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(54) **AIR CONDITIONER AND CONTROL METHOD FOR AIR CONDITIONER**

KLIMAANLAGE UND STEUERUNGSVERFAHREN FÜR KLIMAANLAGE

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(56) References cited:

CN-A- 105 180 270

CN-A- 107 355 874

CN-A- 107 355 874

CN-A- 107 401 776

CN-A- 107 781 910

CN-A- 107 990 525

CN-U- 204 786 798

CN-U- 207 299 435

JP-A- 2014 009 919

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Description**TECHNICAL FIELD**

5 **[0001]** The present disclosure relates to the technical field of air conditioning equipment, in particular to an air conditioner and a method for controlling the air conditioner.

BACKGROUND

10 **[0002]** The demand for air conditioners is increasing with continuous improvement of human daily life. Regarding air conditioners in the existing market, the blowing air comes directly to the users with a great discomfort, due to a large long-distance flow area of the air outlet, a large air volume and a long air supply distance. Further, various demands of the users may not be met thanks to the single blowing mode.

15 **[0003]** In CN 204 786 798 U an indoor air conditioner is described, which has two guiding plates in the wind channel, that are rotatably connected to the casing. The first guiding plate is used for opening or closing the wind channel and the second guiding plate is equipped with a plurality of scattered holes. This document discloses an air conditioner having the features of the preamble of claim 1, and a method for controlling an air conditioner having the features of the preamble of claim 7.

20 **[0004]** Document CN 107 401 776 A discloses an air conditioner with an outer and inner air deflector. The outer air reflector opens and closes an air outlet in the body and the inner air reflector is located on the inner side of the outer air deflector.

25 **[0005]** An air conditioner and air guide structure described in CN 107 355 874 A comprises a first and second air guide plate and the second air guide plate is arranged at an air outlet side of the first air guide plate. Both air guide plates have micro pores to better guide the air.

SUMMARY

[0006] It is therefore one main object of the disclosure provide an air conditioner and a method for controlling the air conditioner, aiming at overcoming a single blowing mode regarding the air conditioner in the prior art.

30 **[0007]** In order to realize the objective, the air conditioner of the present disclosure includes: a housing, a first air guiding plate and a second air guiding plate. The housing includes an air outlet passage formed in the housing, and an outlet hole formed in an edge of the housing and coupled with the air outlet passage. The first air guiding plate is adjacent to the outlet hole, and rotatably connected to the housing through a first rotating shaft. The second air guiding plate is rotatably positioned in the air outlet passage, and is capable of rotating through a second rotating shaft on the housing.

35 The air conditioner has an anti-straight blowing mode, the first air guiding plate is configured to partially close the outlet hole after the air conditioner is in the anti-straight blowing mode.

[0008] After the outlet hole is closed by the first air guiding plate, a side of the first air guiding plate adjacent to an upper wall of the outlet hole is defined as a first side, and another side of the first air guiding plate adjacent to a lower wall of the outlet hole is defined as a second side. The first rotating shaft includes a first surface extending towards the first side, and a second surface extending towards an edge of the upper wall of the outlet hole. An angle between the first surface and the second surface is defined as α , and α is larger than 40 degrees, and no more than 55 degrees after the air conditioner is in the anti-straight blowing mode.

[0009] A distance M between the first side and the edge of the upper wall of the outlet hole has a range from 70 mm to 85 mm, after the air conditioner is in the anti-straight blowing mode.

45 **[0010]** A distance N between the second side and a lower edge of the outlet hole has a range from 25 mm to 35 mm, after the air conditioner is in the anti-straight blowing mode.

[0011] Optionally, the air conditioner further has a cooling/heating mode. The first air guiding plate is configured to open the outlet hole after the air conditioner is in the cooling/heating mode, and angle α is no less than 65 degrees, and no more than 90 degrees.

50 **[0012]** Optionally, a distance M between the first side and the edge of the upper wall of the outlet hole has a range from 95 mm to 110 mm after the air conditioner is in the cooling/heating mode.

[0013] Optionally, a distance N between the second side and a lower edge of the outlet hole of the housing has a range from 25 mm to 45 mm after the air conditioner is in the cooling/heating mode.

[0014] Optionally, the first air guiding plate includes an air dispersing hole passing through the first air guiding plate along a thickness direction of the first air guiding plate.

55 **[0015]** Optionally, a length of the air diffusing hole along an opening direction is equal to or more than a thickness of the first air guiding plate.

