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(54) **AIR DEFLECTOR ASSEMBLY, AIR GUIDE MECHANISM, AIR OUTLET DEVICE AND AIR CONDITIONER**

(57) Disclosed is an air deflector assembly provided at an air outlet of an air conditioner, comprising: a first air deflector and a second air deflector. The first air deflector is rotatably arranged and configured to guide outlet airflow of the air conditioner to sweep up and down. The second air deflector is provided at a top of the air outlet of the air conditioner. The second air deflector is located above the first air deflector. The second air deflector guides the outlet airflow to flow only towards the

ground. Further disclosed are an air guiding mechanism including the air deflector assembly, an air blowing device and an air conditioner. The air deflector assembly effectively solves the problem existing in the prior art air conditioner that the outlet air cannot always flow towards the ground and the landing effect of the outlet air is poor.

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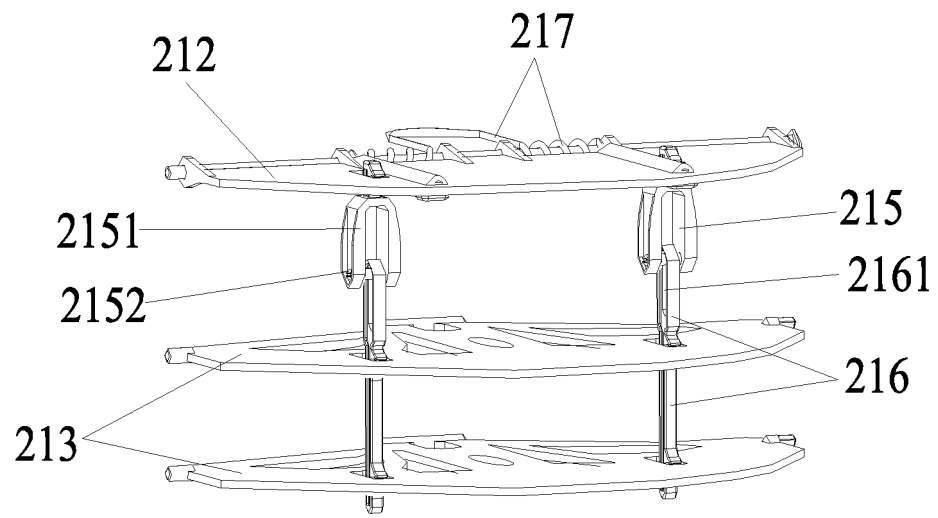


Fig.1

Description

RELATED APPLICATIONS

[0001] The present invention application claims the benefit of priority of Chinese Patent Application No. 201610264160.6, filed on April 25, 2016 and entitled "Air Deflector Assembly and Air Conditioner", and Chinese Patent Application No. 201610390786.1, filed on June 1, 2016 and entitled "Air Conditioner, Air Blowing Device and Air Guiding Mechanism", the entire contents of which are incorporated herein by reference.

TECHNICAL FIELD

[0002] The present invention relates to the technical field of air-conditioning, more particularly, to an air deflector assembly, an air guiding mechanism, an air blowing device and an air conditioner.

BACKGROUND

[0003] In the prior art, the air outlet is generally disposed on the top (the upper head position) of the housing of the air conditioner. Because of the limitation of the internal space, the existing air deflector structure cannot achieve effective air guiding effects, and the air conditioner cannot ensure the outlet air always flowing to the ground, and the landing effect of the outlet air is poor. Further, when the air conditioner blows air, the outlet airflow will adhere to the inner wall of the air conditioner, and will gather at the top of the air conditioner along the inner wall. What's more, the air deflector's guiding air through swinging will guide the outlet air in the air duct to flow out, but the outlet airflow at the top of the air conditioner will still gather and will not be output, which reduces the outlet air volume of the air conditioner, reduces the air blowing efficiency of the air conditioner, and affects the user using the air conditioner.

SUMMARY OF THE INVENTION

[0004] In view of this, it is necessary to provide an air deflector assembly, an air guiding mechanism including the air deflector assembly, an air blowing device including the air guiding mechanism, and an air conditioner including the air blowing device.

[0005] An air deflector assembly, which is disposed at an air outlet of an air conditioner and includes:

- a first air deflector, which is rotatably arranged and configured to guide outlet airflow of the air conditioner to sweep up and down;
- a second air deflector, which is disposed at a top of the air outlet of the air conditioner and above the first air deflector, and is configured to guide the outlet airflow to flow only to a ground.

[0006] In one of the embodiments, the second air deflector and the first air deflector are juxtaposed, and the second air deflector is rotatably arranged and configured to rotate only towards the ground.

5 [0007] In one of the embodiments, a top position limiting device is arranged on a surface of the second air deflector, which faces opposite to the ground; the top position limiting device is configured to prevent the second air deflector from rotating in a direction away from the ground.

10 [0008] In one of the embodiments, the top position limiting device is a torsion spring provided on a rotating shaft of the second air deflector, and the torsion spring is configured to confine the second air deflector to rotate in a direction only towards the ground.

15 [0009] In one of the embodiments, a connecting device is provided between the first air deflector and the second air deflector; the first air deflector drives the second air deflector to rotate in the direction towards the ground simultaneously when it rotates in a direction towards the ground.

20 [0010] In one of the embodiments, the connecting device includes:

- 25 a first connecting member, which is connected to the first air deflector, wherein, one end of the first connecting member, which faces the second air deflector, is provided with a guiding hole which extends along a moving direction of the first connecting member;
- 30 a second connecting member, wherein, a first end of the second connecting member is connected to one side of a swing end of the second air deflector, and a second end of the second connecting member is slidably arranged within the guiding hole.
- 35

[0011] In one of the embodiments, the second connecting member has two cantilevers juxtaposed; a latch is rigidly connected between the two cantilevers; the latch is arranged to pass through the guiding hole.

40 [0012] In one of the embodiments, a plurality of the first air deflectors are juxtaposed, and the first connecting member is arranged to pass through the plurality of the first air deflectors and is rigidly connected with each of the first air deflectors.

45 [0013] In one of the embodiments, the air deflector assembly further comprises:

- 50 an engaging rack, which is connected to and drives the plurality of the first air deflectors;
- a motor gear, which is connected to and driven by an output shaft of a motor, and meshes with the engaging rack;
- 55 wherein, the engaging rack and the motor gear are both disposed on one side of the first air deflector, which is away from the air outlet.

[0014] An air guiding mechanism includes:

a housing, which has a hollow receiving cavity; wherein an air outlet of an air conditioner is provided in the housing, and the air outlet communicates with the receiving cavity;

an air deflector assembly above, which is disposed on the housing and at an upper edge of the air outlet; wherein, the air deflector assembly is configured to contact a top of the housing and to output the outlet air gathered at a top of the housing.

[0015] In one of the embodiments, the air deflector assembly is configured to adhere to the top of the housing; or an edge of the air guiding assembly is configured to abut against the top of the housing.

[0016] In one of the embodiments, the second air deflector is disposed on the housing and disposed at an upper edge of the air outlet;

wherein the second air deflector is configured to contact the top of the housing, and to output the outlet air gather at the top of the housing; and the first air deflector is disposed in the air outlet.

[0017] In one of the embodiments, an inner surface of the housing and a surface of the second air deflector have a smooth transition or are disposed in the same plane.

[0018] An air blowing device includes an air outlet mask and the air guiding mechanism above; wherein the air outlet mask is provided with an air outlet grille; the air outlet mask is configured to cover the air guiding mechanism; and the air outlet grille corresponds to the air outlet of the air guiding mechanism.

[0019] An air conditioner includes an air conditioner body and the air blowing device above; the air blowing device is disposed at a top of the air conditioner body.

[0020] An air outlet is provided at the top (the head) of the air conditioner (circular cabinet or square cabinet). Outlet air in the internal air duct adheres tightly to the inner wall of the air duct and flows upwards in succession, thus the outlet air from the air duct mostly gathers at the top of the air outlet (upper side of the air outlet). Based on the sweeping structure in the prior art, the second air deflector is provided at the top of the air outlet. The second air deflector guides the air to flow to the ground (the air is guided only downwards), but not to move upwards. Therefore, the outlet air from the air duct, which gathers at the top of the air outlet, is guided by the second air deflector to flow to the ground. At the same time, the structure of the first air deflector also guides the airflow upwards, and the second air deflector acts as a buffer for the first air deflector to guide part of the airflow flowing upward to flow downwards, thereby achieving an optimized effect of the outlet air flowing to the ground, and enhancing the comfort of the air conditioner.

