlet (2220); and the receiving hole (53) is located at a side of the fresh air device (2000) proximate to the air outlet.
2. The air conditioning indoor unit according to claim 1, **characterized in that** the air conditioning indoor unit further comprises an air baffle portion (70); at least part of the air baffle portion (70) is disposed inside the receiving hole (53); the air baffle portion

(70) has a first position and a second position; the air baffle portion (70) is movably disposed between the first position and the second position; the air baffle portion (70) closes and blocks the receiving hole (53) when the air baffle portion (70) is located at the first position; the air baffle portion (70) is separated from the receiving hole (53) when the air baffle portion (70) is moved to the second position to allow the fresh air device (2000) to blow air through a gap between the receiving hole (53) and the air baffle portion (70).

3. The air conditioner indoor unit according to claim 2, **characterized in that** the air baffle portion (70) comprises an air baffle member (10); the air baffle member (10) is adjustably disposed in the receiving hole (53); the air baffle member (10) closes and blocks the receiving hole (53) when the air baffle portion (70) is located at the first position; and the air baffle member (10) is separated from the indoor unit panel (50) when the air baffle portion (70) is located at the second position.
4. The air conditioner indoor unit according to claim 3, **characterized in that** the receiving hole (53) comprises a tapered hole section, and an outer wall surface of the air baffle member (10) matches an inner wall surface of the tapered hole section.
5. The air conditioner indoor unit according to claim 3, **characterized in that** the air baffle portion (70) comprises a covering member (20); the covering member (20) is connected to the air baffle member (10) and located at a side of the air baffle member (10) away from the fresh air device (2000); and the covering member (20) is provided over and covers the air baffle member (10) to shield the air baffle member (10).
6. The air conditioner indoor unit according to claim 5, **characterized in that** the covering member (20) has a disk structure, and an outer surface of the covering member (20) is flush with the indoor unit panel (50).
7. The air conditioner indoor unit according to claim 3, **characterized in that** the air conditioner indoor unit comprises an air out duct housing (60); the air out duct housing (60) is disposed inside the indoor unit panel (50), and has an air out duct (61); one end of the air out duct (61) communicates with the fresh air outlet (2220); and another end of the air out duct (61) communicates with the receiving hole (53) to allow fresh air to enter the receiving hole (53) through the air out duct (61).
8. The air conditioner indoor unit according to claim 7, **characterized in that** the air baffle member (10) comprises an air baffle body portion (12) and a re-

ceiving portion (13) connected to the air baffle body portion (12); the receiving portion (13) is located at a side of the air baffle body portion (12) proximate to the fresh air device (2000); the receiving portion (13) is disposed under the air out duct (61); and the air baffle body portion (12) is disposed in front of the air out duct (61), and the fresh air blows from a gap between the receiving hole (53) and the air baffle body portion (12) through the air out duct (61) when the air baffle portion (70) is located at the second position.

9. The air conditioner indoor unit according to claim 8, **characterized in that** the receiving portion (13) has a first receiving space; the air conditioner indoor unit comprises a moving part (30); the moving portion (30) is connected to the air out duct housing (60); at least part of the moving portion (30) is located inside the first receiving space; and the moving portion (30) is in a transmission connection with the air baffle portion (70) to drive the air baffle portion (70) to move.
10. The air conditioning indoor unit according to claim 8, **characterized in that** an end of the air out duct (61) proximate to the air baffle portion (70) has a strip-shaped passage.
11. The air conditioner indoor unit according to claim 10, **characterized in that** the strip-shaped passage is arc-shaped; the strip-shaped passage has an arc-shaped curved surface; and the receiving portion (13) has an outer wall surface matching the arc-shaped curved surface, and the receiving portion (13) is located under the air out duct (61) when the air baffle portion (70) is located at the first position.
12. The air conditioner indoor unit according to claim 1, **characterized in that** the indoor unit panel (50) comprises a front panel (51) and a lower panel (52) disposed under the front panel (51); the receiving hole (53) is disposed in the front panel (51); the front panel (51) has a first end and a second end opposite to each other; the front panel (51) has a protrusion (511) protruding from the second end; at least part of the receiving hole (53) is disposed in the protrusion (511); and the lower panel (52) has a groove matching the protrusion (511) to enable the lower panel (52) to be mounted on the front panel (51).
13. The air conditioner indoor unit according to claim 12, **characterized in that** the protrusion (511) has a mounting surface and a blocking surface connected to the mounting surface; an inner side surface of the lower panel (52) fits the mounting surface; and the groove abuts the blocking surface.

14. The air conditioner indoor unit according to claim 13, **characterized in that** the blocking surface is an arc-shaped curved surface, and the groove is an arc-shaped groove matching the blocking surface.

15. The air conditioner indoor unit according to claim 1, **characterized in that** the air conditioner indoor unit further comprises a cooling and heating device (1000); the cooling and heating device (1000) is located above the fresh air device (2000); and the fresh air outlet (2220) is provided at an upper end of the fresh air device (2000).

16. The air conditioner indoor unit according to claim 5, **characterized in that** the air conditioner indoor unit further comprises:

an induction device, configured to detect an air quality of indoor air; and
a light emitting device, provided on the covering member (20) and located within the air baffle portion (70);
the light emitting device is in a signal communication with the induction device to receive air quality information detected by the induction device and display light of a corresponding color according to the air quality information.

