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(54) **HOUSING COMPONENT OF AIR CONDITIONER AND AIR CONDITIONER**

(57) A housing assembly (100) for an air conditioner and the air conditioner (1000), where the housing assembly (100) for air conditioner comprises the face frame (1) which is provided with the front air outlet (11); two end covers (2) which are set on the left end and the right end of the face frame (1) respectively, at least one of the end covers (2) is provided with the extension part (21) bend-

ing forwards and upwards at its bottom, the extension part (21) is located at the front side of the face frame (1), and defines the auxiliary air outlet channel with the latter, at least one of the end cover (2) is provided with the side air outlet (22) connected to the auxiliary air outlet channel, and there are multiple spaced grooves (211) on the front surface of the extension part (21).

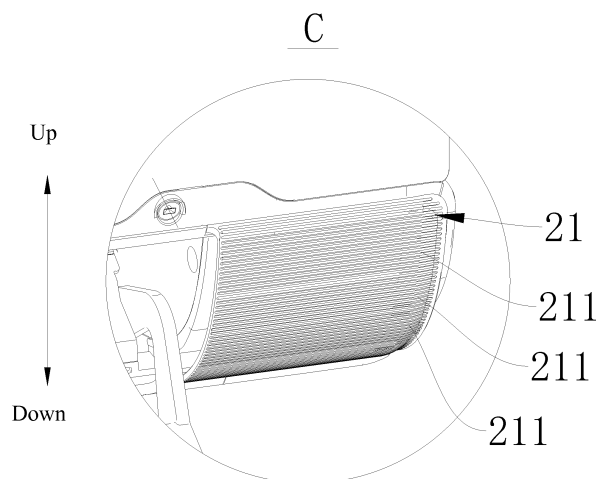


Fig. 6

EP 3 604 968 A1

Description

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application claims priority to and benefits of Chinese patent application Serial No. 201820181559.2, filed on January 31, 2018, the entire content of which is incorporated herein by reference.

FIELD

[0002] The present disclosure relates to the field of air-conditioning technology, in particular to a housing assembly for air conditioner and the air conditioner.

BACKGROUND

[0003] In the relevant technology, for reducing the wall attachment effect on the heat exchange efficiency of the air conditioner, a flow guiding member is arranged on the end cover of the side wall surface of the air conditioner, so that the flow guiding member is fitted with the air deflector on the outside when the air conditioner is turned off. In the process of opening or closing the air deflector, the air deflector will rub against the flow guiding member, which is easy to scratch the flow guiding member and affect its aesthetics. Moreover, the structural strength of the flow guiding member itself is low and its service life is short.

SUMMARY

[0004] The purpose of the present disclosure is to address at least one of the technical problems in the existing technology. Therefore, the present disclosure proposes a housing assembly for air conditioner, which has the advantages of simple structure and high heat exchange efficiency.

[0005] The present disclosure also proposes an air conditioner, which includes the housing assembly.

[0006] The housing assembly of the air conditioner according to the embodiment in the present disclosure includes a face frame provided with a front air outlet; and two end covers arranged at a left end and a right end of the face frame respectively. At least one end cover of the end covers has a bottom provided with an extension part bent forwards and upwards, the extension part is located in front of the face frame and defines an auxiliary air outlet channel with the face frame, the at least one end cover is provided with an side air outlet in communication with the auxiliary air outlet channel, and the extension part defines a plurality of grooves spaced apart from each on a front surface.

[0007] Regarding the housing assembly for air conditioner according to the embodiment of the present disclosure, there are several spaced grooves on the front surface of the extension part at the bottom of end cover, which can improve the structural strength of the end cov-

er, and enhance the aesthetics of the air conditioner. In addition, when the outer air deflector of extension part is closed, extension part will not be scratched easily by the air deflector, so that the service life of extension part may be extended.

[0008] According to some embodiments of the present disclosure, each of the two end covers is provided with the extension part bent forwards and upwards, each extension part defines the auxiliary air outlet channel together with the face frame, each of the end covers is provided with the side air outlet in communication with the corresponding auxiliary air outlet channel, and each extension part defines a plurality of grooves spaced apart from each on the front surface.

[0009] According to some embodiments of the present disclosure, the grooves extend in a left-right direction

[0010] According to some embodiments of the present disclosure, the plurality of grooves are spaced in an extension direction of the extension part.

[0011] According to some embodiments of the present disclosure, one of the face frame and the end cover is provided with a hook, and the other one of the face frame and the end cover is provided with a snapping slot fitted with the hook.

[0012] Further, a plurality of hooks are provided, and a plurality of snapping slots are provided and correspond to the plurality of hooks one to one.

[0013] According to some embodiments of the present disclosure, the face frame defines a guide slot extending in a left-right direction, and the end cover is provided with a guide protrusion fitted with the guide slot.

[0014] Further, at least one of side walls of an inlet end of the guide slot has a guide bevel.

[0015] According to some embodiments of the present disclosure, the guide protrusion is arranged at a free end of the extension part.

[0016] The air conditioner according to the present disclosure includes the housing assembly.

[0017] Regarding the air conditioner according to the embodiment of the present disclosure, there are several spaced grooves on the front surface of the extension part at the bottom of end cover, which can improve the structural strength of the end cover, and enhance the aesthetics of the air conditioner. In addition, when the outer air deflector of extension part is closed, extension part will not be scratched easily by the air deflector, so that the service life of extension part may be extended.

[0018] Additional aspects and benefits of the present disclosure will be presented in the following sections, which will become apparent from the following descriptions or through the practice of the present disclosure.

