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(54) **INDOOR UNIT OF AIR CONDITIONER**

INNENRAUMEINHEIT EINER KLIMAAANLAGE

UNITÉ INTÉRIEURE DE CLIMATISEUR

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(73) Proprietor: **Gree Electric Appliances, Inc. of Zhuhai**

Zhuhai, Guangdong 519070 (CN)

(72) Inventors:

- **ZHU, Jianghong**
Zhuhai
Guangdong 519070 (CN)
- **ZHANG, Hui**
Zhuhai
Guangdong 519070 (CN)
- **CHEN, Shaolin**
Zhuhai
Guangdong 519070 (CN)
- **WU, Huanlong**
Zhuhai
Guangdong 519070 (CN)
- **LI, Liang**
Zhuhai
Guangdong 519070 (CN)
- **HUANG, Zhen**
Zhuhai
Guangdong 519070 (CN)

• **YANG, Jianqun**

Zhuhai
Guangdong 519070 (CN)

• **Ji, Wenwei**

Zhuhai
Guangdong 519070 (CN)

• **MENG, Zhi**

Zhuhai
Guangdong 519070 (CN)

• **LI, Jian**

Zhuhai
Guangdong 519070 (CN)

• **CAO, Liu**

Zhuhai
Guangdong 519070 (CN)

(74) Representative: **Schmitz, Alexander**

**Maiwald Patentanwalts- und
Rechtsanwaltsgesellschaft mbH**
Elisenhof
Elisenstraße 3
80335 München (DE)

(56) References cited:

EP-A2- 1 248 048	WO-A1-2007/012156
CN-A- 1 403 748	CN-A- 1 451 915
CN-U- 201 666 627	CN-U- 201 666 645
CN-U- 201 666 646	CN-U- 201 666 649
CN-U- 201 666 650	CN-Y- 200 982 711
JP-A- 2006 046 705	JP-A- 2009 115 390

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Description

FIELD OF THE INVENTION

5 **[0001]** The present application relates to an indoor unit of an air conditioner, and particularly, to an indoor unit of an air conditioner having a distinct personalized effect.

BACKGROUND OF THE INVENTION

10 **[0002]** Generally, the air conditioner is an apparatus which utilizes an air cooler, a heater or an air purifier to cool, warm or purify a room, such that an internal environment of the room is more favorable. The air conditioner is provided with a ventilating device, an air cooling and heating device and an air purifier. The ventilating device circulate the air in the room, that is, absorbs air from the room, performs heat exchanging or purifies the air, and then discharges the air into the room. Improvements have been continually made to the air conditioner in the prior art. Generally, an indoor unit of the air conditioner includes: a rear shell enclosing side portions and a rear portion of the air conditioner, and a panel body arranged in front of the rear shell and closely connected to the rear shell. The rear shell and the panel body define an inner chamber of the air conditioner in which a heat exchanger, a control element and a fan component are provided. The panel body is usually fixedly connected to the rear shell via screws or in a snap-fit connecting manner. Since air conditioner market becomes increasingly mature, consumers require more and more on the air conditioner. Thus, manufacturers do their bests to improve the panel of the air conditioner. Accordingly, panels with color plates, decorative pictures or double-layer structures are developed. However, indoor units with such structures have disadvantages, For example, since the overall contour and the structure of the air conditioner are not changed at all, the lower portion of the indoor unit of the air conditioner is still of a cuboid or polyhedron structure with arris, the above improving solutions have no evidently effects on the improvements of aesthetics of the air conditioner.

25 **[0003]** Document WO 2007/012156 A1 describes an air conditioning evaporator unit having a main body with front and rear sides, a top and bottom, all forming a housing with partially open ends, including a pair of end covers which are attached to the body by snap-in brackets, located near the rear of the unit. Female brackets attached to the body include opposed fingers that define a slot that leads to a pocket, and the cover brackets each include a post that can be snapped in through the slot and into the pocket of the body bracket.

30 **[0004]** The Document CN 200 982 711 Y relates to a wood hanging type air conditioner indoor set comprising a base, arranged with a movement, a casting, a panel, openings at both ends of the casing, wherein a panel is arranged on the upper port, the periphery comprises opposite two sides panels, an air inlet panel with air inlet and an air outlet panel with air outlet connected with two sides panel, wherein, the air inlet panel and the air outlet panel are arranged face to face.

35 SUMMARY OF THE INVENTION

[0005] An object of the present application is to provide an indoor unit of an air conditioner having a simple structure, being compatible with the overall environment indoors, and improving the decorative style of the appearance of the indoor unit of the air conditioner.

40 **[0006]** In order to achieve the above object, it is provided according to present application the following technical solutions.

[0007] An indoor unit of an air conditioner including: a panel body enclosing side portions and a top portion of the air conditioner and being configured for installing a front panel, a rear shell enclosing a rear portion of the air conditioner, and the front panel arranged in the front of the air conditioner and closely connected to the panel body. The rear shell, the panel body and the front panel define an inner chamber of the air conditioner in which a heat exchanger, a control element and a fan component are provided. Side surfaces of the indoor unit of the air conditioner are of a "U" shape structure, and front, rear and bottom surfaces of a lower portion of the indoor unit of the air conditioner are formed by more than one curved surface.