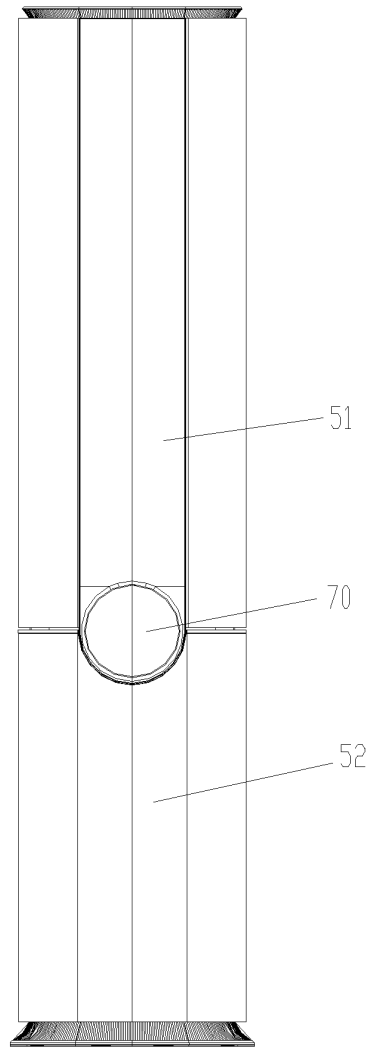


FIG. 1

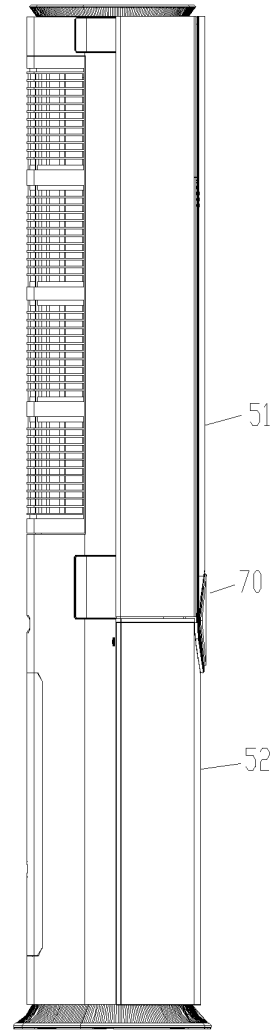


FIG. 2

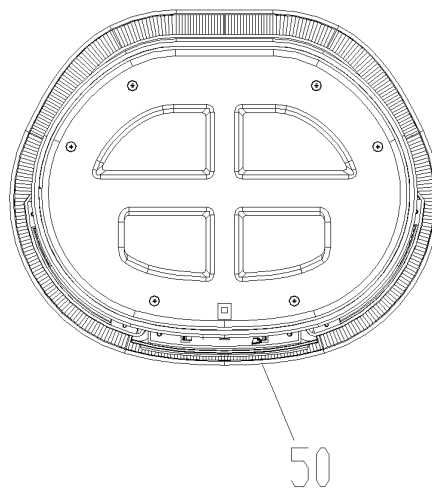


FIG. 3

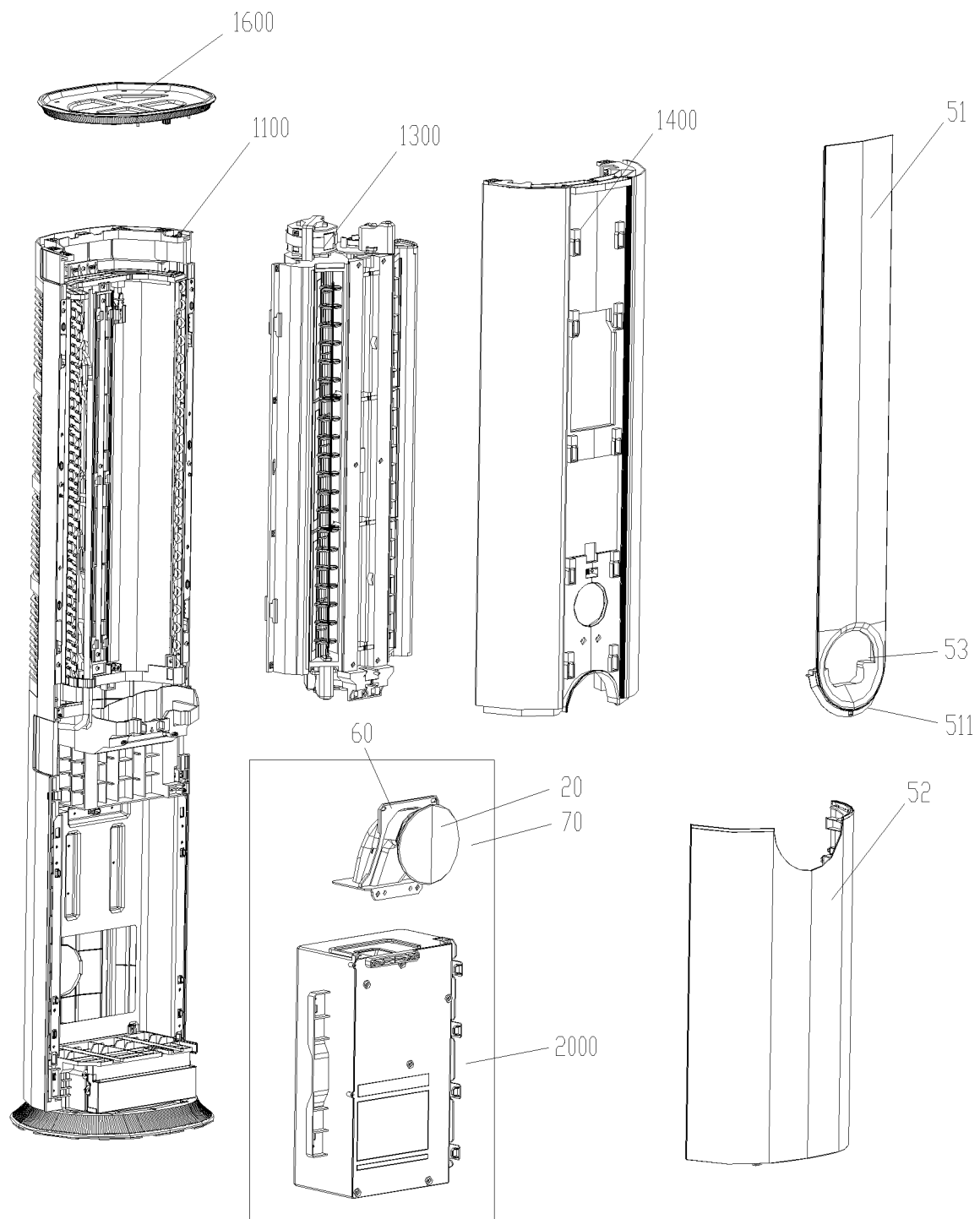


FIG. 4

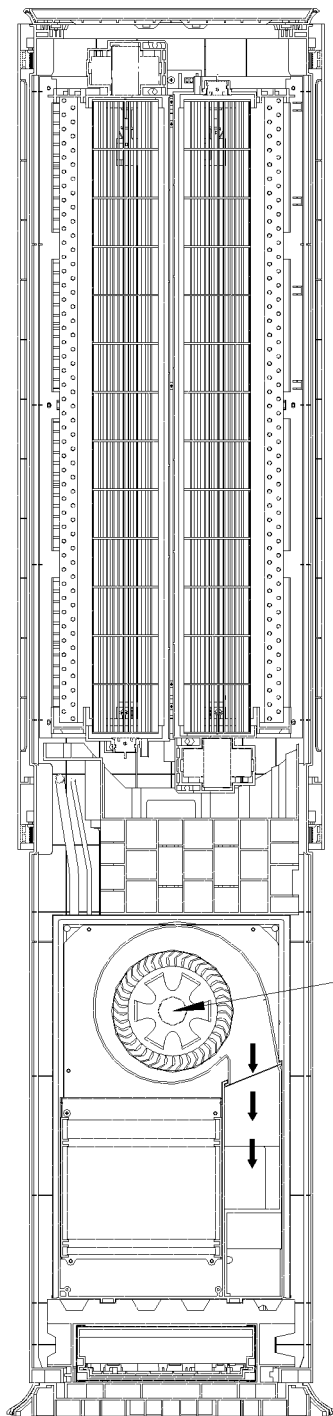


FIG. 5

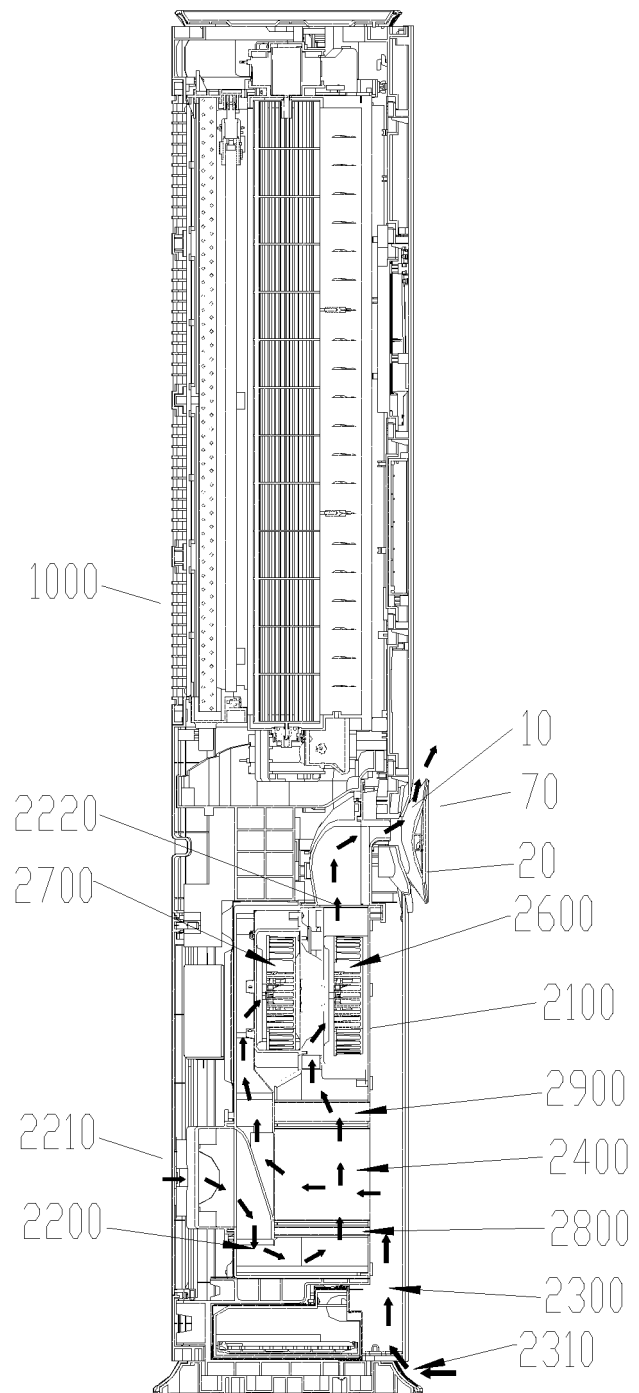


FIG. 6

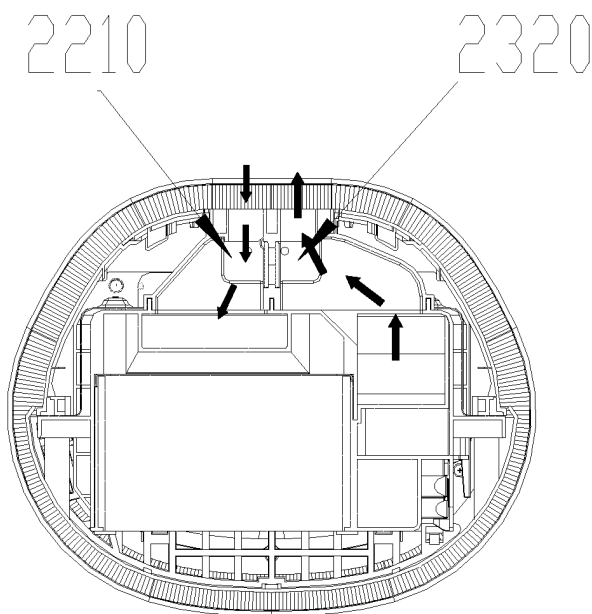


FIG. 7

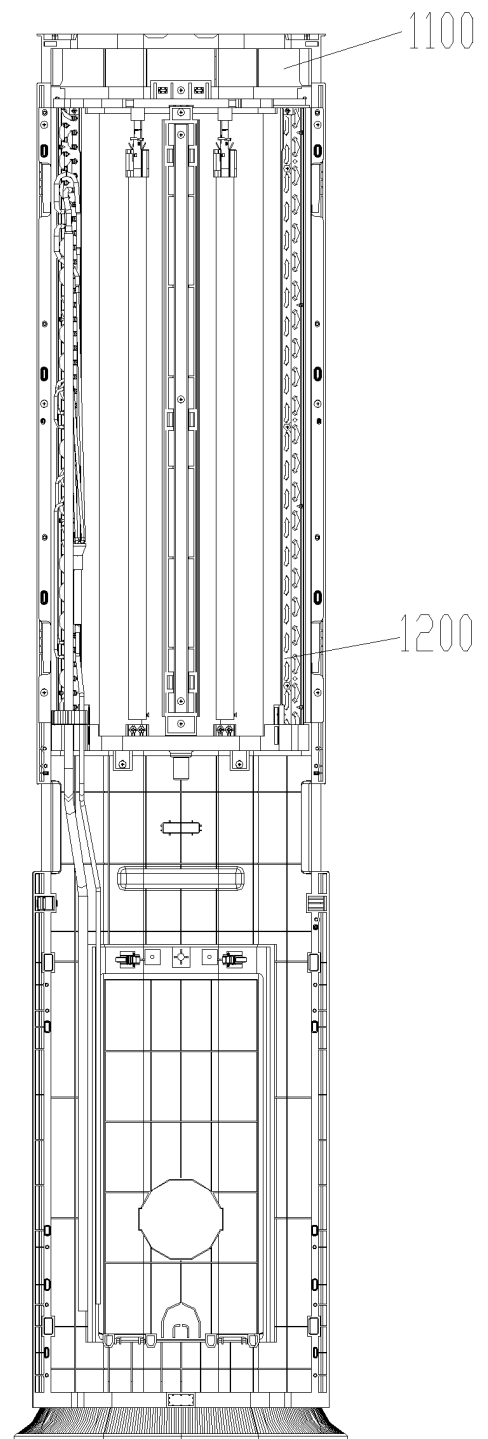


FIG. 8

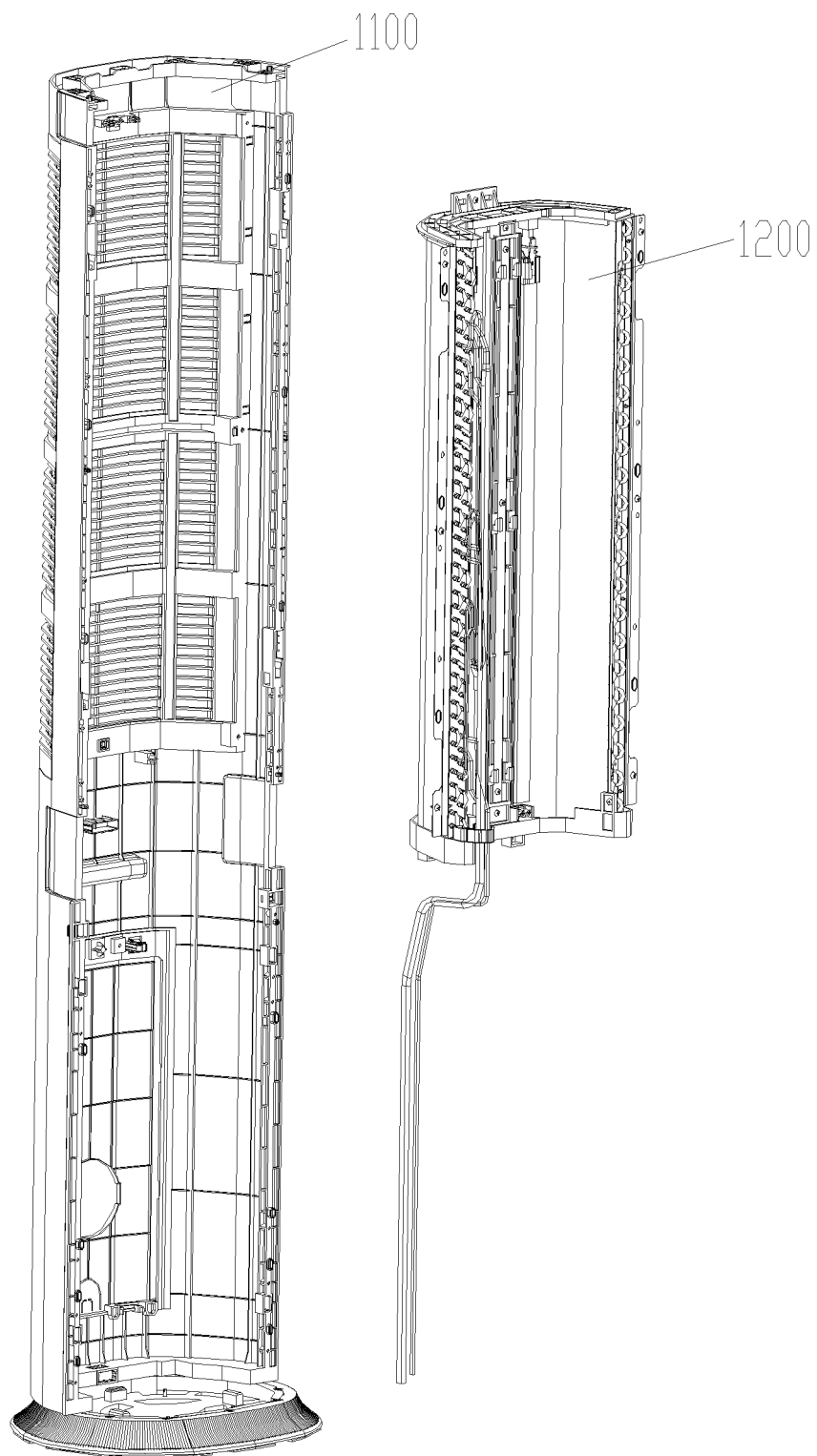


FIG. 9

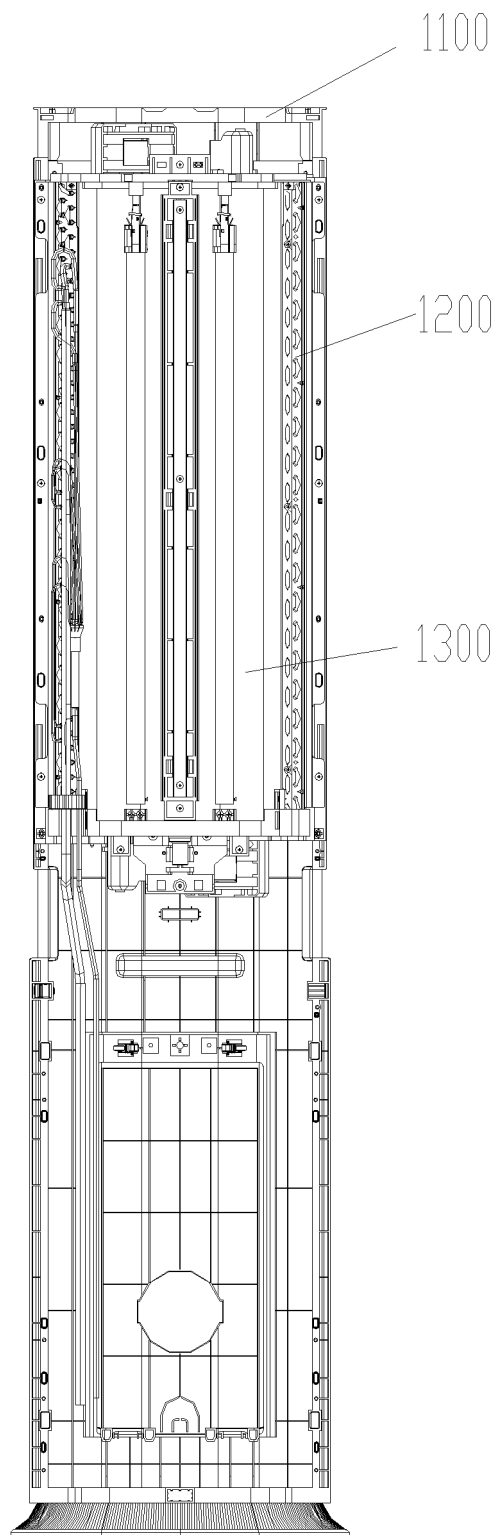


FIG. 10

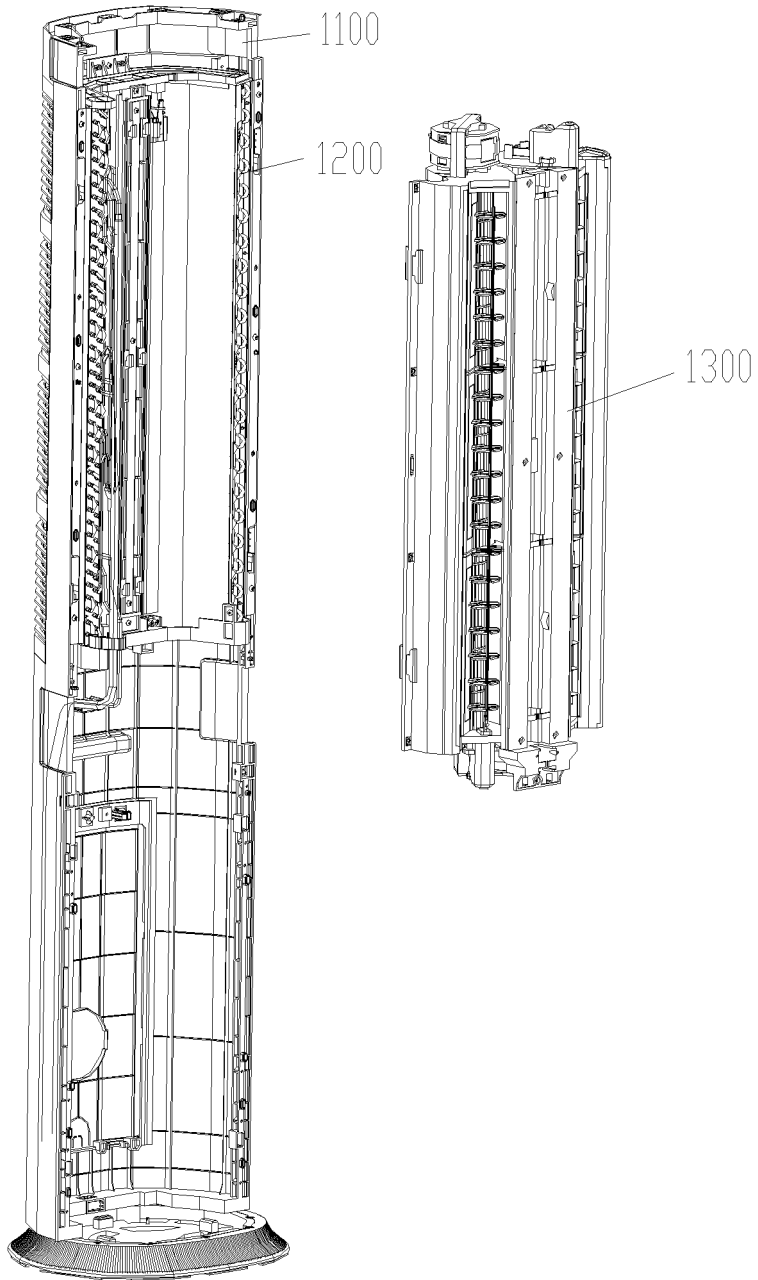


FIG. 11

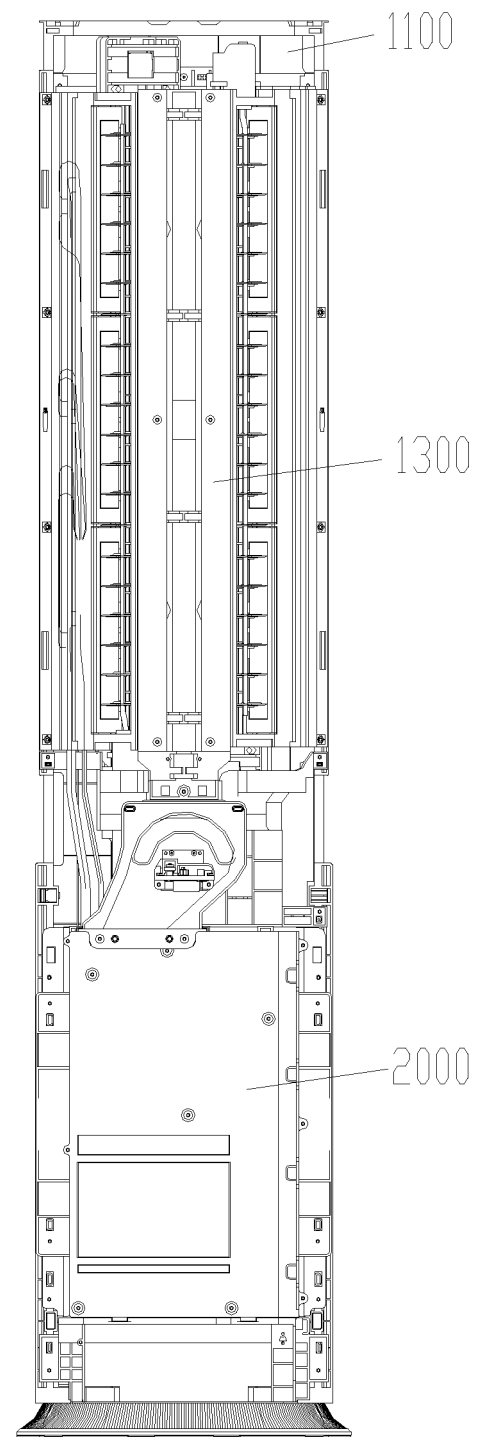


FIG. 12

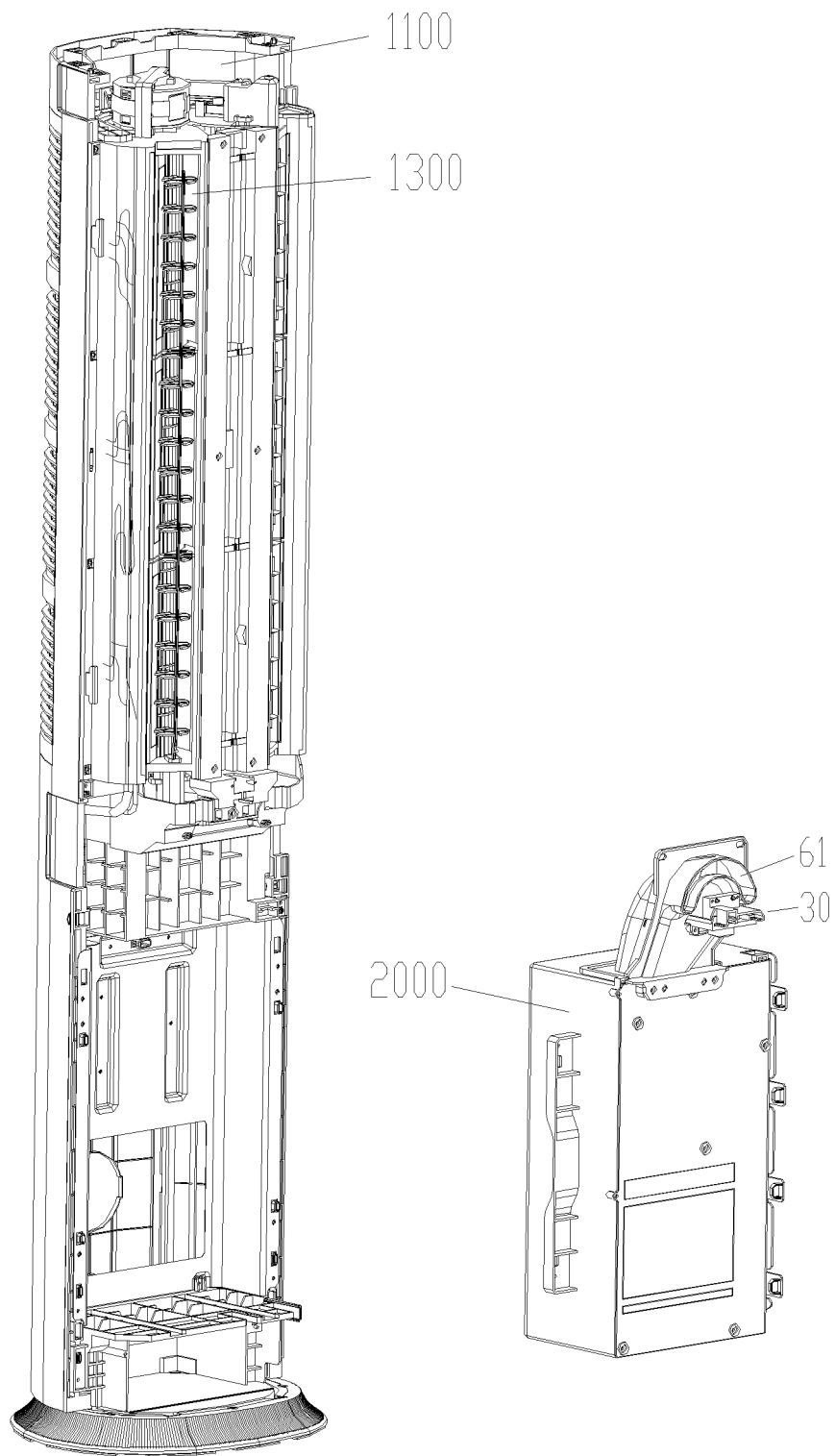


FIG. 13

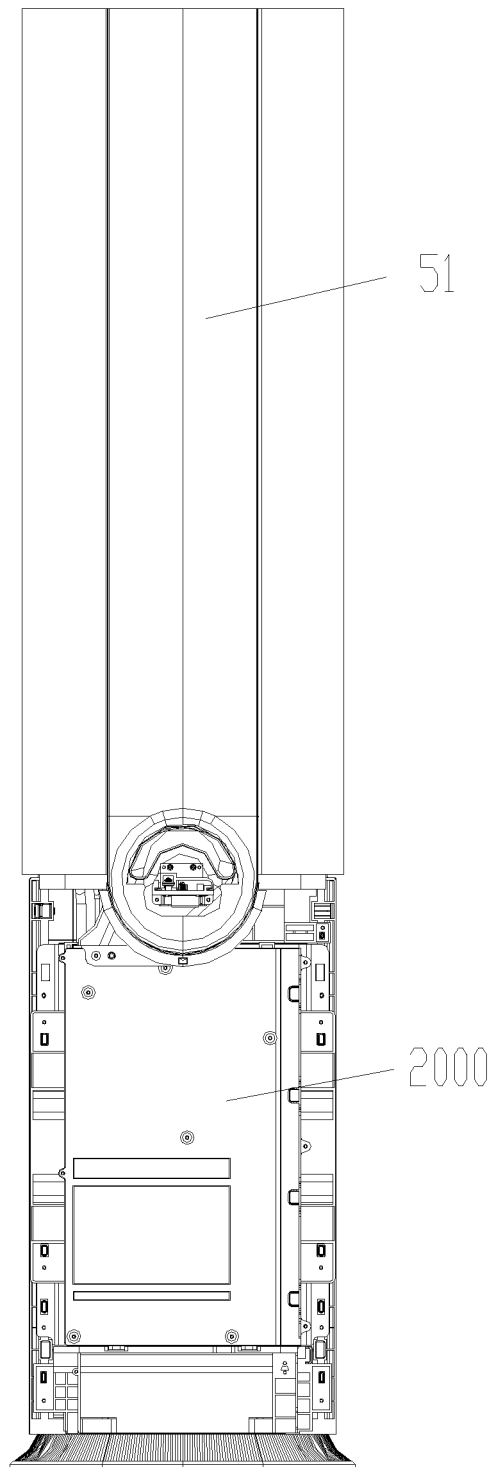


FIG. 14

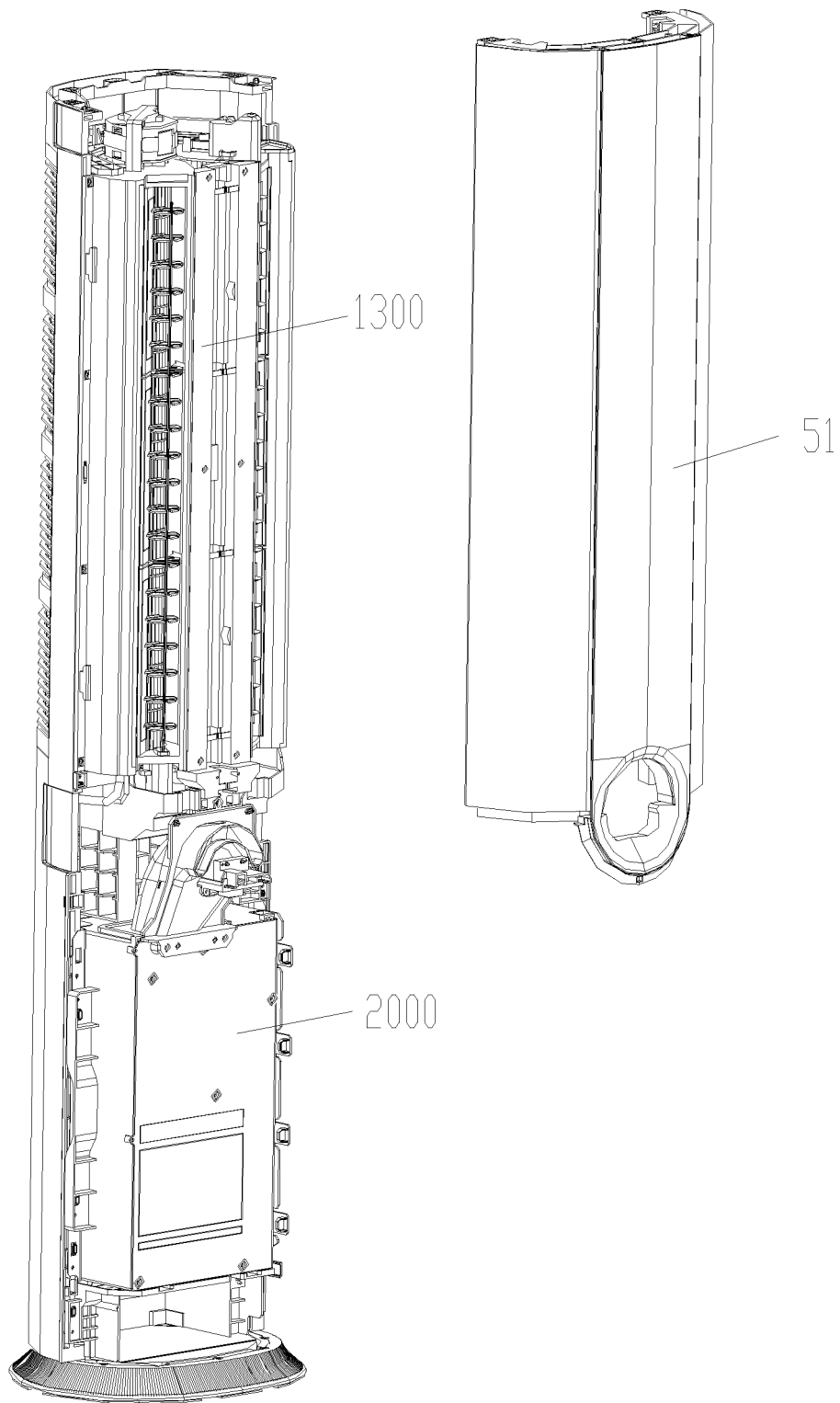


FIG. 15

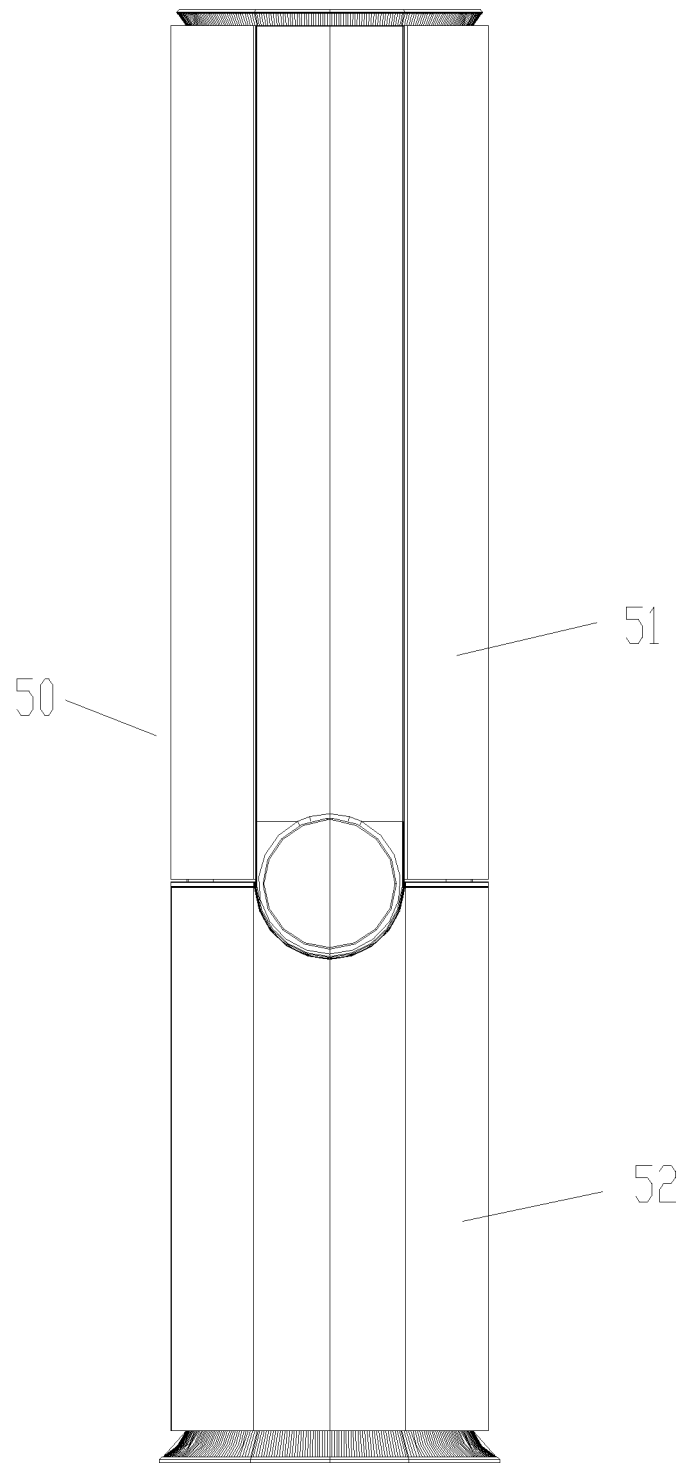


FIG. 16

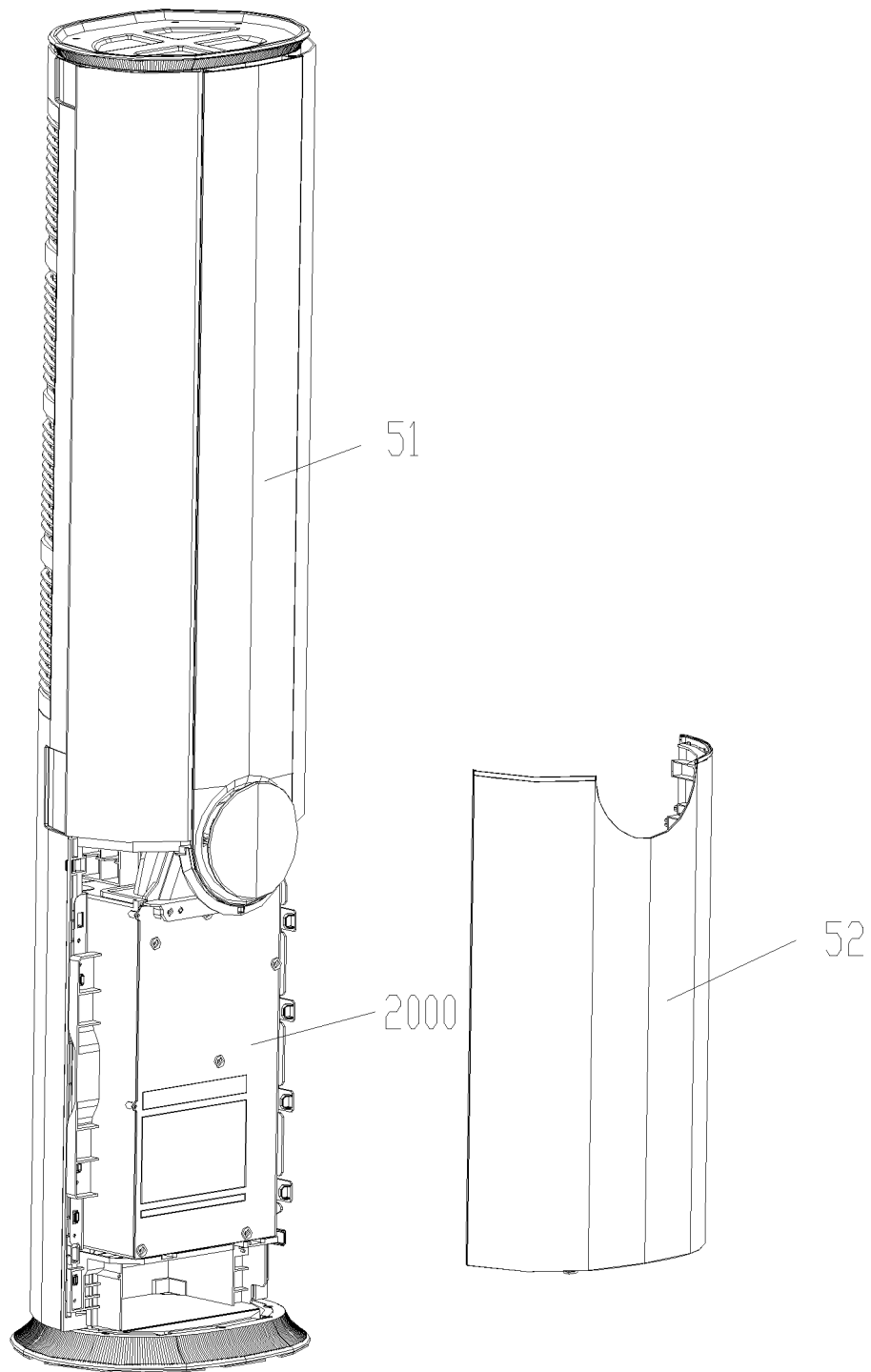


FIG. 17

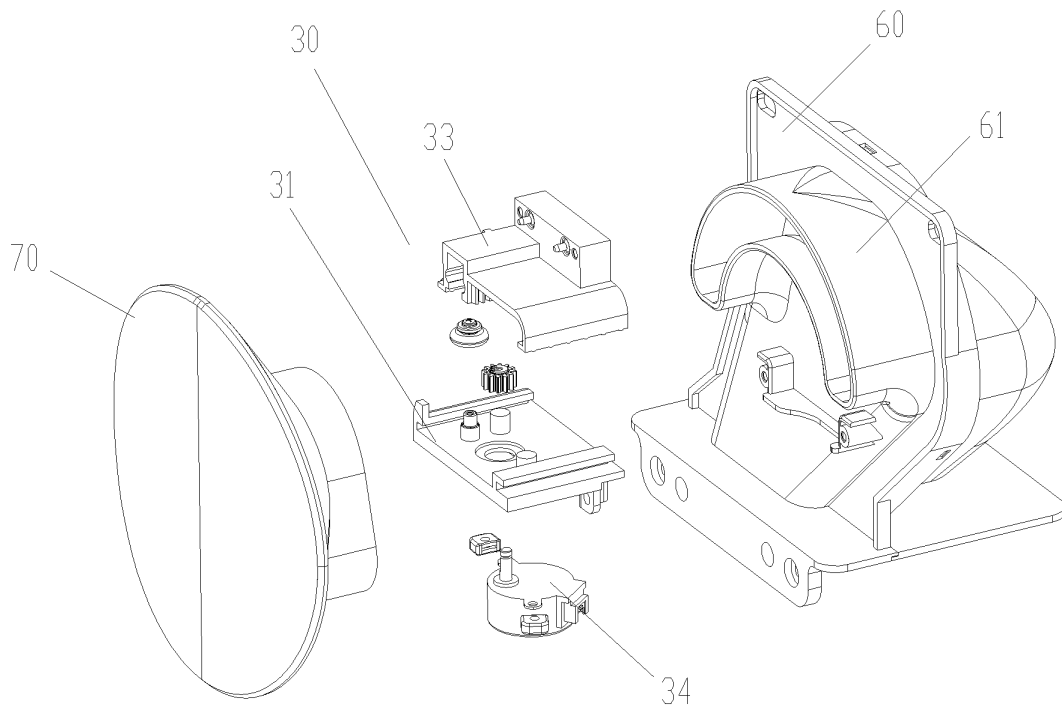


FIG. 18

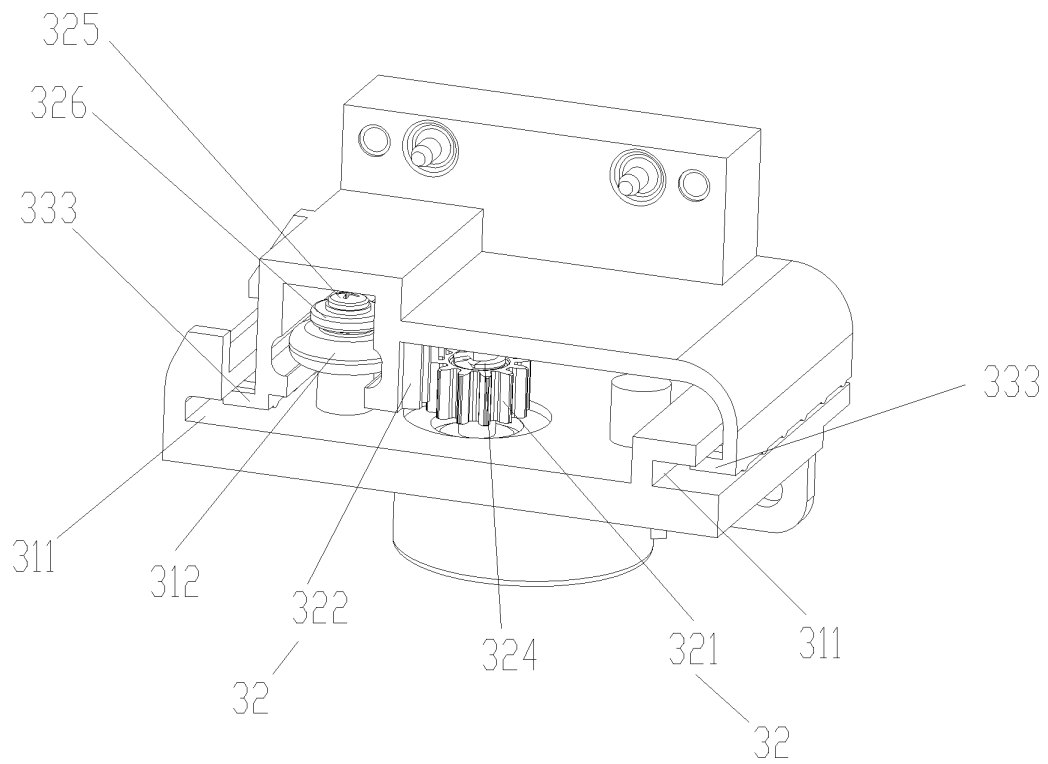


FIG. 19

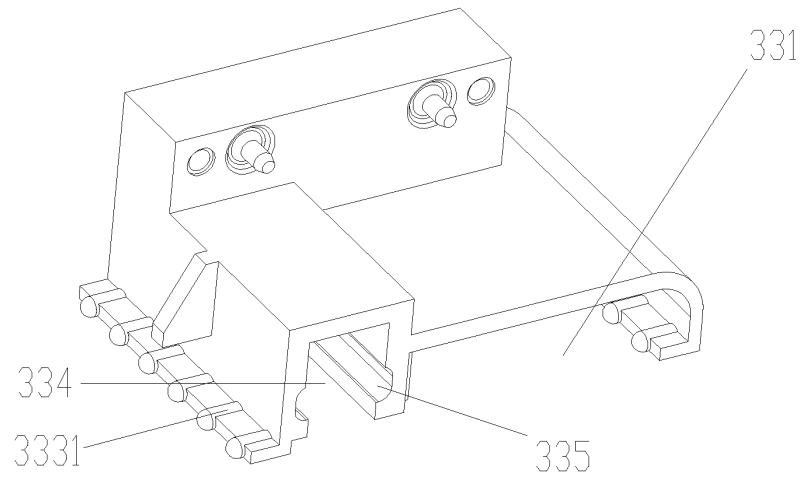