BRIEF DESCRIPTION OF THE DRAWING

[0019] The above and/or additional aspects and advantages of the present disclosure will become apparent and easy to understand from the description of embodiments in combination with the attached drawings below,

where:

Fig. 1 is a structure diagram of air conditioner as specified in the embodiment of the present disclosure;

Fig. 2 is an enlarged drawing of the position A in Fig. 1;

Fig. 3 is a structure diagram of end cover of housing assembly for the air conditioner as specified in the embodiment of the present disclosure;

Fig. 4 is an enlarged drawing of the position B in Fig. 3;

Fig. 5 is a structure diagram of air conditioner as specified in the embodiment of the present disclosure, where the air deflector is not shown;

Fig. 6 is an enlarged drawing of the position C in Fig. 5;

Fig. 7 is a structure diagram of face frame of housing assembly for the air conditioner as specified in the embodiment of the present disclosure;

Fig. 8 is a diagrammatic cross-section of the air conditioner as specified in the embodiment of the present disclosure.

Reference numerals:

[0020]

Air conditioner 1000,
housing assembly 100,
face frame 1, front air outlet 11,
end cover 2, extension part 21, groove 211, side air outlet 22,
hook 3, snapping slot 4, guide slot 5, guide bevel 51,
guide protrusion 6,
air deflector 200, ducting hole 7.

DETAILED DESCRIPTION

[0021] The embodiments of the present disclosure are described in detail below, and examples of the embodiments are shown in the attached drawings, throughout which the identical or similar labels are used to denote the identical or similar elements or elements having identical or similar functions. The embodiments described below by reference to the attached drawings are illustrative and are used only to interpret the present disclosure but should not be construed as restrictions on the present disclosure.

[0022] In the description of the present disclosure, it should be understood that the orientation or position relations indicated with the terms "length", "up", "down", "front", "rear", "left" and "right" are based on the orientation or position relations shown in the attached drawings, are used only for the convenience of describing the present disclosure and simplifying the description, rather than indicating or implying that the device or element referred to must have a particular orientation, be con-

structed and operated in a particular orientation, so they shall not be construed as a restriction on the present disclosure. In addition, a feature defined as "first" or "second" may, explicitly or implicitly, include one or more such features. Unless otherwise stated, "multiple" means two or more in the description of the present disclosure.

[0023] In the description of the present disclosure, it should be noted that unless otherwise expressly specified and defined, the terms "installation", "linking" and "connection" shall be understood generally, for example, it may be fixed connection, or integral connection; or mechanical or electrical connections; or direct linking, indirect linking through an intermediate medium, or internal connection of two components. The specific meaning of the above terms in the present disclosure may be understood on a case by case basis by ordinary technical personnel in the field.

[0024] The following describes the housing assembly 100 according to the embodiment of the present disclosure with reference to Figs. 1- 8.

[0025] As shown in Figs. 1- 8, the housing assembly 100 according to the embodiment of the present disclosure comprises of the face frame 1 and the end cover 2.

[0026] Specifically, as shown in Fig. 1, Fig. 5 and Fig. 7, the face frame 1 is provided with the front air outlet 11 which can be located at the bottom of the front side of face frame 1, and can extend in the length direction (the left-right direction as shown in Fig. 1) of the face frame 1. The front air outlet 11 serves to guide the air flow, through which the cool air or warm air produced by the air conditioner 1000 can be led into the indoor space.

[0027] As shown in Figs. 2-4 and Fig. 7, there are two end covers 2 which are mounted on the left end (as shown in Fig. 1) and the right end (as shown in Fig. 2) of the face frame 1, the bottom of at least one of the end covers 2 is provided with the extension part 21 which bends forwards and upwards (the extension part 21 located at the bottom of the end cover 2 on the left end of the face frame 1 or the bottom of end cover 2 on the left end of the face frame 1 bending forwards or upwards, or the extension part 21 located at the bottom of end cover 2 on the left end of face frame 1 or the bottom of end cover 2 on the right end of face frame 1 bending forwards and upwards), the extension part 21 is located on the front side of the face frame 1 and defines the auxiliary air outlet channel together with the face frame 1, the end cover 2 with extension part 21 is provided with the side air outlet 22 connected to the auxiliary air outlet channel through which the air flow can be led into the indoor space.

[0028] As shown in Figs. 3-6, there are multiple spaced grooves 211 on the front surface of the extension part 21; since the end cover 2 and the face frame 1 form the auxiliary air outlet channel, while the strength of extension part 21 is relatively low, the grooves 211 set on the extension part 21 may increase the structural strength of the extension part 21, so as to increase the structural strength of the end cover 2, and improve the operating reliability of the air conditioner 1000. Moreover, when the

air deflector 200 is opened or closed, the front surface of the extension part 21 is prone to rub against the inner surface of the air deflector 200; the grooves 211 set on the front surface of the extension part 21 can prevent the air deflector 200 scratching the front surface of the extension part 21 in the opening and closing process. In addition, the grooves 211 set on the front surface of the extension part 21 may enhance the aesthetics of the air conditioner 1000 when the air deflector 200 is opened.

[0029] Regarding the housing assembly 100 for the air conditioner 1000 as specified in the embodiment of the present disclosure, multiple spaced grooves 211 set on the front surface of the extension part 21 at the bottom of the end cover 2 can improve the structural strength of the end cover 2 and enhance the aesthetics of the air conditioner 1000. In addition, when the air deflector 200 on the outer side of the extension part 21 is closed, the extension part 21 will not be scratched easily, so that its service life may be extended.