[0021] The air conditioner, the air blowing device and the air guiding mechanism provided by the invention have reasonable structures. The air deflector assembly contacts the inner surface of the top of the housing, so that the outlet air at the top of the housing can be output along

the air deflector assembly, thereby enabling the outlet air gathered at the top of the housing due to the Coanda effect to be output, preventing the outlet air from gathering at the top of the housing due to the Coanda effect to affect the outlet air volume, improving the air blowing efficiency of the air guiding mechanism, and ensuring the air blowing effect of the air conditioner, and facilitating the user using the air conditioner.

10 DRAWINGS

[0022] In order to make the contents of the present invention more clearly and be understood more easily, the present invention will be further described in details with reference to the accompanying drawings and embodiments, wherein,

Fig.1 is a schematic structural view of an air deflector assembly according to the first embodiment of the present invention;

Fig.2 is a partial structural schematic view illustrating the air deflector assembly disposed on an air conditioner according to the first embodiment of the present invention;

Fig.3 is a schematic view of the external structure of the air conditioner according to the first embodiment of the present invention;

Fig. 4 is a schematic structural view illustrating the air outlet of the air conditioner of Figure 3;

Fig. 5 is an exploded view of the air blowing device of the second embodiment of the present invention;

Fig. 6 is a schematic view illustrating the air blowing device in Fig. 5, which is disposed in the air conditioner.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0023] To make the objectives, technical schemes, and advantages of the present invention clearer, the embodiments of the present invention will be further described in more details with reference to the accompanying drawings.

[0024] As shown in FIG. 1 to FIG. 3, the first embodiment of the present invention provides an air deflector assembly, which is disposed at an air outlet of an air conditioner and configured to guide the outlet airflow to sweep. In this embodiment, the air deflector assembly includes a first air deflector 213 and a second air deflector 212. The first air deflector 213 is rotatably arranged and configured to guide the outlet airflow of the air conditioner to sweep up and down. The rotating shaft of the first air deflector 213 extends in a horizontal direction. The second air deflector 212 is disposed at a top of the air outlet of the air conditioner and is disposed above the first air deflector 213. The second air deflector 212 guides the outlet airflow to flow only to the ground. The upper/lower direction between the first air deflector 213 and the sec-

ond air deflector 212 is described according to the direction in which the air conditioner is normally placed.

[0025] An air outlet is provided at the top (the head) of the air conditioner (circular cabinet or square cabinet). Outlet air in the internal air duct adheres tightly to the inner wall of the air duct and flows upwards in succession, thus the outlet air from the air duct mostly gathers at the top of the air outlet (upper side of the air outlet). Based on the sweeping structure in the prior art, the second air deflector is provided at the top of the air outlet. The second air deflector guides the air to flow to the ground (the air is guided only downwards), but not to move upwards. Therefore, the outlet air from the air duct, which gathers at the top of the air outlet, is guided by the second air deflector to flow to the ground. At the same time, the structure of the first air deflector also guides the airflow upwards, and the second air deflector acts as a buffer for the first air deflector to guide part of the airflow flowing upward to flow downwards, thereby achieving an optimized effect of the outlet air flowing to the ground, and enhancing the comfort of the air conditioner.

[0026] As shown in FIG. 1, the second air deflector 212 and the first air deflector 213 are juxtaposed, and the second air deflector 212 is rotatably arranged and can rotate only towards the ground. The second air deflector 212 can also rotate appropriately, thereby adjusting the direction of the air flowing towards the ground.

[0027] Preferably, a top position limiting device is arranged on a surface of the second air deflector 212, which faces opposite to the ground. The top position limiting device is configured to prevent the second air deflector 212 from rotating in a direction away from the ground. The top position limiting device effectively ensures that the second air deflector 212 will not rotate upward, thereby ensuring that, even in the case that the second air deflector 212 can rotate, it guides the air to flow only to the ground.

[0028] In this embodiment, the top position limiting device is a torsion spring 217 provided on the rotating shaft of the second air deflector 212, and the torsion spring 217 is configured to confine the second air deflector 212 to rotate in a direction only towards the ground.

[0029] In order to achieve the effect that the driving force of the second air deflector 212 does not increase the structural complexity of the air conditioner, the first air deflector 213 drives the second air deflector 212 to rotate. In this embodiment, a connecting device is provided between the first air deflector 213 and the second air deflector 212. When the first air deflector 213 rotates in a direction facing the ground, it drives the second air deflector 212 to rotate in the direction facing the ground simultaneously. The torsion spring 217 disposed on the rotating shaft of the second air deflector 212 applies an upward force to the second air deflector 212, so that under the situation that the second air deflector 212 is driven by the first air deflector 213, and is under an action of the connecting device, the second air deflector 212 only rotates downwards, but not rotates upwards when the first

air deflector 213 rotates in an opposite direction, thereby ensuring the working state of the second air deflector 212, and achieving a better falling effect of the outlet air.

[0030] Specifically, as shown in FIG. 1, the connecting device includes a first connecting member 216 and a second connecting member 215. The first connecting member 216 is connected to the first air deflector 213, and one end of the first connecting member 216, which faces the second air deflector 212, is provided with a guiding hole 2161 which extends along the moving direction of the first connecting member 216. A first end of the second connecting member 215 is connected to one side of the swing end of the second air deflector 212, and a second end of the second connecting member 215 is slidably arranged within the guiding hole 2161.

[0031] When the first air deflector 213 rotates downwards, the first connecting member 216 also moves downward, and the inner wall of the guiding hole 2161 bears against the second end of the second connecting member 215, and drives the second connecting member 215 to move downwards. The second connecting member 215 further pulls the second air deflector 212 to rotate downwards against the elastic force of the torsion spring, therefore the first air deflector and the second air deflector work together and jointly guide the airflow to flow to the ground. When the first air deflector 213 is driven by the motor to rotate upwards, that is to say, when there are some demands for blowing air upward, the first connecting member 216 also moves upward. While the first connecting member 216 moves upwards, the second end of the second connecting member 215 slides in the guiding hole 2161 all the time. The length of the guiding hole 2161 is configured to ensure that the first connecting member 216 will not contact the second air deflector 212 when the first connecting member 216 moves upward to the limiting position. Therefore, the first connecting member 216 and the second connecting member 215 jointly enable the second air deflector 212 to rotate only downwards and not to rotate in the opposite direction.

[0032] Specifically, the second connecting member 215 has a structure as follows: the second connecting member 215 has two cantilevers 2151 juxtaposed; a latch 2152 is rigidly connected between the two cantilevers 2151; the latch 2152 is arranged to pass through the guiding hole 2141. The latch 2152 forms the second end of the second connecting member 215, and such structure of the latch 2152 is convenient for mounting and detaching.

[0033] In order to increase the air guiding effect, in the air guiding assembly of this embodiment, a plurality of the first air deflectors 213 are juxtaposed, and the first connecting member 216 passes through the plurality of the first air deflectors 213 and is rigidly connected with each of the first air deflectors 213. What shown in FIG.1 is just a structure in which two first air deflectors 213 are arranged. The first connecting member 216, which is arranged going through the front end of the first air deflectors 213, ensures the stability of the first air deflectors

213 while it moves.

[0034] Additionally, the air deflector assembly further includes an engaging rack 2142 and a motor gear 2141. The engaging rack 2142 is connected to and drives the plurality of the first air deflectors 213, and the motor gear 2141 is connected to and driven by the output shaft of the motor. The motor gear 2141 meshes with the engaging rack 2142. The engaging rack 2142 and the motor gear 2141 are both disposed on one side of the first air deflector 213, which is away from the air outlet. The engaging rack 2142 and the motor gear 2141 are arranged at the rear side of the air outlet. While the engaging rack 2142 moves upwards and downwards, the teeth of the rack mesh with the circular shaft disposed on the rear side of the first air deflector 213 and move upwards and downwards, thereby driving the first air deflector 213 to rotate upwards and downwards around the rotation shaft thereof.