[0016] The present disclosure further provides a method for controlling an air conditioner, the air conditioner includes

an anti-straight blowing mode and a cooling/heating mode, and the air conditioner is switchable between the anti-straight blowing mode and the cooling/heating mode. The air conditioner includes: a first air guiding plate and a first rotating shaft including: a first surface extending towards a first side and a second surface extending towards an edge of an upper wall of an outlet hole. The first side is a side of the first air guiding plate adjacent to the upper wall of the outlet hole. An angle between the first surface and the second surface is defined as α , the method includes:

closing, by the first air guiding plate, a part of the air outlet after the air conditioner is in the direct blowing prevention mode, and the angle α is larger than 40 degrees, and no more than 55 degrees, wherein the distance M has a range from 70 mm to 85 mm, and the distance N has a range from 25 mm to 35 mm; and

completely opening, by the first air guiding plate, the air outlet after the air conditioner is in the cooling/heating mode, and the angle α is no less than 65° and no more than 90°.

[0017] According to the present disclosure, when the air conditioner is in the anti-straight blowing mode, the first air guiding plate partially closes the air outlet, so that air from the air outlet is dispersed to the surroundings for reducing air blowing speed and air volume, and supplying breeze wind to user. Single mode of the air conditioner is overcome, with various modes provided, and users requirement are satisfied.

BRIEF DESCRIPTION OF THE DRAWINGS

[0018] In order to explain the embodiment of the present disclosure or the technical solution of the prior art more clearly, the following will briefly introduce the drawings necessary in the description of the embodiments or the prior art. Obviously, the drawings in the following description are only some embodiments of the present disclosure. For those ordinary skill in the art, other drawings can be obtained according to the structure shown in these drawings without any creative effort.

Fig. 1 is a schematic structural diagram of an air conditioner of the present disclosure in an anti-straight blowing mode; Fig. 2 is a schematic structural diagram of the air conditioner of the present disclosure in a cooling/heating mode.

Description of reference numerals:

[0019]

Label	Name	Label	Name
100	air conditioner	10	first air guiding plate
11	air dispersing hole	12	first rotating shaft
20	second air guiding plate	21	second air dispersing hole
22	second rotating shaft	30	housing
31	base plate	32	panel
40	fan	50	winging blade

[0020] The implementation, functional features and advantages of the present disclosure will be further described with reference to the accompanying drawings with the embodiments.

DETAILED DESCRIPTION

[0021] The technical solutions of the embodiments of the present disclosure will be clearly and completely described in the following with reference to the accompanying drawings. It is obvious that the embodiments to be described are only a part rather than all of the embodiments of the present disclosure. All other embodiments obtained by persons skilled in the art based on the embodiments of the present invention without creative efforts shall fall within the protection scope of the present invention.

[0022] It is to be understood that, all of the directional instructions in the exemplary embodiments of the present disclosure (such as top, down, left, right, front, back...) can only be used for explaining relative position relations, moving condition of the elements under a special form (referring to figures), and so on, if the special form changes, the directional

instructions changes accordingly.

[0023] In addition, the descriptions, such as the "first", the "second" in the exemplary embodiment of present disclosure, can only be used for describing the aim of description, and cannot be understood as indicating or suggesting relative importance or impliedly indicating the number of the indicated technical character. Therefore, the character indicated by the "first", the "second" can express or impliedly include at least one character. Unless otherwise specified, the description of "a plurality of" means at least two, such as two, three, etc.

[0024] In the present disclosure, unless specified or limited otherwise, the terms "connected", "fixed" and the like are used broadly, and for example, "fixed" can be fixed connections, detachable connections, or integral connections; may also be mechanical or electrical connections; may also be direct connections or indirect connections via intervening structures, may also be inner connecting of two elements, or interaction relationship between two elements, unless specifically limited otherwise. which can be understood by those skilled in the art according to specific situations, which can be understood by those skilled in the art according to the detail embodiment of the present disclosure.

[0025] In addition, the technical proposal of each exemplary embodiment can be combined with each other, however the technical proposal must base on that the ordinary skill in that art can realize the technical proposal, when the combination of the technical proposals occurs contradiction or cannot realize, it should consider that the combination of the technical proposals does not exist, and is not contained in the protection scope required by the present disclosure.

[0026] The present disclosure provides an air conditioner and a method for controlling the air conditioner. The air conditioner can be a split wall-mounted air conditioner, and further can be a single cooling machine or a cooling and heating machine. In the description of the following, an air conditioner with cooling and heating functions is taken as an example for illustration. The air conditioner in the present technical solution includes an anti-straight blowing mode and a cooling/heating mode.

[0027] Referring to FIGS. 1 and 2, the air conditioner 100 of the present disclosure includes: a housing 30, a first air guiding plate 10 and a second air guiding plate 20. The housing 30 includes an air outlet passage (not labeled) formed in the housing 30, and an outlet hole (not labeled) formed in an edge of the housing 30 and coupled with the air outlet passage. The first air guiding plate 10 is rotatably positioned at the outlet hole, and connected to the housing 30 through a first rotating shaft 12. The second air guiding plate 20 is rotatably positioned in the air outlet passage, and is capable of rotating through a second rotating shaft 12 defined on the housing 30. The air conditioner 100 has an anti-straight blowing mode, the first air guiding plate 10 is configured to partially close the outlet hole after the air conditioner 100 is in the anti-straight blowing mode.

