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(71) Applicants:
- **GD Midea Air-Conditioning Equipment Co., Ltd.**
Foshan, Guangdong 528311 (CN)
- **Midea Group Co., Ltd.**
Foshan, Guangdong 528311 (CN)

(72) Inventors:
- **SONG, Yingjie**
Foshan, Guangdong 528311 (CN)
- **LIU, Qiankun**
Foshan, Guangdong 528311 (CN)
- **YANG, Fan**
Foshan, Guangdong 528311 (CN)
- **ZHANG, Zheyuan**
Foshan, Guangdong 528311 (CN)

(74) Representative: **Whitlock, Holly Elizabeth Ann et al**
Maucher Jenkins
Seventh Floor Offices
Artillery House
11-19 Artillery Row
London SW1P 1RT (GB)

(54) AIR GUIDE COMPONENT AND AIR CONDITIONER HAVING SAME

(57) Provided are an air guide component (100) and an air conditioner (1000) having same, the air guide component (100) comprising: an air guide plate (1) and an air guide bar assembly (2); the air guide bar assembly (2) is attached to the inner side of the air guide plate (1), and comprises two air guide bars (20) spaced apart along the width of the air guide plate (1), each air guide bar (20) being adapted to direct the air flowing along the inner side of the air guide plate (1) toward the outer side so as to be led out in a direction away from the other air guide bar (20), an air flow passageway (12) being defined between the two air guide bars (20).

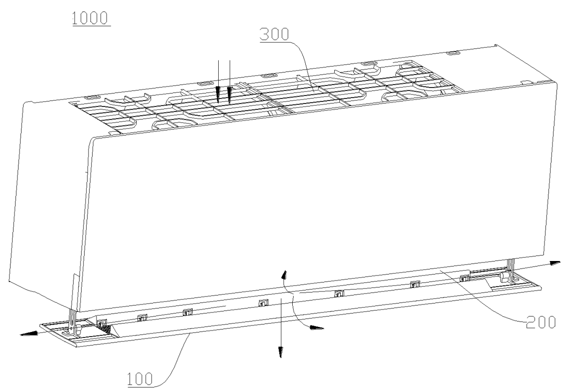

FIG. 1

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Description

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application is based on and claims priority to Chinese Patent Application No. 202110358232.4, filed on April 1, 2021, No. 202120676661.1, filed on April 1, 2021, No. 202022484236.0, filed on October 30, 2020, No. 202011193753.0, filed on October 30, 2020, No. 202120677541.3, filed on April 1, 2021, and No. 202110358186.8, filed on April 1, 2021, the entire disclosures of which are incorporated herein by reference.

FIELD

[0002] The present disclosure relates to the field of air conditioner technologies, and more particularly, to an air deflection component and an air conditioner having same.

BACKGROUND

[0003] With the improvement of people's living standards, air conditioners have gradually entered thousands of households. However, the air conditioner has a single air blowing direction. An air blowing angle can only be slightly adjusted to a current air blowing direction even when a deflector and louvers are provided, resulting in a non-uniform room temperature and a slow temperature regulation. In addition, an air conditioner in the related art trends to generate concentrated cool air during cooling and concentrated hot air during heating, and thus temperature diffusion is not uniform, which easily leads to a slow temperature drop and a slow temperature rise in the room, and also brings a problem of non-uniform temperatures. Moreover, air in the room makes a user feel stuffy, resulting in poor comfort of user experience.

SUMMARY

[0004] The present disclosure aims to solve at least one of the technical problems in the related art. To this end, the present disclosure provides a first air deflection component, capable of realizing a multi-dimensional air blowing.

[0005] The present disclosure further provides a first air conditioner having the first air deflection component as described above.

[0006] According to embodiments of the present disclosure, there is provided a first air deflection component. The first air deflection component includes a deflector and an air deflection bar assembly. The air deflection bar assembly is connected at an inner side of the deflector, and includes two air deflection bars spaced apart from each other in a width direction of the deflector, wherein. Each of the two air deflection bars is configured to deflect an airflow flowing from the inner side to an outer side of the deflector in a direction facing away from another one of the two air deflection bars. An airflow channel is formed between the two air deflection bars.

[0007] With the first air deflection component according to the embodiments of the present disclosure, a multi-dimensional air blowing can be realized to accelerate disturbance of air in an entire room and enhance micro-circulation of the air in the room. As a result, there is no stuffy feeling for the user in the room. In addition, the temperature can be rapidly adjusted to improve temperature uniformity and enhance comfort experience of a user.

[0008] According to embodiments of the present disclosure, there is provided a first air conditioner. The first air conditioner includes a body, the first air deflection component as described in the above embodiments, and a drive mechanism. A first air passage is formed in the body. The body has an air inlet and a first air outlet that are in communication with the first air passage. The first air deflection component is disposed at the first air outlet. The drive mechanism is connected between the first air deflection component and the body. The drive mechanism is configured to drive the first air deflection component to be movable relative to the body.

[0009] With the first air conditioner according to the embodiments of the present disclosure, the multi-dimensional air blowing can be realized to accelerate the disturbance of the air in the entire room and enhance the micro-circulation of the air in the room. As a result, there is no stuffy feeling for the user in the room. In addition, the temperature can be rapidly adjusted to improve the temperature uniformity and enhance the comfort experience of the user. Thus, overall performance of the first air conditioner can be improved.

[0010] According to the embodiments of the present disclosure, there is provided a second air deflection component for a second air conditioner. A second air passage is formed in the second air conditioner. An end of the second air passage is formed as a second air outlet. The second air deflection component is configured to be movable between a first position for closing the second air outlet and a second position for exposing the second air outlet. The second air deflection component includes a first connection plate and a second connection plate that are arranged in a thickness direction. The second air outlet is closed by the first connection plate when the second air deflection component is positioned in the first position. Then the second air deflection component is positioned in the second position, a first airflow channel is formed between the second air passage and a part of the first connection plate, and a second airflow channel is formed between the second air passage and another part of the first connection plate. In an airflow flow direction, the first airflow channel and the second airflow channel extend towards two opposite sides of the second air outlet, respectively.

[0011] With the second air deflection component for the second air conditioner according to the embodiments of the present disclosure, the multi-dimensional air blowing can be realized to accelerate the disturbance of the air in the entire room and enhance the micro-circulation of the air in the room. As a result, there is no stuffy feeling for the user in the room. In addition, the temperature can be rapidly adjusted to improve the temperature uniformity and enhance the comfort experience of the user.

[0012] According to the embodiments of the present disclosure, there is provided a second air conditioner. The second air conditioner includes a second air passage component and the second air deflection component for the second air conditioner as described in the above embodiments. A second air passage is formed by the second air passage component and has an end formed as a second air outlet. The second air deflection component is connected to the second air passage component, and is configured to be movable between the first position for closing the second air outlet and the second position for exposing the second air outlet.

[0013] With the second air conditioner according to the embodiments of the present disclosure, the multi-dimensional air blowing can be realized to accelerate the disturbance of the air in the entire room and enhance the micro-circulation of the air in the room. As a result, there is no stuffy feeling for the user in the room. In addition, the temperature can be rapidly adjusted to improve the temperature uniformity and enhance the comfort experience of the user.

[0014] Additional aspects and advantages of the present disclosure will be provided at least in part in the following description, or will become apparent at least in part from the following description, or can be learned from practicing of the present disclosure.

BRIEF DESCRIPTION OF THE DRAWINGS

[0015]

FIG. 1 is a schematic view of a first air conditioner according to an embodiment of the present disclosure.

FIG. 2 is an exploded view of a first air deflection component illustrated in FIG. 1.

FIG. 3 is an assembled view of a first air deflection component illustrated in FIG. 2.

FIG. 4 is a cross-sectional view taken along line A-A in FIG. 3.

FIG. 5 is a view showing a forward air blowing state of a first air conditioner according to an embodiment of the present disclosure.

FIG. 6 is a view showing a rearward air blowing state of a first air conditioner according to an embodiment of the present disclosure.

FIG. 7 is a view showing a forward-rearward air blowing state of a first air conditioner according to an embodiment of the present disclosure.

FIG. 8 is a view showing a closed state of a first air conditioner according to an embodiment of the present disclosure.

FIG. 9 is a view showing an operating state of a first air conditioner according to an embodiment of the present disclosure.

FIG. 10 is a view showing a forward-rearward air blowing state of a first air conditioner according to another embodiment of the present disclosure.

FIG. 11 is a view showing a forward air blowing state of a first air conditioner according to another embodiment of the present disclosure.

FIG. 12 is a view showing an open state of a first air conditioner according to yet another embodiment of the present disclosure.

FIG. 13 is a perspective view of a first air conditioner according to an embodiment of the present disclosure.

FIG. 14 is an exploded view of an air deflection bar assembly illustrated in FIG. 13.

FIG. 15 is a cross-sectional view taken along line B-B in FIG. 14.

FIG. 16 is an exploded view of an air deflection bar assembly according to an embodiment of the present disclosure.

FIG. 17 is a schematic view of the air deflection bar assembly illustrated in FIG. 16.

FIG. 18 is a cross-sectional view taken along line C-C in FIG. 17.

FIG. 19 is another schematic view of the air deflection bar assembly illustrated in FIG. 16.

FIG. 20 is a cross-sectional view taken along line D-D in FIG. 19.

FIG. 21 is an exploded view of an air deflection bar assembly according to an embodiment of the present disclosure.

FIG. 22 is a schematic view of the air deflection bar assembly illustrated in FIG. 21.

FIG. 23 is a cross-sectional view taken along line E-E in FIG. 22.

FIG. 24 is another schematic view of an air deflection bar assembly illustrated in FIG. 23.

FIG. 25 is a cross-sectional view taken along line F-F in FIG. 24.

FIG. 26 is a cross-sectional view taken along line G-G in FIG. 24.

FIG. 27 is a cooperation view of a first air deflection component and a drive mechanism according to an embodiment of the present disclosure.

FIG. 28 is an enlarged view of part H circled in FIG. 27.

FIG. 29 is an exploded view of a first air deflection component according to an embodiment of the present disclosure.

FIG. 30 is an enlarged view of part I circled in FIG. 29.

FIG. 31 is a partial cross-sectional view of a first air deflection component according to an embodiment of the present disclosure.

FIG. 32 is a schematic view of a first air conditioner according to an embodiment of the present disclosure.

FIG. 33 is another schematic view of a first air conditioner illustrated in FIG. 32 with a first air deflection component not illustrated.

FIG. 34 is a schematic view of a second air conditioner according to still yet another embodiment of the present disclosure with an air deflection device in a first position.

FIG. 35 is a schematic view of a second air conditioner according to a still yet another embodiment of the present disclosure with an air deflection device in a second position.

FIG. 36 is a schematic view of a second air conditioner according to still yet another embodiment of the present disclosure with an air deflection device in a third position.

FIG. 37 is a schematic view of a second air conditioner according to still yet another embodiment of the present disclosure with an air deflection device in a fourth position.

FIG. 38 is a schematic view of a second air conditioner according to still yet another embodiment of the present disclosure with an air deflection device in a fifth position.

FIG. 39 is a schematic view of an air deflection device according to still yet another embodiment of the present disclosure.

FIG. 40 is a schematic view of a second air conditioner according to still yet another embodiment of the present disclosure.

FIG. 41 is a schematic view of an air deflection device according to still yet another embodiment of the present disclosure.

FIG. 42 is a histogram of an air blowing volume of a second air conditioner according to an embodiment of the present disclosure and an air blowing volume of an air conditioner in the related art.

DETAILED DESCRIPTION OF THE EMBODIMENTS

[0016] Embodiments of the present disclosure will be described in detail below with reference to examples thereof as illustrated in the accompanying drawings, throughout which same or similar elements, or elements having same or similar functions, are denoted by same or similar reference numerals. The embodiments described below with reference to the drawings are illustrative only, and are intended to explain, rather than limiting, the present disclosure.

[0017] A number of embodiments or examples are provided in the following disclosure to implement different structures of the present disclosure. To simplify the disclosure of the present disclosure, components and arrangements of particular examples will be described below, which are, of course, examples only and are not intended to limit the present disclosure. Furthermore, reference numerals and/or reference letters may be repeated in different examples of the present disclosure. Such repetition is for the purpose of simplicity and clarity and does not indicate any relationship between various embodiments and/or arrangements in question. In addition, various examples of specific processes and materials are provided in the present disclosure. However, those of ordinary skill in the art may be aware of applications of other processes and/or the use of other materials.

[0018] A first air deflection component 100 and a first air conditioner 1000 having the first air deflection component 10 according to embodiments of the present disclosure will be described below with reference to the accompanying drawings.

[0019] It should be noted that, the first air deflection component 100 according to the embodiments of the present disclosure is not limited to being applied in the first air conditioner 1000. That is, the first air deflection component 100 may also be applied in other devices having an air blowing function, such as an air purifier. Further, it should be noted that, a type of the first air conditioner 1000 to which the first air deflection component 100 according to the embodiments of the present disclosure is applied is not limited. For example, the first air deflection component 100 may be applied in an all-in-one air conditioner such as a mobile air conditioner, a window air conditioner. For example, the first air deflection component 100 may also be applied in a split air conditioner such as an air conditioning wall-mounted indoor unit, an air conditioner cabinet unit.

[0020] For simplicity of description, as an example, the following description only describes that the first air deflection component 100 according to the embodiments of the present disclosure is applied in the first air conditioner 1000. By reading the technical solutions in the following description, it is obvious for those skilled in the art to understand specific embodiments in which the first air deflection component 100 according to the embodiments of the present disclosure is applied to other devices having the air blowing function, details of which will be omitted herein. Further, it should be understood that, as illustrated in FIG. 1, the first air conditioner 1000 has a first air outlet 200 and an air inlet 300. An airflow enters the first air conditioner 1000 from the air inlet 300 and exits the first air conditioner 1000 from the first air outlet 200. The first air deflection component 100 is disposed at the first air outlet 200 to at least regulate an air blowing effect of the first air outlet 200.

[0021] As illustrated in FIG. 1 and FIG. 2, the first air deflection component 100 may include a deflector 1 and an air deflection bar assembly 2. The air deflection bar assembly 2 is connected on an inner side of the deflector 1. It should be noted that, a side of the deflector 1 close to the first air outlet 200 is the inner side of the deflector 1, and a side of the deflector 1 facing away from the first air outlet 200 is an outer side of the deflector 1. The air deflection bar assembly 2 is disposed on the inner side of the deflector 1 and connected to the deflector 1. That is, the air deflection bar assembly 2 is disposed on a windward side of the deflector 1 to provide air deflecting function. It should be noted that, a specific manner for connecting the air deflection bar assembly 2 to the deflector 1 is not limited. The air deflection bar assembly 2 and the deflector 1 may be separately formed and assembled (including detachably assembled, non-detachably assembled, or the like) with each other, or may be integrally formed (including integral molding, over-injection molding, or the like).

[0022] As illustrated in FIG. 3 and FIG. 4, the air deflection bar assembly 2 may include two air deflection bars 20 spaced apart from each other in a width direction F2 of the deflector 1. Each of the two air deflection bars 20 is configured to deflect an airflow flowing from the inner side to the outer side of the deflector 1 in a direction facing away from the other one of the two air deflection bars 20. For example, as illustrated in FIG. 3 and FIG. 4, the air deflection bar assembly 2 includes two air deflection bars 20, i.e., a first air deflection bar 21 and a second air deflection bar 22. The first air deflection bar 21 and the second air deflection bar 22 are spaced apart from each other in the width direction F2 of the deflector 1. The first air deflection bar 21 is configured to deflect the airflow flowing from the inner side to the outer side of the deflector 1 in the direction facing away from the second air deflection bar 21 (e.g., a direction indicated by line S1 illustrated in FIG. 4). The second air deflection bar 22 is configured to deflect the airflow flowing from the inner side to the outer side of the deflector 1 in a direction facing away from the first air deflection bar 21 (e.g., a direction indicated by line S2 illustrated in FIG. 4).

[0023] Therefore, with the first air deflection component 100 according to the embodiments of the present disclosure, the two air deflection bars 20 spaced apart in a transverse direction of the deflector 1 are disposed on the inner side of the deflector 1. Each of the two air deflection bars 20 can deflect air in a direction facing away the other one of the two air deflection bars 20 to achieve adjustable air blowing in at least two directions (adjustable air blowing in the direction S1 and the direction S2 illustrated in FIG. 4). Therefore, it is possible to allow for a rapid adjustment of a temperature of an entire room and improved uniformity of temperature diffusion. Further, the air in the room can be disturbed to a great extent to assuage stuffiness felt by the user. In addition, the air blowing can be adjusted to a great extent through a rotation at a relatively small angle, which thus can reduce energy consumption to drive movements of the first air deflection component 100 and achieve more significant adjustment to air directions and air volumes.

[0024] In addition, when the first air deflection component 100 according to the embodiments of the present disclosure is applied in the air conditioner wall-mounted indoor unit, it is possible to solve problems that cold air is blown directly on the user and hot air cannot reach the user's feet directly. For example, as illustrated in FIG. 5 and FIG. 6, the first air conditioner 1000 is the air conditioner wall-mounted indoor unit. The first air outlet 200 is formed at a front side of a bottom and/or a lower part of a front side a body 700. The two air deflection bars 20 are spaced apart from each other in a front-rear direction. The first air deflection component 100 may be switched between a forward air blowing state (e.g., as illustrated in FIG. 5) and a rearward air blowing state (e.g., as illustrated in FIG. 6). As illustrated in FIG. 5, in the forward air blowing state, the airflow flowing out of the first air outlet 200 is deflected forwards through the front air deflection bar 20, which can prevent the cold air from being blown directly on the user. In the rear air blowing state, the airflow flowing out of the first air outlet 200 is deflected rearwards through the rear air deflection bar 20, which can solve the problem that the hot air cannot reach the user's feet directly.

[0025] It should be noted that, each of the air deflection bars 20 may be constructed as an integral elongated bar structure extending in a length direction F1 of the deflector 1. Each of the air deflection bars 20 may also be formed by at least two short bar structures arranged sequentially in the length direction F1 of the deflector 1. Further, it should be noted that, a surface of each air deflection bar 20 for deflecting air (i.e., an air deflecting surface) needs to be determined based on a specific structure of the air deflection bar 20. For example, the air deflecting surface of the air deflection bar 20 may include an inner surface of the air deflection bar 20, an outer surface of the air deflection bar 20, and the like. For example, in some embodiments described below, a side surface of the air deflection bar 20 facing away from the deflector 1 (i.e., an inner side surface 201 of the air deflection bar 20) is the air deflecting surface of the air deflection bar 20. In some embodiments described below, both the side surface of the air deflection bar 20 facing away from the deflector 1 (i.e., the inner side surface 201 of the air deflection bar 20) and the inner surface of the air deflection bar 20 are the air deflecting surface of the air deflection bar 20.

[0026] In some embodiments of the present disclosure, as illustrated in FIG. 3 and FIG. 4, a plurality of ventilation holes 11 is formed at the deflector 1. It should be understood that, each of the plurality of ventilation holes 11 penetrates an inner side surface and an outer side surface of the deflector 1. An airflow channel 12 is formed between the two air deflection bars 20. The airflow channel 12 is in communication with the plurality of ventilation holes 11. In this way, the airflow flowing from the inner side to the outer side of the deflector 1 may partially enter the airflow channel 12, and then flow through the ventilation holes 11 on the deflector 1 towards outside of the deflector 1, flow in a direction indicated by line S3 illustrated in FIG. 4. Thus, the first air deflection component 100 has two air blowing dimensions in which each of the two air deflection bars 20 can deflect the air in the direction facing away from the other one of the two air deflection bars 20. Further, the first air deflection component 100 has one air blowing dimension in which the air is blown through the airflow channel 12 and the ventilation holes 11. Thus, the first air deflection component 100 totally has at least three air blowing dimensions, i.e., three air blowing directions S1, S2, and S3 as illustrated in FIG. 4.

[0027] Thus, in addition to using each of the two air deflection bars 20 to deflect the air in the direction facing away from the other one of the two air deflection bars 20, it is also possible to accelerate disturbance of the air in the entire room through the air-blowing from the airflow channel 12 and the ventilation holes 11 to enhance micro-circulation of the air in the room. As a result, there is no stuffy feeling for the user in the room. In addition, through the multi-dimensional air blowing, the temperature can be rapidly adjusted to improve the temperature uniformity and enhance comfort experience of the user. Moreover, when the first air deflection component 100 according to the embodiments of the present disclosure is applied in the air conditioner wall-mounted indoor unit, it is possible to solve the problems that the cold air is blown directly on the user and the hot air cannot reach the user's feet. Meanwhile, the disturbance of the air in the entire room can be accelerated through the air-blowing from the airflow channel 12 and the ventilation holes 11 to enhance the micro-circulation of the air in the room. As a result, there is no stuffy feeling for the user in the room, which can solve a problem of a lack of comfort due to a single-dimensional air blowing. Therefore, the multi-dimensional air blowing including a forward air blowing, a rearward air blowing, and a downward air blowing is realized, which can enhance the comfort experience of the user.