[0035] As shown in FIG. 3 and FIG. 4, the first embodiment of the present invention further provides an embodiment of an air conditioner. The air conditioner includes a housing 211, and an air outlet 2111 of the air conditioner is disposed at a top of the housing 211. The air conditioner further includes the air deflector assembly of the embodiment above. The air deflector assembly is disposed at the air outlet 2111, and the second air deflector of the air deflector assembly is disposed at the top of the air outlet 2111. Wherein, Fig.2 shows the shape and structure of the air outlet 2111 of the air conditioner. Generally, a grille is provided at the air outlet 2111 of the air conditioner, and the air deflector assembly is disposed inside the grille.

[0036] The air conditioner (circular cabinet or square cabinet) provided by the first embodiment of the present invention is provided with an air outlet at the top (head). Outlet air in the internal air duct adheres tightly to the inner wall of the air duct and flows upwards in succession, thus the outlet air from the air duct mostly gathers at the top of the air outlet (upper side of the air outlet). Based on the sweeping structure in the prior art, the second air deflector is provided at the top of the air outlet. The second air deflector guides the air to flow to the ground (the air is guided only downwards), but not to move upwards. Therefore, the outlet air from the air duct, which gathers at the top of the air outlet, is guided by the second air deflector to flow to the ground. At the same time, the structure of the first air deflector also guides the airflow upwards, and the second air deflector acts as a buffer for the first air deflector to guide a part of the airflow flowing upward to flow downwards, thereby achieving an optimized effect of the outlet air flowing to the ground, and enhancing the comfort of the air conditioner.

[0037] As shown in Figures 5 and 6, a second embodiment of the present invention provides an air guiding mechanism 110, which is disposed on an air blowing device 100 of an air conditioner. The air guiding mechanism 110 provided by the second embodiment of the present invention enables the outlet air gathered at the top of the

air conditioner to be output, thereby ensuring the outlet air volume of the air conditioner, and ensuring the air blowing effect.

[0038] In one of the embodiments, the air guiding mechanism 110 includes a housing 111 and an air outlet board assembly. A hollow receiving cavity is formed in the housing 111, and the air outlet board assembly is disposed in the receiving cavity. An air outlet is further provided in the housing 111, and the air outlet communicates with the receiving cavity. The outlet air in the air conditioner enters the receiving cavity of the housing 111 of the air guiding mechanism 110, and is output through the air outlet. Preferably, the air outlet board assembly is arranged in the air outlet and guides the outlet air, thereby facilitating the air blowing from the air conditioner.

[0039] Specifically, the air outlet board assembly is disposed on the housing 111 and disposed at an upper edge of the air outlet, and the air outlet board assembly is capable of contacting the top of the housing 111. That is to say, there are no gaps between the air outlet board assembly and the top of the housing 111, or there are no gaps between part of the air outlet board assembly and the top of the housing 111. The contact between the air outlet board assembly and the top of the housing 111 includes two contact modes, namely, a surface-surface contact and a line-surface contact. The contact between the air outlet board assembly and the housing 111 is a surface-surface contact, that is to say, a surface of the air outlet board assembly and an inner surface of the top of the housing 111 are bonded together. Due to the Coanda effect, the outlet air gathered at the top of the housing 111 can be output along another surface of the air outlet board assembly. The contact between the air outlet board assembly and the housing 111 is a line-surface contact, that is to say, an edge of the air outlet board assembly in the housing 111 bears against and is connected to an inner surface of the top of the housing 111. At this time, due to the Coanda effect, the outlet air gathered at the top of the housing 111 can also be output along the air outlet board assembly.

[0040] The air outlet board assembly is configured to output the outlet air gathered at the top of the housing 111. Due to the Coanda effect, the outlet air in the air conditioner will adhere to the inner wall of the air duct, and rises along the inner wall of the air duct to the air guiding mechanism 110 of the air blowing device 100, so that the outlet air arrives in the receiving cavity of the housing 111 of the air guiding mechanism 110. Also, due to the Coanda effect, the outlet air will still adhere to the inner surface of the housing 111 and gathers at the top of the housing 111. At this time, since the air outlet board assembly contacts with the inner surface of the top of the housing 111, the outlet air continues to move along the surface of the air outlet board assembly, thereby achieving the output of the outlet air. Through the contact of the air outlet board assembly with the top of the housing 111, the air guiding mechanism 110 of the present invention

realizes the output of the outlet air at the top of the air conditioner, thereby preventing the outlet air from gathering at the top of the air conditioner, improving the outlet air volume of the air conditioner, ensuring the air blowing effect, and facilitating the user using the air conditioner.

[0041] Further, the air outlet board assembly includes an upper air deflector 112 and a lower air deflector 113. The air guiding mechanism 110 also includes a driving assembly. A hollow receiving cavity is formed in the housing 111, and the upper air deflector 112, the lower air deflector 113 and the driving assembly are all arranged in the receiving cavity. An air outlet is further provided in the housing 111, and the air outlet communicates with the receiving cavity. The outlet air in the air conditioner enters the receiving cavity of the housing 111 of the air guiding mechanism 110, and is output through the air outlet. Preferably, the upper air deflector 112 and the lower air deflector 113 are both installed in the air outlet. The upper air deflector 112 and the lower air deflector 113 guide the outlet air, thereby facilitating the outlet air of the air conditioner flowing to the ground. Of course, the position of the lower air deflector 113 is changeable, for example, the lower air deflector 113 is arranged at an outer side of the air outlet, or is disposed above the upper air deflector 112, so long as the upper air deflector 112 guides the outlet air gathered at the top of the housing 111 to flow out of the housing 111. Further, an air guiding member may be arranged around the outer side of the air guiding mechanism 110 to cover the air guiding mechanism 110. The outlet air, which is output from the upper air deflector 112 to the air outlet, is output through the air guiding member.

[0042] The upper air deflector 112 is disposed on the housing 111 and disposed at an upper edge of the air outlet, and the upper air deflector 112 may be adhered to the top of the housing 111. That is to say, a surface of the upper air deflector 112 contacts with the inner surface of the top of the housing 111. The upper air deflector 112 may be adhered to the housing 111. Of course, the upper air deflector 112 may also abut against the housing 111. The surface of the upper air deflector 112, which is adhered to the housing 111, is a limiting surface, and the other surface of the upper air deflector 112 is an air outputting surface. The outlet air at the top of the housing 111 can be output along the air outputting surface, and the limiting surface can restrict the upper air deflector 112 from continuing to move towards the top of the housing 111, so that the outlet air at the top of the housing 111 moves along the air outputting surface, thereby facilitating outputting the outlet air. In this embodiment, when the upper air deflector 112 is adhered to the top of the housing 111, the upper air deflector 112 is in a horizontal state. Of course, when the upper air deflector 112 is adhered to the top of the housing 111, the upper air deflector 112 may also be angled relative to the horizontal plane, thereby facilitating outputting the outlet air.

[0043] Due to the Coanda effect, the outlet air will adhere to the inner surface of the housing 111 and gathers

at the top of the housing 111. At this time, since the limiting surface of the upper air deflector 112 is adhered to the inner surface of the top of the housing 111, the outlet air continues to move along the limiting surface of the upper air deflector 112, thereby achieving the output of the outlet air. The air guiding mechanism 110 of the present invention can overcome the problem that the outlet air gathers at the top of the housing 111 due to the Coanda effect; through the adhering of the upper air deflector 112 to the top of the housing 111, the present invention realizes the output of the outlet air at the top of the air conditioner, thereby preventing the outlet air from gathering at the top of the air conditioner, improving the outlet air volume of the air conditioner, ensuring the air blowing effect, and facilitating the user using the air conditioner.

[0044] The lower air deflector 113 is disposed below the upper air deflector 112, and the lower air deflector 113 is arranged in the air outlet. The driving assembly is connected with the lower air deflector 113, and is configured to drive the lower air deflector 113 to move. The driving assembly drives the lower air deflector 113 to move upwards and downwards, thereby adjusting the air flowing direction of the air guiding mechanism 110. What's more, the upward or downward movement of the lower air deflector 113 in the present embodiment refers to the moving direction of the air guiding edge 1131 of the lower air deflector 113, which is the outer edge of the lower air deflector 113 and adjacent to the housing 111. If the driving mechanism drives the lower air deflector 113 to move downward, namely, the air guiding edge 1131 of the lower air deflector 113 moves downward, then the outlet air at the air outlet flows downwards. If the driving mechanism drives the lower air deflector 113 to move upwards, namely, the air guiding edge 1131 of the lower air deflector 113 moves upwards, then the outlet air at the air outlet flows upwards.