[0030] According to some embodiments of the present disclosure, and as shown in Figs. 5-7, both end covers 2 are provided with the extension parts 21 bending forwards and upwards, each extension part 21 defines the auxiliary air outlet channel together with the face frame 1, each end cover 2 is provided with the side air outlet 22 connected to the corresponding auxiliary air outlet channel, and there are multiple spaced grooves 211 on the front surface of each extension part 21.

[0031] Thereby, it can extend the air outlet scope of the air conditioner 1000, improve the comfort of user, enhance the structural strength of end cover 2 on the left end (as shown in Fig. 5) and the end cover 2 on the right end (as shown in Fig. 5) of the face frame 1 and increase the working reliability of the air conditioner 1000. In addition, when the air deflector 200 is opened, it can enhance the aesthetics of air conditioner 1000; when the air deflector 200 is closed, it can prevent the extension part 21 of the end cover 2 being scratched by the air deflector 200.

[0032] According to some embodiments of the present disclosure, and as shown in Figs. 5 and Fig. 6, the grooves 211 extend in the left-right direction (as shown in Fig. 5). Therefore, it can enhance the structural strength of the extension part 21, extend the service life of the extension part 21, simplify the manufacturing procedure of the end cover 2, shorten the production cycle and lower the production costs. Of course, the present disclosure is not limited in this aspect. The grooves 211 can extend in the extension direction of the extension part 21, or the extension direction of the grooves 211 can be at certain angle from the horizontal direction-i.e. left-right direction.

[0033] According to some embodiments of the present disclosure, and as shown in Fig. 5 and Fig. 6, multiple grooves 211 are spaced in the extension direction (up-down direction as shown in Fig. 6) of the extension part 21, which thereby enhances the structural strength of the extension part 21, extends the service life of the extension

part 21, simplifies the manufacturing procedure of the end cover 2 further, shortens the production cycle and lowers the production cost.

[0034] According to some embodiments of the present disclosure, and as shown in Fig. 3, Fig. 5 and Fig. 6, either the face frame 1 or the end cover 2 is provided with the hook 3, while the other one is provide with the snapping slot 4 matching with the hook 3. The assembly of face frame 1 and end cover 2 can be realized by the matching between the hook 3 and the snapping slot 4, and the face frame 1 can be connected to the end cover 2 without any other parts (like bolts or screws), which thus increases the assembly efficiency of the end cover 3 and makes the repair and disassembly convenient. For example, in the embodiment shown in Fig. 3 and Fig. 7, the end cover 2 is provided with the hook 3, while the face frame 1 is provided with the snapping slot 4.

[0035] According to some embodiments of the present disclosure, and as shown in Fig. 3, Fig. 5 and Fig. 6, there are multiple hooks 3, and multiple snapping slots 4, which are corresponding to each other. Thus, it can improve the strength of connection between the face frame 1 and the end cover 2, so that the face frame 1 fits with the end cover 2 closer, and the relative swinging between the end cover 2 and the face frame 1 can be prevented in the operating process of the air conditioner 1000, which thereof lowers the noise in the operating process of the air conditioner 1000, and improves the use conform of the user.

[0036] According to some embodiments of the present disclosure, and as shown in Fig. 3-7, the guide slot 5 extending in the left-right direction (as shown in Fig. 7) is set on the face frame 1, while the guide protrusion 6 matching with the guide slot 5 is set on the end cover 2. The guide protrusion 6 on the end cover 2 can slide in the guide slot 5 on the face frame 1, and guide the installation of the end cover 2, for the convenience of connection between the face frame 1 and the end cover 2.

[0037] According to some embodiments of the present disclosure, and as shown in Fig. 1, Fig. 3 and Fig. 4, the guide protrusion 6 is set on the free of the extension part 21. Thus, it can make the free end of the extension part 21 fit with the face frame 1 closer, prevent the extension part 21 tilting outwards from the face frame 1, enhance the aesthetics of the air conditioner 1000 and meanwhile improve the tightness of the auxiliary air outlet channel.

[0038] According to some embodiments of the present disclosure, and as shown in Fig. 4, Fig. 5 and Fig. 7, at least one of the side walls of the inlet end of the guide slot 5 has a guide bevel 51. Thus, when the face frame 1 and the end cover 2 are assembled, the guide bevel 51 will serve to guide the assembly between the guide protrusion 6 and the guide slot 5, therefore simplifying the assembly between the face frame 1 and the end cover 2, and increasing the assembly efficiency.

[0039] The following describes the housing assembly 100 according to the specific embodiment of the present disclosure with reference to Figs. 1-8. It should be un-

derstood that the following description is only illustrative and are used to interpret the present disclosure but should not be construed as restrictions on the present disclosure.

[0040] As shown in Figs. 1-8, the housing assembly 100 as specified in the embodiment of the present disclosure comprises the face frame 1 and the end cover 2.

[0041] As shown in Figs. 3-8, the face frame 1 is provided with the front air outlet 11 which is close to the bottom of the face frame 1, and extends in the length direction (left-right direction as shown in Fig. 5) of the same. There are two end covers 2 which are mounted on the left end (as shown in Fig. 5) and the right end (as shown in Fig. 5) of the face frame 1, and each end cover 2 is provided with an extension part 21 bending forwards and upwards at its bottom. Besides, multiple hooks 3 are set on the end covers 2, and multiple snapping slots 4 are set on the face frame 1, which are corresponding to and match with each other.

[0042] As shown in Fig. 3, Fig. 5 and Fig. 7, the extension part 21 is located on the front side of the face frame 1, and defines the auxiliary air outlet channel with the face frame 1, the side air outlet 22 connected to the auxiliary air outlet channel is set on each end cover 2, there are multiple spaced grooves 211 in the extension direction of the extension part 21 on the front surface of the extension part 21, and the grooves 211 extend in the left-right direction (as shown in Fig. 5) of the housing assembly 100.