FIG. 20

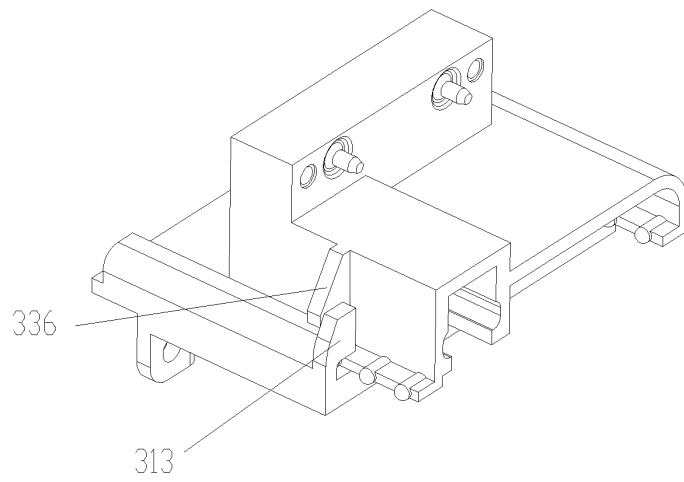


FIG. 21

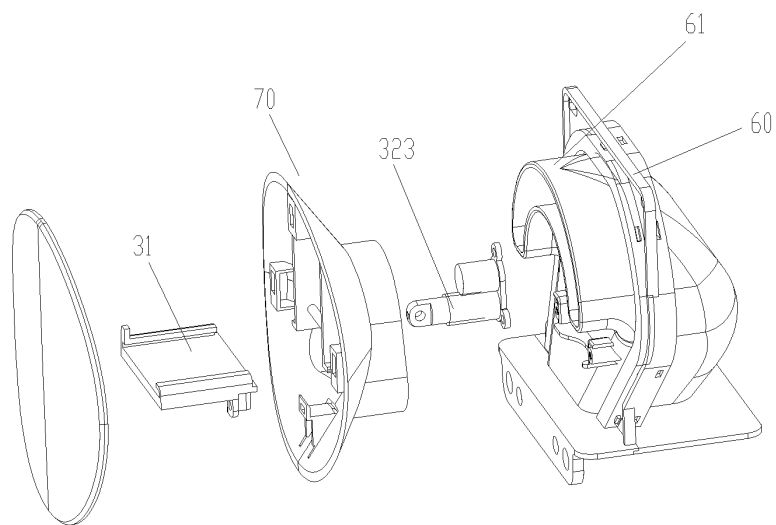


FIG. 22

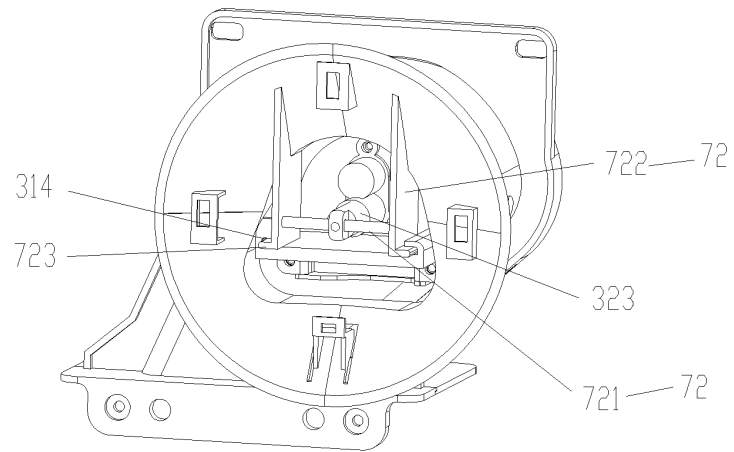


FIG. 23

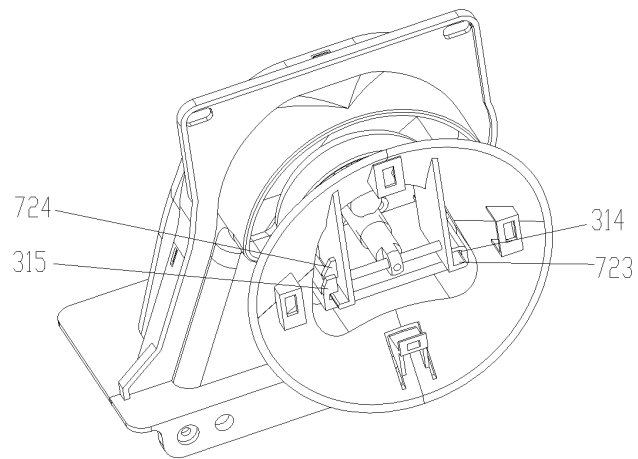


FIG. 24

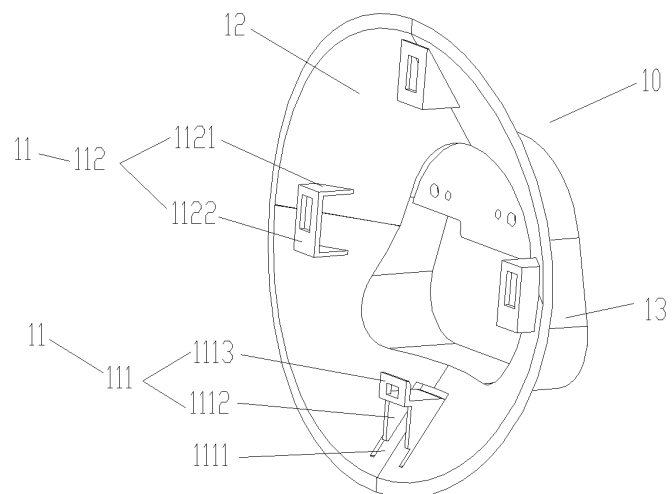


FIG. 25

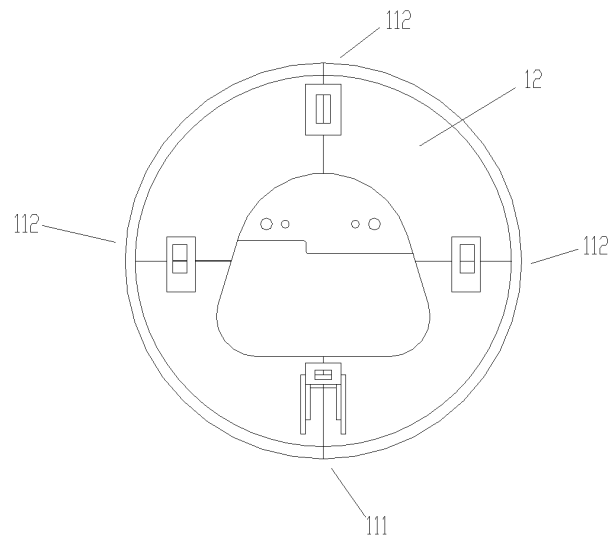


FIG. 26

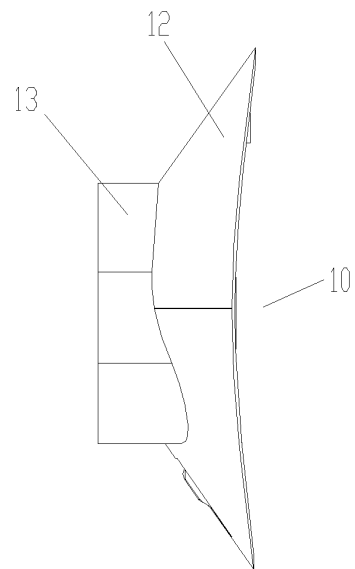


FIG. 27

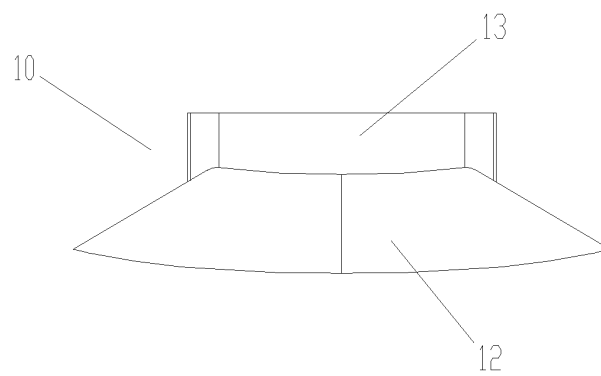


FIG. 28

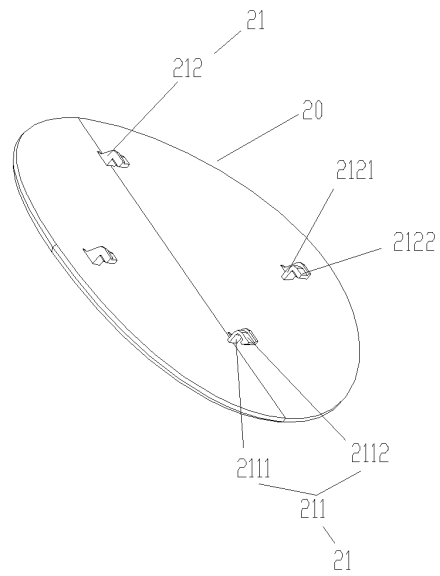


FIG. 29

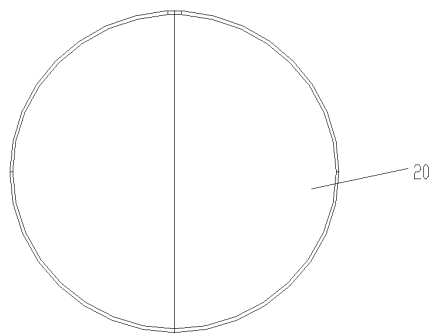


FIG. 30

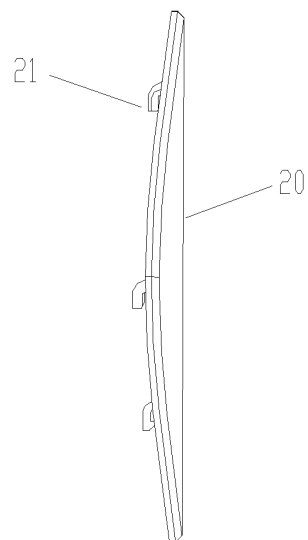


FIG. 31

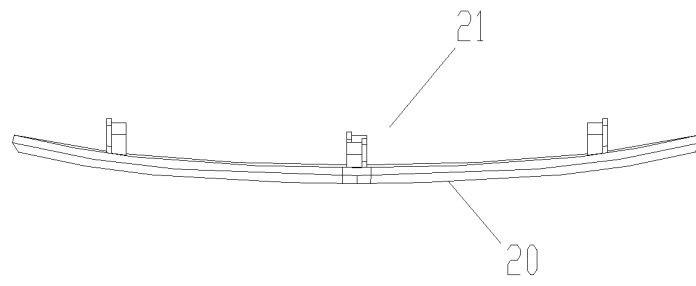


FIG. 32

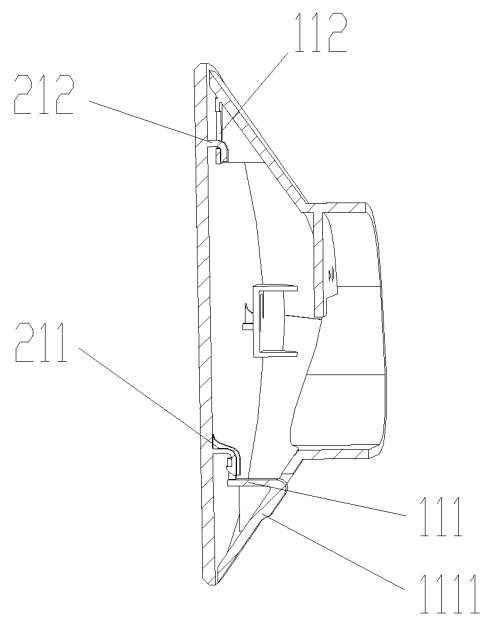


FIG. 33

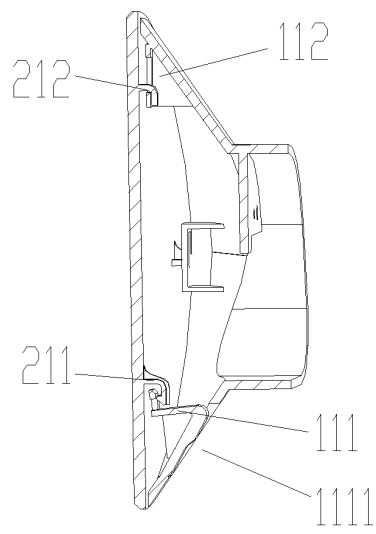


FIG. 34

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2018/125033

A. CLASSIFICATION OF SUBJECT MATTER

F24F 1/0035(2019.01)i; F24F 7/00(2006.01)i; F24F 13/10(2006.01)i

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

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

