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(54) **HEAT EXCHANGER APPLIED TO CEILING AIR CONDITIONER AND CEILING AIR CONDITIONER**

WÄRMETAUSCHER FÜR DECKENKLIMAAANLAGE UND EINE DECKENKLIMAAANLAGE

ÉCHANGEUR DE CHALEUR APPLIQUÉ À UN CLIMATISEUR DE PLAFOND, ET CLIMATISEUR DE PLAFOND

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Description

TECHNICAL FIELD

[0001] The present disclosure relates to the field of air conditioner technologies, and more particularly, to a heat exchanger applied to a cassette type air conditioner and a cassette type air conditioner.

BACKGROUND

[0002] Cassette type air conditioners, also known as ceiling air conditioners, are a type of commercial air conditioners. Compared with household air conditioners, the cassette type air conditioners have better stability, stronger cooling capacity and more controllable temperature, and are mostly used in some offices and shops.

[0003] During the implementation of the embodiments of the present disclosure, it is found that at least the following problems exist in related arts:

an intermediate heat exchange part of the cassette type air conditioner is a planar structure for supplying air to rooms, which results in poor heat dissipation of an air supply system of the cassette type air conditioner, thereby reducing heat exchange efficiency, wasting electric energy and failing to meet user needs.

[0004] EP 1 382 917 A1 discloses a cassette type air conditioner. The indoor unit of the air conditioner comprises a casing, a heat exchanger, and a turbofan. Among the air passageways that extend from the turbofan 40 to the outlets via the heat exchanger 30, air passageways, which extend from the turbofan to the outlet and oppose the direction of the wind from the turbofan, are narrower than other air passageways.

[0005] US 6 877 331 B2 discloses an air conditioner that is built into or hung from a ceiling and which employs a cross fin type of heat exchanger, in which the effective length of the heat exchanger is increased without increasing the size of the casing of the indoor unit. An indoor unit has a casing that supports the components of the indoor unit and in which an air suction port and air discharge ports are formed, a centrifugal fan disposed inside the casing for taking in air from the air suction port and discharging air out to the sides thereof, and a cross fin type of heat exchanger for exchanging heat with the air discharged from the centrifugal fan and disposed so that it surrounds the centrifugal fan. The heat exchanger has a plurality of concave portions that are formed such that they are near the outer circumferential portion of the centrifugal fan, and a plurality of convex portions that are formed such that they extend away from the outer circumferential portion of the centrifugal fan.

[0006] JP H03 156221 discloses a heat exchanger comprises a multilayer stack of fin units at predetermined intervals. Each of the fin units comprises a stack of net form fins electric heating tube fitting holes formed between the fins and a plurality of flexible electric heating tubes fitted in the holes. The heat exchanger is installed

in the state of being bent up and down across an air passage by utilizing a plurality of support rods arranged at a predetermined vertical spacing so that bent projected parts and bent recessed parts are oriented in the direction of the air passage. An airflow is introduced from an air suction port, and heat exchange between Joule heat generated according to a current flowing through a heater wire in the heating tubes and air passed through the tubes is carried out through the fins with extremely high efficiency.

SUMMARY

[0007] In order to have a basic understanding of some aspects of disclosed embodiments, a brief summary is given below. The summary is not a general comment, nor is it intended to identify key/important constituent elements or to describe the scope of protection of these embodiments, but serves as a preamble to the following detailed description.

[0008] The present invention provides a cassette type air conditioner comprising a heat exchanger according to claim 1.

[0009] Embodiments of the invention are defined in the dependent claims.

[0010] Some technical solutions provided by the embodiments of the present disclosure may achieve the following technical effects:

[0011] by changing the structure of the heat exchange part of the heat exchanger of the cassette type air conditioner, an air supply system of the cassette type air conditioner can dissipate heat more smoothly, thereby improving heat exchange efficiency, saving more electric energy and enabling customers to use better.

[0012] The above general description and the following description are exemplary and explanatory only and are not intended to limit the scope of protection as defined by the claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0013] One or more embodiments are exemplarily described by corresponding accompanying drawings. These exemplary descriptions and drawings do not limit the embodiments. Elements with same reference numerals in the drawings are shown as similar elements. The drawings do not constitute a scale limitation, and in which:

Fig. 1 is a schematic structural diagram of a heat exchanger applied to a cassette type air conditioner according to an embodiment of the present invention;

Fig. 2 is a schematic structural diagram of a heat exchanger applied to a cassette type air conditioner not according to the present invention.

