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(54) REFRIGERATION APPLIANCE

(57) A refrigeration appliance comprises a cabinet body, a door body and a front cover assembly. Two hinge fixing members are arranged on the front side of the cabinet body and distributed in a left-right direction. The front cover assembly has a first state wherein the hinge fixing member on the left side is covered, and a second state wherein the hinge fixing member on the right side is covered. A non-overlap area in the first state and the second state is used for covering the hinge fixing member. Hence the attractiveness of the appearance is improved, and the overlap area can cover other areas of the refrigeration appliance that need to be covered.

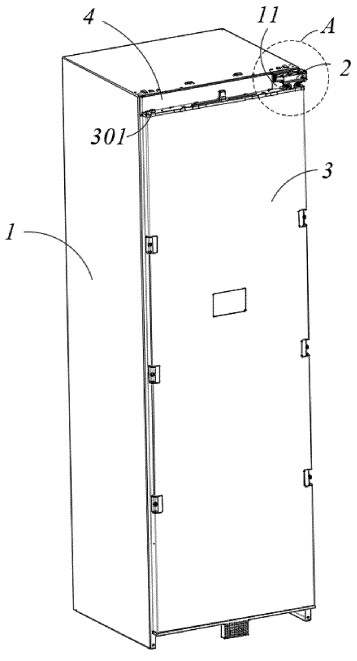

FIG. 1

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Description

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] The present application claims the priority of Chinese Patent Application filed on June 24, 2022, with application number 202210738549.5, entitled "Refrigeration appliance", the entire content of which is incorporated herein by reference.

TECHNICAL FIELD

[0002] The present application relates to the field of refrigeration appliance, particularly to a refrigeration appliance.

BACKGROUND

[0003] Certain models of refrigerators, freezers, and other refrigeration appliances require hinge fixing portions on both the left and right sides of the cabinet body to accommodate different installation conditions and user habits. The hinge connects to one of the two hinge fixing portions, allowing the refrigeration appliance to switch between left-opening and right-opening states by changing the hinge position. When the hinge is connected to one of the hinge fixing portions, the other hinge fixing portion is exposed, affecting the aesthetic appearance of the refrigeration appliance and making it prone to damage due to lack of protection.

SUMMARY

[0004] The object of the present application is to provide a refrigeration appliance with a front cover assembly capable of covering hinge fixing members on different sides.

[0005] In particular, the present application is directed to a refrigeration appliance comprising:

a cabinet body, the cabinet body having a compartment with a front opening, and two hinge fixing members distributed along a left-right direction on a front side of the cabinet body;

a door body, the door body being positioned in front of the cabinet body;

a front cover assembly, the front cover assembly being positioned in front of the cabinet body;

the front cover assembly has a first state covering the hinge fixing member on a left side and a second state covering the hinge fixing member on a right side, the front cover assembly has an overlapping area that overlaps in both the first and second states and a non-overlapping area that does not overlap in the first and second states, the non-overlapping area is used to cover the hinge fixing members.

[0006] Further, when the front cover assembly is in the first state, the front cover assembly exposes the hinge fixing member on the right side, and when the front cover assembly is in the second state, the front cover assembly exposes the hinge fixing member on the left side;

the refrigeration appliance further comprises a hinge assembly, the hinge assembly is connected to the exposed hinge fixing member and the door body.

[0007] Further, the cabinet body further has an accommodation compartment with a front opening, the front cover assembly covers at least part of the accommodation compartment.

[0008] Further, the refrigeration appliance further comprises a control module disposed in the accommodation compartment, the overlapping area covers the control module.

[0009] Further, the front cover assembly comprises a front cover and a first electronic device mounted on a rear side of the front cover, the first electronic device is disposed in the overlapping area, the control module has a connecting part for connecting with the first electronic device, the front cover assembly rotates 180° about an axis passing through a center of the first electronic device and extends along a front-back direction when transitioning from the first state to the second state.