F24F

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

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

CNABS, CNTXT, CNKI, SIPOABS, DWPI: 空调室内机, 柜机, 立式, 新风, 出风口, 容纳孔, 挡风部件, 面板, 凸出部, 凹槽, air conditioning indoor unit, cabinet machine, vertical, fresh air, air outlet, receiving hole, windshield, panel, protruding part, groove

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	CN 207962866 U (GUANGDONG MIDEA REFRIGERATION EQUIPMENT CO., LTD.) 12 October 2018 (2018-10-12) description, paragraphs [0060], [0061], [0063], [0071] and [0083]-[0088], and figures 1-4	1, 15
Y	CN 207962866 U (GUANGDONG MIDEA REFRIGERATION EQUIPMENT CO., LTD.) 12 October 2018 (2018-10-12) description, paragraphs [0060], [0061], [0063], [0071] and [0083]-[0088], and figures 1-4	2-7, 16
Y	CN 105371370 A (GREE ELECTRIC APPLIANCES, INC. OF ZHUHAI) 02 March 2016 (2016-03-02) description, specific embodiment, and figures 1-5	2-7, 16
E	CN 209026956 U (GREE ELECTRIC APPLIANCES, INC. OF ZHUHAI) 25 June 2019 (2019-06-25) claims 1-16	1-16