[0008] To sum up, the present application has advantageous effects, for example:

50 In the indoor unit of the air conditioner according to the present application, since the side surfaces of the indoor unit of the air conditioner are of a "U" shape structure, and the front, rear surfaces of the lower portion of the indoor unit of the air conditioner are formed by more than one curved surface, the overall contour of the indoor unit of the air conditioner has a unique visual effect, and the indoor unit of the air conditioner according to the present application becomes a novel air conditioner with a distinct personalized feature. Thus, the present application plays an important role in improving the aesthetics of the air conditioner.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009]

- 5 Fig. 1 is a side structural schematic view of an indoor unit of an air conditioner according to the present application;
- Fig. 2 is a perspective structural schematic view of an indoor unit of an air conditioner according to the present application;
- 10 Fig. 3 is a schematic view of a skirt structure of an indoor unit of an air conditioner according to the present application;
- Fig. 4 is a structural schematic view of a panel body of an indoor unit of an air conditioner according to the present application;
- 15 Fig. 5 is a schematic view of a front panel of an indoor unit of an air conditioner according to the present application in an installed state;
- Fig. 6 is a structural schematic view of a rear boss of an indoor unit of an air conditioner according to the present application;
- 20 Fig. 7 is a structural schematic view of an indoor unit of an air conditioner according to the present application after being cut in half; and
- Fig. 8 is a structural schematic view of the indoor unit of the air conditioner shown in Fig. 7, with the front panel being removed.
- 25

Reference numerals:

- | | | | |
|----|--------------------------------|-------------------------------|---------------------------------|
| 30 | 1. front panel | 2. panel body | 10. front panel skirt structure |
| | 20. panel body skirt structure | 11. first combining surface | 12. second combining surface |
| | 13. third combining surface | 21. fourth combining surface | 22. fifth combining surface |
| | 23. sixth combining surface | 24. seventh combining surface | 25. convex surface |
| | 26. rib | 27. rear boss | 28. side plate |
| 35 | 29. rear frame | 291. opening | 221. notch |

DETAILED DESCRIPTION

40 **[0010]** The present application provides an indoor unit of an air conditioner. As shown in Figs. 1 and 2, the indoor unit of the air conditioner includes: a panel body 2 enclosing side portions and a top portion of the air conditioner and being configured for installing a front panel 1, a rear shell enclosing a rear portion of the air conditioner, and the front panel 1 arranged in the front of the air conditioner and closely connected to the panel body 2. The rear shell, the panel body 2 and the front panel 1 define an inner chamber of the air conditioner in which a heat exchanger, a control element, and a fan component are provided. Side surfaces of the indoor unit of the air conditioner are of a "U" shape structure, and front, rear and bottom surfaces of a lower portion of the indoor unit of the air conditioner are formed by more than one curved surfaces.

45 **[0011]** The front panel 1 includes, from top to bottom in sequence, a first combining surface 11, a second combining surface 12 and a third combining surface 13. A sectional profile line of the first combining surface 11 is of a straight line or an arc line with a curvature approaching to zero. A sectional profile line of the second combining surface 12 is of a curved line with a curvature gradually increased from upper to lower, and the maximum curvature is less than or equal to 0.025. A sectional profile line of the third combining surface 13 is of a curved line with a curvature gradually decreased from upper to lower, and the minimum curvature is larger than 0.0005.

[0012] The rear shell is mounted at a rear portion of the panel body 2. A lower portion of a front portion of the panel body 2 is closely connected to a bottom portion of the front panel 1.

55 **[0013]** An assembly of the panel body 2 and the rear shell includes, from front to rear in sequence, a fourth combining surface 21, a fifth combining surface 22, a sixth combining surface 23 and a seventh combining surface 24.

[0014] Sectional profile lines of the fourth combining surface 21, the fifth combining surface 22, the sixth combining

surface 23 and the seventh combining surface 24 have different curvatures, respectively, such that a bottom of the air conditioner has an arc transition structure.

[0015] As shown in Fig. 3, the front panel 1 covers the front portion of the panel body 2, and a width of the front panel 1 is larger than a width of the front portion of the panel body 2, thereby forming a front panel skirt structure 10 at at least one side of a bonding portion of the front panel 1 and the panel body 2. As shown in Figs. 3 and 6, the panel body 2 includes: a rear frame 29 at a rear portion of the panel body 2, and a left side plate 28 and a right side plate 28. At least one side of the rear frame 29 extends beyond corresponding side plate 28 at the same side, thereby forming a panel body skirt structure 20. The front panel skirt structure 10 and the panel body skirt structure 20 are connected to form a "U" shape side decorative edge of the indoor unit of the air conditioner.

[0016] Preferably, each of a left side and a right side of the bonding portion of the front panel 1 and the panel body 2 is formed with the front panel skirt structure 10, and each of a left side and a right side of the panel body 2 is formed with the panel body skirt structure 20, such that each of a left side and a right side of the indoor unit has a decorative edge.

[0017] Top portions of the front panel 1 and the rear frame 29 are higher than a top surface of the rear shell.

[0018] Widths L2 of the front panel skirt structure 10 and the panel body skirt structure 20 are ranged from 2 millimeter (mm) to 8mm, and preferably are 4mm. A thickness H1 of the front panel skirt structure 10 and a thickness H2 of the panel body skirt structure 20 are ranged from 3mm to 10mm, and preferably are 8mm.

[0019] As shown in Figs. 4 and 5, the lower portion of the front portion of the panel body 2 is provided with a convex surface 25. The bottom portion of the front panel 1 is arranged on the convex surface 25, and the front panel 1 is fixedly connected to the panel body 2 via a fastening mechanism.

[0020] The fastening mechanism is a connecting mechanism including a bayonet and a groove cooperated with the bayonet.

[0021] Preferably, a width of the convex surface 25 is equal to a thickness of the front panel 1.

[0022] As shown in Fig. 6, a back portion of the panel body 2 is formed with an opening 291 for installing the rear shell, and is provided with a rear boss 27 at a lower edge of the opening 291. After the air conditioner is mounted, the rear boss 27 abuts against a wall surface, to form an installing space for a drain pipe and a refrigerant connecting pipe between the rear shell and the wall surface.

[0023] The rear boss 27 is arranged in a transverse direction, and has upward bending portions at left and right ends thereof. A size of the rear boss 27 in a horizontal direction is less than that of the rear frame 29.

[0024] As shown in Figs. 7 and 8, a notch 221 is provided at one side of the panel body to form an air-intake passage between the notch and the front panel skirt structure 10, so as to increase air intake amount of the air conditioner, thereby increasing performance of the product. Preferably, each of the right side and the left side of the panel body is provided with a notch 221 so as to form a three-side air intake structure, in which a top air intake opening serves as a major air intake passage and auxiliary air intake passages are formed at the left and right sides, thereby increasing the air amount and thus the performance of the product.