[0028] Specifically, components of the air conditioner 100 are installed in the housing 30, and the housing 30 is used for supporting and protecting internal components while beautifying the appearance of the air conditioner 100. The housing 30 includes a base plate 31, a frame (not labeled) and a panel 32. The face frame is provided on the base plate 31, the face frame is open at the front, where the panel 32 is provided. And the air outlet is disposed between a lower end of the panel 32 and the face frame.

[0029] Specifically, the face frame may be rotatably or detachably arranged on the base plate 31, and the panel 32 may be rotatably or detachably provided on the face frame. It can be understood that the air conditioner 100 further includes swinging blades 50, and the swinging blades 50 are rotatably disposed in the air outlet passage, and controls the air blowing direction from left to right, to realize the air supply in the left and right directions. The air conditioner 100 further includes a fan 40 provided in the housing 30.

[0030] In the embodiments of the present disclosure, the housing 30 is further provided with the air outlet passage for air circulation. The air outlet passage has the air outlet in the edge of the housing 30. When the air conditioner 100 is turned on, the air is continuously blown to the indoor space through the air outlet, thereby adjusting the indoor temperature. The first air guiding plate 10 rotates around the first rotating shaft 12 to open or close the air outlet. In the present embodiment, the second air guiding plate 20 is provided with a plurality of second air dispersing holes 21 passing through the second air guiding plate 20. The second air dispersing holes 21 are arranged along a thickness direction of the second air guiding plate 20, and the second air guiding plate 20 can rotate in the air outlet passage around the second rotating shaft 22. When the air conditioner 100 is in the anti-straight blowing mode, the first air guiding plate 10 is rotated by a certain angle to partially shield the air outlet. The air from the air conditioner 100 is shielded by the first air guiding plate 10, thereby reducing the air volume and speed at the air outlet. Air blown by the air conditioner 100 is prevented from directly blowing onto the human body, so that the air felt by the human body is rather soft. The air conditioner 100 includes various modes rather than a single mode, and the users demand is met.

[0031] Further, when the outlet hole is closed by the first air guiding plate 10, a side of the first air guiding plate 10 adjacent to an edge of an upper wall of the outlet hole is defined as a first side (not labeled); and another side of the first air guiding plate 10 adjacent to another edge of a lower wall of the outlet hole is defined as a second side (not labeled). The first rotating shaft 12 includes a first surface (not labeled) extending towards the first side, and a second surface (not labeled) extending towards the edge of the upper wall of the outlet hole. An angle between the first surface and the second surface is defined as α , and angle α is larger than 40 degrees, and no more than 55 degrees after the air conditioner is 100 in the anti-straight blowing mode. In the anti-straight blowing mode, the air speed of the air coming

out of the air outlet passage is weak, the air volume is not large, and the air is prevented to blow on user's body through the blockage of the first air guiding plate 10. By diffusing the air to the surroundings along the first air guiding plate 10, the air becomes softer and brings more comfort to the user.

[0032] Furthermore, when the air conditioner is 100 in the anti-straight blowing mode, the angle α is larger than 40 degrees, and no more than 55 degrees, and a distance M between the first side and the edge of the upper wall of the outlet hole has a range from 70 mm to 85 mm; or when the air conditioner is 100 in the anti-straight blowing mode, a distance N between the second side and a lower edge of the outlet hole has a range from 25 mm to 35 mm. When the air conditioner is 100 in the anti-straight blowing mode, the wind from the air outlet passage is rather comfort under the action of the first air guiding plate 10.

[0033] Referring to FIG 2, the air conditioner 100 further has a cooling/heating mode. When the air conditioner 100 is in a cooling/heating mode, the first air guiding plate 10 is configured to open the outlet hole, and angle α is no less than 65 degrees, and no more than 90 degrees. In the exemplary embodiment of the present disclosure, the cooling/heating mode is regarded as a second operating mode. In the second operating mode, the first air guiding plate 10 and the second air guiding plate 20 are both rotated to be parallel to an air outlet direction of the air outlet passage. By this time, the side of the first air guiding plate 10 adjacent to the upper wall of the outlet hole is defined as the first side; and the side of the first air guiding plate 10 adjacent to the lower wall of the outlet hole is defined as the second side. The first surface of the first rotating shaft 12 is extended towards the first side, the second surface of the first rotating shaft 12 is extended towards the second side. The angle between the first surface and the second surface is defined as α . In detail, a position of the first air guiding plate 10 completely closing the air outlet is defined as an initial position, and an angle by which the first air guiding plate 10 rotates from the initial position around the first rotating shaft 12 is defined as α . When the rotating angle α of the first air guiding plate 10 is no less than 65 degrees, and no more than 90 degrees, the first air guiding plate 10 and the second air guiding plate 20 have less resistance to the blowing air from the air outlet passage, so that the air speed and volume of the air coming out of the air outlet passage are relatively large. The ambient temperature can be changed quickly.