A	CN 207407438 U (GUANGDONG MIDEA REFRIGERATION EQUIPMENT CO., LTD.) 25 May 2018 (2018-05-25) entire document	1-16

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

* Special categories of cited documents:

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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

“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

Date of the actual completion of the international search

25 July 2019

Date of mailing of the international search report

05 August 2019

Name and mailing address of the ISA/CN

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Authorized officer

Telephone No.

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2018/125033

C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	CN 207299214 U (GUANGDONG MIDEA REFRIGERATION EQUIPMENT CO., LTD.) 01 May 2018 (2018-05-01) entire document	1-16
A	CN 108679713 A (QINGDAO HAIER AIR CONDITIONER GENERAL CO., LTD.) 19 October 2018 (2018-10-19) entire document	1-16
A	CN 105757950 A (NINGBO AUX AIR-CONDITION CO., LTD.) 13 July 2016 (2016-07-13) entire document	1-16
A	JP 2002130730 A (OYABU KAZUTARO) 09 May 2002 (2002-05-09) entire document	1-16

Form PCT/ISA/210 (second sheet) (January 2015)

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.

PCT/CN2018/125033

Patent document cited in search report	Publication date (day/month/year)	Patent family member(s)	Publication date (day/month/year)
CN 207962866 U	12 October 2018	None	
CN 105371370 A	02 March 2016	CN 105371370 B	25 January 2019
CN 209026956 U	25 June 2019	None	
CN 207407438 U	25 May 2018	CN 207299214 U	01 May 2018
		CN 107676870 A	09 February 2018
		CN 107514698 A	26 December 2017
		CN 207299219 U	01 May 2018
		CN 207407434 U	25 May 2018
		CN 107702212 A	16 February 2018
		CN 107504605 A	22 December 2017
		CN 107477695 A	15 December 2017
		CN 207688241 U	03 August 2018
		CN 207422456 U	29 May 2018
		CN 207407436 U	25 May 2018
		CN 107490077 A	19 December 2017