[0010] Further, the first electronic device is a magnetic sensitive switch.

[0011] Further, the first electronic device is offset from a center of the front cover in the left-right direction, and is aligned with the center of the front cover in height.

[0012] Further, the refrigeration appliance further comprises an embedded box disposed in the accommodation compartment, the control module is disposed in the embedded box;

when the front cover assembly is in the first state and the second state, the front cover is mounted on a front side of the embedded box.

[0013] Further, the rear side of the front cover is equipped with two sets of snap structures symmetrically arranged up and down, the embedded box has two sets of upper and lower distributed upper matching structures and lower matching structures, the upper matching structures and lower matching structures are used to cooperate with the snap structures respectively when the front cover assembly is in the first state and the second state to fix the front cover assembly.

[0014] Further, the hinge fixing member comprises a first connecting plate for connecting with the hinge assembly, the embedded box is located behind the first connecting plate;

a length of the embedded box in the left-right direction is greater than a length of the front cover in the left-right direction, the upper matching structure comprises two first upper matching parts respectively corresponding to the two first connecting plates, and a second upper matching part located between the two first upper matching parts, the snap structure has a first snap part for cooperating with the first upper matching part and a second snap part for cooperating with the second upper

matching part, the first snap part and the second snap part extend rearward from the rear side of the front cover, the first connecting plate is provided with a matching through hole for allowing the first snap part to pass through.

[0015] Further, an extending length of the first snap part is greater than an extending length of the second snap part.

[0016] Further, the lower matching structure comprises two first lower matching parts respectively located below the two first upper matching parts, and a second lower matching part located between the two first lower matching parts;

when the front cover assembly is in the first state, the two first snap parts respectively cooperate with the left first upper matching part and the left first lower matching part, and the two second snap parts respectively cooperate with the first upper matching part and the second lower matching part;
when the front cover assembly is in the second state, the two first snap parts respectively cooperate with the right first upper matching part and the right first lower matching part, and the two second snap parts respectively cooperate with the first upper matching part and the second lower matching part.

[0017] Further, the first snap part is located in the non-overlapping area, and the second snap part is located in the overlapping area.

[0018] Compared to the prior art, the advantageous effects of the present application comprise: the non-overlapping area of the front cover assembly covers the hinge fixing member on the left side in the first state and the hinge fixing member on the right side in the second state, thereby enhancing the aesthetic appearance and protecting the unused hinge fixing members. Additionally, the overlapping area remains in the same position in both the first and second states of the front cover assembly, covering other areas of the refrigeration appliance that require coverage, thereby improving the structural utilization of the front cover assembly and simplifying the structure of the refrigeration appliance.

BRIEF DESCRIPTION OF THE DRAWINGS

[0019]

FIG. 1 is a structural schematic diagram of the refrigeration appliance in the first state according to an embodiment of the present application;
FIG. 2 is an enlarged view of area A in FIG. 1;
FIG. 3 is a structural schematic diagram of the cabinet body according to an embodiment of the present application;
FIG. 4 is a structural schematic diagram of the refrigeration appliance in the second state with the inner liner, door body, and hinge assembly hidden according to an embodiment of the present application;
FIG. 5 is a structural schematic diagram of the refrigeration appliance with the front cover assembly, inner liner, door body, and hinge assembly hidden according to an embodiment of the present application;
FIG. 6 is an enlarged view of area B in FIG. 5;
FIG. 7 is a structural schematic diagram of the front cover assembly according to an embodiment of the present application;
FIG. 8 is a structural schematic diagram of the hinge fixing member according to an embodiment of the present application;
FIG. 9 is a structural schematic diagram of an embedded box according to the first embodiment of the present application;
FIG. 10 is an enlarged view of area C in FIG. 9;
FIG. 11 is a structural schematic diagram of the embedded box from another perspective according to the first embodiment of the present application;
FIG. 12 is a structural schematic diagram of the first decorative cover according to the first embodiment of the present application;
FIG. 13 is a structural schematic diagram of an embedded box according to the second embodiment of the present application;
FIG. 14 is a structural schematic diagram of the second decorative cover and the third decorative cover according to the second embodiment of the present application;
FIG. 15 is a structural schematic diagram of the second decorative cover according to the second embodiment of the present application;
FIG. 16 is a structural schematic diagram of part of the embedded box, hinge assembly, wire structure, and drag chain according to an embodiment of the present application;
FIG. 17 is a structural schematic diagram of the door body, hinge assembly, wire structure, and drag chain according to an embodiment of the present application; and
FIG. 18 is an enlarged view of area D in FIG. 17.