Reference signs:

[0014] 1: side heat exchange part; 2: intermediate heat exchange part; 21: first intermediate heat exchange part; 22: second intermediate heat exchange part; 11: first side heat exchange part; 12: second side heat exchange part.

DETAILED DESCRIPTION

[0015] The following description and accompanying drawings fully illustrate the specific implementation solutions of the present disclosure so that a person skilled in the art can practice them. Parts and characteristics of some implementation solutions may be included in or replace parts and characteristics of other implementation solutions. As used herein, terms such as "first" and "second" are merely for distinguishing one entity or operation from another entity or operation and do not require or imply any actual relationship or sequence among these entities or operations. In fact, a first element can also be called a second element, and vice versa. Moreover, terms such as "comprise" and "include" or any other variants indicate a non-exclusive inclusion, so that a process, method, or device including a series of elements not only include these elements, but also include other elements not explicitly listed. Without further restrictions, the element defined by the statement "includes a/an ..." does not exclude the existence of other identical elements in the process, method or device that includes the element. As used herein, each embodiment is described progressively, and contents focally described in each embodiment are different from those in other embodiments. The same or similar parts among each of the embodiments may be referred to each other.

[0016] As used herein, orientations or position relationships indicated by terms "longitudinal", "lateral", "up", "down", "front", "behind", "left", "right", "vertical", "horizontal", "top", "bottom", "inside", "outside", and the like are orientations or position relationships shown based on the accompanying drawings, and are merely used for describing the present disclosure and for description simplicity, instead of indicating or implying that an indicated device or element need to provide in a specific orientation, or need to be constructed and operated in a specific orientation, therefore, the orientations or position relationships cannot be understood as a limitation of the present disclosure. In the description of the present disclosure, terms "installation", "joint", "connection" should be understood in a broad sense unless otherwise explicitly specified and limited, for example, "connection" may be a mechanical connection or an electrical connection, or may also be an internal connection between two elements, or may be connected direct connection, or may also be an indirect connection based on an intermediate medium. For a person of ordinary skill in the art, a specific meaning of the foregoing terms may be understood according to a specific situation.

[0017] As used herein, a term "a plurality of" indicates

two or more unless otherwise explicitly specified.

[0018] As used herein, a character "/" indicates an "or" relationship between objects before and after the character. For example, A/B indicates A or B.

[0019] As used herein, a term "and/or" describes an association relationship for depicting associated objects and represents that three relationships may exist. For example, A and/or B may represent three relationships: A, or B, or A and B.

[0020] There is provided a heat exchanger applied to a cassette type air conditioner, including two side heat exchange parts 1 provided on two sides and at an angle to each other; and an intermediate heat exchange part 2 provided between the two side heat exchange parts 1, wherein the intermediate heat exchange part 2 has a concave structure facing away from the angle between the two side heat exchange parts.

[0021] The two side heat exchange parts 1 are the air inlet part of the cassette type air conditioner, and the intermediate heat exchange part 2 is the air outlet part of the cassette type air conditioner.

[0022] Optionally, the intermediate heat exchange part 2 includes a first intermediate heat exchange part 21 and a second intermediate heat exchange part 22, and the first intermediate heat exchange part 21 and the second intermediate heat exchange part 22 can be a symmetrical structure. The two side heat exchange parts 1 include a first side heat exchange part 11 and a second side heat exchange part 12, and the first side heat exchange part 11 and the second side heat exchange part 12 can be a symmetrical structure.

[0023] In the present invention, the two side heat exchange parts 1 are provided on both sides of the intermediate heat exchange part 2. The two side heat exchange parts 1 are provided at an angle to each other, which means that if one of the two side heat exchange parts 1 (i.e., the first side heat exchange part 11) is not moved, and the other of the two side heat exchange parts 1 (i.e., the second side heat exchange part 12) is moved in a direction of the first side heat exchange part 11, when the first side heat exchange part 11 and the second side heat exchange part 12 intersect, the plane where the first side heat exchange part 11 is located and the plane where the second side heat exchange part 12 is located cannot completely coincide, that is, the two planes are at a certain angle, which is not limited here.