		CN 107514696 A	26 December 2017
		CN 207422514 U	29 May 2018
		CN 207299217 U	01 May 2018
		CN 207555746 U	29 June 2018
		CN 207299215 U	01 May 2018
		CN 207299213 U	01 May 2018
		CN 107514697 A	26 December 2017
		CN 207299218 U	01 May 2018
		CN 207407435 U	25 May 2018
		WO 2019061955 A1	04 April 2019
		CN 107504604 A	22 December 2017
		WO 2019061789 A1	04 April 2019
		WO 2019061954 A1	04 April 2019
		CN 207407437 U	25 May 2018
		CN 107504579 A	22 December 2017
		CN 207422515 U	29 May 2018
		CN 207299216 U	01 May 2018
		CN 107490078 A	19 December 2017
		CN 207555791 U	29 June 2018
CN 207299214 U	01 May 2018	CN 107676870 A	09 February 2018
		CN 107514698 A	26 December 2017
		CN 207299219 U	01 May 2018
		CN 207407434 U	25 May 2018
		CN 107702212 A	16 February 2018
		CN 107504605 A	22 December 2017
		CN 107477695 A	15 December 2017
		CN 207688241 U	03 August 2018
		CN 207422456 U	29 May 2018
		CN 207407436 U	25 May 2018
		CN 107490077 A	19 December 2017
		CN 107514696 A	26 December 2017
		CN 207422514 U	29 May 2018
		CN 207299217 U	01 May 2018
		CN 207555746 U	29 June 2018
		CN 207407438 U	25 May 2018

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

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.

PCT/CN2018/125033

Patent document cited in search report	Publication date (day/month/year)	Patent family member(s)	Publication date (day/month/year)
		CN 207299215 U	01 May 2018
		CN 207299213 U	01 May 2018
		CN 107514697 A	26 December 2017
		CN 207299218 U	01 May 2018
		CN 207407435 U	25 May 2018
		WO 2019061955 A1	04 April 2019
		CN 107504604 A	22 December 2017
		WO 2019061789 A1	04 April 2019
		WO 2019061954 A1	04 April 2019
		CN 207407437 U	25 May 2018
		CN 107504579 A	22 December 2017
		CN 207422515 U	29 May 2018
		CN 207299216 U	01 May 2018
		CN 107490078 A	19 December 2017
		CN 207555791 U	29 June 2018
CN 108679713 A	19 October 2018	None	
CN 105757950 A	13 July 2016	CN 105757950 B	13 November 2018
JP 2002130730 A	09 May 2002	None	

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