[0025] The above embodiments are not intended to limit the present application. Various improvements and variations made by the person skilled in the art, without departing from the scope of the present application, are deemed to fall into the protection scope of the present application. For example, radiuses, curvatures, number, and so on, of the combining surfaces of the front panel 1 and the panel body 2 may be varied.

Claims

1. An indoor unit of an air conditioner comprising: a panel body (2) enclosing side portions and a top portion of the air conditioner and being configured for installing a front panel (1), a rear shell enclosing a rear portion of the air conditioner, and the front panel (1) arranged in the front of the air conditioner and closely connected to the panel body (2), wherein the rear shell, the panel body (2) and the front panel (1) define an inner chamber of the air conditioner in which a heat exchanger, a control element and a fan component are provided,

characterized in that,

side surfaces of the indoor unit of the air conditioner as of a "U" shape structure, and front, rear and bottom surfaces of a lower portion of the indoor unit of the air conditioner are formed by more than one curved surface;

the rear shell is mounted at a rear portion of the panel body (2), and a lower portion of a front portion of the panel body (2) is closely connected to a bottom portion of the front panel (1);

an assembly of the panel body (2) and the rear shell comprises, from front to rear in sequence, a fourth combining surface (21), a fifth combining surface (22), a sixth combining surface (23) and a seventh combining surface (24); and sectional profile lines of the fourth combining surface (21), the fifth combining surface (22), the sixth combining surface (23) and the seventh combining surface (24) have different curvatures, respectively, such that a bottom of the air conditioner has an arc transition structure.

2. The indoor unit of the air conditioner according to claim 1, wherein the front panel (1) comprises, from top to bottom in sequence, a first combining surface (11), a second combining surface (12) and a third combining surface (13), wherein a sectional profile line of the first combining surface (11) is of a straight line or an arc line with a curvature approaching to zero; a sectional profile line of the second combining surface (12) is of a curved line with a curvature gradually increased from upper to lower, the maximum curvature being less than or equal to 0.025; and a sectional profile line of the third combining surface (13) is of a curved line with a curvature gradually decreased from upper to lower, the minimum curvature being
3. The indoor unit of the air conditioner according to claim 1 or 2, wherein the front panel (1) covers the front portion of the panel body (2), and a width of the front panel (1) is larger than a width of the front portion of the panel body (2), thereby forming a front panel skirt structure (10) at least one side of a bonding portion of the front panel (1) and the panel body (2); and/or wherein the panel body (2) comprises: a rear frame (29) at a rear portion of the panel body (2), and a left side plate (28) and a right side plate (28), and at least one side of the rear frame (29) extends beyond corresponding side plate (28), thereby forming a panel body skirt structure (20); and the front panel skirt structure (10) and the panel body skirt structure (20) are connected to form a "U" shape side decorative edge of the indoor unit of the air conditioner.
4. The indoor unit of the air conditioner according to claim 3, wherein the front panel skirt structure (10) is formed at each of a left side and a right side of the bonding portion of the front panel (1) and the panel body (2), and the panel body skirt structure (20) is formed at each of a left side and a right side of the panel body (2), such that each of a left side and a right side of the indoor unit has a decorative edge.
5. The indoor unit of the air conditioner according to claim 4, wherein top portions of the front panel (1) and the rear frame (29) are higher than top surfaces of the rear shell and the left and right side plates.
6. The indoor unit of the air conditioner according to claim 3, wherein each of the front panel skirt structure (10) and/or the panel body skirt structure (20) has a width ranged from 2mm to 8mm, and a thickness ranged from 3mm to 10mm.
7. The indoor unit of the air conditioner according to claim 1 or 2, wherein the lower portion of the front portion of the panel body (2) is provided with a convex surface (25) on which the bottom portion of the front panel (1) is arranged, and the front panel (1) is fixedly connected to the panel body (2) via a fastening mechanism.
8. The indoor unit of the air conditioner according to claim 7 wherein a width of the convex surface (25) is equal to a thickness of the front panel (1).
9. The indoor unit of the air conditioner according to claim 1 or 2, wherein a back portion of the panel body (2) is formed with an opening (291) for installing the rear shell, and is provided with a rear boss (27) at a lower edge of the opening (291).
10. The indoor unit of the air conditioner according to claim 9, wherein a size of the rear boss (27) in a horizontal direction is less than that of the rear frame (29).
11. The indoor unit of the air conditioner according to claim 9, wherein the rear boss (27) is arranged in a transverse direction, and has upward bending portions at a left side and a right end thereof.
12. The indoor unit of the air conditioner according to claim 3, wherein a notch (221) is provided at one side of the panel body to form an air-intake passage between the notch and the front panel skirt structure (10).

Patentansprüche

1. Inneneinheit einer Klimaanlage, umfassend: einen Plattenkörper (2), der Seitenabschnitte und einen oberen Abschnitt der Klimaanlage umschließt und zum Einbau einer Frontplatte (1) konfiguriert ist, eine hintere Schale, die einen hinteren Abschnitt der Klimaanlage umschließt, und wobei die Frontplatte (1) an der Vorderseite der Klimaanlage angeordnet und eng mit dem Plattenkörper (2) verbunden ist, wobei die hintere Schale, der Plattenkörper (2) und die Frontplatte (1) eine Innenkammer der Klimaanlage bilden, in der ein Wärmetauscher, ein Steuerelement und eine Lüfterkomponente vorgesehen sind,
dadurch gekennzeichnet,

die Seitenflächen der Inneneinheit des Klimageräts als "U"-förmige Struktur und die Vorder-, Rück- und Bodenflächen eines unteren Teils der Inneneinheit der Klimaanlage durch mehr als eine gekrümmte Fläche gebildet werden; wobei die hintere Schale an einem hinteren Abschnitt des Plattenkörpers (2) angebracht ist und ein unterer Abschnitt eines vorderen Abschnitts des Plattenkörpers (2) eng mit einem unteren Abschnitt der Frontplatte (1) verbunden ist; wobei eine Baugruppe aus dem Plattenkörper (2) und der hinteren Schale von vorne nach hinten nacheinander eine vierte Kombinationsfläche (21), eine fünfte Kombinationsfläche (22), eine sechste Kombinationsfläche (23) und eine siebte Kombinationsfläche (24) aufweist; und wobei die Querschnittsprofilinien der vierten Kombinationsoberfläche (21), der fünften Kombinationsoberfläche (22), der sechsten Kombinationsoberfläche (23) und der siebten Kombinationsoberfläche (24) jeweils unterschiedliche Krümmungen aufweisen, so dass ein Boden der Klimaanlage eine Bogenübergangsstruktur aufweist.