[0024] Optionally, both the two side heat exchangers 1 and the intermediate heat exchange part 2 can be provided with vent holes. When the wind enters through the vent holes of the two side heat exchangers 1, since the two side heat exchange parts 1 are provided at a certain angle, that is, the two side heat exchange parts 1 are not in the same plane, by using Computational Fluid Dynamics CFD to simulate the wind speed field, when the first intermediate heat exchange part 21 and the second intermediate heat exchange part 22 are in the same plane, that is, an angle between the first intermediate heat exchange part 21 and the second intermediate heat exchange part 22

change part 22 is 180°, an angle between the first intermediate heat exchange part 21 and the first side heat exchange part 11 is adjusted to 144.9°, and an angle between the second intermediate heat exchange part 22 and the second side heat exchange part 12 is adjusted to 144.8°; at this time, when the wind speeds entering through the first side heat exchange part 11 and the second side heat exchange part 12 are 1.6m/s, the measured wind speeds discharged from the first intermediate heat exchange part 21 and the second intermediate heat exchange part 22 are only 0.6m/s, which indicates that when the first intermediate heat exchange part 21 and the second intermediate heat exchange part 22 is in the same plane, an internal circulation of the cassette type air conditioner is not smooth, and heat exchange efficiency is relatively low, thereby wasting electric energy. By adjusting the angle between the first intermediate heat exchange part 21 and the second intermediate heat exchange part 22 to 90° and keeping the angle between the first side heat exchange part 11 and the second side heat exchange part 12 unchanged, when the angle between the first intermediate heat exchange part 21 and the second intermediate heat exchange part 22 is 90°, the angle between the first intermediate heat exchange part 21 and the first side heat exchange part 11 is adjusted to 99.9°, and the angle between the second intermediate heat exchange part 22 and the second side heat exchange part 12 is adjusted to 99.8°; at this time, when the wind speeds entering through the first side heat exchange part 11 and the second side heat exchange part 12 are 1.48m/s, the measured wind speeds discharged from the first intermediate heat exchange part 21 and the second intermediate heat exchange part 22 are 1.32m/s and 1.33m/s, respectively. Therefore, by changing the structure of the heat exchange part of the heat exchanger of the cassette type air conditioner, an air supply system of the cassette type air conditioner can dissipate heat more smoothly, thereby improving heat exchange efficiency, saving more electric energy and enabling customers to use better.

[0025] Optionally, when an angle between two concave sides of the concave structure of the intermediate heat exchange part 2 is 141°, when the wind speeds entering through the first side heat exchange part 11 and the second side heat exchange part 12 are 1.58m/s, the measured wind speeds discharged from the first intermediate heat exchange part 21 and the second intermediate heat exchange part 22 are only 1.2m/s. Therefore, by changing the structure of the heat exchange part of the heat exchanger of the cassette type air conditioner, an air supply system of the cassette type air conditioner can dissipate heat more smoothly, thereby improving heat exchange efficiency, saving more electric energy and enabling customers to use better.

[0026] Optionally, a concave depth of the concave structure of the intermediate heat exchange part 2 is 0mm, when the first intermediate heat exchange part 21 and the second intermediate heat exchange part 22 are

in the same plane, that is, the angle between the first intermediate heat exchange part 21 and the second intermediate heat exchange part 22 is 180°, the angle between the first intermediate heat exchange part 21 and the first side heat exchange part 11 is adjusted to 144.9°, and the angle between the second intermediate heat exchange part 22 and the second side heat exchange part 12 is adjusted to 144.8°; at this time, when the wind speeds entering through the first side heat exchange part 11 and the second side heat exchange part 12 are 1.6m/s, the measured wind speeds discharged from the first intermediate heat exchange part 21 and the second intermediate heat exchange part 22 are only 0.6m/s, which indicates that when the first intermediate heat exchange part 21 and the second intermediate heat exchange part 22 is in the same plane, the internal circulation of the cassette type air conditioner is not smooth, and heat exchange efficiency is relatively low, thereby wasting electric energy.