[0045] In one of the embodiments, the driving assembly includes a motor and a transmitting part 114. The motor is electronically connected to the transmitting part 114. The transmitting part 114 is connected to the lower air deflector 113. The transmitting part 114 includes a gear 1141 and a rack 1142. The gear 1141 is arranged on the output shaft of the motor; the rack 1142 meshes with the gear 1141, and the rack 1142 is connected to the edge of the lower air deflector 113; the motor drives the gear 1141 to rotate, thereby further forcing the rack 1142 to drive the lower air deflector 113 to move.

[0046] Specifically, the transmission mode of the transmitting part 114 is a gear-rack transmission, and the transmission direction of the movement is changed by the gear-rack transmission. The rotation of the motor shaft on the axial thereof is changed into a vertical movement, thereby driving the lower air deflector 113 to move upwards and downwards and enabling the air guiding mechanism 110 to guide air, and further ensuring the air blowing effect of the air blowing device 100, and realizing the landing effect of the outlet air. Of course, the trans-

mission mode of the transmitting part 114 is a worm-gear transmission or a crank-connecting rod transmission, or any one of other kinds of transmission modes, so long as the motor can drive the lower air deflector 113 to rotate through the transmitting part 114.

[0047] The other edge of the lower air deflector 113, which is away from the air guiding edge 1131, is a driving edge 1132. The gear 1141 is disposed on the output shaft of the motor; the rack 1142 meshes with the gear 1141, and the rack 1142 is connected to the driving edge 1132 of the lower air deflector 113. The motor drives the gear 1141 to move, thereby forcing the rack 1142 to drive the lower air deflector 113 to rotate. The rotation of the motor shaft can drive the gear 1141 to rotate, and the gear 1141 drives the rack 1142, which meshes with the gear 1141, to move in a straight line. Thus the linear motion of the rack 1142 drives the lower air deflector 113 which is connected to the rack 1142 to rotate, which enables the lower air deflector 113 to move, so as to guide the outlet air. In this embodiment, the linear motion of the rack 1142 is a vertical movement, and the gear 1141 can drive the rack 1142 to move vertically, thereby driving the lower air deflector 113 to rotate upwards and downwards, ensuring the effect of guiding air of the air guiding mechanism 110, and ensuring the landing effect of the outlet air.

[0048] The rack 1142 is provided with teeth, and the driving edge 1132 of the lower air deflector 113 is provided with a circular shaft; the teeth mesh with the circular shaft. The motion of the rack 1142 forces the teeth to drive the circular shaft to move, thereby driving the lower air deflector 113 to rotate. The rack 1142 is connected to the lower air deflector 113 through the teeth, thereby driving the lower air deflector 113 to rotate. In this embodiment, the teeth of the rack 1142 is similar to a hawk-mouth-shaped structure, so that the rack 1142 and the lower air deflector 113 can be securely matched, thereby ensuring the reliability of the air guiding motion of the lower air deflector 113 and ensuring the effect of guiding air of the air guiding mechanism 110.

[0049] It should be noted that the upper air deflector 112 may be movable or in a horizontal state. When the upper air deflector 112 is in a horizontal state, the limiting surface of the upper air deflector 112 is adhered to the top of the housing 111 all the time, and the outlet air is output along the air outputting surface, thereby facilitating the air blowing from the air conditioner. At this time, no matter whether the air conditioner is heating or cooling, the upper air deflector 112 in a horizontal state can increase the air blowing volume of the cold air or the hot air, thereby ensuring the air blowing effect of the air conditioner, and improving the capabilities of the air conditioner.

[0050] Of course, the upper air deflector 112 may be movable, what's more, it can move only in the direction facing the lower air deflector 113, which can ensure that the air outlet at the top of the housing 111 is output along the air outputting surface of the upper air deflector 112, and avoid a mutation in the connection between the air

outputting surface and the inner surface of the housing 111, thus the connection can ensure that the outlet air flows smoothly, thereby facilitating air flowing.

[0051] Additionally, when the upper air deflector 112 moves in the direction facing the lower air deflector 113, that is to say, the air conditioner blows downwards, which can increase the effect of the outlet air falling to the ground when the air conditioner is cooling or heating. In particularly, when the air conditioner is heating, since the density of the hot air is less than the density of the air of normal temperature, the movement of the upper air deflector 112 in the direction facing the lower air deflector 113 can increase the landing effect of the hot outlet air, and enables the hot air to rise gradually to heat the air of normal temperature, thereby avoiding temperature stratifications during heating, ensuring the heating effect, and improving the comfort during use.

[0052] Currently, when the air conditioner is blowing air, the airflow will adhere to the inner wall of the air conditioner, and will gather at the top of the air conditioner along the inner wall. What's more, when the air deflector sweeps, it can guide the outlet air in the air duct, but the airflow at the top of the air conditioner will still gather and not be output, thereby reducing the outlet air volume of the air conditioner, reducing the air blowing efficiency of the air conditioner, and affecting the user's use. The upper air deflector 112 of the air guiding mechanism 110 of the present invention is adhered to the inner surface of the top of the housing 111, thus the outlet air at the top of the housing 111 can be output along the upper air deflector 112, thereby enabling the outlet air gathered at the top of the housing 111 due to the Coanda effect to be output, preventing the outlet air from gathering at the top of the housing 111 due to the Coanda effect to affect the outlet air volume, improving the air blowing efficiency of the air guiding mechanism 110, and ensuring the air blowing effect of the air conditioner, and facilitating the user using the air conditioner.

[0053] Further, at least two lower air guiding boards 113 are juxtaposed, which can improve the air guiding effect of the air guiding mechanism 110, and facilitate the air blowing from the air blowing device 100, thereby improving the air blowing effect of the air conditioner and improving the comfort of the user. In this embodiment, two lower air guiding boards 113 are juxtaposed and disposed under the upper air deflector 112, which can ensure the air guiding effect of the air guiding mechanism 110 and facilitate blowing air.

[0054] In one of the embodiments, the inner surface of the housing 111 and the surface of the upper air deflector 112 have a smooth transition or are disposed in the same plane, that is to say, the inner surface of the housing 111 and the air outputting surface of the upper air deflector 112 have a smooth transition or are in the same plane. Thus, the outlet air at the top of the housing 111 can move along the inner surface of the housing 111 to the air outputting surface, so that there is no obstruction while the outlet air is flowing, thereby preventing the outlet air

from being blocked, facilitating the flowing of the outlet air, increasing the outlet air volume, and ensuring the air blowing effect of the air conditioner.

[0055] In one of the embodiments, the upper air deflector 112 is rotatably arranged on the housing 111, and the upper air deflector 112 is connected to the lower air deflector 113 through a connecting member. The driving assembly drives the lower air deflector 113 to move, and through the connecting member, enables the upper air deflector 112 to move towards the lower air deflector 113 or to adhere to the top of the housing 111. A shaft hole is provided in the housing 111 and is disposed at the position corresponding to the mounting position of the upper air deflector 112, and two ends of the upper air deflector 112 are provided with a rotating shaft, and the rotating shaft is correspondingly installed in the shaft hole. Thus, the upper air deflector 112 is rotatably arranged in the shaft hole of the housing 111 through the rotating shaft, so as to facilitate the rotating and air guiding of the upper air deflector 112. The upper air deflector 112 rotates through the rotating shaft rotating in the shaft hole, thereby achieving the upper air deflector 112 moving towards the lower air deflector 113.

[0056] Specifically, the driving gear 1141 of the motor of the driving assembly drives the rack 1142 to move, and the rack 1142 can drive the lower air deflector 113 to move. The rack 1142 moves upwards and downwards, which drives the driving edge 1132 of the lower air deflector 113, which is far away from the air guiding edge 1131, to move upwards and downwards, thereby driving the air guiding edge 1131 to move. The moving direction of the air guiding edge 1131 is opposite to the moving direction of the driving edge 1132, thereby realizing the air outlet from the air guiding mechanism 110.

[0057] Moreover, the movement of the upper air deflector 112 is driven by the lower air deflector 113. When the driving assembly drives the lower air deflector 113 to move downwards, the lower air deflector 113 can drive the upper air deflector 112 to move toward the lower air deflector 113, and the air guiding mechanism 110 blows air downwards. When the driving assembly drives the lower air deflector 113 to move upwards, the upper air deflector 112 is adhered to the top of the housing 111. Due to the limitation of the limiting surface of the upper air deflector 112, the upper air deflector 112 is always in a horizontal state and cannot move toward the top of the housing 111. At this time, the lower air deflector 113 of the air guiding mechanism 110 blows air upwards, and the upper air deflector 112 of the air guiding mechanism 110 guides the outlet air to flow horizontally.