[0043] As shown in Figs. 5-8, the guide slot 5 extending in the left-right direction (as shown in Fig. 7) is set on the face frame 1, there is guide bevel 51 on the side wall of the inlet end of the guide slot 5, and the guide protrusion 6 matching with the guide slot 5 is set on the free end of extension part 21.

[0044] The following describes the air conditioner 1000 as specified in the embodiment of the present disclosure with reference to Figs. 1-8.

[0045] As shown in Fig. 1, Fig. 3 and Fig. 4, the air conditioner 1000 of the present disclosure comprises the housing assembly 100, the air deflector 200, the pedestal, the front panel and the rear panel, where the air deflector 200 is located at the outer side of the extension part 21 of the housing assembly, and multiple spaced ducting holes 7 are set uniformly on the air deflector 200.

[0046] Regarding the air conditioner 1000 as specified in the embodiment of the present disclosure, multiple spaced grooves 211 are set on the front surface of the extension part 21 at the bottom of the end cover 2, which enhances the structural strength of the end cover 2, and improves the aesthetics of the air conditioner 1000. In addition, when the air deflector 200 on the outer side of the extension part 21 is closed, the extension part 21 will not be scratched easily by the air deflector, which extends the service life of the extension part 21.

[0047] In the description of the present disclosure, the terms "an embodiment", "some embodiments" and "schematic embodiment", "example", "specific example",

or "some examples" etc. means that the specific feature, structure, material or characteristic of that embodiment or example described are included in at least one embodiment or example of the present disclosure. In this description, the schematic presentation of such terms may not refer to the same embodiment or example. Moreover, the specific features, structure, material or characteristics described may be combined in an appropriate manner in any one or multiple embodiments or examples.

[0048] Although the embodiments of the present disclosure have been presented and described, the ordinary technical personnel in the field can understand that multiple changes, modifications, substitutions and variations of such embodiments can be made without deviating from the principles and purposes of the present disclosure, and that the scope of the present disclosure is defined by the claims and their equivalents.

Claims

1. A housing assembly for an air conditioner, comprising:
 - a face frame provided with a front air outlet; and
 - two end covers arranged at a left end and a right end of the face frame respectively, wherein at least one end cover of the end covers has a bottom provided with an extension part bent forwards and upwards, the extension part is located in front of the face frame and defines an auxiliary air outlet channel with the face frame, the at least one end cover is provided with an side air outlet in communication with the auxiliary air outlet channel, and the extension part defines a plurality of grooves spaced apart from each on a front surface.
2. The housing assembly according to claim 1, wherein each of the two end covers is provided with the extension part bent forwards and upwards, each extension part defines the auxiliary air outlet channel together with the face frame, each of the end covers is provided with the side air outlet in communication with the corresponding auxiliary air outlet channel, and each extension part defines a plurality of grooves spaced apart from each on the front surface.
3. The housing assembly according to claim 1 or 2, wherein the grooves extend in a left-right direction.
4. The housing assembly according to claim 3, wherein the plurality of grooves are spaced in an extension direction of the extension part.
5. The housing assembly according to any one of claims 1 to 4, wherein one of the face frame and the end cover is provided with a hook, and the other one

of the face frame and the end cover is provided with a snapping slot fitted with the hook.

6. The housing assembly according to claim 5, wherein a plurality of hooks are provided, and a plurality of snapping slots are provided and correspond to the plurality of hooks one to one. 5
7. The housing assembly according to any one of claims 1 to 6, wherein the face frame defines a guide slot extending in a left-right direction, and the end cover is provided with a guide protrusion fitted with the guide slot. 10
8. The housing assembly according to claim 7, wherein at least one of side walls of an inlet end of the guide slot has a guide bevel. 15
9. The housing assembly according to claim 7, wherein the guide protrusion is arranged at a free end of the extension part. 20
10. An air conditioner, comprising the housing assembly according to any one of claims 1 to 9. 25

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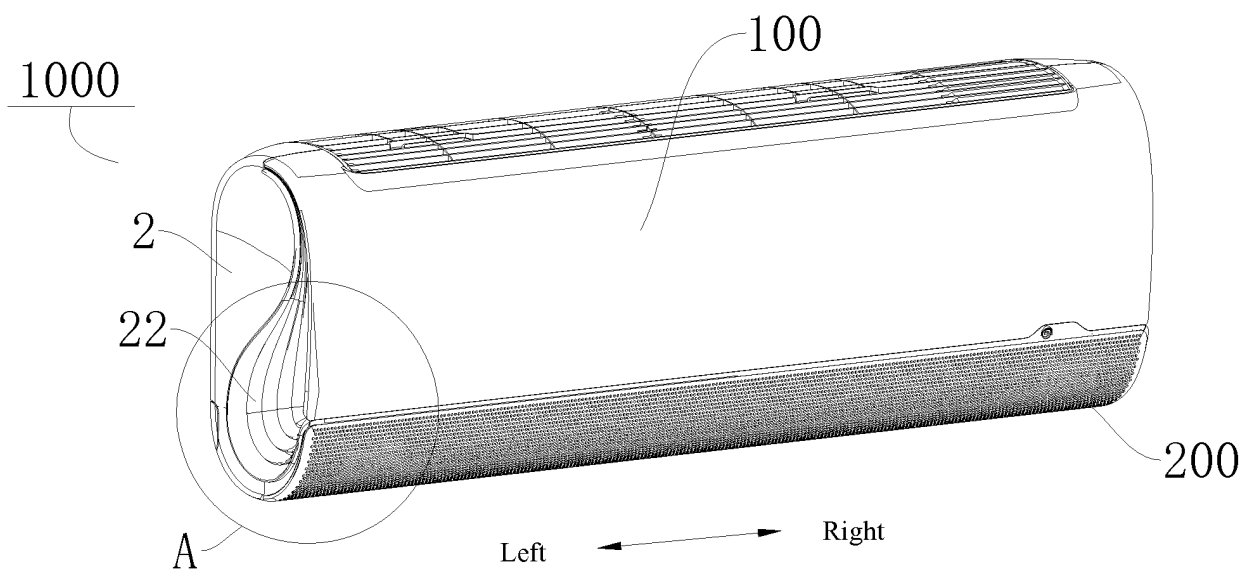