2. Inneneinheit der Klimaanlage nach Anspruch 1, wobei die Frontplatte (1) von oben nach unten nacheinander eine erste Kombinationsoberfläche (11), eine zweite Kombinationsoberfläche (12) und eine dritte Kombinationsoberfläche (13) aufweist, wobei eine Querschnittsprofilinie der ersten Kombinationsoberfläche (11) eine gerade Linie oder eine Bogenlinie mit einer Krümmung nahe Null ist; eine Querschnittsprofilinie der zweiten Kombinationsoberfläche (12) eine gekrümmte Linie mit einer von oben nach unten allmählich zunehmenden Krümmung ist, wobei die maximale Krümmung kleiner oder gleich 0,025 ist; und wobei eine Querschnittsprofilinie der dritten Kombinationsoberfläche (13) eine gekrümmte Linie mit einer von oben nach unten allmählich abnehmenden Krümmung ist, wobei die minimale Krümmung größer als 0,0005 ist.
3. Inneneinheit der Klimaanlage nach Anspruch 1 oder 2, wobei die Frontplatte (1) den vorderen Abschnitt des Plattenkörpers (2) abdeckt und eine Breite der Frontplatte (1) größer als eine Breite des vorderen Abschnitts des Plattenkörpers (2) ist, wodurch eine Vorderplattenschürzenstruktur (10) an mindestens einer Seite eines Verbindungsabschnitts der Frontplatte (1) und des Plattenkörpers (2) gebildet wird; und/oder wobei der Plattenkörper (2) umfasst: einen hinteren Rahmen (29) an einem hinteren Abschnitt des Plattenkörpers (2) und eine linke Seitenplatte (28) und eine rechte Seitenplatte (28), und mindestens eine Seite des hinteren Rahmens (29) sich über die entsprechende Seitenplatte (28) hinaus erstreckt, wodurch eine Plattenkörper-Schürzenstruktur (20) gebildet wird; und die Vorderplattenschürzenstruktur (10) und die Plattenkörper-Schürzenstruktur (20) verbunden sind, um eine "U"-förmige seitliche dekorative Kante der Inneneinheit der Klimaanlage zu bilden.
4. Inneneinheit der Klimaanlage nach Anspruch 3, wobei die Vorderplattenschürzenstruktur (10) sowohl an einer linken als auch an einer rechten Seite des Verbindungsabschnitts der Frontplatte (1) und des Plattenkörpers (2) ausgebildet ist, und die Plattenkörper-Schürzenstruktur (20) sowohl an einer linken als auch an einer rechten Seite des Plattenkörpers (2) ausgebildet ist, so dass sowohl eine linke als auch eine rechte Seite der Inneneinheit eine dekorative Kante aufweist.
5. Inneneinheit der Klimaanlage nach Anspruch 4, wobei die oberen Teile der Frontplatte (1) und des hinteren Rahmens (29) höher sind als die oberen Flächen der hinteren Schale und der linken und rechten Seitenplatten.
6. Inneneinheit der Klimaanlage nach Anspruch 3, wobei jede der Vorderplattenschürzenstruktur (10) und/oder der Plattenkörper-Schürzenstruktur (20) eine Breite im Bereich von 2 mm bis 8 mm und eine Dicke im Bereich von 3 mm bis 10 mm aufweist.
7. Inneneinheit der Klimaanlage nach Anspruch 1 oder 2, wobei der untere Abschnitt des Vorderteils des Plattenkörpers (2) mit einer konvexen Oberfläche (25) versehen ist, auf der der untere Abschnitt der Frontplatte (1) angeordnet ist, und die Frontplatte (1) über einen Befestigungsmechanismus fest mit dem Plattenkörper (2) verbunden ist.
8. Inneneinheit der Klimaanlage nach Anspruch 7, wobei eine Breite der konvexen Oberfläche (25) gleich der Dicke der Frontplatte (1) ist.
9. Inneneinheit der Klimaanlage nach Anspruch 1 oder 2, wobei ein hinterer Abschnitt des Plattenkörpers (2) mit einer Öffnung (291) zum Einbau der hinteren Schale ausgebildet ist und mit einem hinteren Vorsprung (27) an einem unteren Rand der Öffnung (291) versehen ist.
10. Inneneinheit der Klimaanlage nach Anspruch 9, wobei die Größe des hinteren Vorsprungs (27) in horizontaler Richtung geringer ist als die des hinteren Rahmens (29).
11. Inneneinheit der Klimaanlage nach Anspruch 9, wobei der hintere Vorsprung (27) in einer Querrichtung angeordnet

ist und nach oben gebogene Abschnitte an einer linken Seite und einem rechten Ende davon aufweist.

12. Inneneinheit der Klimaanlage nach Anspruch 3, wobei eine Kerbe (221) an einer Seite des Plattenkörpers vorgesehen ist, um einen Lufteinlasskanal zwischen der Kerbe und der Vorderplattenschürzenstruktur (10) zu bilden.