[0028] For example, as illustrated in FIG. 5 and FIG. 6, in a case where the first air conditioner 1000 is the air conditioner wall-mounted indoor unit, when the first air deflection component 100 is switched into the forward air blowing state (e.g., as illustrated in FIG. 5), the airflow flowing out of the first air outlet 200 is deflected forwards by the front air deflection bar 20, which can prevent the cold air from being blown directly on the user. Also, the airflow can partially flow to outside of the deflector 1 through the airflow channel 12 and the ventilation holes 11, which can accelerate the disturbance of the air in the entire room and enhance the micro-circulation of the air in the room. As a result, there is no stuffy feeling for the user in the room. In addition, through the multi-dimensional air blowing, the temperature can be rapidly adjusted to improve the temperature uniformity and enhance the comfort experience of the user.

[0029] When the first air deflection component 100 is switched into the rearward air blowing state (e.g., as illustrated in FIG. 6), the airflow flowing out of the first air outlet 200 is deflected rearwards by the rear air deflection bar 20, which can solve the problem that the hot air cannot reach the user's feet directly. Also, the airflow can partially flow to outside of the deflector 1 through the airflow channel 12 and the ventilation holes 11, which can accelerate the disturbance of the air in the entire room and enhance the micro-circulation of the air in the room. As a result, there is no stuffy feeling for the user in the room. In addition, through the multi-dimensional air blowing, the temperature can be rapidly adjusted to improve the temperature uniformity and enhance the comfort experience of the user.

[0030] In addition, with reference to FIG. 7, when the first air conditioner 1000 is the air conditioner wall-mounted indoor unit, the first air deflection component 100 may also have a forward-rearward air blowing state. In this state, the airflow flowing out of the first air outlet 200 is divided into three streams. One stream of the airflow is deflected forwards by the front air deflection bar 20, one stream of the airflow is deflected rearwards by the rear air deflection bar 20, and one stream of the airflow flows to outside of the deflector 1 through the airflow channel 12 and the ventilation holes 11. Thus, it is possible to accelerate the disturbance of the air in the entire room and enhance the micro-circulation of the air in the room. As a result, there is no stuffy feeling for the user in the room. In addition, through the multi-dimensional air blowing, the temperature can be rapidly adjusted to improve the temperature uniformity and enhance the comfort experience of the user.

[0031] In addition, with reference to FIG. 8, when the first air conditioner 1000 is the air conditioner wall-mounted indoor unit, the first air deflection component 100 may also have a closed state. In this state, the first air outlet 200 is closed by the first air deflection component 100. When the first air conditioner 1000 is in an OFF state, no airflow will flow out of the first air outlet 200. When the air conditioner is in an ON state, the airflow flowing out of the first air outlet 200 may flow to outside of the deflector 1 through the airflow channel 12 and the ventilation holes 11. When the ventilation holes 11 are micro-holes, a soft (or breezeless) air blowing can be achieved.

[0032] In some embodiments of the present disclosure, as illustrated in FIG. 3 and FIG. 4, the airflow channel 12 is formed between the two air deflection bars 20. The airflow channel 12 extends in the length direction F1 of the deflector 1. The airflow channel 12 is opened at both ends in an extending direction thereof to form first side air outlets 13. For example, the length direction F1 of the deflector 1 illustrated in FIG. 3 is a left-right direction. The airflow channel 12 extends in the left-right direction. A left end of the airflow channel 12 is opened to form a first side air outlet 13 at a left side, and a right end of the airflow channel 12 is opened to form a first side air outlet 13 at a right side. In this way, the airflow flowing from the inner side to the outer side of the deflector 1 can partially enter the airflow channel 12, and then flow out of the first air deflection component 100 from the first side air outlet 13 at the left side (e.g., in a direction indicated by line S4 illustrated in FIG. 3) and from the first side air outlet 13 at the right side (e.g., in a direction indicated by line S5 illustrated in FIG. 3). Thus, the first air deflection component 100 has two air blowing dimensions in which each of the two air deflection bars 20 can deflect the air in the direction facing away from the other one of the two air deflection bars 20. Further, the first air deflection component 100 also has two air blowing dimensions in which the air is blown through the first side air outlets 13 at two ends of the airflow channel 12. Thus, the first air deflection component 100 totally has at least four air output dimensions, i.e., four air blowing directions S1, S2, S4, and S5 as illustrated in FIG. 3 and FIG. 4.

[0033] Thus, in addition to using each of the two air deflection bars 20 to deflect the air in the direction facing away from the other one of the two air deflection bars 20, it is also possible to accelerate disturbance of the air in the entire room through the air-blowing from the airflow channel 12 and the first side air outlets 13 to enhance micro-circulation of the air in the room. As a result, there is no stuffy feeling for the user in the room. In addition, through the multi-dimensional air blowing, the temperature can be rapidly adjusted to improve the temperature uniformity and enhance comfort experience of the user. Moreover, when the first air deflection component 100 according to the embodiments of the present disclosure is applied in the air conditioner wall-mounted indoor unit, it is possible to solve the problems that the cold air is blown directly on the user and the hot air cannot reach the user's feet. Meanwhile, the disturbance of the air in the entire room can be accelerated through the air-blowing from the airflow channel 12 and the first side air outlets 13 to enhance the micro-circulation of the air in the room. As a result, there is no stuffy feeling for the user in the room, which can solve a problem of a lack of comfort due to a single-dimensional air blowing. Therefore, the multi-dimensional air blowing including a forward air blowing, a rearward air blowing, a leftward air blowing, and a rightward air blowing is realized, which can enhance the comfort experience of the user.

[0034] For example, as illustrated in FIG. 5 and FIG. 6, in a case where the first air conditioner 1000 is the air conditioner wall-mounted indoor unit, when the first air deflection component 100 is switched into the forward air blowing state (e.g., as illustrated in FIG. 5), the airflow flowing out of the first air outlet 200 is deflected forwards by the front air deflection bar 20, which can prevent the cold air from being blown directly on the user. Also, the airflow can partially flow to both sides of the deflector 1 in the length direction of the deflector 1 (i.e., the left side and the right side as shown in FIG. 9) through the airflow channel 12 and the first side air outlets 13, which can accelerate the disturbance of the air in the entire room and enhance the micro-circulation of the air in the room. As a result, there is no stuffy feeling for the user in the room. In addition, through the multi-dimensional air blowing, the temperature can be rapidly adjusted to improve the temperature uniformity and enhance the comfort experience of the user.

[0035] When the first air deflection component 100 is switched into the rearward air blowing state (e.g., as illustrated in FIG. 6), the airflow flowing out of the first air outlet 200 is deflected rearwards by the rear air deflection bar 20, which can solve the problem that the hot air cannot reach the user's feet directly. Also, the airflow can partially flow to the both side of the deflector 1 in the length direction of the deflector 1 through the airflow channel 12 and the first side air outlets 13 (i.e., the left side and the right side as shown in FIG. 9), which can accelerate the disturbance of the air in the entire room and enhance the micro-circulation of the air in the room. As a result, there is no stuffy feeling for the user in the room. In addition, through the multi-dimensional air blowing, the temperature can be rapidly adjusted to improve the temperature uniformity and enhance the comfort experience of the user.

[0036] In addition, with reference to FIG. 7, when the first air conditioner 1000 is the air conditioner wall-mounted indoor unit, the first air deflection component 100 may also have a forward-rearward air blowing state. In this state, the airflow flowing out of the first air outlet 200 is divided into four streams. One stream of the airflow is deflected forwards by the front air deflection bar 20, one stream of the airflow is deflected rearwards by the rear air deflection bar 20, and other two streams of the airflow flow to outside of both ends of the deflector 1 in the length direction of the deflector 1 (i.e., the left side and the right side as shown in FIG. 9) through the airflow channel 12 and the first side air outlets 13. Thus, it is possible to accelerate the disturbance of the air in the entire room and enhance the micro-circulation of the air in the room. As a result, there is no stuffy feeling for the user in the room. In addition, through the multi-dimensional air blowing, the temperature can be rapidly adjusted to improve the temperature uniformity and enhance the comfort experience of the user.

[0037] In some embodiments of the present disclosure, as illustrated in FIG. 3 and FIG. 4, the airflow channel 12 is formed between the two air deflection bars 20. The airflow channel 12 extends in the length direction F1 of the deflector 1. The airflow channel 12 is opened at both ends in an extending direction thereof to form first side air outlets 13. The plurality of ventilation holes 11 penetrating the inner side surface 201 and the outer side surface of the deflector 1 is formed at the deflector 1. The plurality of ventilation holes 11 is in communication with the airflow channel 12. As a result, as described above, the first air deflection component 100 has two air blowing dimensions in which each of the two air deflection bars 20 can deflect the air in the direction facing away from the other one of the two air deflection bars 20. Further, the first air deflection component 100 also has one air blowing dimension in which the air is blown through the airflow channel 12 and the ventilation holes 11. Furthermore, the first air deflection component 100 also has two air blowing dimensions in which the air is blown through the first side air outlets 13 at two ends of the airflow channel 12. Thus, the first air deflection component 100 totally has at least five air output dimensions, i.e., five air blowing directions S1, S2, S3, S4, and S5 as illustrated in FIG. 3 and FIG. 4.

[0038] Thus, in addition to using each of the two air deflection bars 20 to deflect the air in the direction facing away from the other one of the two air deflection bars 20, it is also possible to accelerate disturbance of the air in the entire room through the air-blowing from the airflow channel 12, the ventilation holes 11, and the first side air outlets 13 to enhance micro-circulation of the air in the room. As a result, there is no stuffy feeling for the user in the room. In addition, through the multi-dimensional air blowing, the temperature can be rapidly adjusted to improve the temperature uniformity and enhance comfort experience of the user. Moreover, when the first air deflection component 100 according to the embodiments of the present disclosure is applied in the air conditioner wall-mounted indoor unit, it is possible to solve the problems that the cold air is blown directly on the user and the hot air cannot reach the user's feet. Meanwhile, the disturbance of the air in the entire room can be accelerated through the air-blowing from the airflow channel 12, the ventilation holes 11, and the first side air outlets 13 to enhance the micro-circulation of the air in the room. As a result, there is no stuffy feeling for the user in the room, which can solve a problem of a lack of comfort due to a single-dimensional air blowing. Therefore, the multi-dimensional air blowing including a forward air blowing, a rearward air blowing, a leftward air blowing, a rightward air blowing, and a upward air blowing is realized, which can enhance the comfort experience of the user.

[0039] For example, as illustrated in FIG. 5 and FIG. 6, when the first air conditioner 1000 is the air conditioner wall-mounted indoor unit, and when the first air deflection component 100 is switched into the forward air blowing state (e.g., as illustrated in FIG. 5), the airflow flowing out of the first air outlet 200 is deflected forwards by the front air deflection bar 20, which can prevent the cold air from being blown directly on the user. Also, a part of the airflow can flow to outside of the deflector 1 through the airflow channel 12 and the ventilation holes 11, and another part of the airflow can flow to both sides of the deflector 1 in the length direction of the deflector 1 (i.e., the left side and the right side as shown in FIG. 9) through the airflow channel 12 and the first side air outlets 13, which can accelerate the disturbance of the air in the entire room and enhance the micro-circulation of the air in the room. As a result, there is no stuffy feeling for the user in the room. In addition, through the multi-dimensional air blowing, the temperature can be rapidly adjusted to improve the temperature uniformity and enhance the comfort experience of the user.

[0040] When the first air deflection component 100 is switched into the rearward air blowing state (e.g., as illustrated in FIG. 6), the airflow flowing out of the first air outlet 200 is deflected rearwards by the rear air deflection bar 20, which can solve the problem that the hot air cannot reach the user's feet directly. Also, a part of the airflow can flow to outside of the deflector 1 through the airflow channel 12 and the ventilation holes 11, and another part of the airflow can flow to both sides of the deflector 1 in the length direction of the deflector 1 (i.e., the left side and the right side as shown in FIG. 9) through the airflow channel 12 and the first side air outlets 13, which can accelerate the disturbance of the air in the entire room and enhance the micro-circulation of the air in the room. As a result, there is no stuffy feeling for the user in the room. In addition, through the multi-dimensional air blowing, the temperature can be rapidly adjusted to improve the temperature uniformity and enhance the comfort experience of the user.

[0041] In addition, with reference to FIG. 7, when the first air conditioner 1000 is the air conditioner wall-mounted indoor unit, the first air deflection component 100 may also have a forward-rearward air blowing state. In this state, the airflow flowing out of the first air outlet 200 is divided into five streams. One stream of the airflow is deflected forwards by the front air deflection bar 20, one stream of the airflow is deflected rearwards by the rear air deflection bar 20, one stream of the airflow flows outside of the deflector 1 through the airflow channel 12 and the ventilation holes 11, and other two streams of the airflow flow to the outer sides of the deflector 1 in the length direction of the deflector 1 (i.e., the left side and the right side as shown in FIG. 9) through the first side air outlets 13 at both sides from the airflow channel 12. Thus, it is possible to accelerate the disturbance of the air in the entire room and enhance the micro-circulation of the air in the room. As a result, there is no stuffy feeling for the user in the room. In addition, through the multi-dimensional air blowing, the temperature can be rapidly adjusted to improve the temperature uniformity and enhance the comfort experience of the user.

[0042] In addition, with reference to FIG. 8, when the first air conditioner 1000 is the air conditioner wall-mounted indoor unit, the first air deflection component 100 may also have a closed state. In this state, the first air outlet 200 is closed by the first air deflection component 100. When the first air conditioner 1000 is in an OFF state, no airflow will flow out of the first air outlet 200. When the air conditioner is in an ON state, the airflow flowing out of the first air outlet 200 may flow to outside of the deflector 1 through the airflow channel 12 and the ventilation holes 11. When the ventilation holes 11 are micro-holes, a soft (or breezeless) air blowing can be achieved.

[0043] With the improvement of people's living standards, air conditioners have gradually entered thousands of households. However, the air conditioner has a single air blowing direction. An air blowing angle can only be slightly adjusted in a current air blowing direction even when a deflector and louvers are provided, resulting in a non-uniform room temperature and a slow temperature regulation. In addition, an air conditioner in the related art trends to generate concentrated cool air during cooling and concentrated hot air during heating, and thus temperature diffusion is not uniform, which easily leads to a slow temperature drop and a slow temperature rise in the room, and also brings a problem of non-uniform temperatures. Moreover, air in the room makes a user feel stuffy, resulting in poor comfort of user experience. However, with the first air deflection component 100 according to the embodiments of the present disclosure, in addition to using each of the two air deflection bars 20 to deflect the air in the direction facing away from the other one of the two air deflection bars, it is also possible to realize the multi-dimensional air blowing through the airflow channel 12 along with the air-blowing from the first side air outlets 13 and/or the ventilation holes 11, which can accelerate the disturbance of the air in the entire room, and enhance the micro-circulation of the air in the room. As a result, there is no stuffy feeling for the user in the room. In addition, the temperature can be rapidly adjusted to improve the temperature uniformity and enhance the comfort experience of the user.

[0044] In addition, the user exposed to cold air for a long time in an air-conditioned environment may suffer from various diseases such as an air-conditioning disease. Although some air conditioners in the related art can prevent the cold air from being blown directly on the user, a cooling quantity cannot be maintained in a mode of preventing the cold air from being blown directly on the user. Thus, the room temperature rises rapidly, leading to low comfort. However, with the first air deflection component 100 according to the embodiments of the present disclosure, the cold air can be prevented from been blown directly on the user while the disturbance of the air in the entire room can be accelerated, which allows the cooling quantity to be maintained. Thus, the room temperature remains low and uniform, leading to high comfort. Moreover, an air flow speed in the room can be controlled, which can well solve the problem of preventing the cold air from being blown on the user in a simple and reliable manner without making the user feel stuffy in the room.

[0045] It should be understood that, when the first air conditioner 1000 is the air conditioner wall-mounted indoor unit, as illustrated in FIG. 5, the "forward air blowing state" described herein refers to that: the first air deflection component 100 moves towards a rear side of the first air outlet 200, a front air outlet opening is formed between a front end of the first air deflection component 100 and a front side edge of the first air outlet 200, no rear air outlet opening is formed between a rear end of the first air deflection component 100 and a rear side edge of the first air outlet 200, and the airflow can be deflected forwards by the front air deflection bar 20, rather than being deflected rearwards by the rear air deflection bar 20.

[0046] It should be understood that, when the first air conditioner 1000 is the air conditioner wall-mounted indoor unit, as illustrated in FIG. 6, the "rearward air blowing state" described herein refers to that: the first air deflection component 100 moves towards a front side of the first air outlet 200, no front air outlet opening is formed between the front end of the first air deflection component 100 and the front side edge of the first air outlet 200, the rear air outlet opening is formed between the rear end of the first air deflection component 100 and the rear side edge of the first air outlet 200, and the airflow can be deflected rearwards by the rear air deflection bar 20, rather than being deflected forwards by the front air deflection bar 20.

[0047] It should be understood that, when the first air conditioner 1000 is the air conditioner wall-mounted indoor unit, as illustrated in FIG. 7, the "forward-rearward air blowing state" described herein refers to that: the front air outlet opening is formed between the front end of the first air deflection component 100 and the front side edge of the first air outlet 200, the rear air outlet opening is formed between the rear end of the first air deflection component 100 and the rear side edge of the first air outlet 200, and the airflow can be deflected rearwards by the rear air deflection bar 20 and forwards by the front air deflection bar 20.

[0048] In the "forward-rearward air blowing state", an opening distance X1 of the front air outlet opening and an opening distance X2 of the rear air outlet opening are not limited. For example, the opening distance X1 and the opening distance X2 may both range from 0 mm to 200 mm. In some embodiments, the opening distance X1 and the opening distance X2 may both range from 28 mm to 55 mm. thus, air blowing performance can be ensured.

[0049] It should be understood that, when the first air conditioner 1000 is the air conditioner wall-mounted indoor unit, as illustrated in FIG. 8, the "closed state" described herein means that: no front air outlet opening is formed between the front end of the first air deflection component 100 and the front side edge of the first air outlet 200, no rear air outlet opening is formed between the rear end of the first air deflection component 100 and the rear side edge of the first air outlet 200, and the airflow cannot be deflected rearwards by the rear air deflection bar 20 and cannot be deflected forwards by the front air deflection bar 20.

[0050] In some examples, in the case where the airflow channel 12 extends in the length direction F1 of the deflector 1 and the both ends of the airflow channel 12 in the extending direction are opened to form the first side air outlets 13, the first side air outlets 13 can be hidden in the body 700 of the first air conditioner 1000 in the closed state. Thus, in the OFF state of the first air conditioner 1000, dirt and the like can be prevented from entering the first air conditioner 1000 from the first side air outlets 13. As a result, it is possible to improve reliability and sealing of the first air conditioner 1000.

[0051] It should be noted that, a shape of the deflector 1 is not limited and may, for example, be designed to match an appearance of the first air conditioner 1000. For example, in some examples, as illustrated in FIG. 5 to FIG. 8, the outer side surface of the deflector 1 may be formed into a flat surface to facilitate manufacturing. In addition, in a case where the first air deflection component 100 is applied at the first air outlet 200 on the front side of the bottom of the air conditioner wall-mounted indoor unit, it is possible to ensure that the air conditioner wall-mounted indoor unit has a flat bottom surface when the first air deflection component 100 is in the closed state. Thus, space can be saved.

[0052] For example, in some examples, as illustrated in FIG. 10 and FIG. 11, the outer side surface of the deflector 1 may be formed into a curved surface protruding outwardly. That is, a middle portion of an outer surface of the deflector 1 protrudes towards the outer side of the deflector 1. Thus, an arrangement range of the ventilation holes 11 can be increased to increase a volume and range of the air blowing through the ventilation holes 11. As a result, disturbance of the air in the entire room can be enhanced. In addition, in a case where the first air deflection component 100 is applied at the first air outlets 200 on the front side of the bottom and the lower part of the front side the air conditioner wall-mounted indoor unit, it is possible to ensure that a front lower corner of the air conditioner wall-mounted unit has a smooth appearance surface when the first air deflection component 100 is in the closed state. Thus, space can be saved, and problems such as a collision with the user can be avoided.

[0053] It should be noted that, a height of each of the air deflection bars 20 is not limited. For example, as illustrated in FIG. 4, a relationship between a height H of each air deflection bar 20 and a width W of the deflector 1 in a thickness direction F3 of the deflector 1 may satisfy: $W/8 \leq H \leq W/3$, e.g., $H=W/3$, $H=W/4$, $H=W/5$, $H=W/6$, $H=W/7$, $H=W/8$, etc. Thus, an air deflecting effect can be ensured.