[0034] Furthermore, the distance M between the first side and the edge of the upper wall of the outlet hole has a range from 95 mm to 110 mm when the air conditioner is in the cooling/heating mode. Or, the distance N between the second side and the lower edge of the outlet hole has a range from 25 mm to 45 mm when the air conditioner is in the cooling/heating mode. In the exemplary embodiment, when the air conditioner is in the cooling/heating mode and angle α is no less than 65 degrees, and no more than 90 degrees, distance M has the range from 95 mm to 110 mm and distance N has the range from 25 mm to 45 mm thereby increasing air speed and volume of the air from the air outlet passage. At present state, the first air guiding plate 10 has little obstruction to the air outlet of the air conditioner 100, so that the air speed of air blowing from the air outlet passage is high and the air volume is large, and the temperature in the room is quickly adjusted.

[0035] Furthermore, in the exemplary embodiment, the first air guiding plate 10 has an air dispersing hole 11 passing through the first air guiding plate 10 along a thickness direction of the first air guiding plate 10.

[0036] Furthermore, a length of the air diffusing hole 11 along an opening direction is equal to or more than the thickness of the first air guiding plate 10. A bore diameter of the air diffusing hole 11 is gradually increased along a direction from the inner side of the first air guiding plate 10 to the outer side of the first air guiding plate 10. The structure of the first air guiding plate 10 is simple, enabling the air in the air outlet passage to diffuse to the surroundings from the air diffusing hole 11 of the first air guiding plate 10.

[0037] The present disclosure further provides a method for controlling an air conditioner 100, the air conditioner 100 has been illustrated above, which includes an anti-straight blowing mode and a cooling/heating mode, and the air conditioner 100 is switchable between the anti-straight blowing mode and the cooling/heating mode. The method includes: closing, by a first air guiding plate, a part of an air outlet in response to the anti-straight blowing mode, the first rotating shaft includes a first surface extending towards the first side, and a second surface extending towards an edge of an upper wall of the outlet hole, an angle between the first surface and the second surface is defined as α , and the angle α is larger than 40 degrees, and no more than 55 degrees, wherein the distance M has a range from 75 mm to 85 mm, and the distance N has a range from 25 mm to 35 mm; and opening, by the first air guiding plate, the air outlet in response to the cooling/heating mode, and the angle α is no less than 65° and no more than 90°. The specific structure of the air conditioner 100 refers to the above-mentioned embodiment and will not be described herein.

[0038] The foregoing description merely depicts some embodiments of the present disclosure and therefore is not intended to limit the scope of the present invention that is defined in the appended claims.

Claims

1. An air conditioner (100), wherein the air conditioner (100) comprises a housing (30), wherein the housing (30) comprises:

an air outlet passage formed in the housing (30); and
 an air outlet formed in an edge of the housing (30) and communicated with the air outlet passage; and

a first air guiding plate (10) adjacent to the air outlet, and rotatably connected to the housing (30) through a first rotating shaft (12); and

a second air guiding plate (20) rotatably positioned in the air outlet passage, and being capable of rotating through a second rotating shaft (22) on the housing (30), wherein the air conditioner (100) has an anti-straight blowing mode, the first air guiding plate (10) is configured to shield a part of the air outlet when the air conditioner (100) is in the anti-straight blowing mode;

after the air outlet is closed by the first air guiding plate (10),

a side of the first air guiding plate (10) adjacent to an upper side of the air outlet is defined as a first side; and
 another side of the first air guiding plate (10) adjacent to a lower side of the air outlet is defined as a second side,

wherein the first rotating shaft comprises:

a first surface extending towards the first side; and

a second surface extending towards an edge of the upper side of the air outlet, wherein
 an angle between the first surface and the second surface is defined as α ,

characterized in that the

angle α is larger than 40 degrees, and no more than 55 degrees, a distance M between the first side and the edge of the upper side of the air outlet has a range of 70 mm to 85 mm and a distance N between the second side and a lower edge of the air outlet has a range of 25 mm to 35 mm, when the air conditioner (100) is in the anti-straight blowing mode.