5

Revendications

1. Unité intérieure d'un climatiseur comprenant : un corps de panneau (2) entourant des parties latérales et une partie supérieure du climatiseur et étant configuré pour installer un panneau avant (1), une coque arrière entourant une partie arrière du climatiseur, et le panneau avant (1) étant agencé à l'avant du climatiseur et étant étroitement lié au corps de panneau (2), dans laquelle la coque arrière, le corps de panneau (2) et le panneau avant (1) définissent une chambre intérieure du climatiseur dans laquelle un échangeur de chaleur, un élément de commande et un composant de ventilateur sont prévus,
caractérisée en ce que,
des surfaces latérales de l'unité intérieure du climatiseur en tant que structure en forme de «U», et des surfaces avant, arrière et inférieure d'une partie inférieure de l'unité intérieure du climatiseur sont formées par plus d'une surface incurvée;
la coque arrière est montée sur une partie arrière du corps de panneau (2), et une partie inférieure d'une partie avant du corps de panneau (2) est étroitement liée à une partie inférieure du panneau avant (1) ;
un ensemble du corps de panneau (2) et de la coque arrière comprend, dans l'ordre d'avant en arrière, une quatrième surface de combinaison (21), une cinquième surface de combinaison (22), une sixième surface de combinaison (23) et une septième surface de combinaison (24); et
des lignes de profil en coupe de la quatrième surface de combinaison (21), de la cinquième surface de combinaison (22), de la sixième surface de combinaison (23) et de la septième surface de combinaison (24) présentent des courbures différentes, respectivement, de telle sorte qu'une partie inférieure du climatiseur a une structure de transition arquée.
2. Unité intérieure du climatiseur selon la revendication 1, dans laquelle le panneau avant (1) comprend, dans l'ordre de haut en bas, une première surface de combinaison (11), une deuxième surface de combinaison (12) et une troisième surface de combinaison (13), dans laquelle une ligne de profil en coupe de la première surface de combinaison (11) est une ligne droite ou une ligne arquée avec une courbure s'approchant de zéro; une ligne de profil en coupe de la deuxième surface de combinaison (12) est une ligne courbe avec une courbure augmentant progressivement de haut en bas, la courbure maximale étant inférieure ou égale à 0,025; et une ligne de profil en coupe de la troisième surface de combinaison (13) est une ligne courbe avec une courbure diminuant progressivement de haut en bas, la courbure minimale étant supérieure à 0,0005.
3. Unité intérieure du climatiseur selon la revendication 1 ou 2, dans laquelle le panneau avant (1) recouvre la partie avant du corps de panneau (2), et une largeur du panneau avant (1) est supérieure à une largeur de la partie avant du corps de panneau (2), formant ainsi une structure de jupe de panneau avant (10) au niveau d'au moins un côté d'une partie de liaison du panneau avant (1) et du corps de panneau (2); et/ou
dans laquelle le corps de panneau (2) comprend : un cadre arrière (29) au niveau d'une partie arrière du corps de panneau (2), et une plaque latérale gauche (28) et une plaque latérale droite (28), et au moins un côté du cadre arrière (29) dépasse de la plaque latérale correspondante (28), formant ainsi une structure de jupe de corps de panneau (20); et la structure de jupe de panneau avant (10) et la structure de la jupe de corps de panneau (20) sont reliées pour former un bord décoratif latéral en forme en «U» de l'unité intérieure du climatiseur.
4. Unité intérieure du climatiseur selon la revendication 3, dans laquelle la structure de jupe de panneau avant (10) est formée au niveau de chacun d'un côté gauche et d'un côté droit de la partie de liaison du panneau avant (1) et du corps de panneau (2), et la structure de jupe de corps de panneau (20) est formée au niveau de chacun d'un côté gauche et d'un côté droit du corps de panneau (2), de telle sorte que chacun d'un côté gauche et d'un côté droit de l'unité intérieure a un bord décoratif.
5. Unité intérieure du climatiseur selon la revendication 4, dans laquelle des parties supérieures du panneau avant (1) et du cadre arrière (29) sont plus élevées que des surfaces supérieures de la coque arrière et des plaques latérales gauche et droite.
6. Unité intérieure du climatiseur selon la revendication 3, dans laquelle chacune de la structure de jupe de panneau

avant (10) et/ou de la structure de jupe de corps de panneau (20) a une largeur comprise entre 2 mm et 8 mm, et une épaisseur variant entre 3 mm et 10 mm.

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7. Unité intérieure du climatiseur selon la revendication 1 ou 2, dans laquelle la partie inférieure de la partie avant du corps de panneau (2) est pourvue d'une surface convexe (25) sur laquelle la partie inférieure du panneau avant (1) est agencée, et le panneau avant (1) est relié de manière fixe au corps de panneau (2) par l'intermédiaire d'un mécanisme de fixation.
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8. Unité intérieure du climatiseur selon la revendication 7, dans laquelle une largeur de la surface convexe (25) est égale à une épaisseur du panneau avant (1).
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9. Unité intérieure du climatiseur d'air selon la revendication 1 ou 2, dans laquelle une partie arrière du corps de panneau (2) est formée avec une ouverture (291) pour l'installation de la coque arrière, et est munie d'un bossage arrière (27) au niveau d'un bord inférieur de l'ouverture (291).
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10. Unité intérieure du climatiseur selon la revendication 9, dans laquelle la taille du bossage arrière (27) dans une direction horizontale est inférieure à celle du cadre arrière (29).
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11. Unité intérieure du climatiseur selon la revendication 9, dans laquelle le bossage arrière (27) est agencé dans une direction transversale, et possède des parties de flexion vers le haut au niveau d'un côté gauche et d'une extrémité droite de celui-ci.
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12. Unité intérieure du climatiseur selon la revendication 3, dans laquelle une encoche (221) est prévue sur un côté du corps de panneau pour former un passage d'admission d'air entre l'encoche et la structure de jupe de panneau avant (10).