[0054] In some embodiments of the present disclosure, as illustrated in FIG. 12, a side surface (i.e., the inner side surface 201) of at least one air deflection bar 20 facing away from the deflector 1 includes an extension portion 23 (e.g., a part circled by a dashed circle in FIG. 12) extending smoothly towards a mid-perpendicular plane S of the deflector 1. The extension portion 23 is located at a side of the airflow channel 12 distal from the deflector 1. It should be noted that, the "mid-perpendicular plane S of the deflector 1" refers to a plane passing through a center of the deflector 1, extending in the length direction F1 of the deflector 1, and being perpendicular to the deflector 1. Thus, through extending an air inlet end 202 of the air deflection bar 20 towards the mid-perpendicular plane S of the deflector 1 (i.e., in a direction from an air outlet end 203 to the air inlet end 202 of the air deflection bar 20), an air deflection area of the air deflection bar 20 can be enlarged to allow for a smooth air blowing.

[0055] In some embodiments of the present disclosure, at least one flow guide groove 25 is formed at one or more air deflection bars 20. Each of the at least one flow guide groove 25 extends from the air inlet end 202 to the air outlet end 203 of a corresponding one of the at least one air deflection bar 20. It should be noted that, the flow guide groove 25 may be provided at positions that are not limited thereto. For example, the flow guide groove 25 may be formed at an interior and/or an exterior of the air deflection bar 20 (e.g., an inner flow guide groove 252 and/or an outer flow guide groove 251 described later). Thus, with a flow diversion of the flow guide groove 2, the air can be disturbed more efficiently to increase an efficiency in temperature regulation and improve the temperature uniformity.

[0056] In some embodiments of the present disclosure, when the flow guide grooves 25 (e.g., the inner flow guide groove 252 and/or the outer flow guide groove 251 described below) are formed at one air deflection bar 20, the flow guide grooves 25 may include a plurality of flow guide grooves 25 arranged at intervals in the length direction F1 of the air deflection bar 20. As a result, the plurality of flow guide grooves 25 can provide more effective guiding for the airflow, which can allow the air to be disturbed more efficiently to increase the efficiency in the temperature regulation and improve the temperature uniformity.

[0057] In some embodiments of the present disclosure, when one or more flow guide grooves 25 (e.g., the inner flow guide groove 252 and/or the outer flow guide groove 251 described below) are formed at one of the two air deflection bars 20, an extending direction of at least one of the one or more flow guide grooves 25 is perpendicular to the length direction F1 of the air deflection bar 25, which therefore facilitates manufacturing. Or in one embodiment, an extending direction of at least one of the one or more flow guide grooves 25 is inclined to both the length direction F1 and a width direction F2 of the air deflection bar 20. That is, the extending direction of the at least one of the one or more flow guide grooves 25 intersects the length direction F1 of the air deflection bar 20 at an acute or obtuse angle. Thus, an air blowing angle can be adjusted to satisfy demands in different application scenarios. In addition, the air can be disturbed more efficiently to increase the efficiency in the temperature regulation and improve the temperature uniformity.

[0058] It should be noted that, a specific construction of the air deflection bar 20 is not limited and may be in various forms. Four embodiments of each air deflection bar 20 will be described below.

[0059] As illustrated in FIG. 13 to FIG. 15, a side surface (i.e., the inner side surface 201) of at least one of the two air deflection bars 20 facing away from the deflector 1 is a smooth surface. The smooth surface may be a smooth flat surface or a smooth curved surface, as long as no flow guide groove 25 is formed at the smooth surface. Thus, manufacturing can be facilitated, and a smooth flow of the airflow and a smooth air blowing can be realized.

[0060] As illustrated in FIG. 16 to FIG. 20, at least one flow guide groove 25 is formed at one or more of the two air deflection bars 20. Each of the at least one flow guide groove 25 extends from the air inlet end 202 to the air outlet end 203 of the corresponding one of the at least one air deflection bar 20. In this embodiment, the flow guide groove 25 includes the outer flow guide groove 251 formed at an exterior of the corresponding one of the at least one air deflection bar 20. The outer flow guide groove 251 is formed at the side surface (i.e., the inner side surface 201) of the corresponding one of the at least one air deflection bar 20 facing away from the deflector

1. It should be noted that, a portion of the inner side surface 201 of the air deflection bar 20 located between any two adjacent exterior flow guide grooves 251 is a spacing portion 26. Thus, a part of the airflow flowing along the inner side surface 201 of the air deflection bar 20 can flow out by guiding of the spacing portion 26, and another part of the airflow can flow out along the outer flow guide groove 251, allowing the air to be further disturbed to increase the efficiency in the temperature regulation and improve the temperature uniformity.

[0061] In some embodiments of the present disclosure, as illustrated in FIG. 20, a flow guide surface 2510 of the outer flow guide groove 251 (i.e., a bottom surface of the outer flow guide groove 251) is constructed as a curved surface recessed towards the deflector 1. Thus, when a blowing direction of the cold air is adjusted by the air deflection bar 20, the flow guide surface 2510 of the outer flow guide groove 251 can prevent the cold air from been directly blown on the user downwards, which can improve the comfort of the user.

[0062] It should be noted that, the outer flow guide groove 251 may extend in a direction perpendicular to the length direction F1 of the air deflection bar 20, or may extend in a direction that intersects the length direction F1 of the air deflection bar 20 at an acute or obtuse angle. In this way, it is possible to satisfy air blowing requirements in different directions. For example, in the example illustrated in FIG. 16, the first air deflection bar 21 includes two segments 207, i.e., a first segment 211 and a second segment 212 arranged sequentially in the length direction F1 of the deflector 1. In a direction from the air inlet end 202 to the air outlet end 203, each of the plurality of outer flow guide grooves 251 on the first segment 211 is inclined away from the second segment 212. In the direction from the air inlet end 202 to the air outlet end 203, each of the plurality of exterior flow guide grooves 251 on the second segment 212 is inclined away from the first segment 211. As a result, a two-direction air blowing can be realized on a same edge, which increases an air blowing range in the leftward-rightward direction. Thus, the air can be disturbed more efficiently to increase the efficiency in the temperature regulation and improve the temperature uniformity.

[0063] The present disclosure is not limited in this regard. When the air conditioner wall-mounted indoor unit is disposed at a corner of the room, it is also possible to allow an inclination direction of the outer flow guide groove 251 on the first segment 211 to be same as an inclination direction of the outer flow guide groove 251 on the second segment 212 to realize a single-direction air blowing on a same edge, which can increase an air blowing range in the leftward direction or an air blowing range in the rightward direction. Thus, the air can be disturbed more efficiently to increase the efficiency in the temperature regulation and improve the temperature uniformity.

[0064] In one embodiment, as illustrated in FIG. 21 to FIG. 26, at least one flow guide groove 25 is formed at one or more air deflection bars 20. Each of the at least one flow guide groove 25 extends from the air inlet end 202 to the air outlet end 203 of the corresponding one of the at least one air deflection bar 20. In this embodiment, the flow guide groove 25 includes the inner flow guide groove 252 formed at an interior of the corresponding one of the at least one air deflection bar 20. Each of an inlet 2521 and an outlet 2522 of the inner flow guide groove 252 penetrates a surface of the corresponding one of the at least one air deflection bar 20. That is, the inlet 2521 of the inner flow guide groove 252 penetrates the air inlet end 202 of the corresponding one of the at least one air deflection bar 20, and the outlet 2522 of the inner flow guide groove 252 penetrates the air outlet end 203 of the corresponding one of the at least one air deflection bar 20. Thus, the airflow can not only be deflected along the inner side surface 201 of the corresponding one of the at least one air deflection bar 20 to flow out, but also be deflected along the inner flow guide groove 252 to flow out. As a result, it is possible to allow the air to be further disturbed to increase the efficiency in the temperature regulation and improve the temperature uniformity.

[0065] It should be noted that, the inner flow guide groove 252 may extend in the direction perpendicular to the length direction F1 of the air deflection bar 20, or may extend in the direction that intersects the length direction F1 of the air deflection bar 20 at an acute or obtuse angle, to satisfy the air blowing requirements in different directions. For example, in some examples, the air deflection bar 20 may include two sections of equal lengths and arranged sequentially in the length direction F1 of the deflector 1. In addition, each of the plurality of interior flow guide grooves 252 on the left section is inclined leftwards in the direction from the air inlet end 202 to the air outlet end 203, and each of a plurality of interior flow guide grooves 252 on the right section is inclined rightwards in the direction from the air inlet end 202 to the air outlet end 203. As a result, the two-direction air blowing can be realized on the same edge, which increase the air blowing range in the leftward-rightward direction. Thus, the air can be disturbed more efficiently to increase the efficiency in the temperature regulation and improve the temperature uniformity.

[0066] The present disclosure is not limited in this regard. When the air conditioner wall-mounted indoor unit is disposed at the corner of the room, it is also possible to allow all the inner flow guide grooves 252 on the air deflection bar 20 to have same inclination direction to realize the single-direction air blowing on the same edge, which can increase the air blowing range in the leftward direction or the air blowing range in the rightward direction. Thus, the air can be disturbed more efficiently to increase the efficiency in the temperature regulation and improve the temperature uniformity.

[0067] In one embodiment, at least one flow guide groove 25 is formed at one or more air deflection bars 20. Each of the at least one flow guide groove 25 extends from the air inlet end 202 to the air outlet end 203 of the corresponding one of the at least one air deflection bar 20. In this embodiment, the flow guide groove 25 includes the outer flow guide groove 251 formed at the exterior of the corresponding one of the at least one air deflection bar 20. The outer flow guide groove 251 is formed at the side surface (i.e., the inner side surface 201) of the corresponding one of the at least one air deflection bar 20 facing away from the deflector 1. In addition, the flow guide groove 25 further includes the inner flow guide groove 252 formed at the interior of the corresponding one of the at least one air deflection bar 20. Each of the inlet 2521 and the outlet 2522 of the inner flow guide groove 252 penetrates a surface of the corresponding one of the at least one air deflection bar 20. That is, the inlet 2521 of the inner flow guide groove 252 penetrates the air inlet end 202 of the corresponding one of the at least one air deflection bar 20, and the outlet 2522 of the inner flow guide groove 252 penetrates the air outlet end 203 of the corresponding one of the at least one air deflection bar 20. Thus, the airflow can not only be deflected along the inner side surface 201 and the outer flow guide groove 251 of the corresponding one of the at least one air deflection bar 20 to flow out, but also be deflected along the inner flow guide groove 252 to flow out. Thus, the air can be further disturbed to increase the efficiency in the temperature regulation and improve the temperature uniformity.

[0068] In some embodiments of the present disclosure, at least one flow guide groove 25 is formed at one or more air deflection bars 20. Each of the at least one flow guide groove 25 extends from the air inlet end 202 to the air outlet end 203 of the corresponding one of the at least one air deflection bar 20 (including, but not limited to, the above-mentioned embodiments). Thus, the air can be disturbed more efficiently to increase the efficiency in the temperature regulation and improve the temperature uniformity.

[0069] In some embodiments of the present disclosure, the side surface (i.e., the inner side surface 201) of at least one air deflection bar 20 facing away from the deflector 1 is at least partially constructed as a curved surface recessed towards the deflector 1. Thus, when the air blowing direction of the cold air is adjusted by the air deflection bar 20, it is possible to prevent the cold air from been directly blown on the user downwards, which can improve the comfort of the user. For example, the inner side surface 201 of the air deflection bar 20 in the above-mentioned embodiments may be entirely constructed as a curved surface recessed towards the deflector 1. For example, a flow guide surface of the flow guide groove 25 in some embodiments as described above may be constructed as a curved surface recessed towards the deflector 1.

[0070] In some embodiments of the present disclosure, a cavity 24 is defied in at least one air deflection bar 20. Thus, a weight and costs can be lowered. In addition, a problem of a formation of condensation on the outer side surface of the deflector 1 can be eased. For example, the cavity 24 may be formed in the air deflection bar 20 in some embodiments as described above. For example, the inner flow guide groove 252 in some embodiments as described above may serve as the cavity 24.

[0071] It should be noted that, a specific manner for connecting the air deflection bars 20 to the deflector 1 is not limited. For example, in some embodiments, at least one air deflection bar 20 and the deflector 1 are integrally formed. Thus, manufacturing can be facilitated, and reliability of a connection between the air deflection bar 20 and the deflector 1 can be enhanced. It should be noted that, the at least one air deflection bar 20 and the deflector 1 may be formed as an integral molded piece, or an over-injection molded piece, or the like.

[0072] In other embodiments, at least one air deflection bar 20 and the deflector 1 are separately formed and assembled with each other. Thus, the air deflection bar 20 and the deflector 1 can be separately manufactured into structures that meet respective air deflecting requirements. Thus, manufacturing is easy and the requirements can be satisfied easily and effectively. It should be noted that, a specific assembling manner is not limited. The assembled connection may be a non-detachable assembled connection, such as an adhesive connection, a riveted connection, etc., or the assembled connection may be a detachable assembled connection, such as a threaded connection, a snap connection, a magnetic suction connection, etc., which allows the air deflection bar 20 to be disassembled as desired for cleaning, replacement, maintenance, etc.

[0073] For example, in some examples, at least one air deflection bar 20 is detachably connected to the deflector 1 by means of a snap assembly 3 and/or a magnetic suction assembly, i.e., by means of at least one of the snap assembly 3 or the magnetic suction assembly. Thus, a screwing operation can be omitted to facilitate disassembly. For example, in examples illustrated in FIG. 27 to FIG. 30, a plurality of snap assemblies 3 is provided and arranged at intervals in the length direction F1 of the deflector 1. Therefore, reliability of the snap connection can be enhanced.

[0074] In some examples, as illustrated in FIG. 27 to FIG. 31, the snap assembly 3 is disposed on a side of a corresponding air deflection bar 20 facing towards the airflow channel 12, and a side of the air deflection bar 20 facing away from the airflow channel 12 (i.e., the air outlet end 203 of the air deflection bar 20) is engaged with the deflector 1 by means of a limiting assembly 4 in a position-limited manner. Thus, interference with the flow of the airflow from the snap assembly 3 and the limiting assembly 4 can be reduced, and reliability and ease of assembly of the air deflection bar 20 can be ensured in a simple and effective manner.

[0075] In some examples, as illustrated in FIG. 28 and FIG. 30, a recess 27 is formed at a side surface of the air deflection bar 20 facing towards the airflow channel

12. The snap assembly 3 includes a snapping block 31 disposed in the recess 27. The snap assembly 3 further includes a snapping hook 32 disposed on the deflector 1. The snapping hook 32 is inserted into the recess 27 and is snap-engaged with the snapping block 31. Thus, by arranging the snapping hook 32 on the deflector 1, manufacturing can be facilitated, and an assembly between the snapping hook 32 and the snapping block 31 is easy and reliable. By forming the recess 27 to accommodate the snapping block 31, an occupation of a space of the airflow channel 12 due to an engagement between the snapping hook 32 and the snapping block 31 can be avoided to reduce interference of the snap assembly 3 with the flow of the airflow.

[0076] In some examples, as illustrated in FIG. 30 and FIG. 31, the limiting assembly 4 includes a limiting slot 41 and a limiting block 42. The limiting slot 41 is formed at a side edge of the deflector 1 in a width direction of the deflector 1 (i.e., a side edge extending in the length direction F1 of the deflector 1 and located on the width direction F2 of the deflector 1). The limiting block 42 is disposed on the side of the air deflection bar 20 facing away from the airflow channel 12 (i.e., the air outlet end 203 of the air deflection bar 20). The limiting block 42 is inserted and engaged into the limiting slot 41. Thus, both the limiting slot 41 and the limiting block 42 are simple to be manufactured and easy to be assembled with reliable position limiting performance.

[0077] In some examples of the present disclosure, as illustrated in FIG. 30 and FIG. 31, the air deflection bar 20 may include a first wall surface 204 and a second wall surface 205. Both the first wall surface 204 and the second wall surface 205 extend in the length direction F1 of the deflector 1. The first wall surface 204 serves as a side wall of the airflow channel 12. The recess 27 and the snapping block 31 may be disposed on the first wall surface 204. An end of the second wall surface 205 is connected to an end of the first wall surface 204 facing away from the deflector 1 and severs as the air inlet end 202 of the air deflection bar 20. Another end of the second wall surface 205 extends towards the deflector 1 and serves as the air outlet end 203 of the air deflection bar 20. An outer surface of the second wall surface 205 is the inner side surface 201 of the air deflection bar 20. The limiting block 42 may be disposed on an end of the second wall surface 205 close to the deflector 1.

[0078] Thus, the air deflection bar 20 has a simple hollowed structure with light weight, which can alleviate the problem of the formation of the condensation on the deflector 1. In addition, during an assembly with the deflector 1, since the air deflection bar 20 has no third wall surface 206 attached to the inner side surface of the deflector 1, there is no large surface-to-surface contact, which on the one hand can reduce manufacturing accuracy and ensure smooth assembly, and on the other hand can prevent the deflector 1 to be deformed due to the air deflection bar 20. However, the present disclosure is not limited in this regard. In some other examples of the present disclosure, the air deflection bar 20 may also have the third wall surface 206 to reinforce structural strength of the air deflection bar 20.

[0079] In some embodiments of the present disclosure, as illustrated in FIG. 16, the two air deflection bars 20 may be arranged symmetrically with respect to the mid-perpendicular plane S of the deflector 1. Thus, the manufacturing is facilitated. In addition, when each of the two air deflection bars 20 is in a detachable assembled connection with the deflector 1, the manufacturing and assembly can be facilitated. That is, it is unnecessary to manufacture two types of air deflection bars 20 during the manufacturing. Also, it is unnecessary to make a selection of the air deflection bars 20 during the assembly. The two air deflection bars 20 are interchangeable.

[0080] In some examples of the present disclosure, as illustrated in FIG. 16, at least one air deflection bar 20 includes a plurality of segments 207 arranged sequentially in the length direction F1 of the deflector 1. Each of the plurality of segments 207 is detachably connected to the deflector 1. Mounting positions of the plurality of segments 207 are interchangeable. Thus, when the plurality of segments 207 provides the same flow guide function, they can be easily assembled; and when the plurality of segments 207 provides different flow guide functions, different combined air deflecting effects can be provided by interwall-mounted positional relationships between of the plurality of segments 207.

[0081] In some examples, each of the two air deflection bars 20 includes a plurality of segments 207 arranged sequentially in the length direction F1 of the deflector 1. Each of the plurality of segments 207 is detachably connected to the deflector 1. Mounting positions of all the segments 207 are interchangeable. Thus, mounting is facilitated, and in some cases, different air deflecting effects can be provided through different combinations of the segments 207.

[0082] For example, in the example illustrated in FIG. 16, each air deflection bar 20 is divided into two segments 207 at the middle of the air deflection bar 20. Each of the two segments 207 is detachably connected to the deflector 1. Positions of any two of the four segments 207 are interchangeable, enabling any combination of the four segments 207. Thus, the mounting is facilitated. In addition, different air deflecting effects can be provided through combinations of the four segments 207 when they have different structures and air deflecting effects.

[0083] Embodiments of the first air deflection component 100 according to the embodiments of the present disclosure being applied in the first air conditioner 1000 will be described below.

[0084] As illustrated in FIG. 32 to FIG. 33, the first air conditioner 1000 may include a body 700, the first air deflection component 100, and a drive mechanism 800. A first air passage 601 is formed in the body 700. The body 700 has an air inlet 300 and a first air outlet 200 that are in communication with the first air passage 601. The first air deflection component 100 is disposed at the first air outlet 200. The drive mechanism 800 is connected between the first air deflection component 100 and the body 700, and is configured to drive the first air deflection component 100 to be movable relative to the body 700. Thus, with the first air conditioner 1000 according to the embodiments of the present disclosure, by providing the above-mentioned first air deflection component 100, and driving, by means of the drive mechanism 800, the first air deflection component 100 to move, the multi-dimensional air blowing and switching can be realized to accelerate the disturbance of the air in the entire room and enhance the micro-circulation of the air in the room. As a result, there is no stuffy feeling for the user in the room. In addition, the temperature can be adjusted rapidly to improve the temperature uniformity and enhance the comfort experience of the user. For example, in some examples, with reference to FIG. 5, the body 700 may include a heat exchange member 400, a ventilation member 500, and a first air passage member 600. The heat exchange member 400 may include a heat exchanger, electric auxiliary heater, etc. The ventilation member 500 may include a fan, a motor, etc. The first air passage 601 may be formed at first air passage member 600.

[0085] In some embodiments of the present disclosure, as illustrated in FIG. 27 and FIG. 28, two mounting bases 5 are disposed on the inner side surface of the deflector 1. The two mounting bases 5 are disposed on both sides of the air deflection bar assembly 2 in the length of the air deflection bar assembly 2, respectively, i.e., on both sides of the deflector 1 in the length direction F1, respectively. The drive mechanism 800 is adapted to be connected to the mounting bases 5 to mount the first air deflection component 100 to the body 700. Thus, it is possible to ensure that the drive mechanism 800 is located on two sides of the air deflection bar assembly 2. As a result, it is possible to avoid interference with the airflow and ensure the air blowing effect.