[0020] Wherein:

1. Cabinet body; 101. Outer shell; 102. Inner liner; 103. Compartment; 104. Accommodation compartment;
2. Hinge assembly; 201. First fixing part; 202. Second fixing part; 203. Connecting rod; 204. Third fixing part;
3. Door body; 301. Wiring channel;
4. Front cover assembly; 401. Front cover; 4011. First snap part; 4012. Second snap part; 4013. Positioning portion; 402. First electronic device;
5. Hinge fixing member; 501. First connecting plate; 5011. Matching through hole; 502. Second connect-

ing plate;
6. Control module;
7. Embedded box; 701. First accommodating cavity; 702. Second accommodating cavity; 703. First groove; 704. Second groove; 705. First upper matching part; 706. Second upper matching part; 707. First lower matching part; 708. Second lower matching part; 709. Positioning slot; 710. Upper shell; 711. Lower shell; 712. Partition wall; 713. First outlet; 714. Second outlet; 715. First slot; 716. Second slot; 717. Third slot; 718. Guide slot;
8. Wire structure; 801. Wire channel; 802. Shaft part;
9. Sealing member; 901. Wiring hole;
10. Drag chain;
11. First decorative cover; 1101. First fastening part; 1102. Second fastening part; 1103. First opening; 1104. block; 11041. Limiting protrusion; 11042. Teeth; 1105. First block fixing part; 1106. Second block fixing part;
12. Second decorative cover; 1201. Second opening; 1202. Third fastening part; 1203. First guide block; 1204. First support block;
13. Third decorative cover; 1301. Third opening; 1302. Fourth fastening part; 1303. Second guide block; 1304. Second support block.

DETAILED DESCRIPTION

[0021] The following detailed description will be provided with reference to the accompanying drawings, which illustrate specific embodiments of the present application. However, these embodiments are not intended to limit the invention, and any structural, methodological, or functional modifications made by those of ordinary skill in the art based on these embodiments are within the scope of the present application.

[0022] In the various drawings, certain dimensions of structures or parts may be enlarged relative to others for illustrative purposes, and thus only serve to illustrate the basic structure of the subject matter of the present application.

[0023] As shown in FIGS. 1 to 18, the present application provides a refrigeration appliance comprising a cabinet body 1, a door body 3, and a front cover assembly 4.

[0024] The cabinet body 1 has a compartment 103 with a front opening, and two hinge fixing members 5 distributed along a left-right direction on the front side of the cabinet body 1.

[0025] The door body 3 is positioned in front of the cabinet body 1.

[0026] The front cover assembly 4 is positioned in front of the cabinet body 1.

[0027] The front cover assembly 4 has a first state covering the hinge fixing member 5 on a left side and a second state covering the hinge fixing member 5 on a right side. The front cover assembly 4 has an overlapping area that overlaps in both the first and second states and a non-overlapping area that does not overlap in the first and second states. The non-overlapping area is used to cover the hinge fixing members 5.

[0028] In the first state and the second state of the front cover assembly 4, the non-overlapping area respectively covers the hinge fixing member 5 on the left side and the hinge fixing member 5 on the right side, thereby enhancing the aesthetic appearance and protecting the unused hinge fixing members 5. The overlapping area remains in the same position in both the first and second states of the front cover assembly 4, covering other areas of the refrigeration appliance that require coverage, thereby improving the structural utilization of the front cover assembly 4 and simplifying the structure of the refrigeration appliance.