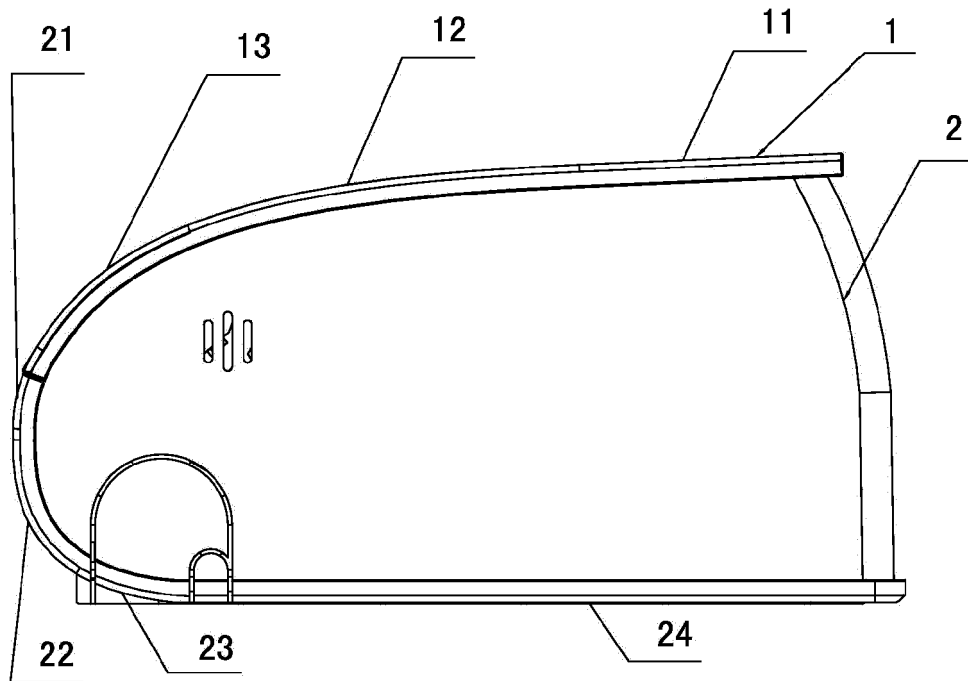


Fig. 1

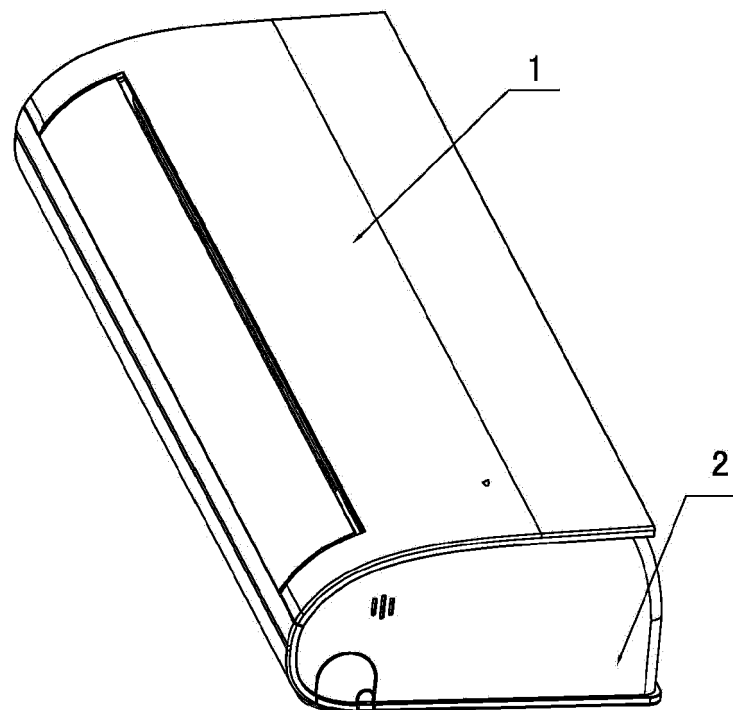


Fig. 2

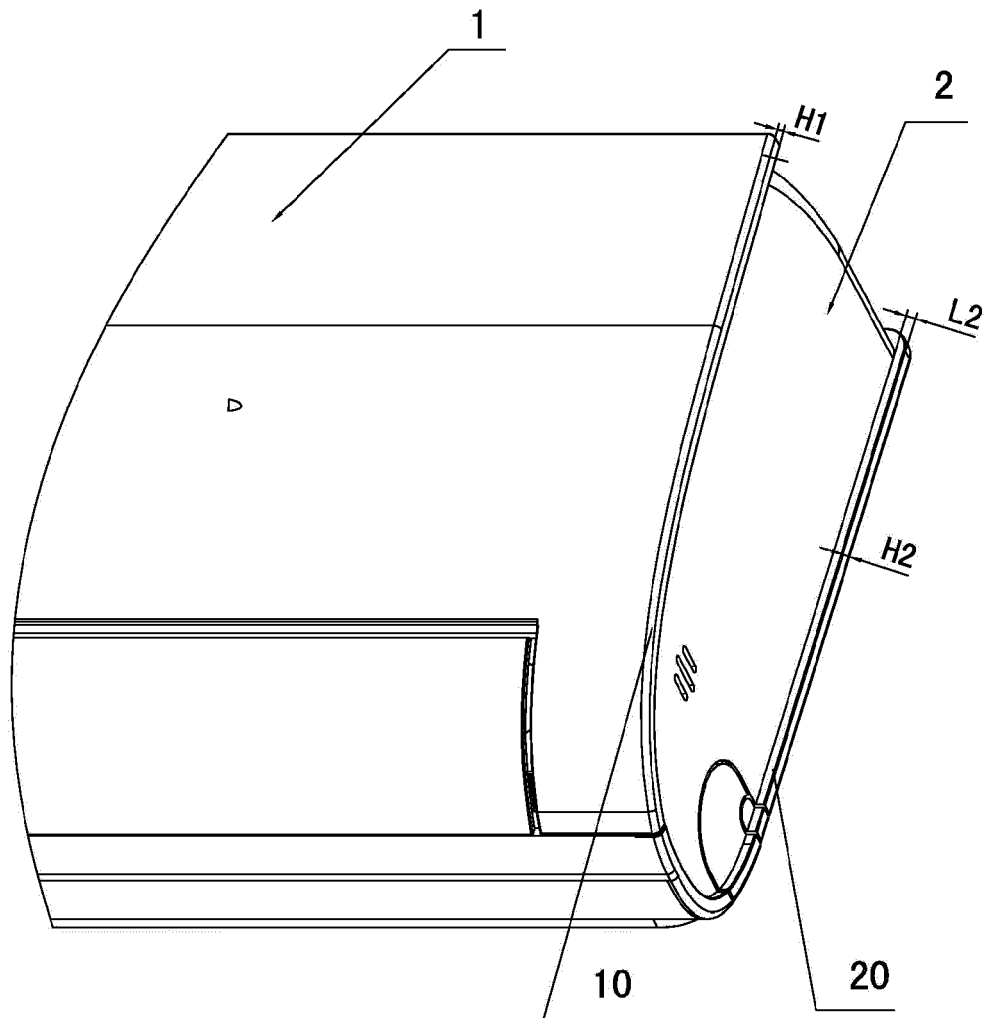


Fig. 3