[0086] In some embodiments of the present disclosure, as illustrated in FIG. 32 and FIG. 33, the first air conditioner 1000 is the air conditioner wall-mounted indoor unit. The first air outlet 200 is formed at a front side of a bottom of the body 700 and/or a lower part of a front side of the body 700. The first air deflection component 100 is driven by the drive mechanism 800 to be movable and/or rotatable. Thus, the first air deflection component 100 can be simply and effectively driven to be switched among different states. It should be noted that, the expression "movable" may include moving reciprocally along a straight and/or curved trajectory. Thus, the first air deflection component 100 can be driven to be switched into at least one of the closed state, the forward air blowing state, the rearward air blowing state, and the forward-rearward air blowing state as described above.

[0087] In some embodiments, when the drive mechanism 800 is capable of driving the first air deflection component 100 to move, a movement direction of the first air deflection component 100 may be determined based on a position where the first air outlet 200 is located.

[0088] For example, as illustrated in FIG. 5 to FIG. 8, when the first air outlet 200 is formed at the front side of the bottom of the body 700, the movement direction of the first air deflection component 100 may be in a downward direction along a straight line. When the first air deflection component 100 is driven by the drive mechanism 800 to move downwards into a subsiding position, the first air outlet 200 may be exposed, and the drive mechanism 800 can drive the first air deflection component 100 to rotate at the subsiding position. As a result, the first air deflection component 100 can be switched among the forward air blowing state (e.g., illustrated in FIG. 5), the rearward air blowing state (e.g., illustrated in FIG. 6), and the forward-rearward air blowing state (e.g., illustrated in FIG. 7). When the first air deflection component 100 is driven by the drive mechanism 800 to move upwards to a lifted position, the first air deflection component 100 is positioned in the closed state (e.g., illustrated in FIG. 8).

[0089] For example, as illustrated in FIG. 10 and FIG. 11, when the first air outlet 200 is formed at the front side of the bottom side and the lower part of the front side of the body 700, the movement direction of the first air deflection component 100 may be an inclined direction along a straight line or a curve. When the first air deflection component 100 is driven by the drive mechanism 800 to move diagonally downwards into a diagonally pushed-out position, the first air outlet 200 can be exposed, and the drive mechanism 800 can drive the first air deflection component 100 to rotate at the diagonally pushed-out position. As a result, the first air deflection component 100 can be switched among the forward air blowing state (e.g., illustrated in FIG. 11), the rearward air blowing state (not illustrated in the figure), and the forward-rearward air blowing state (e.g., illustrated in FIG. 10). When the first air deflection component 100 is driven by the drive mechanism 800 to move diagonally upwards to a diagonally pulled-back position, the first air deflection component 100 may be positioned in the closed state (not illustrated in the figure).

[0090] It should be noted that, a construction of the drive mechanism 800 is not limited, and may include, for example, a gear, a rack, and a link, to achieve movements and rotations, which is not limited herein. In the forward-rearward air blowing state, the airflow may be deflected forwards and rearwards from the air deflection bars 20 of the first air deflection component 100, and be deflected from the ventilation holes 11 and/or the first side air outlets 13, which can ease the problem that the cold or hot air is blown directly on the body of the user. In the rearward air blowing state, the airflow may be deflected rearwards from the first air deflection component 100 to deflect the airflow downwards, which ensures a feet warming effect. In the forward air blowing state, the airflow may be deflected forwards from the first air deflection component 100, which can ease the problem that the cold air is blown on the user. Therefore, it is easy to avoid upward-to-downward direct blowing of the airflow and provide an effect of a multi-dimensional air blowing, which satisfies a demand of the user for air avoidance in different areas and enhance experience comfort of the user. For example, in a test, in the forward-rearward air blowing state, temperatures of a location in the room having a maximum air volume were evenly stratified, with a difference between highest and lowest temperatures not exceeding 5°, and a difference in temperatures at adjacent levels not exceeding 0.5°. This test result demonstrates an advantage of the first air deflection component 100 of the embodiments of the present disclosure in rapidly homogenizing room temperatures.

[0091] A second air deflection component 1a for a second air conditioner 100a according to embodiments of the present disclosure will be described below with reference to the accompanying drawings. A second air passage 21a is formed in the second air conditioner 100a. An end of the second air passage 21a is formed as a second air outlet 22a. The second air deflection component 1a is configured to be movable between a first position for closing the second air outlet 22a and a second position for exposing the second air outlet 22a.

[0092] As illustrated in FIG. 34 and FIG. 35, the second air deflection component 1a for the second air conditioner 100a according to the embodiments of the present disclosure includes a first connection plate 11a and a second connection plate 12a.

[0093] As illustrated in FIG. 34 and FIG. 35, the first connection plate 11a and the second connection plate 12a are arranged in a thickness direction of the second air deflection component 1a.

[0094] In some embodiments of the present disclosure, a heat insulation space is formed by the first connection plate 11a and the second connection plate 12a. For example, in an example of the present disclosure, an end of the first connection plate 11a is connected to an end of the second connection plate 12a, and another end of the first connection plate 11a is connected to another end of the second connection plate 12a. As a result, a closed heat insulation space is formed between the first connection plate 11a and a second deflector. It should be understood that, the heat insulation space formed by the first connection plate 11a and the second connection plate 12a can reduce a temperature difference between an outer surface of the second air deflection component 1a and an indoor space to avoid the formation of the condensation. Therefore, it is possible to improve safety and reliability of the second air deflection component 1a.

[0095] As illustrated in FIG. 34, in the first position, the second air outlet 22a is closed by the first connection plate 11a. It should be understood that, when the second air deflection component 1a is positioned in the first position, the second air outlet 22a may be closed by the first connection plate 11a. In this way, when the second air conditioner 100a is in no operation, the second air passage 21a may be separated from an external space by the first connection plate 11a to prevent dust or foreign matter from entering the second air passage 21a.

[0096] As illustrated in FIG. 35, in the second position, a first airflow channel 1111a is formed between a part of the first connection plate 11a and the second air passage 21a, and a second airflow channel 1121a is formed between another part of the first connection plate 11a and the second air passage 21a. In an airflow flow direction, the first airflow channel 1111a and the second airflow channel 1121a extend towards two opposite sides of the second air outlet 22a, respectively.

[0097] It should be understood that, when the second air deflection component 1a moves to the second position, the first airflow channel 1111a is formed between the part of the first connection plate 11a and the second air passage 21a, and the second airflow channel 1121a is formed between the other part of the first connection plate 11a and the second air passage 21a. The airflow blown from the second air outlet 22a may be deflected to the first airflow channel 1111a and the second airflow channel 1121a. Since the first airflow channel 1111a and the second airflow channel 1121a extend towards the two opposite sides of the second air outlet 22a in the airflow flow direction, respectively, it is possible to prevent the airflow from being blown directly on the user. Thus, use comfort of the user can be enhanced. In addition, the two streams of airflow can be blown in opposite directions. As a result, surround air blowing in two directions can also be realized to allow for a wider range of disturbance of the airflow in the room, which in turn achieves a large circulation of the airflow.

[0098] In some embodiments, in an example of the present disclosure, the second airflow channel 1121a and the first airflow channel 1111a are located at two sides of a central axis of the second air outlet 22a, respectively. In the airflow flow direction, the first airflow channel 1111a and the second airflow channel 1121a each extend facing away from the central axis of the second air outlet 22a.

[0099] In the second air deflection component 1a for the second air conditioner 100a according to the embodiments of the present disclosure, the first connection plate 11a is provided. When the second air deflection component 1a moves to the second position, the first airflow channel 1111a is formed between the part of the first connection plate 11a and the second air passage 21a, and the second airflow channel 1121a is formed between the other part of the first connection plate 11a and the second air passage 21a. The airflow blown from the second air outlet 22a can be deflected to the first airflow channel 1111a and the second airflow channel 1121a. Since the first airflow channel 1111a and the second airflow channel 1121a each extend away the axis of the second air outlet 22a in the airflow flow direction, the two streams of airflow can be blown in the directions away the axis of the second air outlet 22a, respectively. Thus, it is possible to prevent the airflow from being blown directly on the user, which can enhance the use comfort of the user.

[0100] According to some embodiments of the present disclosure, as illustrated in FIG. 34 and FIG. 35, the first connection plate 11a includes a first air deflection member 111a and a second air deflection member 112a. An end of the first air deflection member 111a is connected to an end of the second connection plate 12a. The second air deflection member 112a and the first air deflection member 111a are arranged in a width direction of the first connection plate 11a. The end of the second air deflection member 112a is connected to the end of the first air deflection member 111a. Another end of the second air deflection member 112a is connected to another end of the second connection plate 12a. In the first position, the second air outlet 22a is closed by the first air deflection member 111a and the second air deflection member 112a. In addition, in the second position, the first airflow channel 1111a is formed between the first air deflection member 111a and the second air passage 21a, and the second airflow channel 1121a is formed between the second air deflection member 112a and the second air passage 21a.

[0101] It should be understood that, the first airflow channel 1111a and the second airflow channel 1121a having opposite air blowing directions are formed by the first air deflection member 111a and the second air deflection member 112a. Thus, complexity of a structure of the first connection plate 11a can be simplified and manufacturing difficulty of the first connection plate 11a can be decreased. Further, a production efficiency of the first connection plate 11a can be increased, and production costs of the first connection plate 11a can be lowered.

[0102] In an example of the present disclosure, as illustrated in FIG. 34 and FIG. 35, the first air deflection member 111a and the second air deflection member 112a are integrally formed. Thus, such integrally formed structure not only ensures structural and performance stability of the first air deflection member 111a and the second air deflection member 112a, but also facilitates molding, simplifies manufacturing, and eliminates redundant assembly members and connection steps. Thus, an assembly efficiency of the first air deflection member 111a and the second air deflection member 112a is greatly improved, and it is possible to ensure the reliability of a connection between the first air deflection member 111a and the second air deflection member 112a. In addition, the integrally formed structure has high overall strength and stability, is easy to assemble, and offers a long service life.

[0103] In some embodiments of the present disclosure, as illustrated in FIG. 35 and FIG. 36, an angle is formed between the first air deflection member 111a and the second air deflection member 112a. It should be understood that, an extending direction of the first air deflection member 111a and an extending direction of the second air deflection member 112a are not co-linear with each other. Through the predetermined angle between the first air deflection member 111a and the second air deflection member 112a, an angle between airflow flow directions of the first airflow channel 1111a and the second airflow channel 1121a can be determined to better satisfy demands of the user.

[0104] In some embodiments of the present disclosure, as illustrated in FIG. 35 and FIG. 36, a connection between the first air deflection member 111a and the second air deflection member 112a is smoothly transited. In this way, when the airflow flows through the connection between the first air deflection member 111a and the second air deflection member 112a, a collision loss of the airflow with the connection between the first air deflection member 111a and the second air deflection member 112a is relatively small. In addition, the smooth transited connection can also deflect the airflow, which can enhance smoothness of the flow of the airflow. For example, in an example of the present disclosure, the connection between the first air deflection member 111a and the second air deflection member 112a is in a rounded transition.

[0105] In some embodiments of the present disclosure, as illustrated in FIG. 35 and FIG. 36, a wall surface of the first air deflection member 111a adjacent to the second air outlet 22a is formed into a curved surface. It should be understood that, forming the wall surface of the first air deflection member 111a adjacent to the second air outlet 22a into the curved surface can deflect the flow direction of the airflow. In addition, the collision loss between the airflow and the curved surface is relatively small when the flow direction of the airflow is deflected, which can reduce a loss of energy of the airflow and enhance the smoothness of the flow of the airflow. For example, in some examples of the present disclosure, the wall surface of the first air deflection member 111a adjacent to the second air outlet 22a is formed into a concave surface. In other examples of the present disclosure, the wall surface of the first air deflection member 111a adjacent to the second air outlet 22a is formed into a convex surface.

[0106] The present disclosure is not limited to any of the above examples. In some other embodiments of the present disclosure, the wall surface of the first air deflection member 111a adjacent to the second air outlet 22a is formed into a flat surface.

[0107] In some embodiments of the present disclosure, as illustrated in FIG. 34 and FIG. 36, the wall surface of the first air deflection member 111a adjacent to the second air outlet 22a is formed into a concave surface. The second air deflection component 1a is adapted to be rotatable between the first position and a third position. In the third position, the first air deflection member 111a is located at a lower end of the second air outlet 22a, and the wall surface of the first air deflection member 111a adjacent to the second air outlet 22a is tangential to a lower wall surface of the second air passage 21a. It should be understood that, when the second air deflection component 1a is rotated into the third position, the wall surface of the first air deflection member 111a adjacent to the second air outlet 22a is tangential to the lower wall surface of the second air passage 21a. In this case, the wall surface of the first air deflection member 111a adjacent to the second air outlet 22a serves to extend the lower wall surface of the second air passage 21a. Thus, with the guidance of the concave surface of the first air deflection member 111a adjacent to the second air outlet 22a, the airflow blowing from the second air outlet 22a may be deflected towards an upper side of the second air outlet 22a. As a result, it is possible to prevent the airflow from being blown directly on the user while not blocking the airflow.

[0108] In some embodiments of the present disclosure, as illustrated in FIG. 34 and FIG. 37, a wall surface of the second air deflection member 112a adjacent to the second air outlet 22a is formed into a curved surface. It should be understood that, forming the wall surface of the second air deflection member 112a adjacent to the second air outlet 22a into the curved surface can deflect the flow direction of the airflow. In addition, the collision loss between the airflow and the curved surface is relatively small when the flow direction of the airflow is deflected, which can reduce a loss of energy of the airflow and enhance the smoothness of the flow of the airflow. For example, in some examples of the present disclosure, the wall surface of the second air deflection member 112a adjacent to the second air outlet 22a is formed into a concave surface. In other examples of the present disclosure, the wall surface of the second air deflection member 112a adjacent to the second air outlet 22a is formed into a convex surface.

[0109] It should be noted that, since the wall surface of the first air deflection member 111a adjacent to the second air outlet 22a may be formed into the concave surface or the convex surface, the wall surface of the second air deflection member 112a adjacent to the second air outlet 22a may also be formed into the concave surface or the convex surface. Thus, different embodiments can be obtained. For example, in an embodiment, the wall surface of the first air deflection member 111a adjacent to the second air outlet 22a is formed into the concave surface, and the wall surface of the second air deflection member 112a adjacent to the second air outlet 22a is also formed into the concave surface. In an embodiment, the wall surface of the first air deflection member 111a adjacent to the second air outlet 22a is formed into the concave surface, and the wall surface of the second air deflection member 112a adjacent to the second air outlet 22a is formed into the convex surface. In an embodiment, the wall surface of the first air deflection member 111a adjacent to the second air outlet 22a is formed into the convex surface, and the wall surface of the second air deflection member 112a adjacent to the second air outlet 22a is also formed into the convex surface. In an embodiment, the wall surface of the first air deflection member 111a adjacent to the second air outlet 22a is formed into the convex surface, and the wall surface of the second air deflection member 112a adjacent to the second air outlet 22a is formed into the concave surface.

[0110] In addition, two embodiments of the first air deflection member 111a and the second air deflection member 112a can be obtained when the wall surface of the first air deflection member 111a adjacent to the second air outlet 22a is formed into a flat surface. For example, in an embodiment, the wall surface of the first air deflection member 111a adjacent to the second air outlet 22a is formed into the flat surface, and the wall surface of the second air deflection member 112a adjacent to the second air outlet 22a is formed into the concave surface. In an embodiment, the wall surface of the first air deflection member 111a adjacent to the second air outlet 22a is formed into the flat surface, and the wall surface of the second air deflection member 112a adjacent to the second air outlet 22a is formed into the convex surface.

[0111] The present disclosure is not limited to any of the above embodiments. In other embodiments of the present disclosure, the wall surface of the second air deflection member 112a adjacent to the second air outlet 22a may also be formed into a flat surface. Thus, several different embodiments may also be obtained. For example, in an embodiment, the wall surface of the first air deflection member 111a adjacent to the second air outlet 22a is formed into the flat surface, and the wall surface of the second air deflection member 112a adjacent to the second air outlet 22a is also formed into the flat surface. In an embodiment, the wall surface of the first air deflection member 111a adjacent to the second air outlet 22a is formed into the concave surface, and the wall surface of the second air deflection member 112a adjacent to the second air outlet 22a is formed into the flat surface. In an embodiment, the wall surface of the first air deflection member 111a adjacent to the second air outlet 22a is formed into the convex surface, and the wall surface of the second air deflection member 112a adjacent to the second air outlet 22a is formed into the flat surface.

[0112] In some embodiments of the present disclosure, as illustrated in FIG. 34 and FIG. 37, the wall surface of the second air deflection member 112a adjacent to the second air outlet 22a is formed into the concave surface. The second air deflection component 1a is adapted to be rotatable between the first position and a fourth position. In the fourth position, the second air deflection member 112a is located at an upper end of the second air outlet 22a, and the wall surface of the second air deflection member 112a adjacent to the second air outlet 22a is tangential to an upper wall surface of the second air passage 21a.

[0113] It should be understood that, when the second air deflection component 1a is rotated into the fourth position, the wall surface of the second air deflection member 112a adjacent to the second air outlet 22a is tangential to the upper wall surface of the second air passage 21a. In this case, the wall surface of the second air deflection member 112a adjacent to the second air outlet 22a serves to extend the upper wall surface of the second air passage 21a and provides a downward deflection to the airflow. As a result, the airflow can flow downwards. Thus, in a heating mode, a hot airflow can be blown towards the bottom surface to enhance heating performance.

[0114] In some embodiments of the present disclosure, as illustrated in FIG. 34 and FIG. 38, the second air deflection component 1a is adapted to be rotatable between the first position and a fifth position. In the fifth position, the second air deflection component 1a is located on a side of the lower wall surface of the second air passage 21a facing away from the second air outlet 22a; or when in the fifth position, the second air deflection component 1a is located on a side of the upper wall surface of the second air passage 21a facing away from the second air outlet 22a.

[0115] It should be understood that, when the second air deflection component 1a is in the fifth position, the second air deflection component 1a may be located on the side of the lower wall surface of the second air passage 21a facing away from the second air outlet 22a; or when the second air deflection component 1a is in the fifth position, the second air deflection component 1a is located on the side of the upper wall surface of the second air passage 21a facing away from the second air outlet 22a. It should be understood that, the second air deflection component 1a blocks no airflow blowing from the second air outlet 22a, enabling rapid cooling or heating of the indoor space.

[0116] For example, in an example of the present disclosure, the wall surface of the first air deflection member 111a adjacent to the second air outlet 22a is formed into the concave surface. The second air deflection component 1a is adapted to be rotatable between the first position and the third position. When the second air deflection component 1a is positioned in the third position, the first air deflection member 111a is located at the lower end of the second air outlet 22a, and the wall surface of the first air deflection member 111a adjacent to the second air outlet 22a is tangential to the lower wall surface of the second air passage 21a. Further, the second air deflection component 1a may also be rotatable between the first position and the fifth position. When in the fifth position, the second air deflection component 1a is located on the side of the lower wall surface of the second air passage 21a facing away from the second air outlet 22a.

[0117] As illustrated in FIG. 42, a mark M1 represents a maximum air blowing volume of the air conditioner in the related art; a mark M2 represents a maximum air blowing volume of the second air conditioner 100a in the present disclosure; a mark N1 represents an air blowing volume of the air conditioner in the related art in an anti-direct-blowing mode; and a mark N2 represents an air blowing volume of the second air conditioner 100a in an anti-direct-blowing mode in the present disclosure.

[0118] After an experimental study, it was found that, for the air conditioner in the anti-direct-blowing mode in the related art, the deflector was inclined upwardly, which reduced an effective air blowing area. As a result, the air is significantly blocked, and the air blowing volume is greatly decreased. In contrast, in the present disclosure, when the second air deflection component 1a rotates to the third position, the effective air blowing area remains unchanged. The airflow is blown along an extended segment formed by the first air deflection member 111a and the lower wall surface of the second air passage 21a with its direction changed, which can effectively avoid an activity region without blocking the air blowing. As a result, no attenuation is generated for the air blowing volume. Further, by simulation, the air blowing volume of the second air conditioner in the related art was reduced by approximately 34.1% in the anti-direct-blowing mode compared with that in a maximum air blowing angle, whereas the air blowing volume of the second air conditioner in the present disclosure was reduced by only 5.6%. Therefore, in the present disclosure, it is possible not only for the cold air to effectively avoid the activity region, but also generate no loss in the air blowing volume. Thus, both cooling performance and comfort can be improved.

[0119] In some embodiments of the present disclosure, as illustrated in FIG. 38 and FIG. 39, an end of the first air deflection member 111a facing away from the second air deflection member 112a is referred to as end Aa, an end of the second air deflection member 112a facing away from the first air deflection member 111a is referred to as end Ba, and an end where the first air deflection member 111a and the second air deflection member 112a are connected to each other is referred to as end Ca. A line connecting end Aa and end Ba is referred to as a reference line. In this case, the end Ca is located at a side of the reference line close to the second air outlet 22a. The second connection plate 12a is located at a side of the reference line facing away from the second air outlet 22a.