[0027] Optionally, the concave depth of the concave structure of the intermediate heat exchange part 2 is 152mm, and the angle between the first intermediate heat exchange part 21 and the second intermediate heat exchange part 22 is 103°; at this time, when the wind speeds entering through the first side heat exchange part 11 and the second side heat exchange part 12 are 1.48m/s, the measured wind speeds discharged from the first intermediate heat exchange part 21 and the second intermediate heat exchange part 22 are 1.26m/s and 1.27m/s, respectively. Therefore, by changing the structure of the heat exchange part of the heat exchanger of the cassette type air conditioner, an air supply system of the cassette type air conditioner can dissipate heat more smoothly, thereby improving heat exchange efficiency, saving more electric energy and enabling customers to use better.

[0028] Optionally, a maximum width of the concave structure of the intermediate heat exchange part 2 is 127mm to 162mm. It is indicated by experiments that when the width of the concave structure of the intermediate heat exchange part 2 is less than 127mm or greater than 162mm, the wind speed discharged from the intermediate heat exchange part 2 will decrease, and heat exchange efficiency will decrease. Therefore, the width of the concave structure of the intermediate heat exchange part 2 is limited to 127mm to 162mm. Therefore, by changing the structure of the heat exchange part of the heat exchanger of the cassette type air conditioner, an air supply system of the cassette type air conditioner can dissipate heat more smoothly, thereby improving heat exchange efficiency, saving more electric energy and enabling customers to use better.

[0029] Optionally, the concave side of the intermediate heat exchange part 2 is perpendicular to the side heat exchange part on a side corresponding to the concave side.

[0030] Optionally, by using Computational Fluid Dynamics CFD to simulate the wind speed field, by adjusting

the angle between the first intermediate heat exchange part 21 and the second intermediate heat exchange part 22 to 70.3° and keeping the angle between the first side heat exchange part 11 and the second side heat exchange part 12 unchanged, when the angle between the first intermediate heat exchange part 21 and the second intermediate heat exchange part 22 is 70.3°, the angle between the first intermediate heat exchange part 21 and the first side heat exchange part 11 is adjusted to 90°, and the angle between the second intermediate heat exchange part 22 and the second side heat exchange part 12 is adjusted to 90°; at this time, when the wind speeds entering through the first side heat exchange part 11 and the second side heat exchange part 12 are 1.48m/s, the measured wind speeds discharged from the first intermediate heat exchange part 21 and the second intermediate heat exchange part 22 are 1.34m/s and 1.34m/s, respectively. Therefore, by changing the structure of the heat exchange part of the heat exchanger of the cassette type air conditioner, an air supply system of the cassette type air conditioner can dissipate heat more smoothly, thereby improving heat exchange efficiency, saving more electric energy and enabling customers to use better.

[0031] Optionally, the concave side of the intermediate heat exchange part 2 is smoothly connected with the side heat exchange part on the side corresponding to the concave side through an arc-shaped section.

[0032] Optionally, the concave side of the intermediate heat exchange part 2 can be smoothly connected with the side heat exchange part on the side corresponding to the concave side through an arc-shaped section. Since the resistance of the air on a streamlined surface is relatively small, the formation of vortices can be avoided. Therefore, the resistance when the air flows is greatly reduced, at the same speed of the air inlet, the air outlet becomes smoother. Therefore, by changing the structure of the heat exchange part of the heat exchanger of the cassette type air conditioner, an air supply system of the cassette type air conditioner can dissipate heat more smoothly, thereby improving heat exchange efficiency, saving more electric energy and enabling customers to use better.

[0033] Optionally, the concave side of each side of the intermediate heat exchange part 2 and the side heat exchange part 1 on a side corresponding to the concave side are of an integral structure. Without affecting the heat dissipation, the integral structure can make the heat exchange part of the cassette type air conditioner as a whole, thereby improving the stability, reducing the failure rate, and avoiding the friction consumption among components. When the cassette type air conditioner operates, the intermediate heat exchange part 2 and the two side heat exchange parts 1 will inevitably generate some tiny vibrations and flash cracks, not only impurities easily enter the body of the air conditioner from tiny gaps, but also cause wear among the components, therefore, the first intermediate heat exchange part 21 and the first side heat exchange part 11 are manufactured as the in-

tegral structure, and the second intermediate heat exchange part 22 and the second side heat exchange part 12 are also manufactured as the integral structure. Therefore, by changing the structure of the heat exchange part of the heat exchanger of the cassette type air conditioner, an air supply system of the cassette type air conditioner can dissipate heat more smoothly, thereby improving heat exchange efficiency, saving more electric energy and enabling customers to use better.