[0058] Alternatively, the upper air deflector 112 and the lower air deflector 113 may not be connected. In this case, the movement of the lower air deflector 113 will not affect the upper air deflector 112, and the upper air deflector 112 is always in a horizontal state; the air guiding mechanism 110 realizes guiding outlet air to flow upwards or downwards through the lower air deflector 113, and the upper air guiding panel 112 always guides outlet

air to flow horizontally. In this embodiment, the upper air deflector 112 is connected to the lower air deflector 113 through a connecting member, so as to improve the air blowing effect of the air guiding mechanism 110 and make the upper air deflector 112 to realize a plurality of air blowing modes. The upper air deflector 112 is in a horizontal state, and the upper air deflector 112 blows air horizontally, so as to increase the outlet air volume. When the upper air deflector 112 moves downwards, the landing effect of the outlet air is improved, thereby facilitating the user using the air conditioner.

[0059] Further, the connecting member further includes a sliding rail 115. One end of the sliding rail 115 is arranged on the upper air deflector 112, and another end of the sliding rail 115 is suspended between the upper air deflector 112 and the lower air deflector 113. The lower air deflector 113 is connected to the sliding rail 115. The driving assembly drives the lower air deflector 113 to move along the sliding rail 115, and forces the upper air deflector 112 to move towards the lower air deflector 113, thereby forcing the lower air deflector 113 to abut against the inner surface of the housing 111 or be in a horizontal state. That is to say, the upper air deflector 112 is connected to the lower air deflector 113 through the sliding rail 115. Thus, when the lower air deflector 113 guides air to flow upwards, the motion of the lower air deflector 113 does not interfere the upper air deflector 112, so as not to affect the outlet air guiding and blowing effects of the upper air deflector 112. Specifically, when the lower air deflector 113 guides air to flow upwards, the lower air deflector 113 slides upwards along the sliding rail 115, and the lower air deflector 113 does not interfere the upper air deflector 112. When the lower air deflector 113 guides air to flow downwards, the lower air deflector 113 can drive the upper air deflector 112 to move downwards through the sliding rail 115.

[0060] Further, the sliding rail 115 has a first end and a second end which is arranged opposite to the first end. The lower air deflector 113 moves to the first end, and the lower air deflector 113 can drive the upper air deflector 112 to move towards the lower air deflector 113. The lower air deflector 113 moves to the second end along the sliding rail 115, and the upper air deflector 112 is adhered to the top of the housing 111.

[0061] That is to say, when the lower air deflector 113 moves to the first end, the lower air deflector 113 is located in the first limiting position. When the lower air deflector 113 moves to the second end, the lower air deflector 113 is in the second limiting position. The first limiting position and the second limiting position can limit the movement of the lower air deflector 113. Specifically, when the lower air deflector 113 is located in the first limiting position, the lower air deflector 113 can drive the upper air deflector 112 to move towards the lower air deflector 113. When the lower air deflector 113 is located between the first limiting position and the second limiting position or located at the second limiting position, the upper air deflector 112 is in a horizontal state. The first

limiting position and the second limiting position are configured to confine the displacement of the lower air deflector 113.

[0062] When the lower air deflector 113 moves to the second limiting position, the lower air deflector 113 cannot continue to move along the sliding rail 115, and the limiting surface of the upper air deflector 112 is adhered to the top of the housing 111, and the upper air deflector 112 cannot move upward. Thus the upper air deflector 112 can limit the position of the lower air deflector 113, thereby disabling the upper air deflector 112 to move upwards again. At this time, the upper air deflector 112 is in a horizontal state, and the lower air deflector 113 guides the air to flow upwards. When the lower air deflector 113 moves to the first limiting position, the lower air deflector 113 cannot continue to move along the sliding rail 115; what's more, when the driving assembly drives the lower air deflector 113 to continue to move downwards, the lower air deflector 113 pulls the upper air deflector 112 downwards through the sliding rail 115, so that the upper air deflector 112 moves downward, and the upper air deflector 112 bears against the inner surface of the housing 111, thereby achieving blowing air downwards.

[0063] When the lower air deflector 113 reciprocates along the sliding rail 115, that is to say, when the lower air deflector 113 is located between the first limiting position and the second limiting position, the lower air deflector 113 will not apply a force to the upper air deflector 112, and the upper air deflector 112 is in a horizontal state.

[0064] Further, the connecting member further includes a connecting rod 116, and the connecting rod 116 is connected to the lower air deflector 113, and one end of the connecting rod 116, which is away from the lower air deflector 113, is arranged in the sliding rail 115. That is to say, the lower air deflector 113 is connected to the sliding rail 115 via the connecting rod 116. Moreover, since at least two lower air deflectors 113 are provided, the connecting rod 116 passes through and is connected with at least two lower air deflectors 113. The connecting rods 116 ensures that the moving angles of the at least two lower air deflectors 113 are consistent, thereby ensuring the air blowing effect of the air guiding mechanism 110. Moreover, the connecting rod 116 is disposed adjacent to the air guiding edge 1131 of the lower air deflector 113. Of course, the connecting member may be consisted by only the connecting rod 116. In this case, although some influences may be caused when the upper air deflector 113 drives the upper air deflector 113 to move upwards, the air blowing of the air guiding mechanism 110 will not be affected. The connecting member may also be any one of other structures capable of ensuring that there are no interferences between the movement of the lower air deflector 113 and the upper air deflector 113.

[0065] In this embodiment, when the lower air deflector 113 is in the horizontal state, the connecting rod 116 is

located at the first limiting position. When the lower air deflector 113 guides the air to flow downwards, the driving assembly drives the lower air deflector 113 to continue to move downwards from the first limiting position, and the connecting rod 116 drives the sliding rail 115 to move downwards, thereby forcing the upper air deflector 112 to move downwards. When the lower air deflector 113 guides the air to flow upwards, the driving assembly drives the lower air deflector 113 to move upward along the sliding rail 115 through the connecting rod 116.

[0066] Preferably, in this embodiment, the connecting rod 116 is provided with a hook member, and the sliding rail 115 is provided with a sliding slot. The hook member is disposed in the sliding slot and moves along the sliding slot. The hook member of the connecting rod 116 is arranged in the sliding slot of the sliding rail 115, so that the connecting rod 116 can move smoothly, thereby ensuring the air guiding effect of the lower air deflector 113. Additionally, the number of the connecting rods 116 is identical to the number of the sliding rails 115, and both numbers are two; two connecting rods 116 are oppositely disposed passing through the lower air deflector 113, and the sliding rails 115 are arranged in accordance with the connecting rods 116. The two connecting rods 116 and two sliding rails 115 are coupled to enable the lower air deflector 113 to move smoothly, thereby ensuring the air guiding effect of the lower air deflector 113.

[0067] In one of the embodiments, the air guiding mechanism 110 further includes a torsion member 117 which is arranged on the upper air deflector 112, and the torsion member 117 is configured to force the upper air deflector 112 to contact with the inner surface of the housing 111. In this embodiment, the torsion member 117 is a torsion spring. The torsion member 117 is arranged on the upper air deflector 112, such that, under the action of the torsion member 117, the upper air deflector 112 can abut against the inner surface of the housing 111 tightly, that is to say, under the action of the torsion member 117, all or part of the upper air deflector 112 always contacts with the inner surface of the housing 111, thereby avoiding a gap formed between the upper air deflector 112 and the inner surface of the housing 111 and ensuring the air blowing effect. At the same time, when the lower air deflector 113 guides the air to flow downwards, the driving assembly needs to drive the lower air deflector 113 to overcome the torsional force of the torsion member 117, so that the upper air deflector 112 can move downwards. That is to say, only when the downward pulling force provided by the connecting rod 116 is greater than the torsional force of the torsion member 117, can the upper air deflector 112 move downwards. Otherwise, the upper air deflector 112 is always in a horizontal state. Further, the torsion member 117 can also ensure that the upper wind deflector 112 is still in a horizontal state when the lower air deflector 113 has some fine movements.