2. The air conditioner (100) according to any one of claims 1, wherein the air conditioner (100) further has a cooling/heating mode, wherein the first air guiding plate is configured to completely avoid the air outlet when the air conditioner (100) is in the cooling/heating mode, and the angle α is no less than 65 degrees, and no more than 90 degrees.
3. The air conditioner (100) according to any one of claims 1 and 2, wherein a distance M between the first side and the edge of the upper side of the air outlet has a range of 95 mm to 110 mm when the air conditioner (100) is in the cooling/heating mode.
4. The air conditioner (100) according to any one of claims 1 to 3, wherein a distance N between the second side and a lower edge of the air outlet of the housing has a range of 25 mm to 45 mm when the air conditioner (100) is in the cooling/heating mode.
5. The air conditioner (100) according to any one of claims 1 to 4, wherein the first air guiding plate (10) comprises at least one air dispersing hole (11) penetrating through the first air guiding plate (10) along a thickness direction of the first air guiding plate (10).
6. The air conditioner (100) according to claim 5, wherein a length of the air diffusing hole (11) along an opening direction of the air diffusing hole (11) is equal to or more than a thickness of the first air guiding plate (10).
7. A method for controlling an air conditioner (100) according to one of the claims 1 to 6, wherein the air conditioner (100) is operable in an anti-straight blowing mode and a cooling/heating mode, and the air conditioner (100) is switchable between the anti-straight blowing mode and the cooling/heating mode,

characterized in that the method comprises:

in response to the air conditioner operating in the anti-straight blowing mode, shielding a part of the air outlet by a first air guiding plate, forming a first surface as a first rotating shaft (12) extending towards a first side of the first air guiding plate (10) close to an upper side of the air outlet, and forming a second surface as the first rotating shaft (12) extending towards an edge of the upper side of the air outlet, wherein the angle α between the first surface and the second surface is larger than 40 degrees, and no more than 55 degrees, and wherein the distance M has a range from 70 mm to 85 mm and the distance N has a range from 25 mm to 35mm; and in response to the air conditioner operating in the cooling/heating mode, the first air guiding plate (10) completely

avoiding the air outlet, and the angle α is no less than 65° and no more than 90°.

Patentansprüche

1. Klimaanlage (100), wobei die Klimaanlage(100) Folgendes umfasst:

ein Gehäuse (30) wobei das Gehäuse (30) Folgendes umfasst:

einen Luftauslasskanal, der in dem Gehäuse (30) ausgebildet ist; und
einen Luftauslass, der in einer Kante des Gehäuses (30) ausgebildet ist und mit dem Luftauslasskanal verbunden ist; und

eine erste Luftführungsplatte (10), die angrenzend an den Luftauslass angeordnet ist und durch eine erste rotierende Welle (12) drehbar mit dem Gehäuse (30) verbunden ist; und
eine zweite Luftführungsplatte (20), die drehbar im Luftauslasskanal angeordnet ist und sich durch eine zweite rotierende Welle (22) am Gehäuse (30) drehen kann;

wobei die Klimaanlage (100) einen Anti-Straight-Blasmodus aufweist, die erste Luftführungsplatte (10) so ausgebildet ist, dass sie einen Teil des Luftauslasses abschirmt, wenn sich die Klimaanlage (100) im Anti-Straight-Blasmodus befindet,

nachdem der Luftauslass durch die erste Luftführungsplatte (10) geschlossen ist,
eine Seite der ersten Luftführungsplatte (10) angrenzend an eine Oberseite des Luftauslasses als erste Seite definiert ist; und

eine andere Seite der ersten Luftführungsplatte (10) angrenzend an eine Unterseite des Luftauslasses als zweite Seite definiert ist,

wobei die erste rotierende Welle Folgendes umfasst:

eine erste Oberfläche, die sich zur ersten Seite erstreckt; und

eine zweite Oberfläche, die sich zu einer Kante der Oberseite des Luftauslasses erstreckt,

wobei ein Winkel zwischen der ersten Oberfläche und der zweiten Oberfläche als α definiert ist, **dadurch gekennzeichnet, dass** der Winkel α größer als 40 Grad und nicht mehr als 55 Grad ist, ein Abstand M zwischen der ersten Seite und der Kante der Oberseite des Luftauslasses einen Bereich von 70 mm bis 85 mm aufweist, und ein Abstand N zwischen der zweiten Seite und einer Unterkante des Luftauslasses einen Bereich von 25 mm bis 35 mm aufweist, wenn sich die Klimaanlage (100) im Anti-Straight-Blasmodus befindet.

2. Klimaanlage (100) gemäß Anspruch 1, wobei die Klimaanlage (100) ferner einen Kühl-/Heizmodus aufweist, wobei die erste Luftführungsplatte so ausgebildet ist, dass sie dem Luftauslass vollständig ausweicht, wenn die Klimaanlage (100) im Kühl-/Heizmodus ist und der Winkel α nicht weniger als 65 Grad und nicht mehr als 90 Grad beträgt.