[0034] Optionally, the heat exchanger has a symmetrical structure.

[0035] Optionally, the intermediate heat exchange part 2 includes a first intermediate heat exchange part 21 and a second intermediate heat exchange part 22, and the first intermediate heat exchange part 21 and the second intermediate heat exchange part 22 can be a symmetrical structure. The two side heat exchange parts 1 include a first side heat exchange part 11 and a second side heat exchange part 12, and the first side heat exchange part 11 and the second side heat exchange part 12 can be a symmetrical structure. Therefore, by changing the structure of the heat exchange part of the heat exchanger of the cassette type air conditioner, an air supply system of the cassette type air conditioner can dissipate heat more smoothly, thereby improving heat exchange efficiency, saving more electric energy and enabling customers to use better.

[0036] The present invention provides a cassette type air conditioner, including the above heat exchanger, wherein the two side heat exchange parts 1 of the heat exchanger corresponds to an air inlet of the cassette type air conditioner, and the intermediate heat exchange part 2 corresponds to an air outlet of the cassette type air conditioner.

[0037] The heat exchanger includes two side heat exchange parts 1 provided on two sides and at an angle to each other; and an intermediate heat exchange part 2 provided between the two side heat exchange parts 1, wherein the intermediate heat exchange part 2 has a concave structure facing away from the angle between the two side heat exchange parts. Therefore, by changing the structure of the heat exchange part of the heat exchanger of the cassette type air conditioner, an air supply system of the cassette type air conditioner can dissipate heat more smoothly, thereby improving heat exchange efficiency, saving more electric energy and enabling customers to use better.

[0038] Optionally, the intermediate heat exchange part 2 includes a first intermediate heat exchange part 21 and a second intermediate heat exchange part 22, and the first intermediate heat exchange part 21 and the second intermediate heat exchange part 22 can be a symmetrical structure. The two side heat exchange parts 1 include a first side heat exchange part 11 and a second side heat exchange part 12, and the first side heat exchange part 11 and the second side heat exchange part 12 can be a symmetrical structure. Therefore, by changing the structure of the heat exchange part of the heat exchanger of

the cassette type air conditioner, an air supply system of the cassette type air conditioner can dissipate heat more smoothly, thereby improving heat exchange efficiency, saving more electric energy and enabling customers to use better.

[0039] Optionally, the concave side of the intermediate heat exchange part 2 can be smoothly connected with the side heat exchange part on the side corresponding to the concave side through an arc-shaped section. Since the resistance of the air on a streamlined surface is relatively small, the formation of vortices can be avoided. Therefore, the resistance when the air flows is greatly reduced, at the same speed of the air inlet, the air outlet becomes smoother. Therefore, by changing the structure of the heat exchange part of the heat exchanger of the cassette type air conditioner, an air supply system of the cassette type air conditioner can dissipate heat more smoothly, thereby improving heat exchange efficiency, saving more electric energy and enabling customers to use better.

Claims

1. A cassette type air conditioner, wherein the cassette type air conditioner comprises a heat exchanger which comprises:

two side heat exchange parts (1) provided on two sides and at an angle to each other; and an intermediate heat exchange part (2) provided between the two side heat exchange parts (1), wherein the intermediate heat exchange part (1) has a concave structure facing away from the angle between the two side heat exchange parts (1),

characterized in that the two side heat exchange parts (1) of the heat exchanger correspond to an air inlet of the cassette type air conditioner, and the intermediate heat exchange part (2) corresponds to an air outlet of the cassette type air conditioner.

2. The cassette type air conditioner according to claim 1, **characterized in that** an angle between two concave sides of the concave structure of the intermediate heat exchange part (2) ranges from 90° to 141°.
3. The cassette type air conditioner according to claim 1, **characterized in that** a concave depth of the concave structure of the intermediate heat exchange part (2) is less than 125mm.
4. The cassette type air conditioner according to claim 1, **characterized in that** a maximum width of the concave structure of the intermediate heat exchange part (2) is 127mm to 162mm.