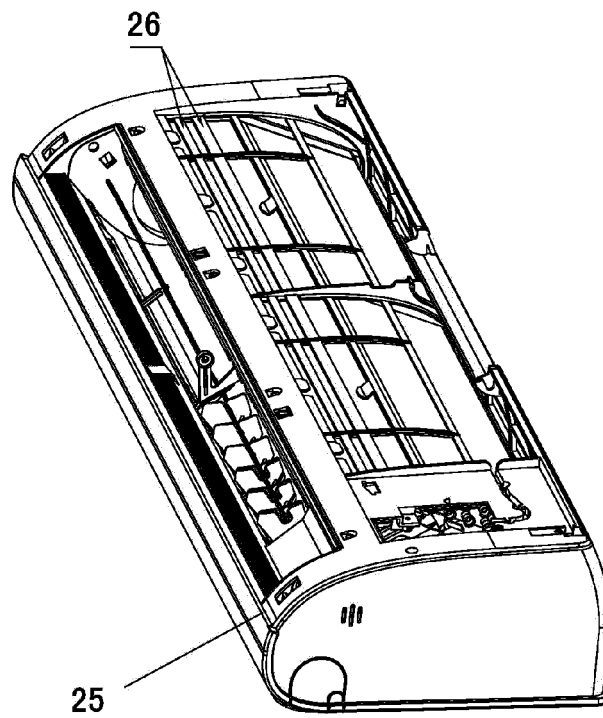


Fig. 4

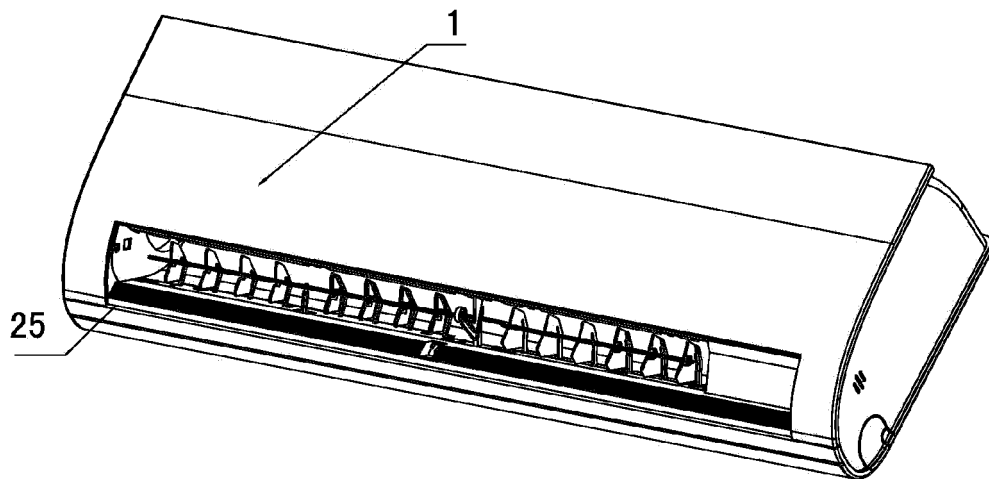


Fig. 5

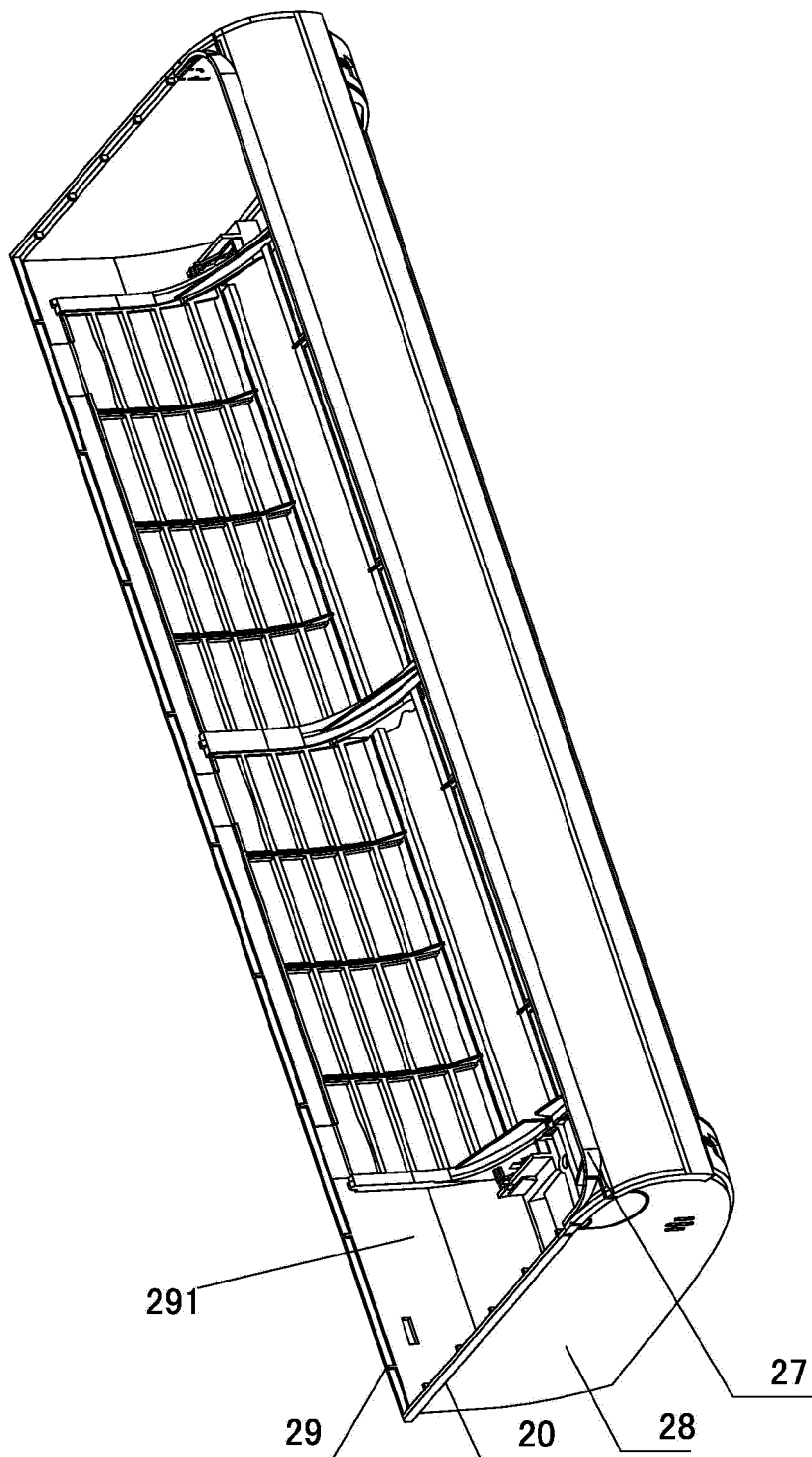


Fig. 6

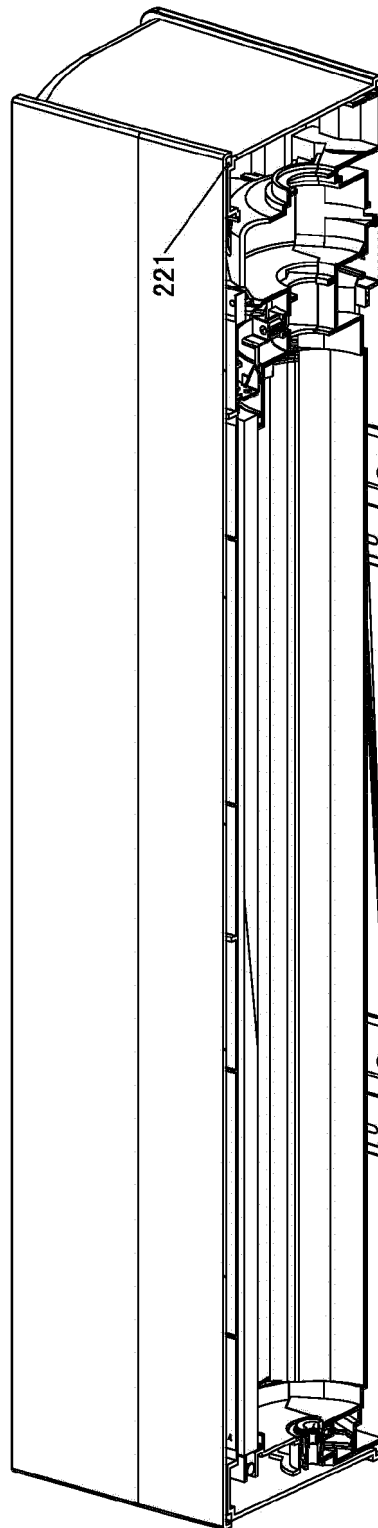