[0068] The air outlet board assembly (including the upper air deflector 112 and the lower air deflector 113) in

the second embodiment of the present invention refers to the same object as the air deflector assembly (including the second air deflector 212 and the first air deflector 213) provided by the first embodiment of the present invention. That is to say, the upper air deflector guides the airflow to flow to the ground (i.e., guides the air to flow only downwards), and the upper air deflector does not move upwards. Therefore, the outlet air from the air duct gathered at the top of the air outlet can all be guided to flow to the ground by the upper air deflector. At the same time, the structure of the lower air deflector may also guide the airflow to flow upwards. The lower air deflector acts as a buffer for the upper air deflector and guides part of the airflow flowing upwards to flow downwards, thereby achieving the optimized effect of air flowing to the ground and improving the comfort of the air conditioner.

[0069] Additionally, the gear 1141, the rack 1142, the connecting member (including the sliding rail 115 and the connecting rod 116), and the torsion member 117 in the second embodiment of the present invention refer to the same objects respectively as the motor gear 2141, the meshing rack 2142, the connecting device (including the first connecting member 216 and the second connecting member 215), and the torsion spring 217 in the first embodiment of the present invention, and the functions will not be described herein repeatedly. Further, the air guiding mechanism 110 provided by the second embodiment of the present invention can guide the outlet air that is affected by the Coanda effect, so that the outlet air gathered at the top of the housing 111 can be completely output, thereby increasing the outlet air volume, increasing the air blowing efficiency and ensuring the air blowing effect. When the air guiding mechanism 110 needs to control the air to flow downwards, the lower air deflector 113 moves downwards, and drives the upper air deflector 112 to move downwards through the connecting rod 116 and the sliding rail 115, which enables the outlet air at the top of the housing 111 to change the flow direction, thereby improving the general effect of blowing air downwards. When the air guiding mechanism 110 needs to control the air to flow upwards, the lower air deflector 113 moves upwards through the connecting rod 116 moving along the sliding rail 115, to form an upward inclined angle, thereby achieving blowing air upwards. At this time, the upper air deflector 112 is in a horizontal state.

[0070] The air guiding mechanism 110 provided by the second embodiment of the present invention can overcome the influence caused by the Coanda effect of the outlet air, and increase the outlet air volume of the air guiding mechanism 110, thereby better controlling the flowing direction of the hot air or cool air of the air conditioner. In particular, when the air conditioner is heating, the upper air deflector 112 guides outlet air to flow downwards, thereby avoiding temperature stratification caused by the outlet air that cannot be blown downwards during heating, and ensuring the heating effect.

[0071] A third embodiment of the present invention further provides an air blowing device 100 including an air outlet mask 120 and the air guiding mechanism 110 in any one of the above embodiments. The air outlet mask 120 is provided with an air outlet grille 121, and the air outlet mask 120 is configured to cover the air guiding mechanism 110. The air outlet grille 121 corresponds to the air outlet of the air guiding mechanism 110. The outlet air from the air guiding mechanism 110 is output from the air outlet grille 121 of the air outlet mask 120. The air blowing device 100 realizes blowing air through the air guiding mechanism 110, thereby increasing the outlet air volume, improving the air blowing efficiency, and ensuring the air blowing effect of the air conditioner.

[0072] A fourth embodiment of the present invention also provides an air conditioner including an air conditioner body and the air blowing device 100 in the above embodiment. The air blowing device 100 is disposed at the top of the air conditioner body. Further, the air conditioner of the present invention particularly refers to a floor type air conditioner. Additionally, the air conditioner body of the present invention is provided with an identical or similar centrifugal air duct and air supply outlet thereof.

[0073] The airflow at the air supply outlet of the centrifugal duct of the air conditioner has an adhesion function in the diffuser section of the volute and on the inner wall of the volute, and after transiting to the air blowing device 100, the airflow continues to have a strong wall-adhering effect, thus most of the outlet air rises to and gathers at the top of the housing 111, and is limited and guided at right angles by the structure at the top of the housing 111, so that the air blowing direction is changed from the vertical upward direction to the horizontal forward direction, and when the air exits the air outlet, it flows horizontally forward. Therefore, through the air guiding mechanism 110 of the air blowing device 100, the air conditioner of the present invention achieves output of the outlet air gathered at the top of the housing 111, thereby preventing the outlet air from gathering at the top of the housing 111, increasing the outlet air volume, improving the air blowing efficiency, and ensuring the air blowing effect of the air conditioner.

[0074] The above mentioned are only preferred embodiments of the present invention, but not intended to limit the scope of the present invention. It should be noted that a number of variations and modifications may be made by those skilled in the art. It's no need to describe all the possible embodiments, and obvious variations and modifications may be made without departing from the scope of the invention.

Claims

1. An air deflector assembly, disposed at an air outlet of an air conditioner and **characterized by** comprising:

- a first air deflector, which is rotatably arranged and configured to guide outlet airflow of the air conditioner to sweep up and down;
a second air deflector, which is disposed at a top of the air outlet of the air conditioner and above the first air deflector, and is configured to guide the outlet airflow to flow only to a ground.
2. The air deflector assembly according to claim 1, **characterized in that**, the second air deflector and the first air deflector are juxtaposed, and the second air deflector is rotatably arranged and configured to rotate only towards the ground.
 3. The air deflector assembly according to claim 2, **characterized in that**, a top position limiting device is arranged on a surface of the second air deflector, which faces opposite to the ground; the top position limiting device is configured to prevent the second air deflector from rotating in a direction away from the ground.
 4. The air deflector assembly according to claim 3, **characterized in that**, the top position limiting device is a torsion spring provided on a rotating shaft of the second air deflector, and the torsion spring is configured to confine the second air deflector to rotate in a direction only towards the ground.
 5. The air deflector assembly according to claim 3, **characterized in that**, a connecting device is provided between the first air deflector and the second air deflector; the first air deflector drives the second air deflector to rotate in the direction toward the ground simultaneously when it rotates in a direction toward the ground.
 6. The air deflector assembly according to claim 5, **characterized in that**, the connecting device comprises:
 - a first connecting member, which is connected to the first air deflector, wherein, one end of the first connecting member, which faces the second air deflector, is provided with a guiding hole which extends along a moving direction of the first connecting member;
 - a second connecting member, wherein, a first end of the second connecting member is connected to one side of a swing end of the second air deflector, and a second end of the second connecting member is slidably arranged within the guiding hole.
 7. The air deflector assembly according to claim 6, **characterized in that**, the second connecting member has two cantilevers juxtaposed; a latch is rigidly connected between the two cantilevers; the latch is arranged to pass through the guiding hole.
 8. The air deflector assembly according to claim 6, **characterized in that**, a plurality of the first air deflectors are juxtaposed, and the first connecting member is arranged to pass through the plurality of the first air deflectors and is rigidly connected with each of the first air deflectors.
 9. The air deflector assembly according to claim 8, **characterized by** further comprising:
 - an engaging rack, which is connected to and drives the plurality of the first air deflectors;
 - a motor gear, which is connected to and driven by an output shaft of a motor, and meshes with the engaging rack;
 - wherein, the engaging rack and the motor gear are both disposed on one side of the first air deflector, which is away from the air outlet.
 10. An air guiding mechanism, **characterized by** comprising:
 - a housing, which has a hollow receiving cavity; wherein an air outlet of an air conditioner is provided in the housing, and the air outlet communicates with the receiving cavity;
 - an air deflector assembly as defined in any one of the claims 1-9, which is disposed on the housing and at an upper edge of the air outlet; wherein, the air deflector assembly is configured to contact a top of the housing and to output the outlet air gathered at a top of the housing.
 11. The air guiding mechanism according to claim 10, **characterized in that**, the air deflector assembly is configured to adhere to the top of the housing; or an edge of the air guiding assembly is configured to abut against the top of the housing.
 12. The air guiding mechanism according to claim 10, **characterized in that**, the second air deflector is disposed on the housing and disposed at an upper edge of the air outlet; the second air deflector is configured to contact the top of the housing, and to output the outlet air gather at the top of the housing; and the first air deflector is disposed in the air outlet.
 13. The air guiding mechanism according to claim 12, **characterized in that**, an inner surface of the housing and a surface of the second air deflector have a smooth transition or are disposed in the same plane.
 14. An air blowing device, **characterized by** comprising an air outlet mask and the air guiding mechanism as defined in any one of the claims 10-13;

wherein the air outlet mask is provided with an air outlet grille; the air outlet mask is configured to cover the air guiding mechanism; and the air outlet grille corresponds to the air outlet of the air guiding mechanism.