[0120] It should be understood that, in the flow direction of the airflow, the airflow in the second air passage 21a at a position opposite to the end Ca can first flow through the end Ca. Under the guidance of the end Ca, the airflow can be deflected from the center to the sides. Thus, it is possible to prevent the airflow from gathering at the connection between the first air deflection member 111a and the second air deflection member 112a to enhance the smoothness of the airflow.

[0121] In some embodiments of the present disclosure, as illustrated in FIG. 38 and FIG. 39, a minimum spacing L1 between the end Ca and the second connection plate 12a satisfies $L1 \geq 15$ mm. Lines connecting the end Aa, end Ba, and end Ca form a triangle and satisfy $5° \leq ZCBA \leq 45°$ and $5° \leq LCAB \leq 45°$. In this way, deflecting effect and guiding effect at the end Ca can be improved. In some embodiments of the present disclosure, a spacing between the end Ca and the reference line is 16 mm, 17 mm, 18 mm, or 20 mm. ZCBA may be 25°, $\angle CAB$ may be 25°, and $\angle ACB$ is 130°.

[0122] In some embodiments of the present disclosure, as illustrated in FIG. 40 and FIG. 41, a first airflow diffusing hole 113a is formed at the first connection plate 11a and penetrates the first connection plate 11a in a thickness direction thereof. A second airflow diffusing hole 121a is formed at the second connection plate 12a and penetrates the second connection plate 12a in a thickness direction thereof. It should be understood that, when the second air outlet 22a is closed by the first connection plate 11a, the airflow can flow through the first airflow diffusing hole 113a and the second airflow diffusing hole 121a sequentially. Each of the first airflow diffusing hole 113a and the second airflow diffusing hole 121a can scatter the airflow. In some embodiments, the airflow first flows through the first airflow diffusing hole 113a on the first connection plate 11a to generate a first diffusion effect. As a result, it is possible to raise a turbulence level of the airflow and generate an angle expansion of the airflow, which allows the airflow to reach the second airflow diffusing hole 121a with more uniform kinetic energy. After the airflow passes through the second airflow diffusing hole 121a, the turbulence level of the airflow is further raised, and an angle of the airflow is further expanded. Thus, the effective air blowing area is enlarged while an intensity of the airflow is weakened. As a result, it is possible to quickly decrease a velocity of the airflow over a short distance. In this way, a breeze feeling can be achieved.

[0123] In some embodiments of the present disclosure, as illustrated in FIG. 40 and FIG. 41, an equivalent diameter of the first airflow diffusing hole 113a is greater than or equal to an equivalent diameter of the second airflow diffusing hole 121a. It should be understood that, by setting the equivalent diameter of the second airflow diffusing hole 121a to be smaller than or equal to that of the first airflow diffusing hole 113a, the intensity of the airflow can be further weakened by the second airflow diffusing hole 121a having the relatively smaller equivalent diameter after the airflow flows through the first airflow diffusing hole 113a. Thus, it is possible to provide better breezeless feeling performance.

[0124] In some embodiments of the present disclosure, as illustrated in FIG. 40 and FIG. 41, the equivalent diameter D1 of the first airflow diffusing hole 113a and the equivalent diameter D2 of the second airflow diffusing hole 121a satisfy $1.5 \text{ mm} \leq D1 \leq 30 \text{ mm}$ and $1.5 \text{ mm} \leq D2 \leq 10 \text{ mm}$. Thus, a heat exchange air volume of the second air conditioner 100a can be ensured while achieving better breezeless performance. Therefore, it is possible to mitigate an influence on a heat exchange rate. In some embodiments, the equivalent diameter of the first airflow diffusing hole 113a ranges from 5 mm to 10 mm, and the equivalent diameter of the second airflow diffusing hole 121a ranges from 2 mm to 3 mm. In some embodiments of the present disclosure, the equivalent diameter of the first airflow diffusing hole 113a may be 5 mm, 6 mm, 7 mm, 8 mm, 9 mm, or 10 mm, and the equivalent diameter of the second airflow diffusing hole 121a may be 2.2 mm, 2.4 mm, 2.6 mm, 2.8 mm, or 3.0 mm.

[0125] A second air conditioner 100a according to the embodiments of the present disclosure will be described below with reference to the accompanying drawings.

[0126] The second air conditioner 100a according to the embodiments of the present disclosure includes a second air passage member 2a and a second air deflection component 1a. The second air passage 21a is formed by the second air passage member 2a. An end of the second air passage 21a is formed as the second air outlet 22a. The second air deflection component 1a is connected to the second air passage member 2a. The second air deflection component 1a is adapted to be movable between the first position for closing the second air outlet 22a and the second position for exposing the second air outlet 22a.

[0127] In the second air conditioner 100a according to the embodiments of the present disclosure, by providing the first connection plate 11a, when the second air deflection component 1a moves to the second position, the first airflow channel 1111a is formed between a part of the first connection plate 11a and the second air passage 21a, and the second airflow channel 1121a is formed between the other part of the first connection plate 11a and the second air passage 21a. The airflow blown from the second air outlet 22a can be deflected to the first airflow channel 1111a and the second airflow channel 1121a. Since the first airflow channel 1111a and the second airflow channel 1121a extend towards the two opposite sides of the second air outlet 22a in the airflow flow direction, respectively, it is possible to prevent the airflow from being blown directly on the user. Thus, the use comfort of the user can be enhanced.

[0128] In the description of the present disclosure, it should be understood that, the orientation or position relationship indicated by the terms "length", "width", "thickness", "upper", "lower", "front", "rear", "left", and "right", etc., is based on the orientation or position relationship shown in the drawings, and is merely for the convenience of describing the present disclosure and simplifying the description, rather than indicating or implying that the referred device or element must have a specific orientation, or be constructed and operated in a specific orientation, and therefore cannot be understood as a limitation to the present disclosure.

[0129] In addition, the terms "first" and "second" are only used for descriptive purposes, and cannot be understood as indicating or implying relative importance or implicitly indicating the number of indicated technical features. Therefore, the features associated with "first" and "second" may explicitly or implicitly include at least one of the features. In the description of the present disclosure, "plurality" means at least two, unless otherwise specifically defined.

[0130] In the present disclosure, unless otherwise clearly specified and limited, terms such as "install", "connect", "connect to", "fix", and the like should be understood in a broad sense. For example, it may be a fixed connection or a detachable connection or connection as one piece; direct connection or indirect connection through an intermediate; internal communication of two components or the interaction relationship between two components. For those of ordinary skill in the art, the specific meaning of the above-mentioned terms in the present disclosure can be understood according to specific circumstances.

[0131] In the present disclosure, unless expressly stipulated and defined otherwise, the first feature "on" or "under" the second feature may mean that the first feature is in direct contact with the second feature, or the first and second features are in indirect contact through an intermediate. Moreover, the first feature "above" the second feature may mean that the first feature is directly above or obliquely above the second feature, or simply mean that the level of the first feature is higher than that of the second feature. The first feature "below" the second feature may mean that the first feature is directly below or obliquely below the second feature, or simply mean that the level of the first feature is lower than that of the second feature.

[0132] In the description of this specification, descriptions with reference to the terms "an embodiment", "some embodiments", "examples", "specific examples", or "some examples" etc., mean that specific features, structure, materials, or characteristics described in conjunction with the embodiment or example are included in at least one embodiment or example of the present disclosure. In this specification, the schematic representations of the above terms do not necessarily refer to the same embodiment or example. Moreover, the described specific features, structures, materials, or characteristics may be combined in any one or more embodiments or examples in a suitable manner. In addition, those skilled in the art can combine the different embodiments or examples and the features of the different embodiments or examples described in this specification without contradicting each other.

[0133] Although the embodiments of the present disclosure have been shown and described, it is conceivable for those of ordinary skill in the art that various changes, modifications, replacements, and variations can be made to these embodiments without departing from the principles and spirit of the present disclosure. The scope of the present disclosure shall be formed by the claims as appended and their equivalents.

Claims

1. A first air deflection component, comprising: a deflector; and an air deflection bar assembly connected on an inner side of the deflector and comprising two air deflection bars spaced apart from each other in a width direction of the deflector, wherein: each of the two air deflection bars is configured to deflect an airflow flowing from the inner side to an outer side of the deflector in a direction facing away from another one of the two air deflection bars; and an airflow channel is formed between the two air deflection bars.

2. The first air deflection component according to claim 1, wherein: one or more flow guide grooves is formed at one or both of the two air deflection bars; each of the one or more flow guide grooves extends from an air inlet end to an air outlet end of a corresponding one of the two air deflection bars; and when a plurality of flow guide grooves is provided, the plurality of flow guide grooves is arranged at intervals in a length direction of the corresponding one of the two air deflection bars.

3. The first air deflection component according to claim 2, wherein: at least one of the one or more flow guide grooves has an extending direction perpendicular to the length direction of the corresponding one of the two air deflection bars; or at least one of the one or more flow guide grooves has an extending direction inclined to both the length direction and a width direction of the corresponding one of the two air deflection bars.

4. The first air deflection component according to claim 2 or 3, wherein: each of the one or more flow guide grooves comprises an outer flow guide groove formed at an exterior of the corresponding one of the two air deflection bars, the outer flow guide groove being formed at a side surface of the corresponding one of the two air deflection bars facing away from the deflector; and/or each of the one or more flow guide grooves comprises an inner flow guide groove formed at an interior of the corresponding one of the two air deflection bars, each of an inlet and an outlet of the inner flow guide groove penetrating a surface of the corresponding one of the two air deflection bars.

5. The first air deflection component according to any one of claims 1 to 4, wherein: a side surface of at least one of the two air deflection bars facing away from the deflector is a smooth surface; a side surface of at least one of the two air deflection bars facing away from the deflector is at least partially constructed as a curved surface recessed towards the deflector; or a side surface of at least one of the two air deflection bars facing away from the deflector comprises an extension portion extending smoothly towards a mid-perpendicular plane of the deflector, the extension portion being located at a side of the airflow channel distal from the deflector.

6. The first air deflection component according to any one of claims 1 to 5, wherein the airflow channel extends in a length direction of the deflector, and is opened at both ends in an extending direction of the airflow channel to form first side air outlets.

7. The first air deflection component according to any one of claims 1 to 6, wherein a plurality of ventilation holes is formed at the deflector, the plurality of ventilation holes being in communication with the airflow channel.

8. The first air deflection component according to any one of claims 1 to 7, wherein the two air deflection bars are arranged symmetrically with respect to a mid-perpendicular plane of the deflector.

9. The first air deflection component according to any one of claims 1 to 8, wherein at least one of the two air deflection bars comprises a plurality of segments arranged sequentially in a length direction of the deflector, each of the plurality of segments being detachably connected to the deflector, and mounting positions of the plurality of segments being interchangeable.

10. The first air deflection component according to any one of claims 1 to 9, wherein: the deflector and at least one of the two air deflection bars are formed integrally; or the deflector and at least one of the two air deflection bars are formed separately and assembled with each other.

11. The first air deflection component according to claim 10, wherein the at least one of the two air deflection bars is detachably connected to the deflector by means of a snap assembly and/or a magnetic suction assembly.

12. The first air deflection component according to claim 11, wherein: a plurality of snap assemblies is provided and arranged at intervals in a length direction of the deflector; the plurality of snap assemblies is disposed on a side of a corresponding one of the two air deflection bars facing towards the airflow channel; and a side of the corresponding one of the two air deflection bars facing away from the airflow channel is engaged with the deflector by means of a limiting assembly in a position-limited manner.

13. The first air deflection component according to 12, wherein: a recess is formed at a side surface of each of the two air deflection bars facing towards the airflow channel, and each of the plurality of snap assemblies comprises a snapping block disposed in the recess and a snapping hook disposed on the deflector, the snapping hook being inserted into the recess and snap-engaged with the snapping block; or the limiting assembly comprises a limiting slot formed at a side edge of the deflector in a width direction of the deflector and a limiting block disposed on a side of each of the two air deflection bars facing away from the airflow channel, the limiting block being inserted and engaged into the limiting slot.

14. The first air deflection component according to any one of claims 1 to 13, wherein a cavity is formed in at least one of the two air deflection bars.

15. A first air conditioner, comprising: a body, a first air passage being formed in the body, and the body having an air inlet and a first air outlet that are in communication with the first air passage; the first air deflection component according to any one of claims 1 to 14, the first air deflection component being disposed at the first air outlet; and a drive mechanism connected between the first air deflection component and the body, the drive mechanism being configured to drive the first air deflection component to be movable relative to the body.

16. The first air conditioner according to claim 15, wherein: the first air conditioner is an air conditioning wall-mounted indoor unit; the first air outlet is formed at a front side of a bottom of the body and/or a lower part of a front side of the body; and the drive mechanism is configured to drive the first air deflection component to be movable and/or rotatable.

17. A second air deflection component for a second air conditioner, wherein: a second air passage is formed in the second air conditioner, an end of the second air passage being formed as a second air outlet; the second air deflection component is configured to be movable between a first position for closing the second air outlet and a second position for exposing the second air outlet; the second air deflection component comprises a first connection plate and a second connection plate that are arranged in a thickness direction; the second air outlet is closed by the first connection plate when the second air deflection component is positioned in the first position; when the second air deflection component is positioned in the second position, a first airflow channel is formed between the second air passage and a part of the first connection plate, and a second airflow channel is formed between the second air passage and another part of the first connection plate; and in an airflow flow direction, the first airflow channel and the second airflow channel extend towards two opposite sides of the second air outlet, respectively.

18. The second air deflection component for the second air conditioner according to claim 17, wherein the first connection plate comprises: a first air deflection member having an end connected to an end of the second connection plate; and a second air deflection member having an end connected to another end of the first air deflection member and another end connected to another end of the second connection plate, the second air deflection member and the first air deflection member being arranged in a width direction of the first connection plate, wherein: when the second air deflection component is positioned in the first position, the second air outlet is closed by the first air deflection member and the second air deflection member; and when the second air deflection component is positioned in the second position, the first airflow channel is formed between the first air deflection member and the second air passage, and the second airflow channel is formed between the second air deflection member and the second air passage.

19. The second air deflection component for the second air conditioner according to claim 18, wherein an angle is formed between the first air deflection member and the second air deflection member.

20. The second air deflection component for the second air conditioner according to claim 18 or 19, wherein: a wall surface of the first air deflection member adjacent to the second air outlet is formed into a concave surface; the second air deflection component is configured to be rotatable between the first position and a third position; and when the second air deflection component is positioned in the third position, the first air deflection member is located at a lower end of the second air outlet, and the wall surface of the first air deflection member adjacent to the second air outlet is tangential to a lower wall surface of the second air passage.

21. The second air deflection component for the second air conditioner according to any one of claims 18 to 20, wherein: a wall surface of the second air deflection member adjacent to the second air outlet is formed into a concave surface; the second air deflection component is configured to be rotatable between the first position and a fourth position; and when the second air deflection component is positioned in the fourth position, the second air deflection member is located at an upper end of the second air outlet, and the wall surface of the second air deflection member adjacent to the second air outlet is tangential to an upper wall surface of the second air passage.

22. The second air deflection component for the second air conditioner according to any one of claims 17 to 21, wherein: the second air deflection component is configured to be rotatable between the first position and a fifth position; and when the second air deflection component is positioned in the fifth position, the second air deflection component is located at a side of a lower wall surface of the second air passage facing away from the second air outlet, or the second air deflection component is located at a side of an upper wall surface of the second air passage facing away from the second air outlet.

23. The second air deflection component for the second air conditioner according to any one of claims 17 to 22, wherein a heat insulation space is formed by the first connection plate and the second connection plate.

24. The second air deflection component for the second air conditioner according to claim 23, wherein: a first airflow diffusing hole is formed at the first connection plate and penetrates the first connection plate in a thickness direction of the first connection plate; and a second airflow diffusing hole is formed at the second connection plate and penetrates the second connection plate in a thickness direction of the second connection plate.

25. A second air conditioner, comprising: a second air passage component, a second air passage being formed by the second air passage component and having an end formed as a second air outlet; and the second air deflection component for the second air conditioner according to any one of claims 17 to 24, the second air deflection component being connected to the second air passage component and configured to be movable between the first position for closing the second air outlet and the second position for exposing the second air outlet.

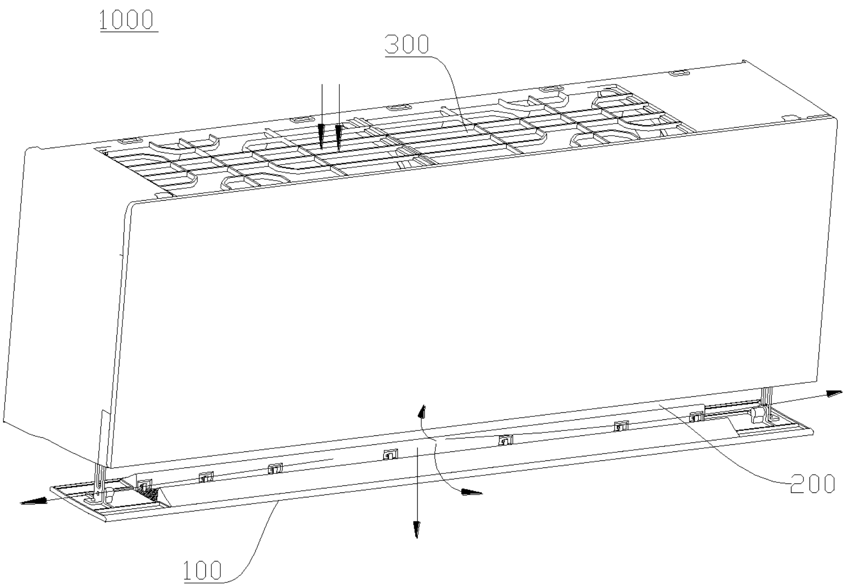

FIG. 1

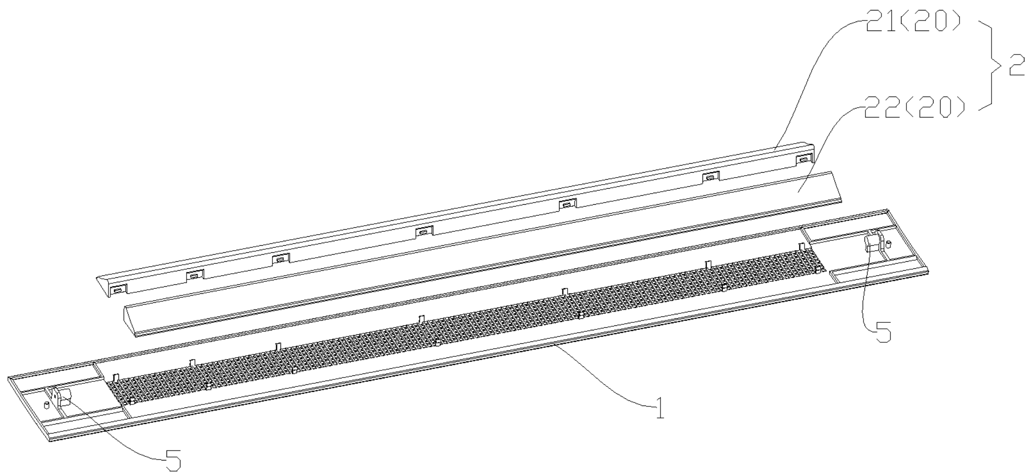

FIG. 2

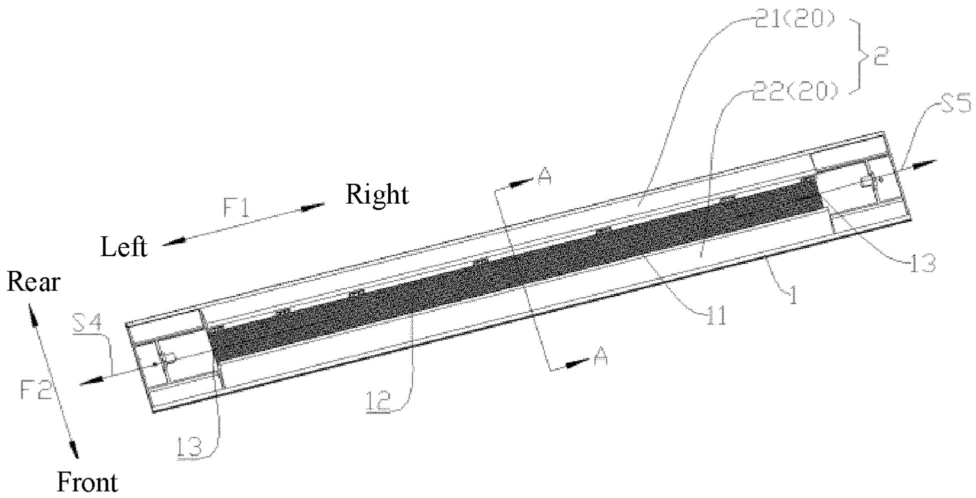

FIG. 3

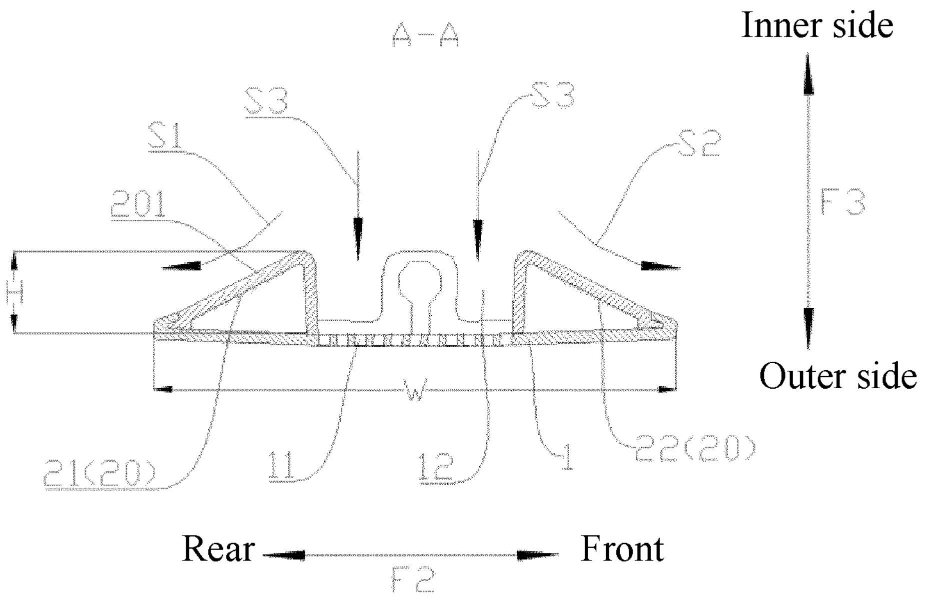
A-A
Inner side
S3
S3
S1
S2
201
F3
H
W
Outer side
21(20)
11
12
1
22(20)
Rear
Front
F2