Fig. 7

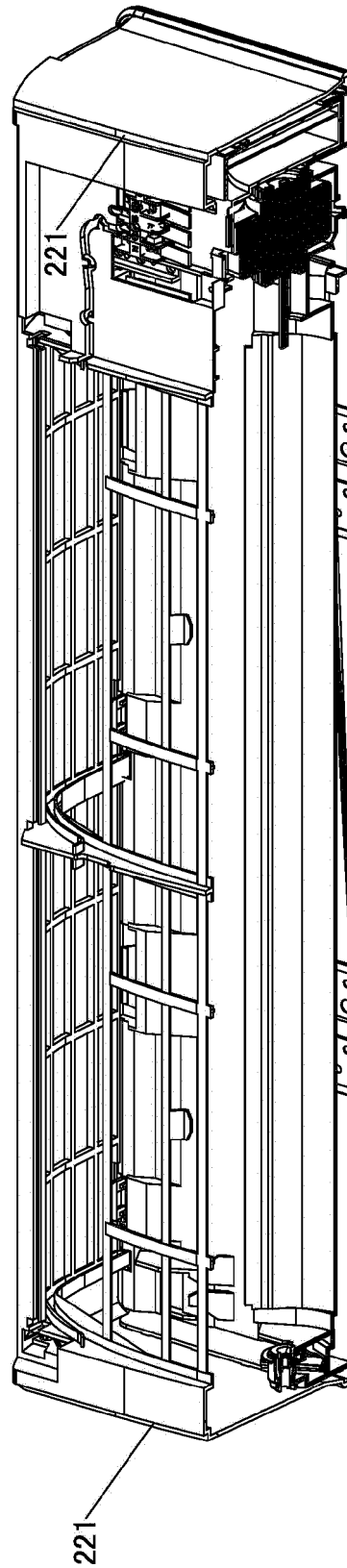


Fig. 8

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- WO 2007012156 A1 [0003]
- CN 200982711 Y [0004]