5. The cassette type air conditioner according to claim 1, **characterized in that** a concave side of the intermediate heat exchange part (2) is perpendicular to the side heat exchange part on a side corresponding to the concave side.

6. The cassette type air conditioner according to claim 1 or 5, **characterized in that** a concave side of the intermediate heat exchange part (2) is smoothly connected with the side heat exchange part on a side corresponding to the concave side through an arc-shaped section.

7. The cassette type air conditioner according to claim 1, **characterized in that** a concave side of each side of the intermediate heat exchange part (2) and the side heat exchange part on a side corresponding to the concave side are of an integral structure.

8. The cassette type air conditioner according to claim 1, **characterized in that** the heat exchanger has a symmetrical structure.

Patentansprüche

1. Kassetten-Klimaanlage, wobei die Kassetten-Klimaanlage einen Wärmetauscher aufweist, der aufweist:

zwei seitliche Wärmetauschteile (1), die auf zwei Seiten vorgesehen und in einem Winkel zueinander sind; und

ein zwischenliegendes Wärmetauschteil (2), das zwischen den beiden seitlichen Wärmetauschteilen (1) vorgesehen ist, wobei das zwischenliegende Wärmetauschteil (1) eine konkave Struktur hat, die dem Winkel zwischen den beiden seitlichen Wärmetauschteilen (1) abgewandt ist,

dadurch gekennzeichnet, dass die beiden seitlichen Wärmetauschteile (1) des Wärmetauschers einem Luftenlass der Kassetten-Klimaanlage entsprechen und das zwischenliegende Wärmetauschteil (2) einem Luftauslass der Kassetten-Klimaanlage entspricht.

2. Kassetten-Klimaanlage nach Anspruch 1, **dadurch gekennzeichnet, dass** ein Winkel zwischen zwei konkaven Seiten der konkaven Struktur des zwischenliegenden Wärmetauschteils (2) in einem Bereich von 90° bis 141° liegt.
3. Kassetten-Klimaanlage nach Anspruch 1, **dadurch gekennzeichnet, dass** eine konkave Tiefe der konkaven Struktur des zwischenliegenden Wärmetauschteils (2) weniger als 125 mm beträgt.
4. Kassetten-Klimaanlage nach Anspruch 1, **dadurch**

gekennzeichnet, dass eine maximale Breite der konkaven Struktur des zwischenliegenden Wärmetauscherteils (2) zwischen 127 mm bis 162 mm liegt.

5. Kassetten-Klimaanlage nach Anspruch 1, **dadurch gekennzeichnet, dass** eine konkave Seite des zwischenliegenden Wärmetauscherteils (2) senkrecht zu dem seitlichen Wärmetauscherteil auf einer Seite ist, die der konkaven Seite entspricht.
6. Kassetten-Klimaanlage nach Anspruch 1 oder 5, **dadurch gekennzeichnet, dass** eine konkave Seite des zwischenliegenden Wärmetauscherteils (2) durch einen bogenförmigen Abschnitt nahtlos mit dem seitlichen Wärmetauscherteil auf einer Seite verbunden ist, die der konkaven Seite entspricht.
7. Kassetten-Klimaanlage nach Anspruch 1, **dadurch gekennzeichnet, dass** eine konkave Seite jeder Seite des zwischenliegenden Wärmetauscherteils (2) und des seitlichen Wärmetauscherteils auf einer Seite, die der konkaven Seite entspricht, eine einstückige Struktur aufweisen.
8. Kassetten-Klimaanlage nach Anspruch 1, **dadurch gekennzeichnet, dass** der Wärmetauscher eine symmetrische Struktur aufweist.

Revendications

1. Climatiseur de type cassette, dans lequel le climatiseur de type cassette comprend un échangeur de chaleur qui comprend :

deux parties d'échange de chaleur latérales (1) prévues sur deux côtés et à un angle l'un par rapport à l'autre ; et

une partie d'échange de chaleur intermédiaire (2) prévue entre les deux parties d'échange de chaleur latérales (1), dans lequel la partie d'échange de chaleur intermédiaire (1) a une structure concave orientée à l'opposé de l'angle entre les deux parties d'échange de chaleur latérales (1),

caractérisé en ce que les deux parties d'échange de chaleur latérales (1) de l'échangeur de chaleur correspondent à une entrée d'air du climatiseur de type cassette, et la partie d'échange thermique intermédiaire (2) correspond à une sortie d'air du climatiseur de type cassette.
2. Climatiseur de type cassette selon la revendication 1,

caractérisé en ce qu'un angle entre deux côtés concaves de la structure concave de la partie d'échange thermique intermédiaire (2) est compris entre 90 ° et 141 °.