FIG. 4

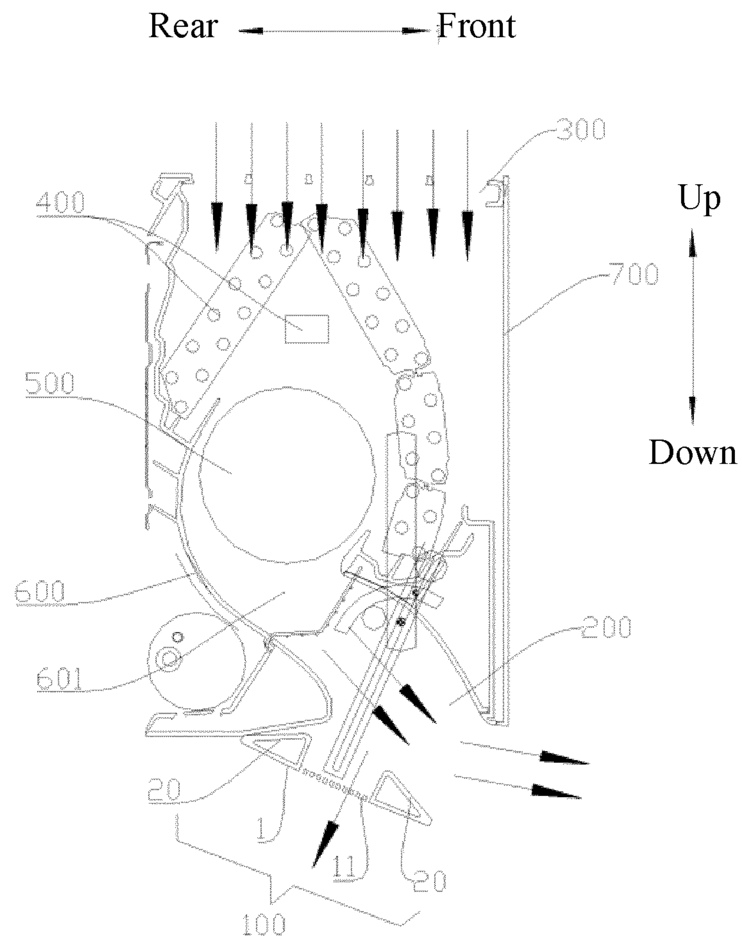
Rear
Front
300
400
Up
700
500
Down
600
200
601
20
1
11
20
100

FIG. 5

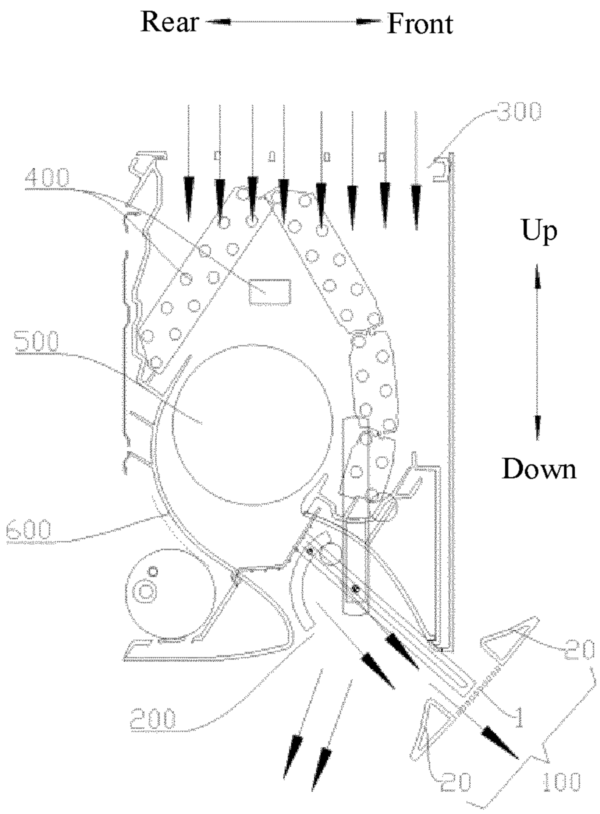
Rear
Front
300
400
Up
500
Down
600
20
200
1
20
100

FIG. 6

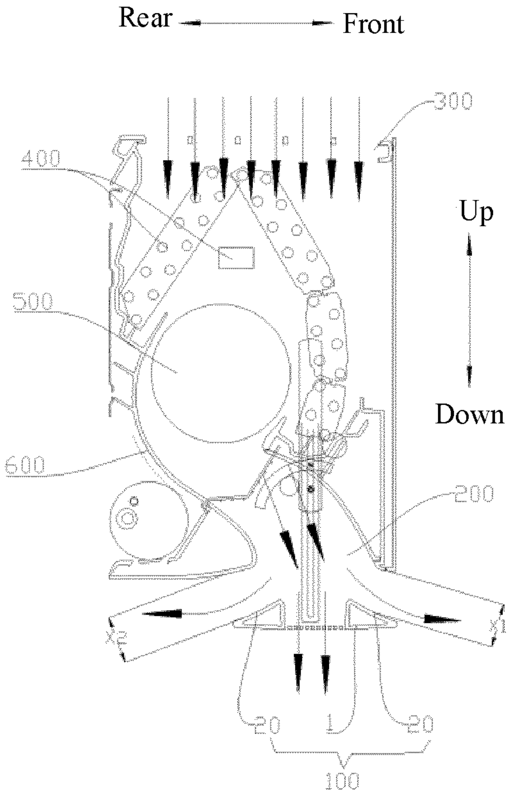
Rear
Front
300
400
Up
500
Down
600
200
x2
x1
20
1
20
100

FIG. 7

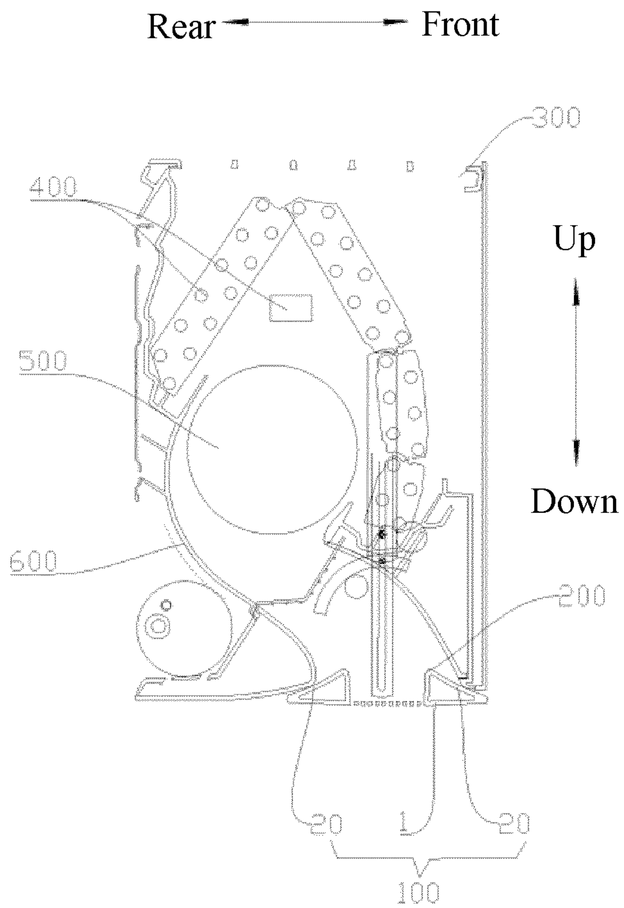
Rear
Front
300
400
Up
500
Down
600
200
20
1
20
100

FIG. 8

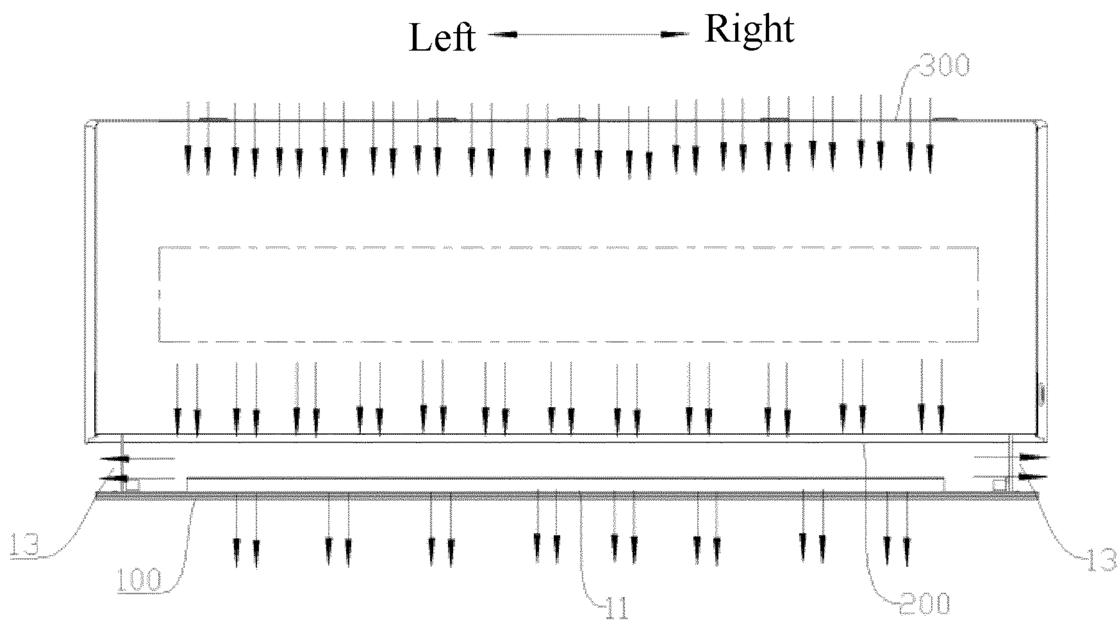
Left
Right
300
13
100
11
200
13

FIG. 9

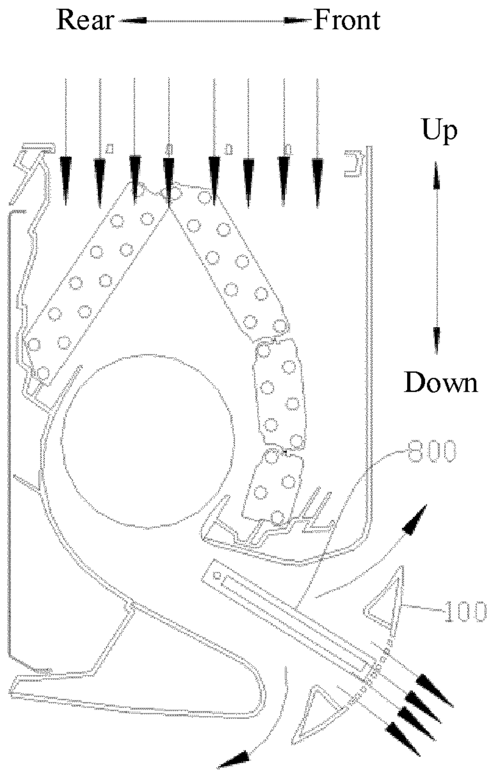

FIG. 10

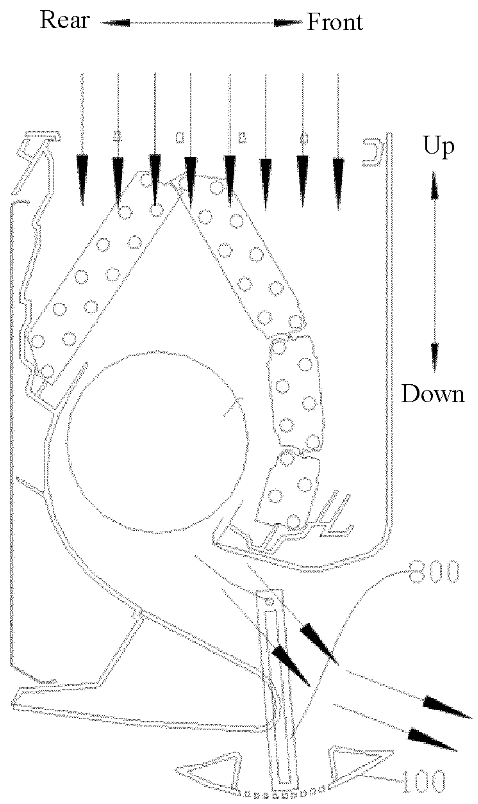

FIG. 11

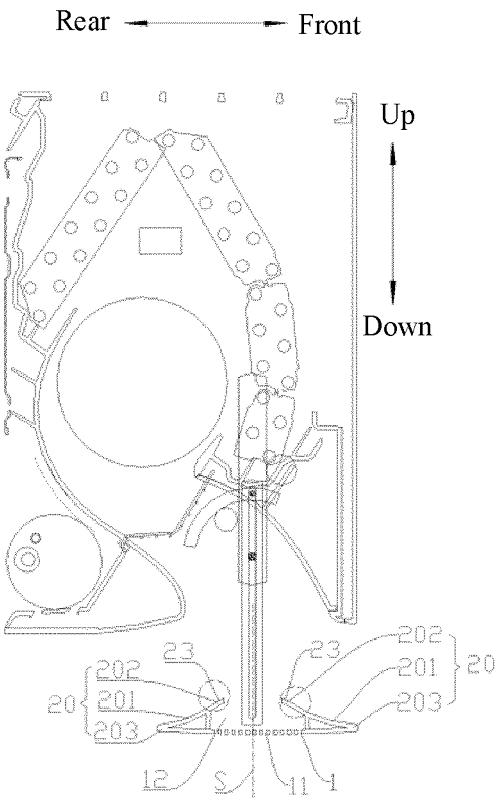
Rear
Front
Up
Down
202
23
201
20
203
23
202
201
20
203
12
S
11
1