Fig. 1

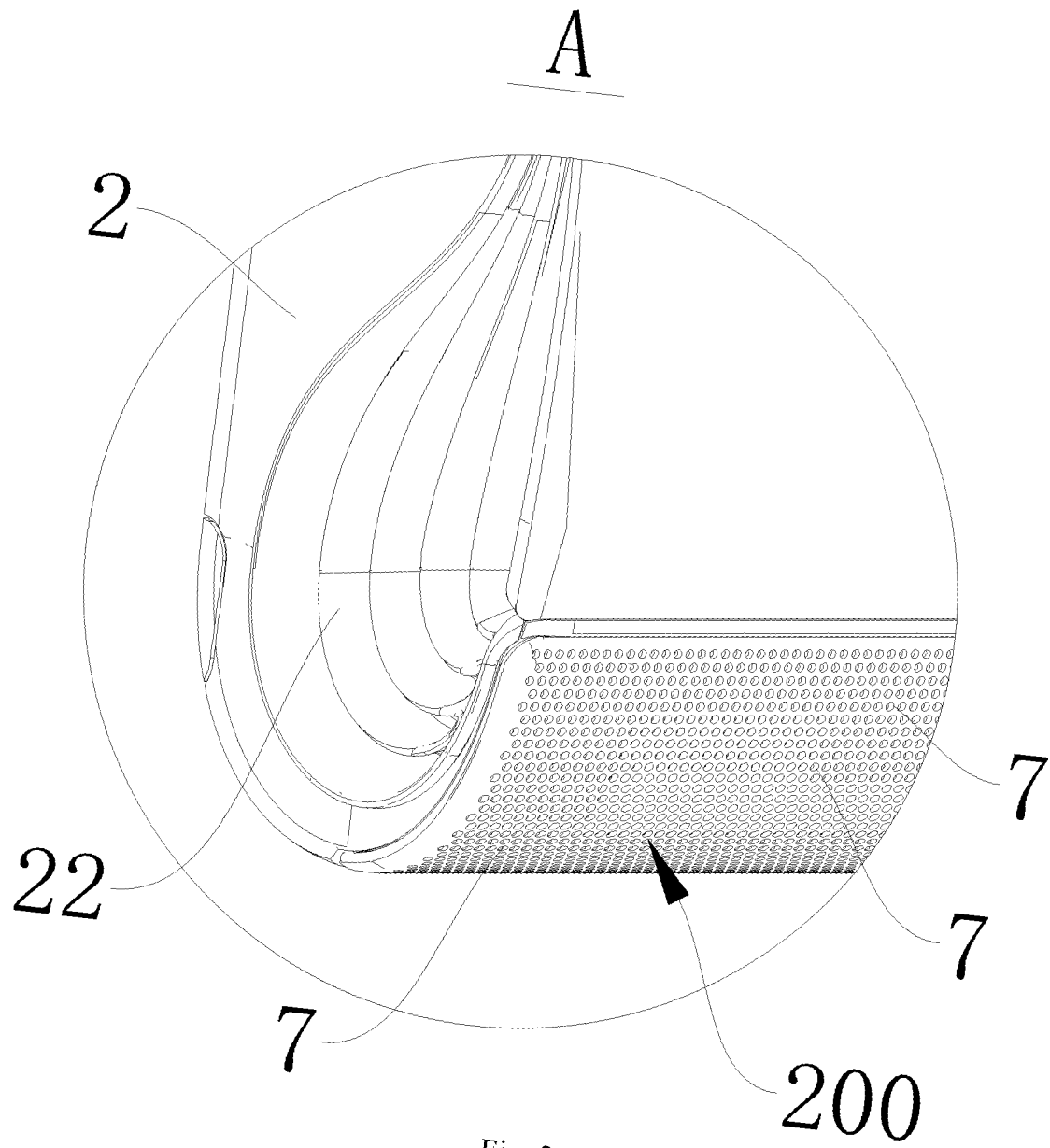


Fig. 2

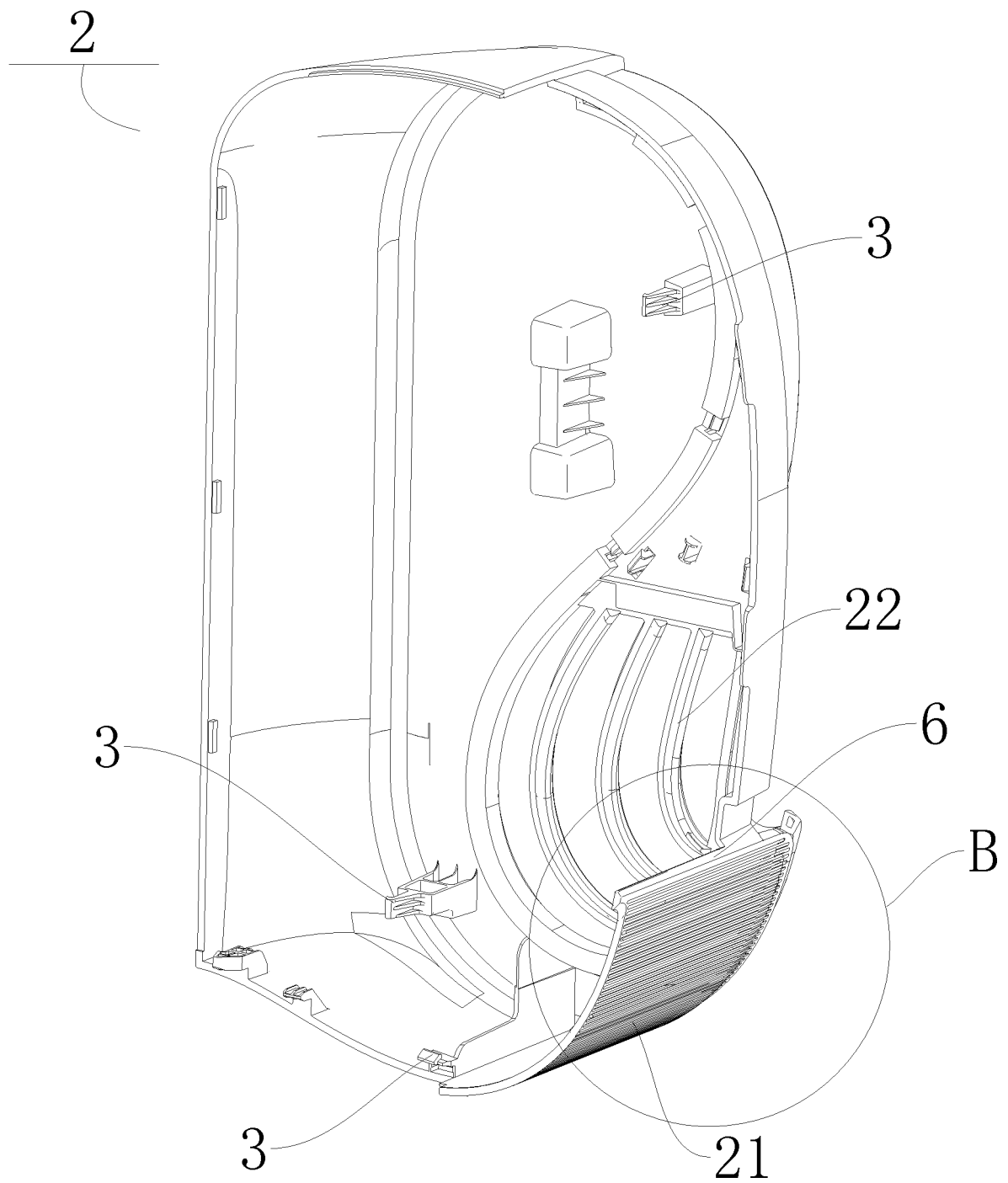


Fig. 3

B

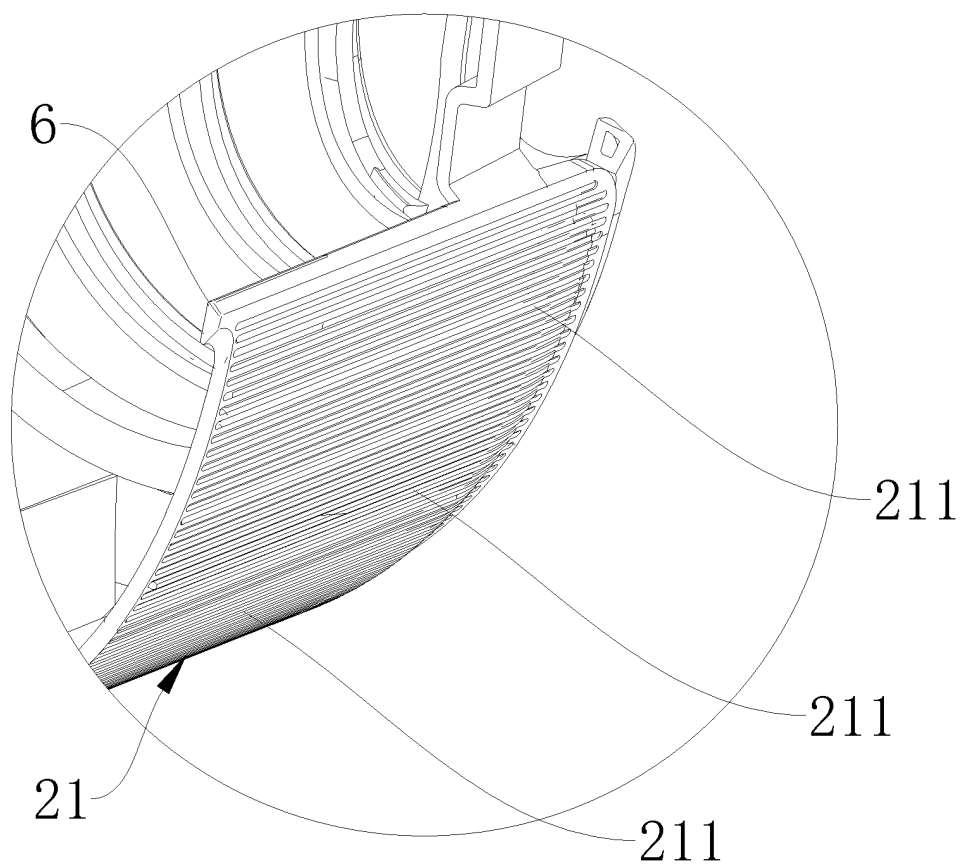


Fig.4

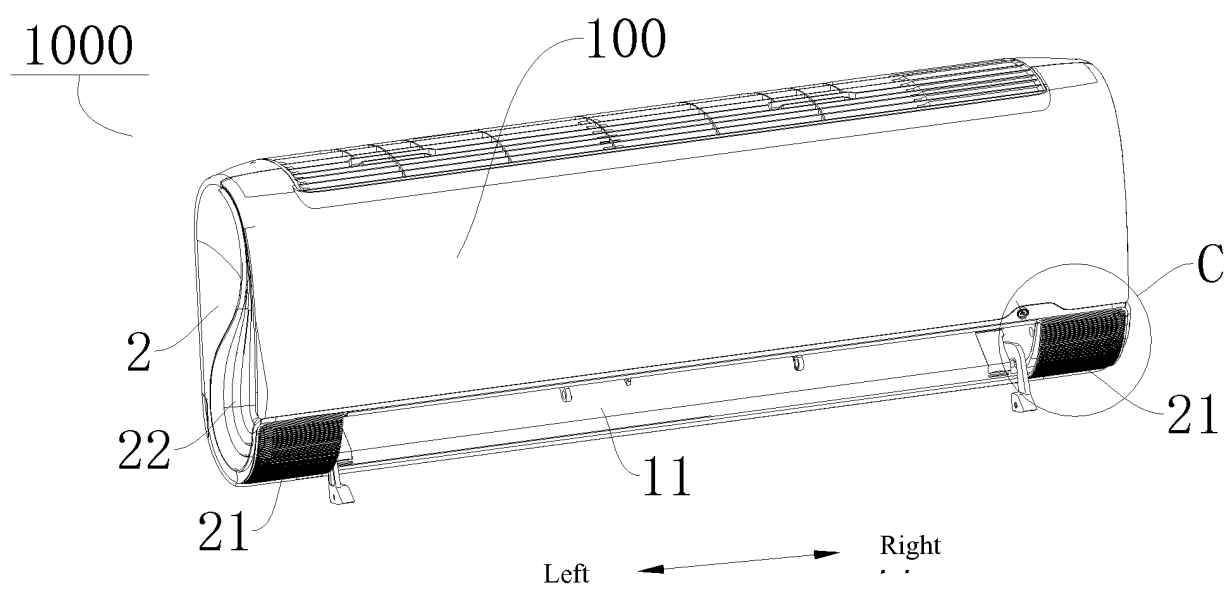


Fig. 5

C

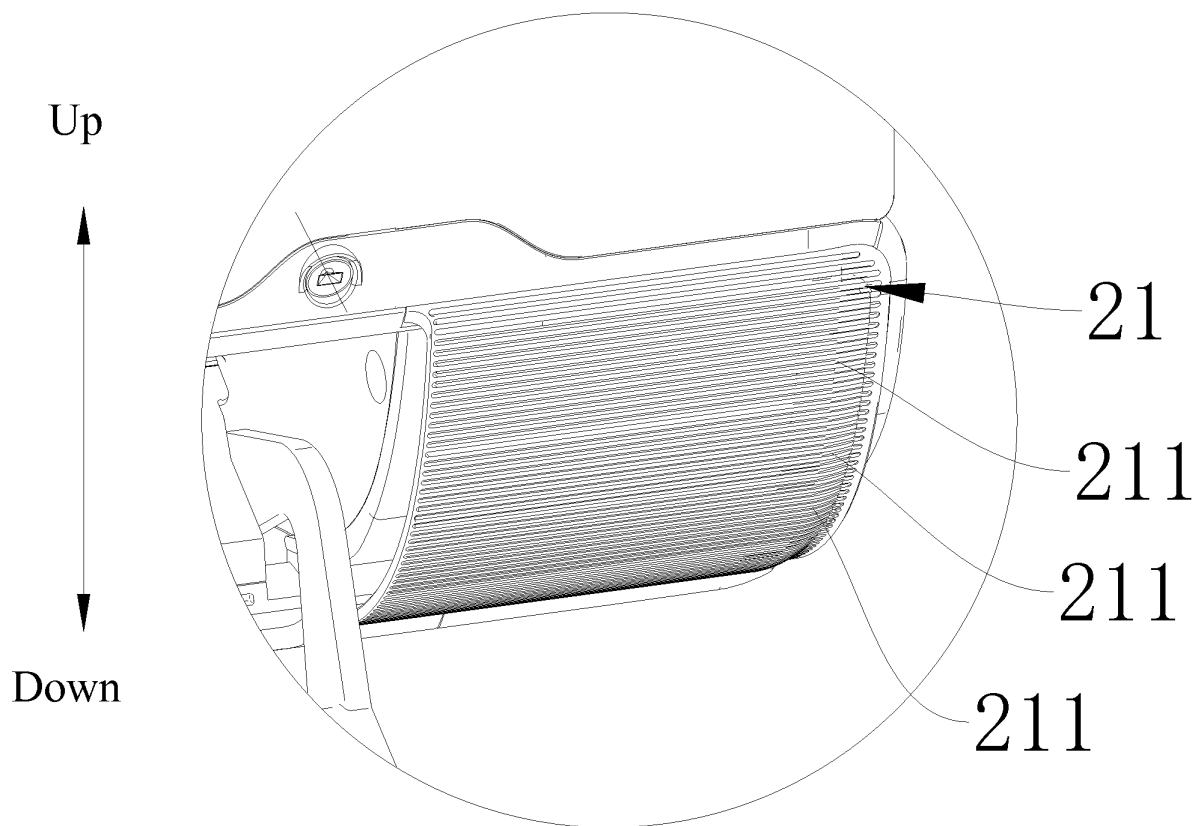


Fig. 6

1

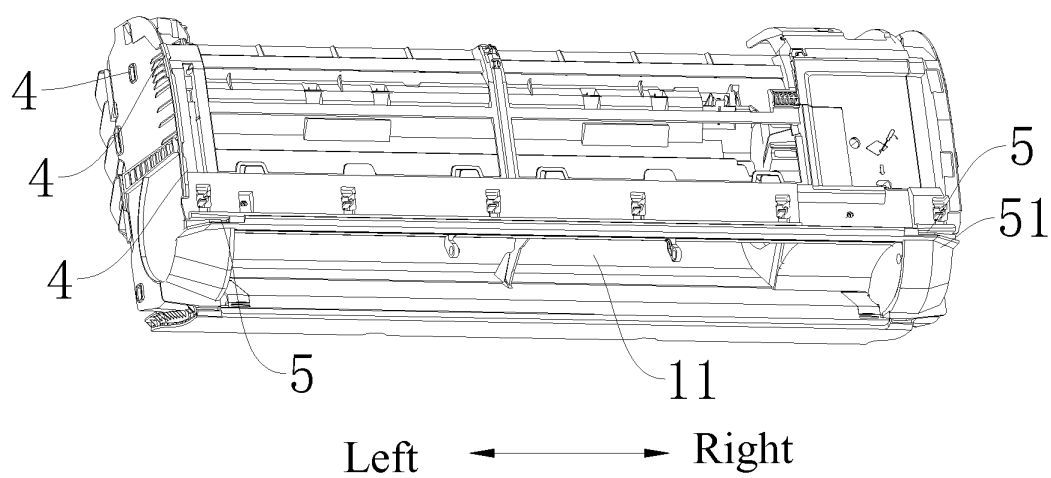


Fig. 7

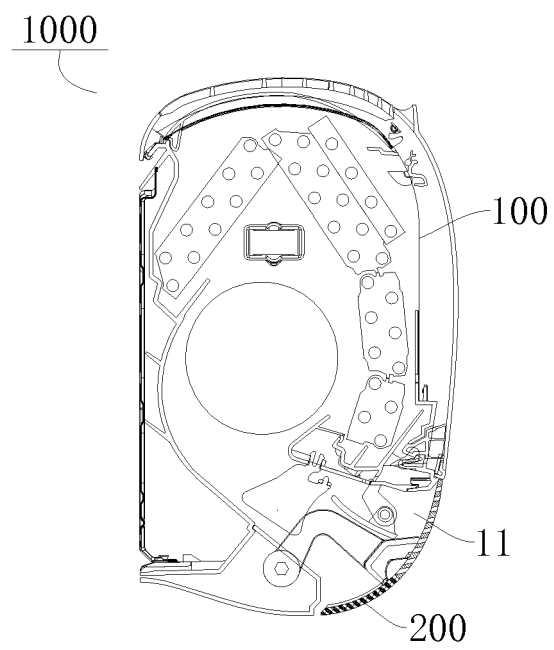


Fig.8

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2018/108038

5	A. CLASSIFICATION OF SUBJECT MATTER	
	F24F 13/20(2006.01)i	
	According to International Patent Classification (IPC) or to both national classification and IPC	
	B. FIELDS SEARCHED	
10	Minimum documentation searched (classification system followed by classification symbols)	