3. Klimaanlage (100) gemäß einem der Ansprüche 1 und 2, wobei ein Abstand M zwischen der ersten Seite und der Kante der Oberseite des Luftauslasses einen Bereich von 95 mm bis 110 mm aufweist, wenn die Klimaanlage (100) im Kühl-/Heizmodus ist.

4. Klimaanlage (100) gemäß einem der Ansprüche 1 bis 3, wobei ein Abstand N zwischen der zweiten Seite und einer Unterkante des Luftauslasses einen Bereich von 25 mm bis 45 mm aufweist, wenn die Klimaanlage (100) im Kühl-/Heizmodus ist.

5. Klimaanlage (100) gemäß einem der Ansprüche 1 bis 4, wobei die erste Luftführungsplatte (10) mindestens ein Entlüftungsloch (11) umfasst, das durch die erste Luftführungsplatte (10) entlang einer Dickenrichtung der ersten Luftführungsplatte (10) hindurchdringt.

6. Klimaanlage (100) gemäß Anspruch 5, wobei eine Länge des Entlüftungslochs (11) entlang einer Öffnungsrichtung des Entlüftungslochs (11) gleich oder größer als eine Dicke der ersten Luftführungsplatte (10) ist.

7. Verfahren zum Steuern einer Klimaanlage (100) gemäß einem der Ansprüche 1 bis 6, wobei die Klimaanlage (100) in einem Anti-Straight-Blasmodus und in einem Kühl-/Heizmodus betrieben werden kann, und die Klimaanlage (100)

zwischen dem Anti-Straight-Blasmodus und dem Kühl-/Heizmodus umschaltbar ist,

dadurch gekennzeichnet, dass das Verfahren Folgendes umfasst:

in Reaktion auf die im Anti-Straight-Blasmodus betriebene Klimaanlage, Abschirmen eines Teils eines Luftauslasses durch eine erste Luftführungsplatte, Formen einer ersten Oberfläche als eine erste rotierende Welle (12), die sich zu einer ersten Seite der ersten Luftführungsplatte (10) nahe einer Oberseite des Luftauslasses erstreckt, und Formen einer zweiten Oberfläche als die erste rotierende Welle (12), die sich zu einer Kante der Oberseite des Luftauslasses erstreckt, wobei der Winkel α zwischen der ersten Oberfläche und der zweiten Oberfläche größer als 40 Grad und nicht mehr als 55 Grad beträgt; und wobei der Abstand M einen Bereich von 70 mm bis 85 mm aufweist und der Abstand N einen Bereich von 25 mm bis 35 mm aufweist; und in Reaktion auf die im Kühl-/Heizmodus betriebene Klimaanlage (100) die erste Luftführungsplatte (10) dem Luftauslass vollständig ausweicht, und der Winkel α nicht weniger als 65° und nicht mehr als 90° ist.

Revendications

1. Climatiseur (100), dans lequel le climatiseur (100) comprend un boîtier (30), dans lequel le boîtier (30) comprend:

un passage de sortie d'air formé dans le boîtier (30); et

une sortie d'air formée dans un bord du boîtier (30) et communiquant avec le passage de sortie d'air; et

un premier plaque de guidage d'air (10) adjacent à la sortie d'air, et relié en rotation au boîtier (30) par un premier arbre rotatif (12) et

une deuxième plaque de guidage d'air (20) positionnée rotativement dans le passage de sortie d'air, et étant capable de tourner par l'intermédiaire d'un deuxième arbre rotatif (22) sur le boîtier (30);

dans lequel le climatiseur (100) a un mode anti-soufflage rectiligne, la première plaque de guidage d'air (10) est configurée pour protéger une partie de la sortie d'air lorsque le climatiseur (100) est en mode anti-soufflage rectiligne;

après que la sortie d'air a été fermée par la première plaque de guidage d'air (10),

un côté de la première plaque de guidage d'air (10) adjacent à un côté supérieur de la sortie d'air est défini comme un premier côté; et

un autre côté de la première plaque de guidage d'air (10) adjacent à un côté inférieur de la sortie d'air est défini comme un deuxième côté, dans lequel le premier arbre rotatif comprend:

une première surface s'étendant vers le premier côté; et

une deuxième surface s'étendant vers un bord du côté supérieur de la sortie d'air,

dans lequel un angle entre la première surface et la deuxième surface est défini comme α ,

caractérisé en ce que l'angle α est supérieur à 40 degrés et pas supérieur à 55 degrés, une distance M entre le premier côté et le bord du côté supérieur de la sortie d'air a une plage de 70 mm à 85 mm et une distance N entre le deuxième côté et un bord inférieur de la sortie d'air a une plage de 25 mm à 35 mm, lorsque le climatiseur (100) est en mode anti-soufflage rectiligne.