FIG. 12

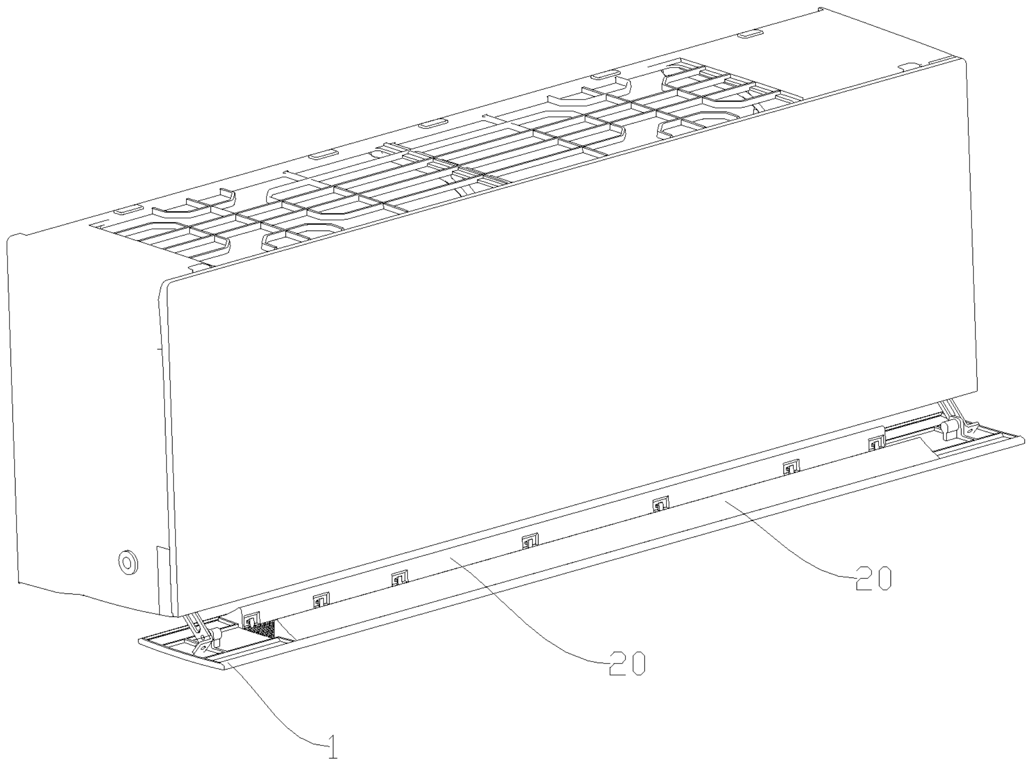
20
20
1

FIG. 13

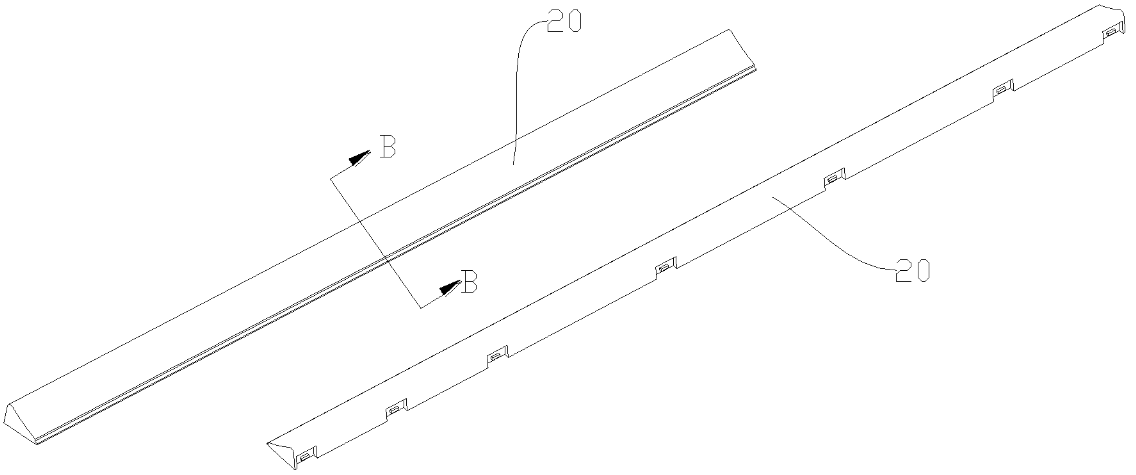

FIG. 14

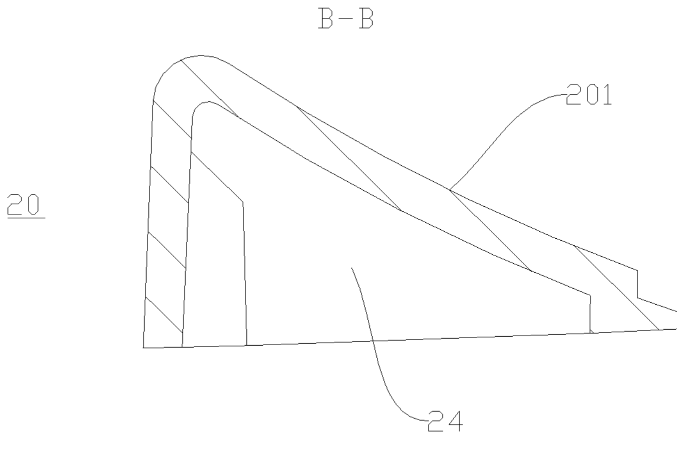

FIG. 15

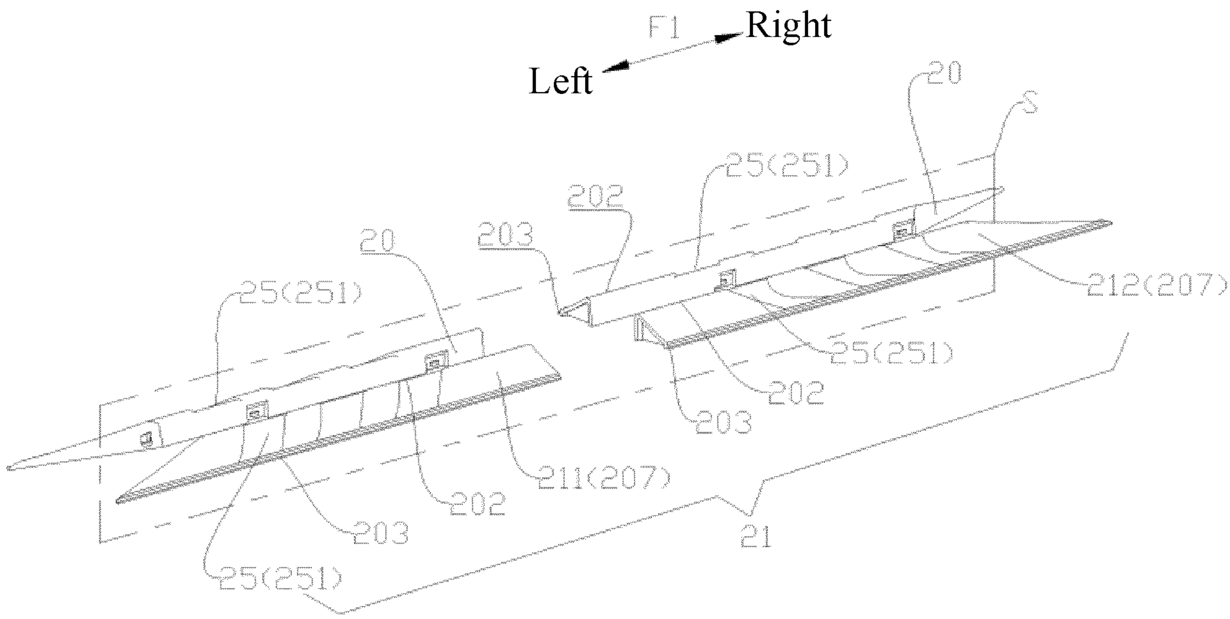

FIG. 16

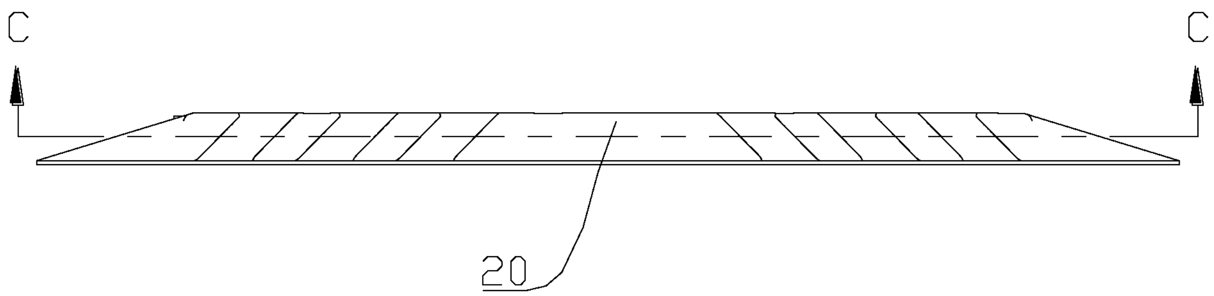

FIG. 17

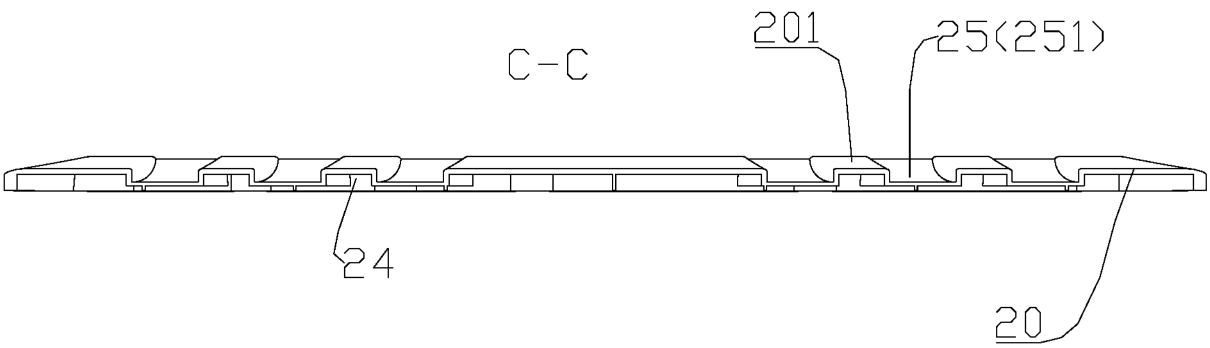

FIG. 18

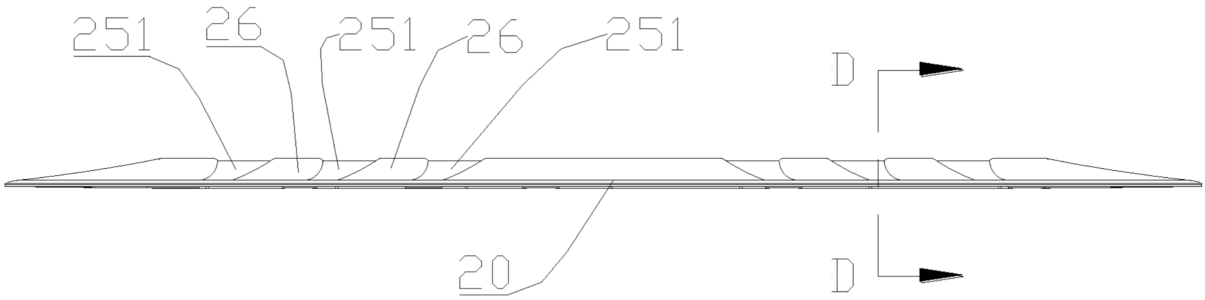

FIG. 19

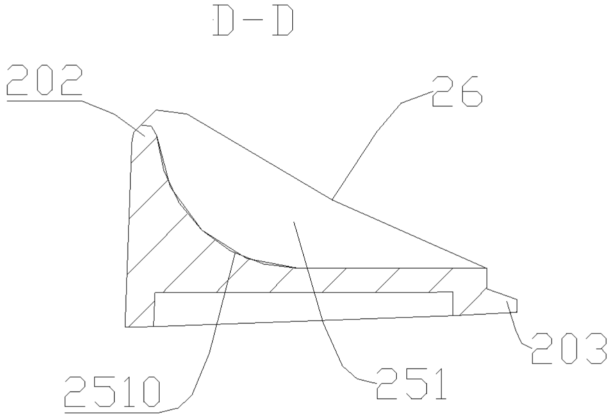

FIG. 20

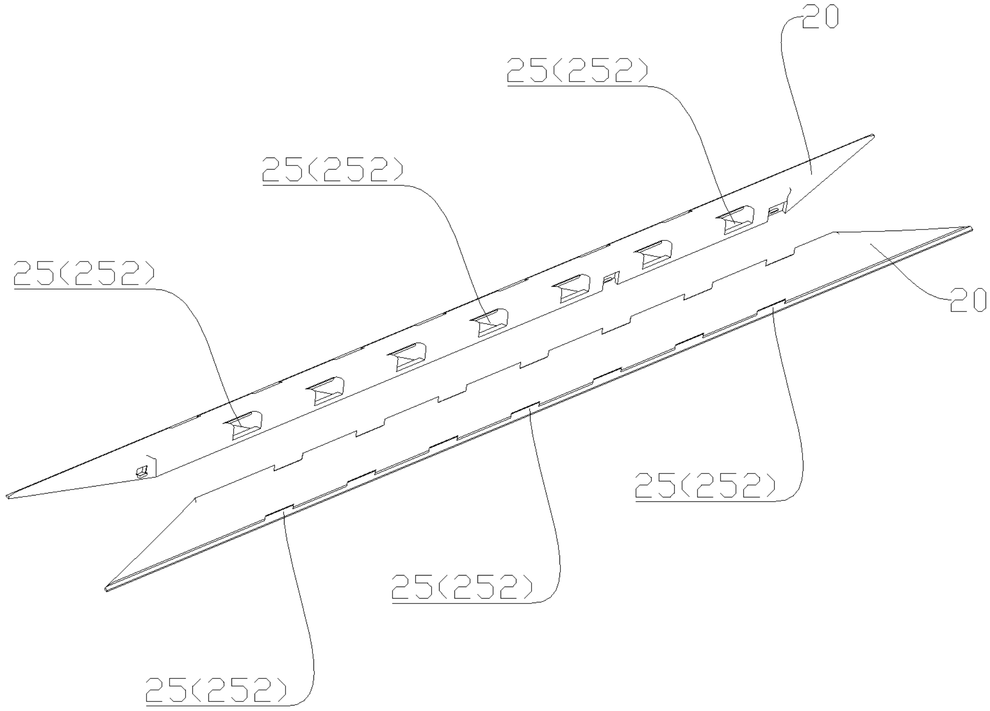

FIG. 21

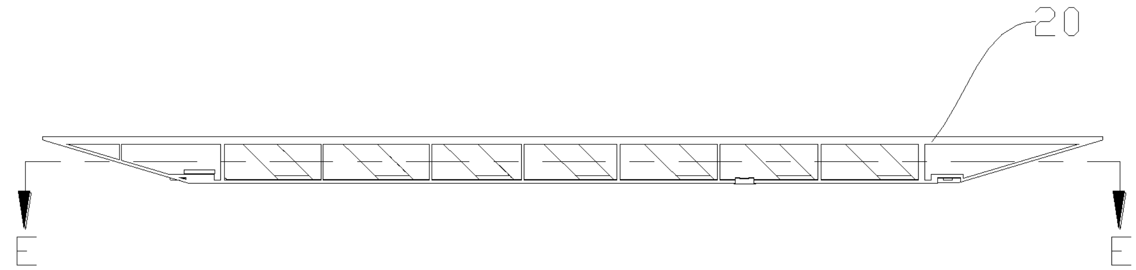

FIG. 22

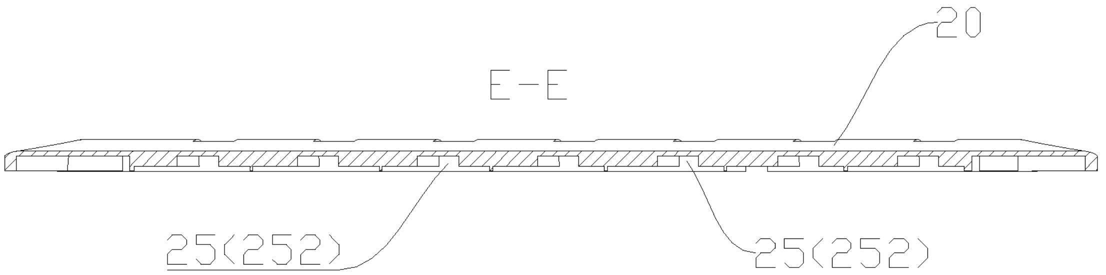

FIG. 23

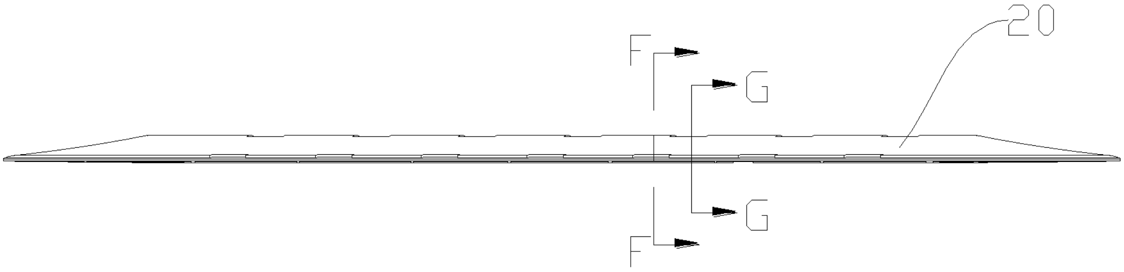

FIG. 24

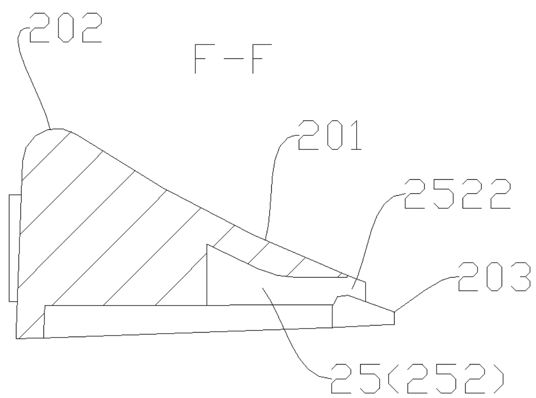

FIG. 25

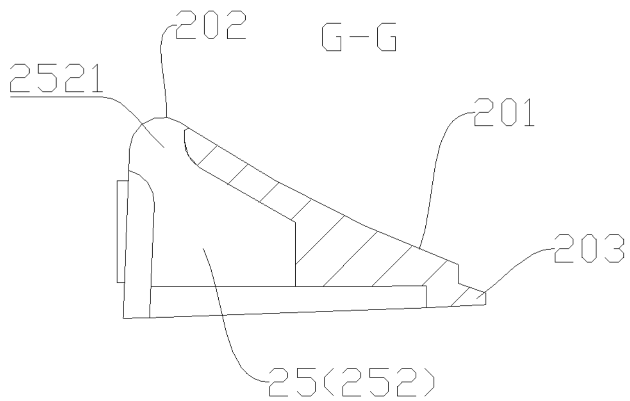

FIG. 26

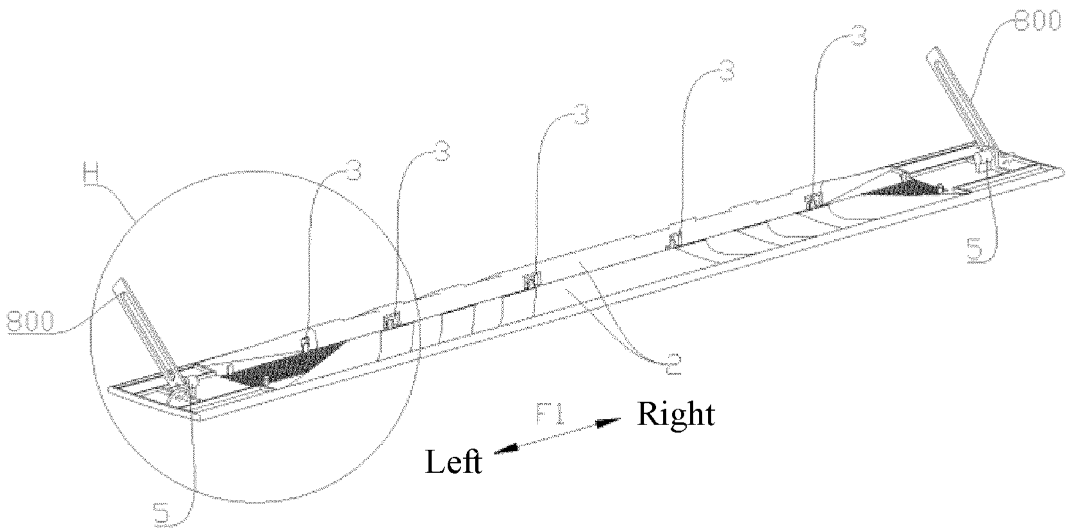

FIG. 27

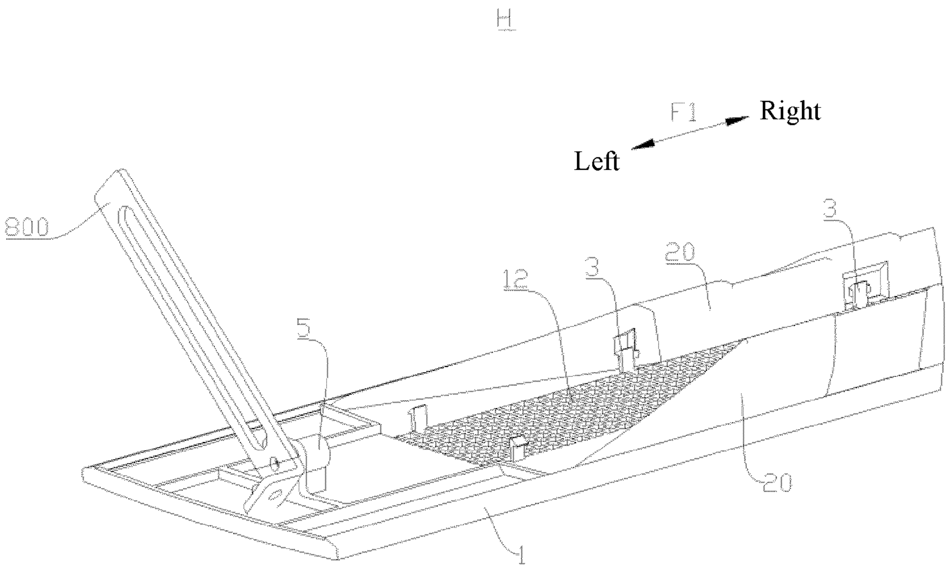

FIG. 28

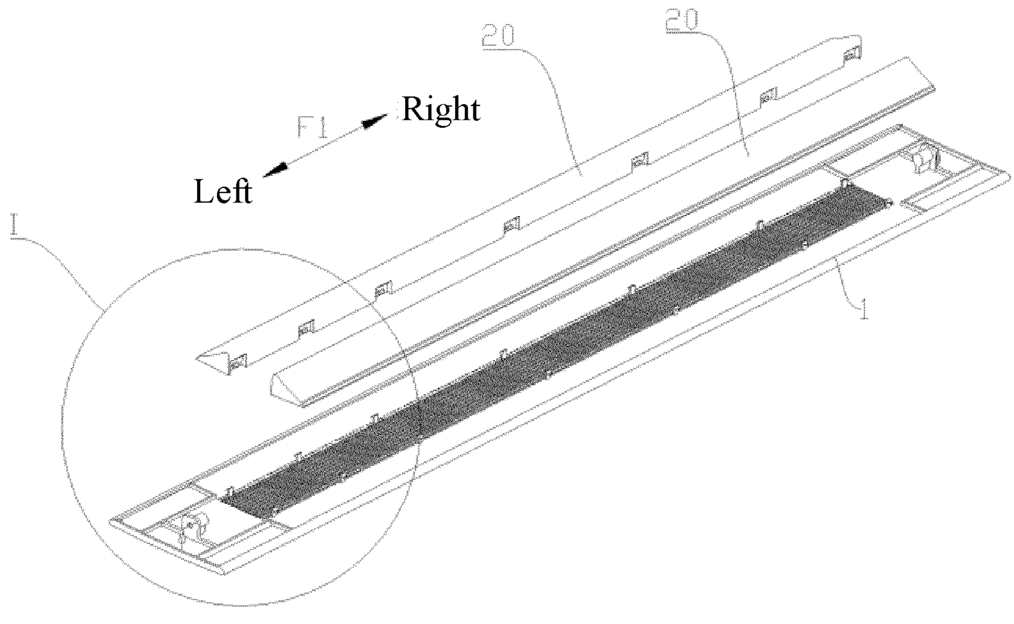

FIG. 29

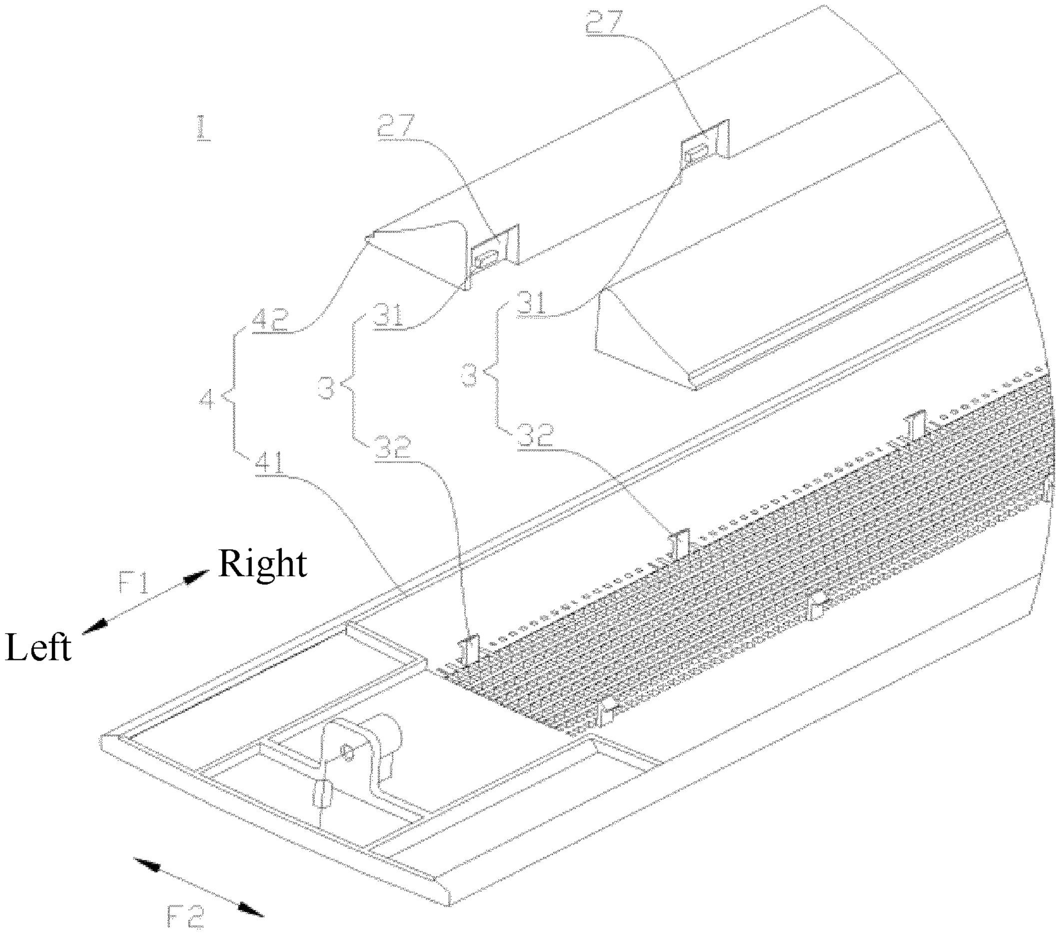
1
27
27
42
31
31
4
3
3
41
32
32
F1
Right
Left
F2