	F24F	
	Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched	
15	Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)	
	CNPAT, CNKI, WPI, EPODOC 空调器, 壳体, 组件, 面框, 前出风口, 端盖, 向上, 延伸部, 辅助出风, 侧部出风, 间隔, 凹槽, 强度 air, conditioner, shell, body, assembly, face, frame, front, outlet, port, opening, end, cover, up, extend+, part, auxiliary, side, interval, groove, strength	
	C. DOCUMENTS CONSIDERED TO BE RELEVANT	
20	Category*	Citation of document, with indication, where appropriate, of the relevant passages
	X	CN 107166511 A (QINGDAO HAIER AIR-CONDITIONER CO., LTD.) 15 September 2017 (2017-09-15) description, paragraphs [0041]-[0063], and figures 1-3
25	Y	CN 107166511 A (QINGDAO HAIER AIR CONDITIONER CO., LTD.) 15 September 2017 (2017-09-15) description, paragraphs [0041]-[0063], and figures 1-3
	Y	CN 205208874 U (XIANGSHAN JUYING SCIENCE AND TECHNOLOGY DEVELOPMENT CO., LTD.) 04 May 2016 (2016-05-04) description, paragraphs [0012]-[0015]
30	A	CN 107084521 A (AUX AIR CONDITIONING CO., LTD.) 22 August 2017 (2017-08-22) entire document
	A	JP 2006002984 A (FUJITSU GENERAL LTD.) 05 January 2006 (2006-01-05) entire document
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	Date of the actual completion of the international search	Date of mailing of the international search report
	14 November 2018	21 November 2018
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	State Intellectual Property Office of the P. R. China (ISA/CN) No. 6, Xitucheng Road, Jimenqiao, Haidian District, Beijing 100088 China	
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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.

PCT/CN2018/108038

Patent document cited in search report	Publication date (day/month/year)	Patent family member(s)	Publication date (day/month/year)
CN 107166511 A	15 September 2017	None	
CN 205208874 U	04 May 2016	None	
CN 107084521 A	22 August 2017	None	
JP 2006002984 A	05 January 2006	None	

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