2. Climatiseur (100) selon une quelconque des revendications 1, dans lequel le climatiseur (100) a en outre un mode de refroidissement/chauffage, dans lequel la première plaque de guidage d'air est configurée pour éviter complètement la sortie d'air lorsque le climatiseur (100) est en mode refroidissement/chauffage, et que l'angle n'est pas inférieur à 65 degrés et pas supérieur à 90 degrés.

3. Climatiseur (100) selon une quelconque des revendications 1 et 2, dans lequel une distance M entre le premier côté et le bord du côté supérieur de la sortie d'air a une plage de 95 mm à 110 mm lorsque le climatiseur (100) est en mode refroidissement/chauffage.

4. Climatiseur (100) selon une quelconque des revendications 1 à 3, dans lequel une distance N entre le deuxième côté et un bord inférieur de la sortie d'air du boîtier a une plage de 25 mm à 45 mm lorsque le climatiseur (100) est en mode refroidissement/chauffage.

5. Climatiseur (100) selon une quelconque des revendications 1 à 4, dans lequel la première plaque de guidage d'air (10) comprend au moins un trou de dispersion d'air (11) pénétrant à travers la première plaque de guidage d'air (10) le long de la direction d'épaisseur de la première plaque de guidage d'air (10).

6. Climatiseur (100) selon la revendication 5, dans lequel une longueur du trou de diffusion d'air (11) le long d'une direction d'ouverture du trou de diffusion d'air (11) est égale ou supérieure à une épaisseur de la première plaque de guidage d'air. (10).

7. Procédé de commande d'un climatiseur (100) selon une des revendications 1 à 6, dans lequel le climatiseur (100) peut fonctionner en mode anti-soufflage rectiligne et en mode de refroidissement/chauffage, et le climatiseur (100) est commutable entre le mode anti-soufflage rectiligne et le mode de refroidissement/chauffage, **caractérisé en ce que** le procédé comprend, en réponse au fonctionnement du climatiseur en mode anti-soufflage rectiligne, la protection d'une partie de la sortie d'air par un premier plaque de guidage d'air, formant une première surface en tant que premier arbre rotatif (12) s'étendant vers un premier côté de la première plaque de guidage d'air (10) à proximité d'un côté supérieur de la sortie d'air, et formant une deuxième surface en tant que premier arbre rotatif (12) s'étendant vers un bord du côté supérieur de la sortie d'air, dans lequel l'angle α entre la première surface et la deuxième surface est supérieur à 40 degrés et pas supérieur à 55 degrés, et dans lequel la distance M a une plage de 70 mm à 85 mm et la distance N a une plage de 25 mm à 35 mm; et en réponse au fonctionnement du climatiseur en mode de refroidissement/chauffage, la première plaque de guidage d'air (10) évite complètement la sortie d'air, et l'angle α n'est pas inférieur à 65° et pas supérieur à 90°.