3. Climatiseur de type cassette selon la revendication 1,

caractérisé en ce qu'une profondeur concave de la structure concave de la partie d'échange thermique intermédiaire (2) est inférieure à 125 mm.
4. Climatiseur de type cassette selon la revendication 1,

caractérisé en ce qu'une largeur maximale de la structure concave de la partie d'échange thermique intermédiaire (2) est de 127 mm à 162 mm.
5. Climatiseur de type cassette selon la revendication 1,

caractérisé en ce qu'un côté concave de la partie d'échange thermique intermédiaire (2) est perpendiculaire à la partie d'échange thermique latérale sur un côté correspondant au côté concave.
6. Climatiseur de type cassette selon la revendication 1 ou 5,

caractérisé en ce qu'un côté concave de la partie d'échange thermique intermédiaire (2) est relié de manière fluide à la partie d'échange de chaleur latérale sur un côté correspondant au côté concave à travers une section en forme d'arc.
7. Climatiseur de type cassette selon la revendication 1,

caractérisé en ce qu'un côté concave de chaque côté de la partie d'échange thermique intermédiaire (2) et la partie d'échange thermique latérale sur un côté correspondant au côté concave sont d'une structure intégrale.
8. Climatiseur de type cassette selon la revendication 1,

caractérisé en ce que l'échangeur de chaleur présente une structure symétrique.

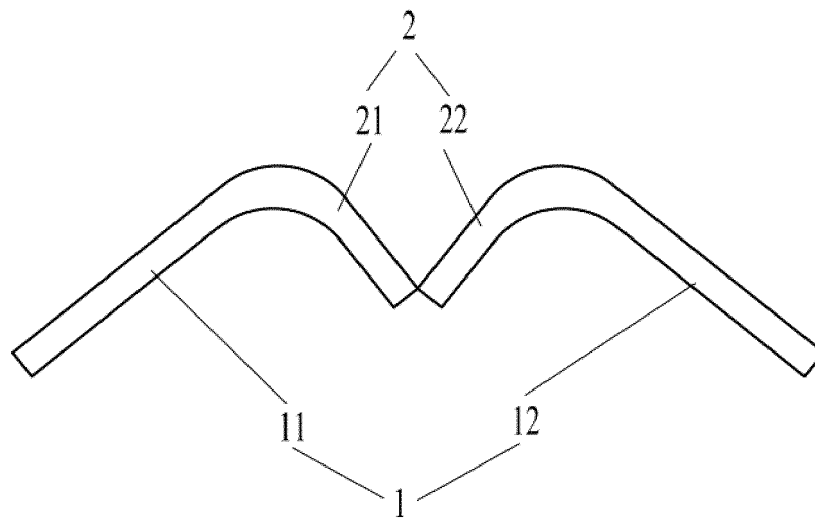


Fig. 1

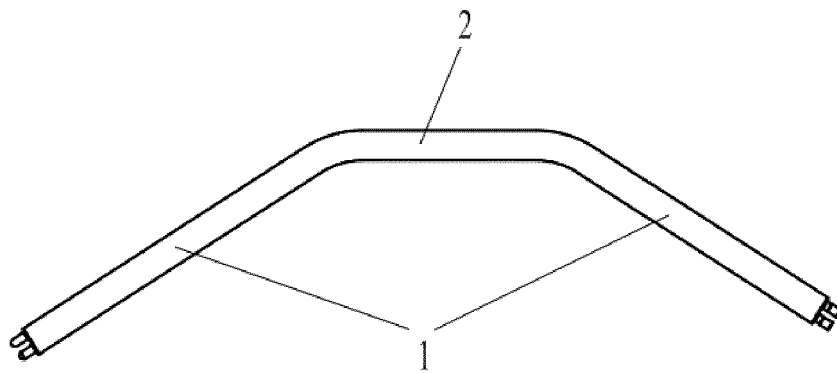


Fig. 2

REFERENCES CITED IN THE DESCRIPTION

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