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15. An air conditioner, **characterized by** comprising an air conditioner body and the air blowing device as defined in claim 14;
wherein the air blowing device is disposed at a top of the air conditioner body. 10
16. An air conditioner, comprising a housing, an air outlet of an air conditioner being disposed at a top of the housing; **characterized in that**, the air conditioner further comprises the air deflector assembly as defined in any one of the claims 1 to 9, wherein, the air deflector assembly is arranged at the air outlet; and the second air deflector in the air deflector assembly is disposed at a top of the air outlet. 15 20

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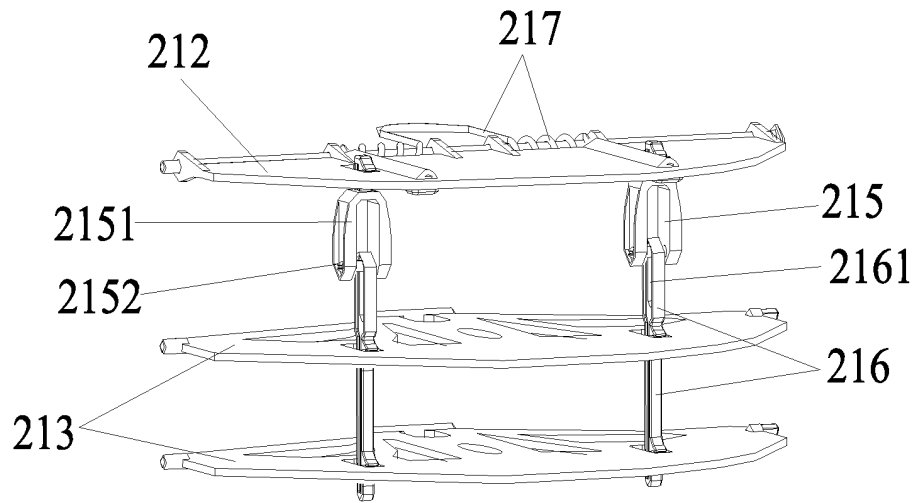