[0029] When the front cover assembly 4 is in the first state, it exposes the hinge fixing member 5 on the right side, and when the front cover assembly 4 is in the second state, it exposes the hinge fixing member 5 on the left side.

[0030] The refrigeration appliance further comprises a hinge assembly 2, an embedded box 7, a control module 6, and a wiring structure 8.

[0031] The hinge assembly 2 is connected to the exposed hinge fixing member 5 and the door body 3. In the first and second states of the front cover assembly 4, the direction of opening the door of the refrigeration appliance is different, achieving the function of switching the opening direction from left to right.

[0032] The cabinet body 1 further has an accommodation compartment 104 with a front opening, and the front cover assembly 4 covers at least part of the accommodation compartment 104.

[0033] The cabinet body 1 includes an outer shell 101 and an inner liner 102 located inside the outer shell 101. The space between the bottom wall of the outer shell 101 and the top wall of the inner liner 102 constitutes the accommodation compartment 104.

[0034] Specifically, the control module 6 is disposed in the accommodation compartment 104, and the overlapping area covers the control module 6.

[0035] The front cover assembly 4 rotates 180° when transitioning from the first state to the second state. That is, during the process of switching the front cover assembly 4 between the first and second states, it needs to be flipped 180°.

[0036] The front cover assembly 4 comprises a front cover 401 and a first electronic device 402 mounted on the rear side of the front cover 401. The first electronic device 402 is disposed in the overlapping area. The control module 6 has a connecting part for connecting with the first electronic device 402. The front cover assembly 4 rotates 180° about an axis passing through the center of the first electronic device 402 and extending along a front-back direction when transitioning from the first state to the second state. This ensures that the position of the center of the first electronic device 402 does not change after the rotation of the front cover assembly 4, thereby ensuring the connection between

the first electronic device 402 and the connecting part.

[0037] Specifically, the first electronic device 402 is a magnetic sensitive switch, which is used to detect external temperatures. The first electronic device 402 being arranged on the front cover 401 ensures the accuracy of detecting external temperatures.

[0038] The connecting part is detachably connected to the first electronic device 402. For example, the connecting part and the first electronic device 402 can be plugged together, in which case the connecting part is a connector. Alternatively, the connecting part and the first electronic device 402 can be connected by direct contact, in which case the connecting part is a metal contact.

[0039] The first electronic device 402 is offset from a center of the front cover 401 in the left-right direction. When the front cover assembly 4 is in the first state, the first electronic device 402 is located in a right half area of the front cover 401, meaning an area of the front cover 401 on the left side of the first electronic device 402 is larger, thereby facilitating the front cover 401 to cover the hinge fixing member 5 on the left side. When the front cover assembly 4 is in the second state, the first electronic device 402 is located in the left half area of the front cover 401, meaning the area of the front cover 401 on the right side of the first electronic device 402 is larger, facilitating the front cover 401 to cover the hinge fixing member 5 on the right side.

[0040] The first electronic device 402 is aligned with the center of the front cover 401 in height. This ensures that the height of the center of the first electronic device 402 does not change after the front cover assembly 4 rotates 180°, thereby preventing the first electronic device 402 from detaching from the connecting part.

[0041] The embedded box 7 is disposed in the accommodation compartment 104, with the control module 6 being set inside the embedded box 7.

[0042] When the front cover assembly 4 is in the first state and the second state, the front cover 401 is always mounted on a front side of the embedded box 7.

[0043] The embedded box 7 has a first accommodating cavity 701 and two second accommodating cavities 702, each located on the left and right sides of the first accommodating cavity 701. Both the first accommodating cavity 701 and the second accommodating cavities 702 have front openings. The control module 6 is set within the first accommodating cavity 701. The function of the second accommodating cavities 702 is to house part of the wiring harnesses used to connect to the display screen on the door body 3.