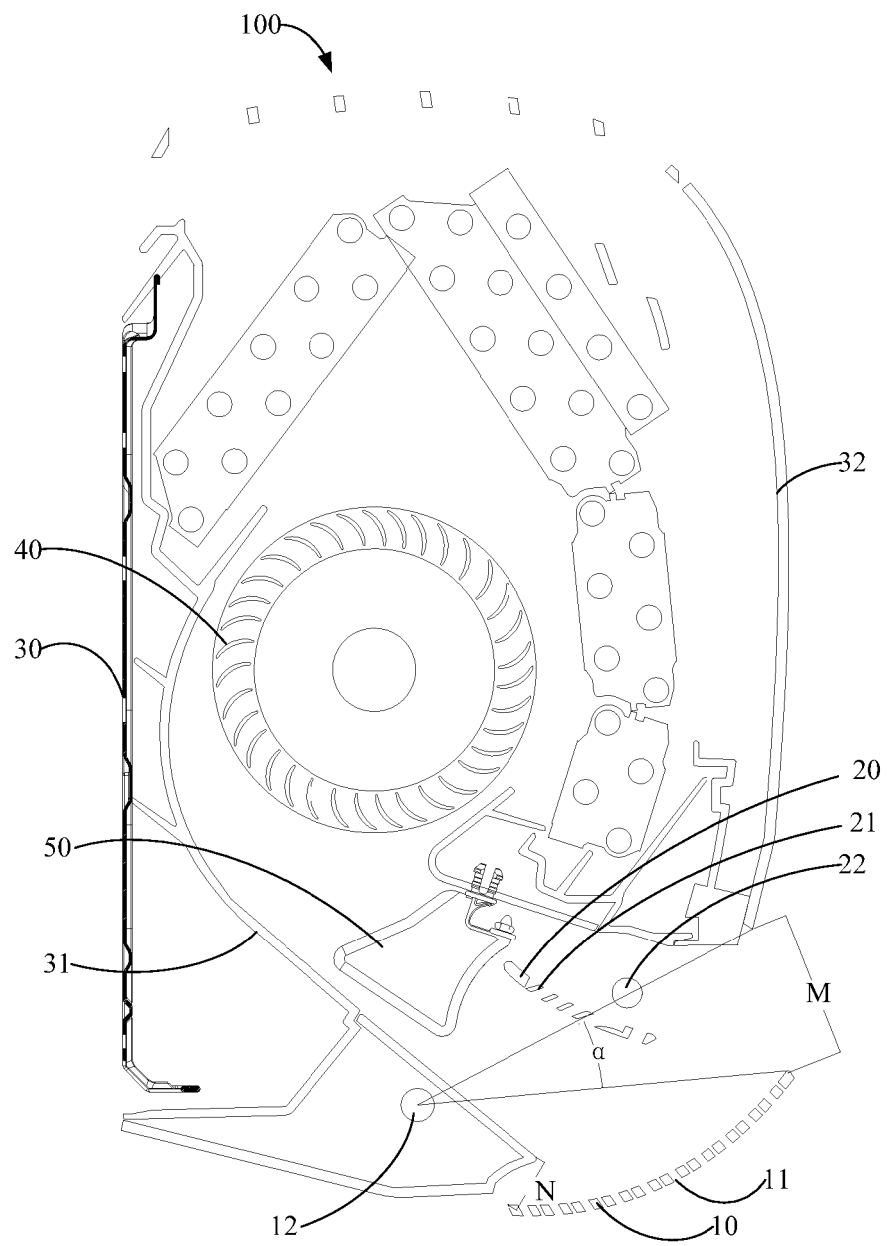


FIG. 1

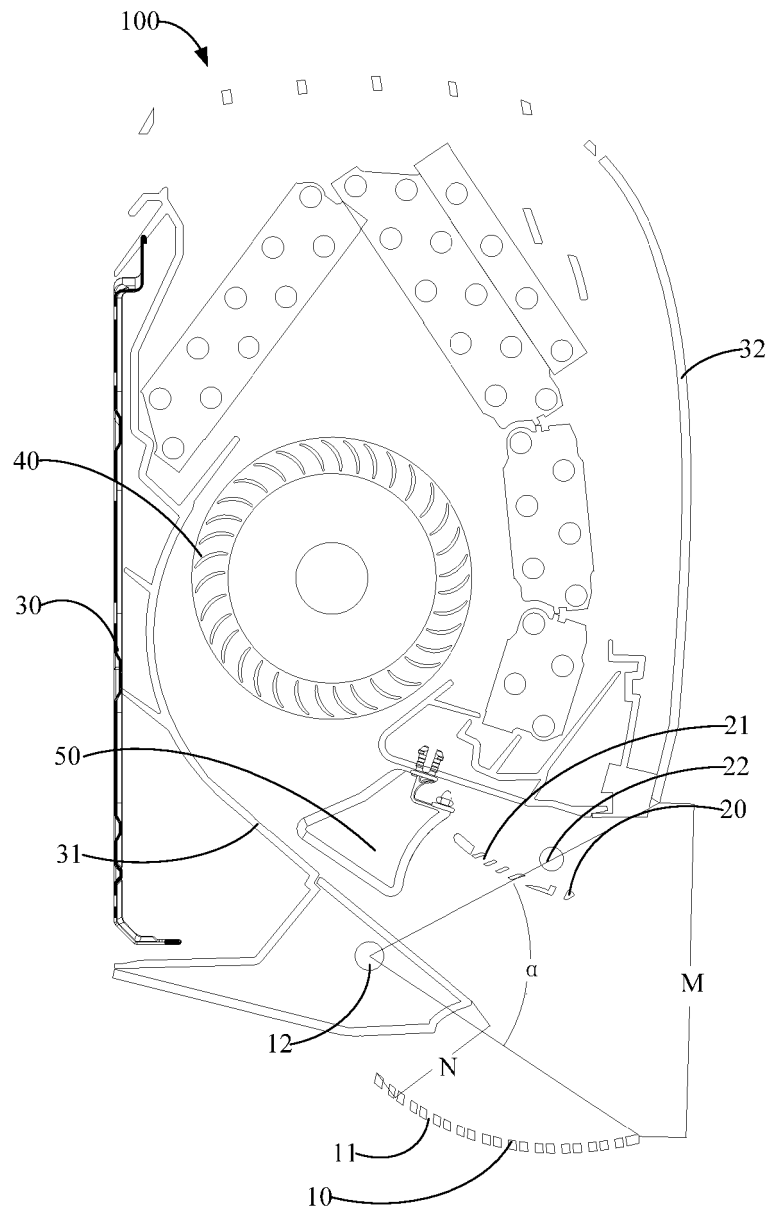


FIG. 2

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- CN 204786798 U [0003]
- CN 107401776 A [0004]
- CN 107355874 A [0005]