Fig.1

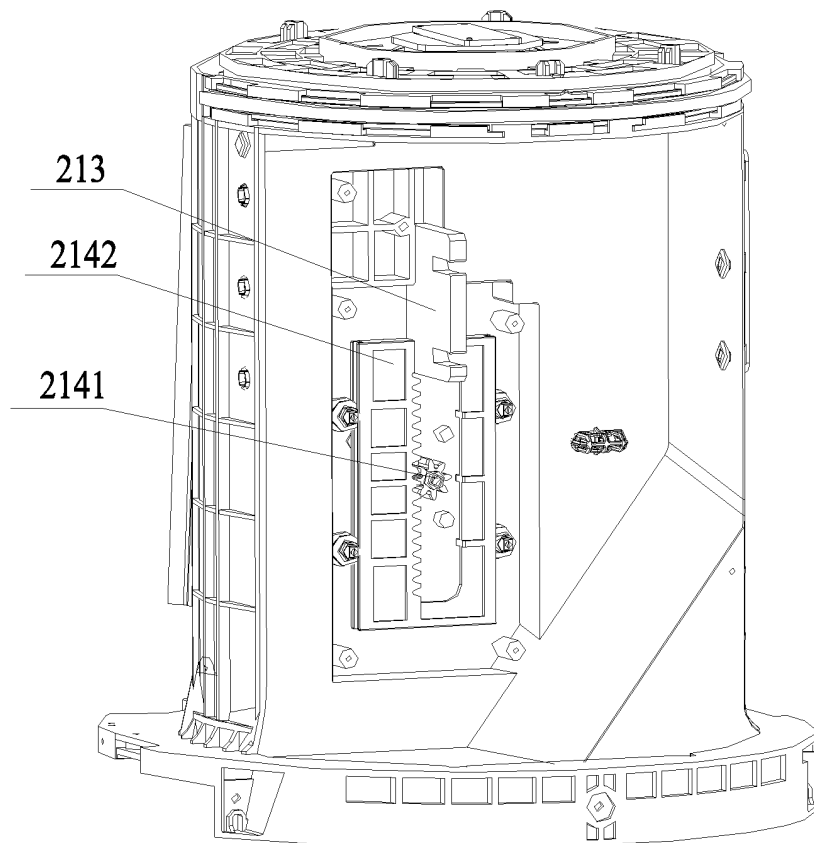


Fig.2

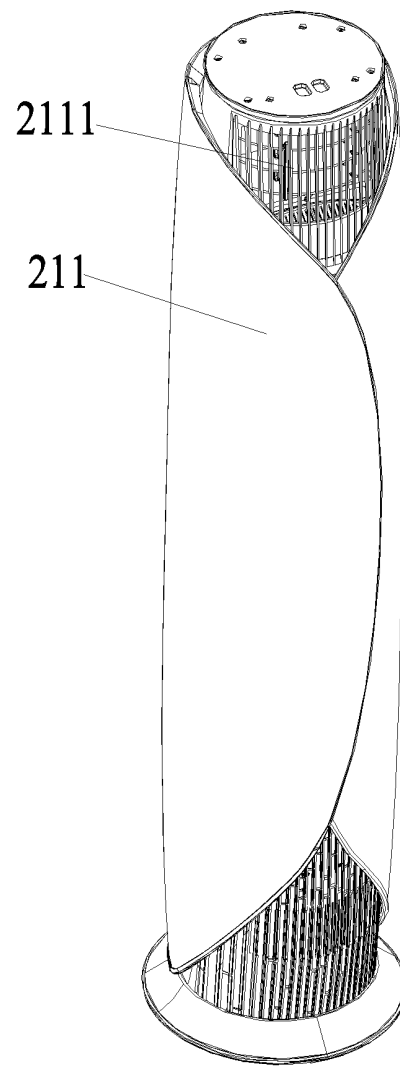


Fig.3

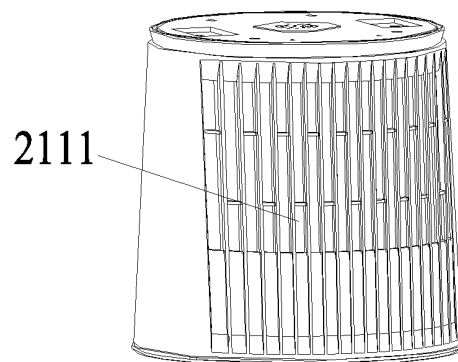


Fig. 4

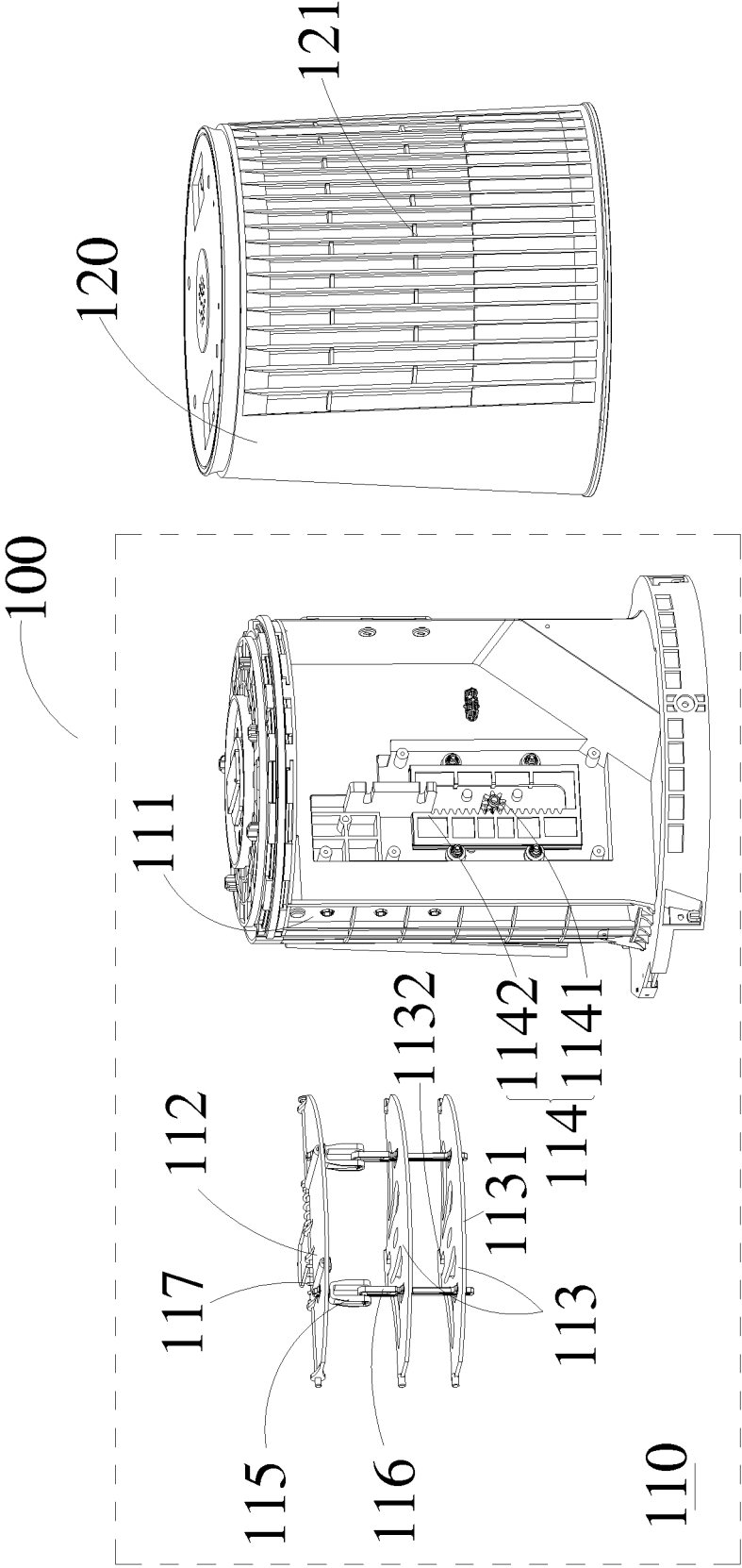


Fig. 5

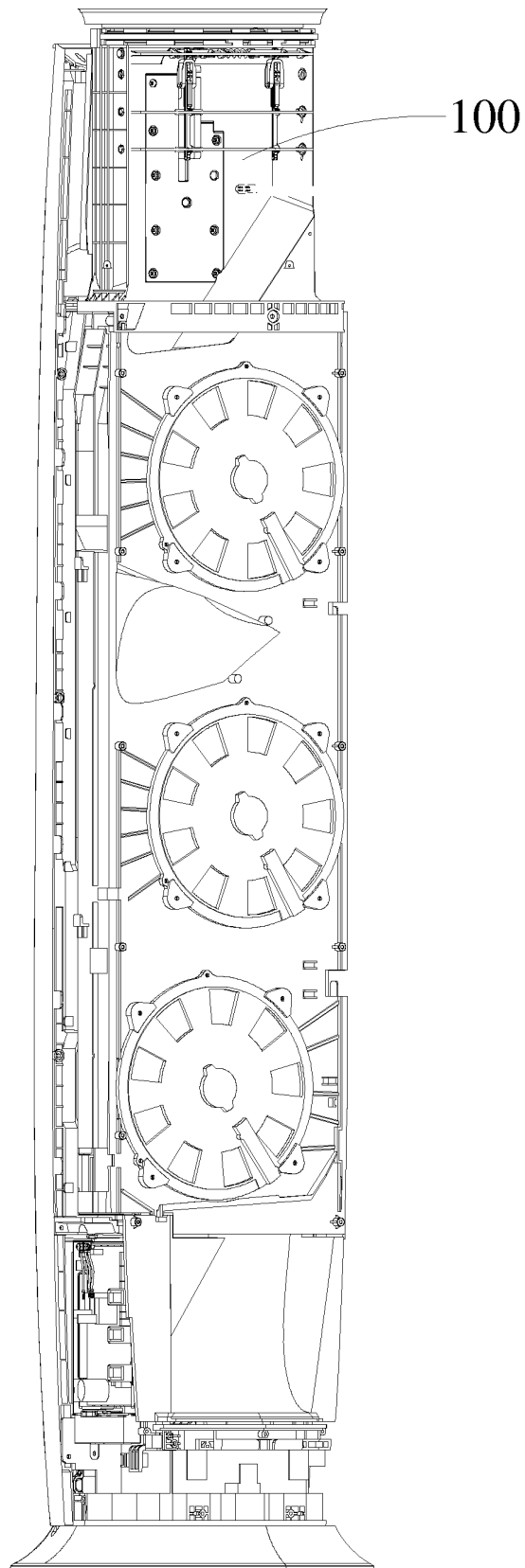


Fig. 6

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2017/081662

A. CLASSIFICATION OF SUBJECT MATTER F24F 13/10(2006.01) i; F24F 13/20(2006.01) i; F24F 1/00(2011.01) 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) CPRSABS, CNTXT, CNKI, VEN, JPABS: flow direction board, went type, torsion-spring, air condition, flap, vane, blade, shutter, damper, guide plate, guide board, wind direction plate, wind direction board, louver, louvre, floor, ground, down, downward, counteract, resist, limit, restrict															
C. DOCUMENTS CONSIDERED TO BE RELEVANT															
<table border="1"> <thead> <tr> <th>Category*</th> <th>Citation of document, with indication, where appropriate, of the relevant passages</th> <th>Relevant to claim No.</th> </tr> </thead> <tbody> <tr> <td>X</td> <td>CN 104566899 A (GUANDONG MIDEA HVAC EQUIPMENT CO., LTD. et al.) 29 April 2015 (29.04.2015) description, paragraphs [0037]-[0068], and figures 1-7</td> <td>1-13, 16</td> </tr> <tr> <td>Y</td> <td>CN 104566899 A (GUANDONG MIDEA HVAC EQUIPMENT CO., LTD. et al.) 29 April 2015 (29.04.2015) description, paragraphs [0037]-[0068], and figures 1-7</td> <td>14, 15</td> </tr> <tr> <td>Y</td> <td>CN 105352158 A (GREE ELECTRIC APPLIANCES, INC. OF ZHUHAI) 24 February 2016 (24.02.2016) description, paragraphs [0044] and [0045], and figures 5 and 6</td> <td>14, 15</td> </tr> <tr> <td>X</td> <td>CN 204438459 U (GUANDONG MIDEA HVAC EQUIPMENT CO., LTD. et al.) 01 July 2015 (01.07.2015) description, paragraphs [0037]-[0068], and figures 1-7</td> <td>1-13, 16</td> </tr> </tbody> </table>	Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.	X	CN 104566899 A (GUANDONG MIDEA HVAC EQUIPMENT CO., LTD. et al.) 29 April 2015 (29.04.2015) description, paragraphs [0037]-[0068], and figures 1-7	1-13, 16	Y	CN 104566899 A (GUANDONG MIDEA HVAC EQUIPMENT CO., LTD. et al.) 29 April 2015 (29.04.2015) description, paragraphs [0037]-[0068], and figures 1-7	14, 15	Y	CN 105352158 A (GREE ELECTRIC APPLIANCES, INC. OF ZHUHAI) 24 February 2016 (24.02.2016) description, paragraphs [0044] and [0045], and figures 5 and 6	14, 15	X	CN 204438459 U (GUANDONG MIDEA HVAC EQUIPMENT CO., LTD. et al.) 01 July 2015 (01.07.2015) description, paragraphs [0037]-[0068], and figures 1-7	1-13, 16
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☒ Further documents are listed in the continuation of Box C. ☒ See patent family annex.															
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<table border="1"> <tr> <td>Date of the actual completion of the international search 25 May 2017</td> <td>Date of mailing of the international search report 23 June 2017</td> </tr> </table>	Date of the actual completion of the international search 25 May 2017	Date of mailing of the international search report 23 June 2017													
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INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2017/081662

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	CN 204438459 U (GUANDONG MIDEA HVAC EQUIPMENT CO., LTD. et al.) 01 July 2015 (01.07.2015) description, paragraphs [0037]-[0068], and figures 1-7	14, 15
X	CN 104596076 A (GUANDONG MIDEA HVAC EQUIPMENT CO., LTD. et al.) 06 May 2015 (06.05.2015) description, paragraphs [0041]-[0082], and figures 1-9	1-13, 16
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