FIG. 30

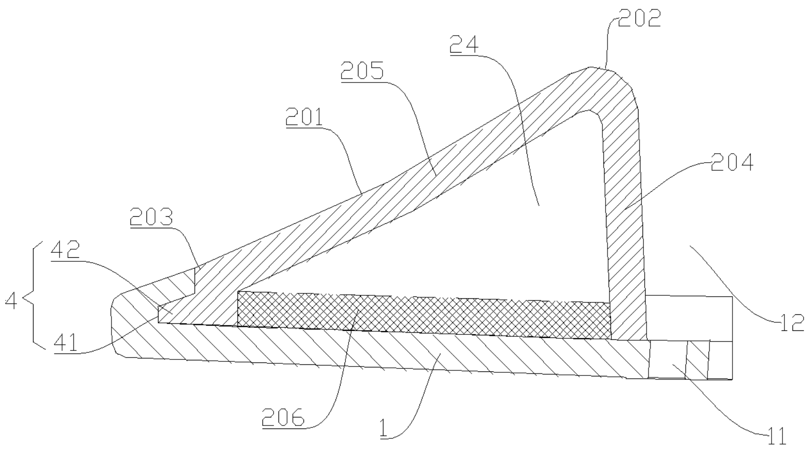
202
24
205
201
204
203
42
4
41
12
206
1
11

FIG. 31

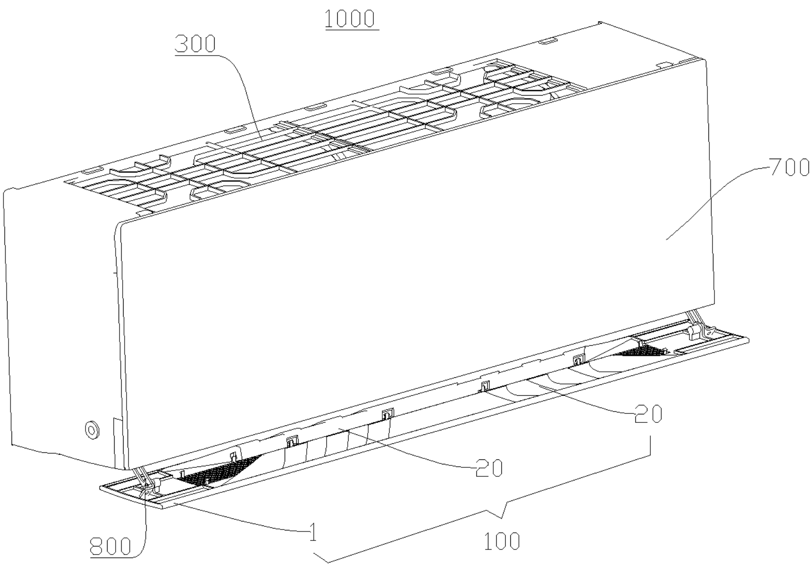

FIG. 32

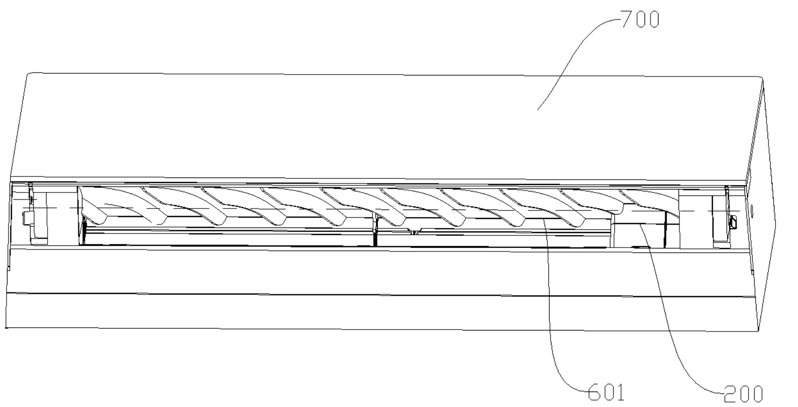

FIG. 33

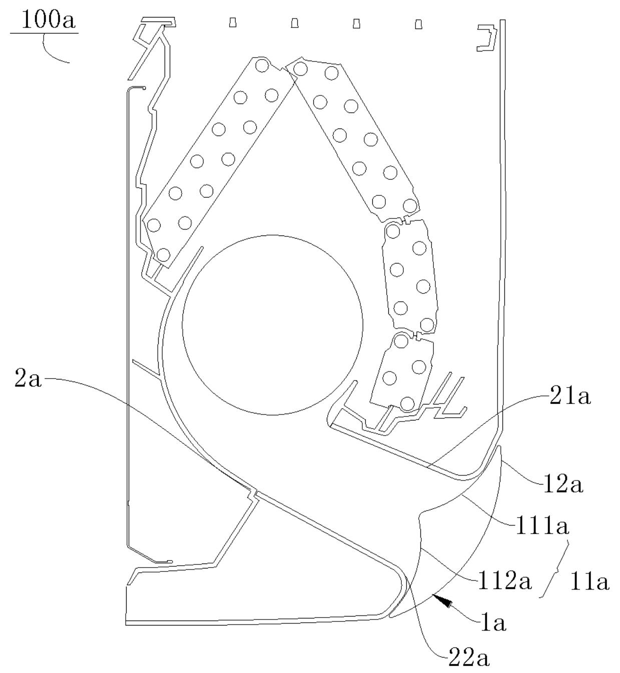
100a
2a
21a
12a
111a
112a
11a
1a
22a

FIG. 34

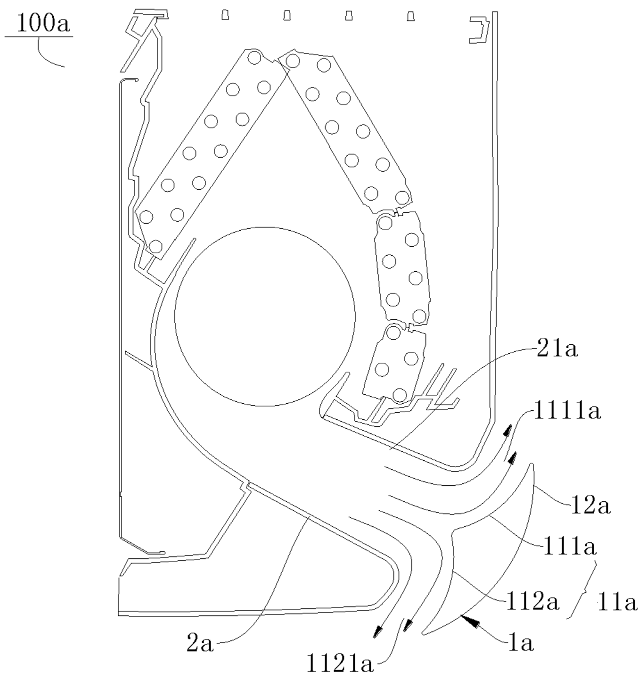
100a
21a
1111a
12a
111a
112a
11a
1a
2a
1121a

FIG. 35

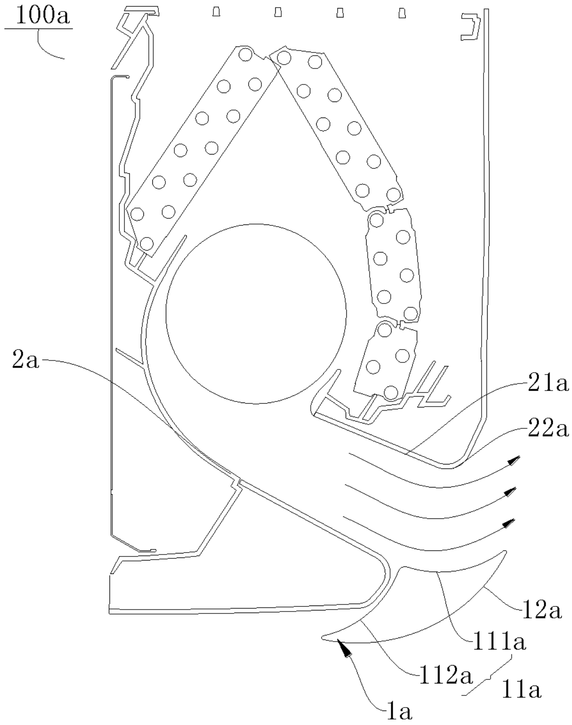
100a
2a
21a
22a
12a
111a
112a
11a
1a

FIG. 36

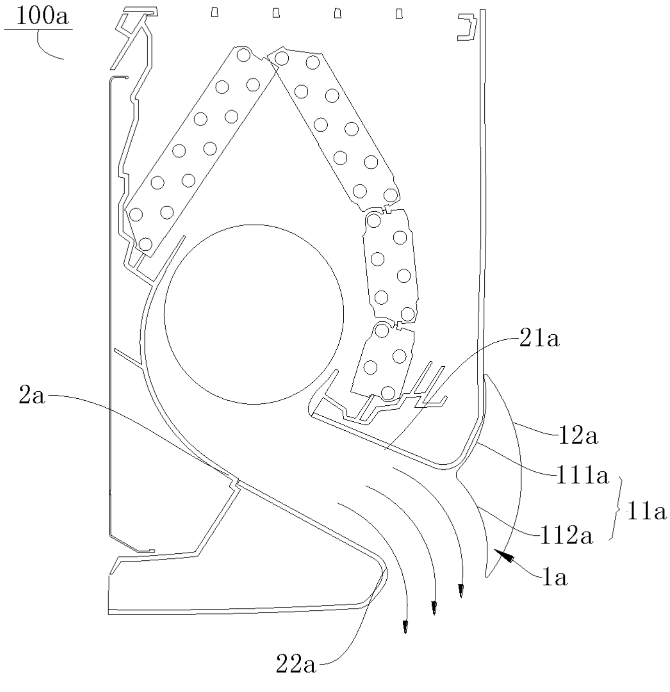
100a
21a
2a
12a
111a
11a
112a
1a
22a

FIG. 37

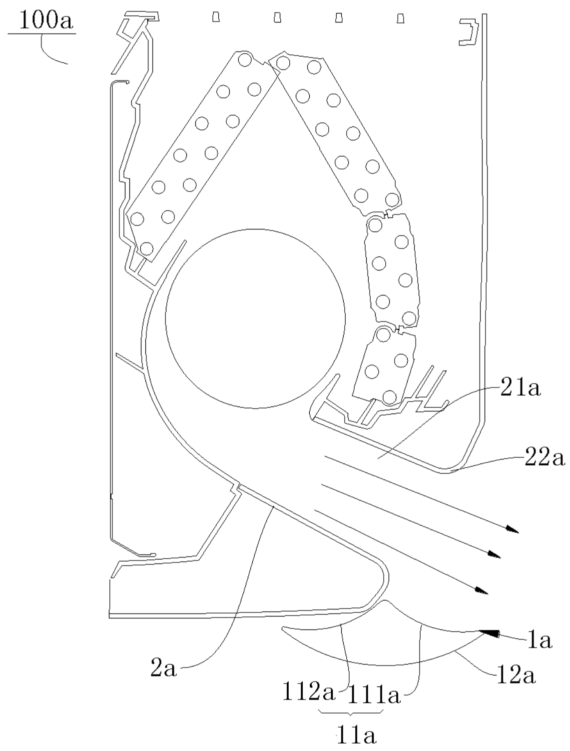

FIG. 38

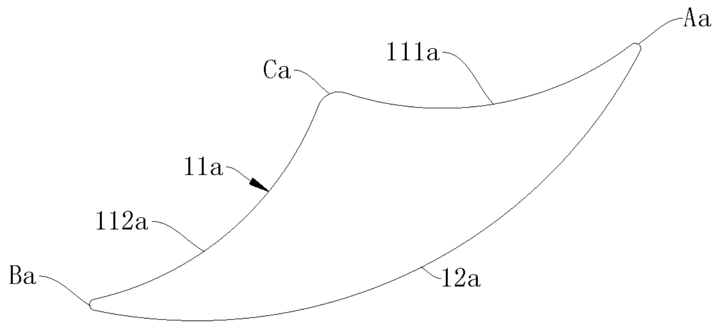

FIG. 39

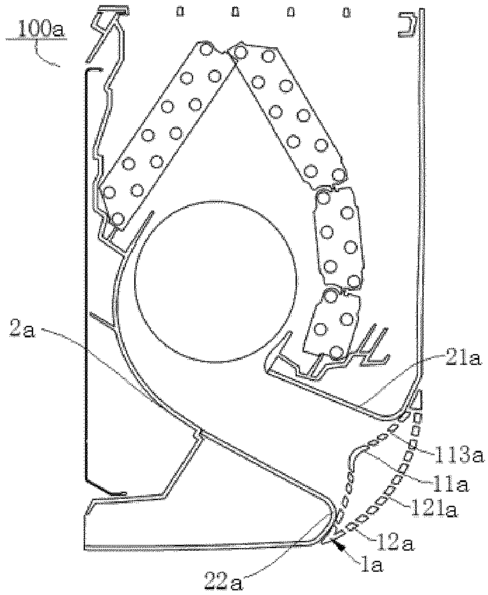
100a
2a
21a
113a
11a
121a
12a
1a
22a

FIG. 40

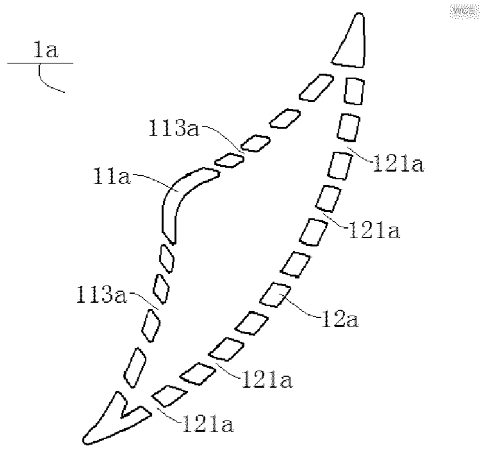
1a
113a
11a
121a
121a
113a
12a
121a
121a

FIG. 41

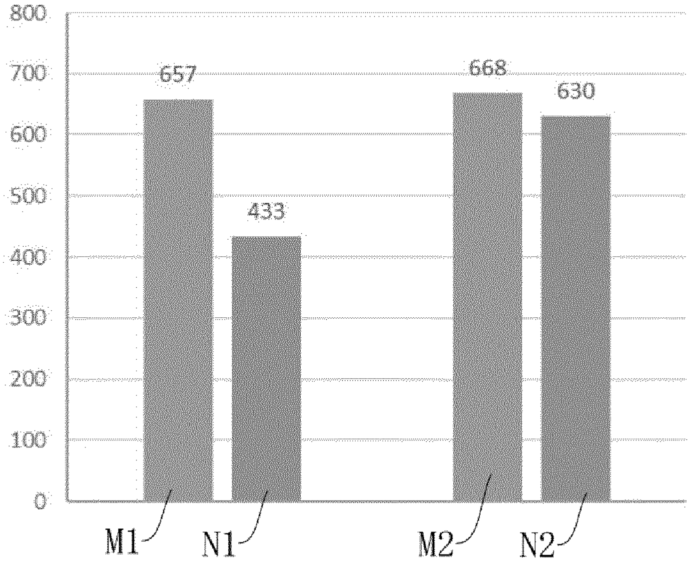

FIG. 42

INTERNATIONAL SEARCH REPORT

International application No. **PCT/CN2021/126292**

A. CLASSIFICATION OF SUBJECT MATTER

F24F 13/14(2006.01)i； F24F 13/08(2006.01)i； F24F 1/0011(2019.01)i

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

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

F24F13； F24F1

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

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

CNKI, WPABS, DWPI, CNTXT, WPABSC, ENTXTC: 导风, 引导, 导流, 出风, 送风, 吹风, 条, 凸起, 板, 对称, 空调, 多方向, 角度, 维度, 出口, 均匀, 舒服, 舒适, 壁挂, deflector, outlet, protrusion?, grip?, strip?, bar?, plate?, board?, direction?, angle?, dimension?, guide plate, air guid+, air condition+

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
PX	CN 112197417 A (GUANGDONG MEDIA REFRIGERATION EQUIPMENT CO., LTD.) 08 January 2021 (2021-01-08) claims 1-3, 5, 7-9, 13, 16, figures 1-8	17-25
PX	CN 213480550 U (GUANGDONG MEDIA REFRIGERATION EQUIPMENT CO., LTD.) 18 June 2021 (2021-06-18) claims 1-3, 5, 7-9, 13, 16, figures 1-8	17-25
PX	CN 212720224 U (QINGDAO HAIER AIR CONDITIONER CO., LTD. et al.) 16 March 2021 (2021-03-16) description, paragraphs 0031-0049, and figures 1-7	17-25
X	CN 105841238 A (NINGBO AUX AIR-CONDITIONING CO., LTD.) 10 August 2016 (2016-08-10) description, paragraphs 0015-0020, figure 1	17-25
A	CN 211177354 U (QINGDAO HAIER AIR CONDITIONER CO., LTD. et al.) 04 August 2020 (2020-08-04) description, paragraphs 0033-0060, and figures 1-5	1-16

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

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"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
10 January 2022	**26 January 2022**

Name and mailing address of the ISA/CN	Authorized officer
China National Intellectual Property Administration (ISA/CN) **No. 6, Xitucheng Road, Jimenqiao, Haidian District, Beijing 100088, China**	
Facsimile No. **(86-10)62019451**	Telephone No.

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2021/126292

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	CN 202145041 U (GREE ELECTRIC APPLIANCES, INC. OF ZHUHAI) 15 February 2012 (2012-02-15) entire document	17-25
A	CN 111156610 A (QINGDAO HAIER AIR CONDITIONER CO., LTD. et al.) 15 May 2020 (2020-05-15) entire document	1-16
A	CN 211177355 U (QINGDAO HAIER (JIAOZHOU) AIR CONDITIONER CO., LTD. et al.) 04 August 2020 (2020-08-04) entire document	1-16
A	JP 2002162090 A (MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD.) 07 June 2002 (2002-06-07) entire document	17-25
A	KR 100931749 B1 (KO YOUNG SIN) 14 December 2009 (2009-12-14) entire document	1-16

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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/CN2021/126292

Patent document cited in search report			Publication date (day/month/year)	Patent family member(s)			Publication date (day/month/year)
CN	112197417	A	08 January 2021	None			
CN	213480550	U	18 June 2021	None			
CN	212720224	U	16 March 2021	None			
CN	105841238	A	10 August 2016	None			
CN	211177354	U	04 August 2020	None			
CN	202145041	U	15 February 2012	None			
CN	111156610	A	15 May 2020	None			
CN	211177355	U	04 August 2020	None			
JP	2002162090	A	07 June 2002	JP	3767373	B2	19 April 2006
KR	100931749	B1	14 December 2009	None			

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

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- CN 202110358232 **[0001]**
- CN 202120676661 **[0001]**
- CN 202022484236 **[0001]**
- CN 202011193753 **[0001]**
- CN 202120677541 **[0001]**
- CN 202110358186 **[0001]**