[0044] When the front cover assembly 4 is in the first state, it covers the first accommodating cavity 701 and the left second accommodating cavity 702, exposing the right second accommodating cavity 702, allowing the wiring harnesses connecting to the display screen on the door body 3 to pass through. When the front cover assembly 4 is in the second state, it covers the first accommodating cavity 701 and the right second accommodating cavity 702, exposing the left second accommodating cavity 702, allowing the wiring harnesses connecting to the display screen on the door body 3 to pass through. Therefore, the front cover assembly 4 of the present application can also cover the first accommodating cavity 701, the control module 6 inside the first accommodating cavity 701, and the second accommodating cavities 702 that do not need to pass through the wiring harnesses, enhancing the aesthetic appearance.

[0045] The second accommodating cavities 702 are longitudinally aligned with the hinge fixing members 5, facilitating the front cover assembly 4 to cover both the hinge fixing members 5 and the second accommodating cavities 702 simultaneously.

[0046] Preferably, the second accommodating cavities 702 are located below the hinge fixing members 5. When the hinge assembly 2 is installed on the hinge fixing members 5, the hinge assembly 2 can cover at least part of the second accommodating cavities 702 and part of the wiring harnesses, further enhancing the aesthetic appearance.

[0047] The hinge fixing members 5 can be integrated with the cabinet body 1 or can be a separate part installed on the cabinet body 1.

[0048] Preferably, the hinge fixing members 5 include a first connecting plate 501 for connecting with the hinge assembly 2 and a second connecting plate 502 for connecting with the cabinet body 1. The embedded box 7 is located behind the first connecting plate 501.

[0049] The first connecting plate 501 is installed on the front side of the embedded box 7, and the second connecting plate 502 is fixed within the accommodation compartment 104 and located between the embedded box 7 and the top wall of the accommodation compartment 104. The first connecting plate 501 extends longitudinally, and the second connecting plate 502 extends horizontally backward from the top of the first connecting plate 501.

[0050] The hinge fixing members 5 are connected to both the cabinet body 1 and the embedded box 7, enhancing the stability of the hinge fixing members 5 and simplifying the structure by using the hinge fixing members 5 to fix the embedded box 7 to the cabinet body 1.

[0051] Specifically, the front side of the embedded box 7, above the second accommodating cavities 702, and the first connecting plate 501 are provided with horizontally extending first through holes. The first through holes are used for fasteners to pass through, connecting the first connecting plate 501 with the embedded box 7. The cabinet body 1, the second connecting plate 502, and the embedded box 7 are provided with longitudinally extending second through holes, which are used for fasteners to pass through. The second connecting plate 502 and the embedded box 7 are provided with longitudinally extending third through holes, which are used for fasteners to pass through, connecting the second connecting plate 502 and the embedded box 7 together.

[0052] The front part of the embedded box 7 is provided with a first groove 703 that cooperates with the first

connecting plate 501, and the top part of the embedded box 7 is provided with a second groove 704 that cooperates with the second connecting plate 502. The first groove 703 and the second groove 704 prevent the hinge fixing members 5 from protruding out of the embedded box 7, preventing the embedded box 7 from not fitting tightly against the top wall of the cabinet body 1 and the front cover 401.

[0053] The rear side of the front cover 401 is equipped with two sets of snap structures symmetrically arranged up and down. The embedded box 7 has two sets of upper and lower distributed upper matching structures and lower matching structures. The upper matching structures and lower matching structures are used to cooperate with the snap structures respectively when the front cover assembly 4 is in the first state and the second state to fix the front cover assembly 4, ensuring that the front cover assembly 4 can be fixed in both the first and second states.

[0054] When the front cover assembly 4 is in the first state, the upper snap structure cooperates with the upper matching structure, and the lower snap structure cooperates with the lower matching structure. When the front cover assembly 4 is switched to the second state, the front cover 401 is flipped 180°. Since the two sets of snap structures are symmetrically arranged up and down, the positions of the two sets of snap structures are swapped, with the originally upper snap structure moving to the lower position and cooperating with the lower matching structure, and the originally lower snap structure moving to the upper position and cooperating with the upper matching structure. This ensures that even when the front cover 401 is flipped, the two sets of snap structures and the two sets of matching structures can still correspond and cooperate one by one, simplifying the structure while ensuring the reliability of the connection of the front cover 401.

[0055] A length of the embedded box 7 in the left-right direction is greater than a length of the front cover 401 in the left-right direction. The upper matching structure comprises two first upper matching parts 705 and a second upper matching part 706 located between the two first upper matching parts 705, each first upper matching part 705 is corresponding to one of the two first connecting plates 501. The snap structure has a first snap part 4011 for cooperating with the first upper matching part 705 and a second snap part 4012 for cooperating with the second upper matching part 706. The first snap part 4011 and the second snap part 4012 extend rearward from the rear side of the front cover 401, and the first connecting plate 501 is provided with a matching through hole 5011 for the first snap part 4011 to pass through.

[0056] The first snap part 4011 and the second snap part 4012 effectively install the front cover 401 on the embedded box 7, ensuring that the front cover 401 is securely connected to the embedded box 7 even in the area corresponding to the hinge fixing members 5, thereby preventing the front cover 401 from lifting away from the hinge assembly 2.

[0057] Preferably, an extending length of the first snap part 4011 is greater than an extending length of the second snap part 4012. Since the first snap part 4011 needs to pass through the first connecting plate 501, setting the extending length of the first snap part 4011 longer enhances the stability of the connection between the first snap part 4011 and the first upper matching part 705.

[0058] Specifically, the two first upper matching parts 705 correspond one by one with the two first connecting plates 501, each first upper matching part 705 is located behind one corresponding first connecting plate 501 and corresponding to the matching through hole 5011. The first upper matching part 705 comprises a groove extending rearward from the front side of the embedded box 7 and a protrusion extending downward from the top wall of the groove. The first snap part 4011 cooperates with the first upper matching part 705 by engaging the rear wall of the protrusion.

[0059] The lower matching structure comprises two first lower matching parts 707 and a second lower matching part 708 located between the two first lower matching parts 707, the first lower matching parts 707 are located below the corresponding one of the two first upper matching parts 705.

[0060] When the front cover assembly 4 is in the first state, the two first snap parts 4011 respectively cooperate with the left first upper matching part 705 and the left first lower matching part 707, and the two second snap parts 4012 respectively cooperate with the first upper matching part 705 and the second lower matching part 708.

[0061] When the front cover assembly 4 is in the second state, the two first snap parts 4011 respectively cooperate with the right first upper matching part 705 and the right first lower matching part 707, and the two second snap parts 4012 respectively cooperate with the first upper matching part 705 and the second lower matching part 708.

[0062] To accommodate the longer first snap part 4011, the first lower matching part 707 is located behind the second lower matching part 708.

[0063] Further, the second upper matching part 706 and the second lower matching part 708 can be a single groove extending in the left-right direction or multiple grooves distributed in the left-right direction.

[0064] Specifically, the first snap part 4011 is disposed in the non-overlapping area, and the second snap part 4012 is disposed in the overlapping area.

[0065] Further, one end of the front cover 401 in the left-right direction is provided with a positioning portion 4013 extending rearward; the front side of the embedded box 7 is provided with two positioning slots 709 distributed in the left-right direction. When the front cover assembly 4 is in the first state, the positioning portion 4013 cooperates with the right positioning slot 709; when the front cover assembly 4 is in the second state, the positioning portion 4013 cooperates with the left positioning slot 709. This

provides a positioning function during the assembly of the front cover 401, thereby facilitating the assembly of the front cover 401 by the staff, and the cooperation between the positioning portion 4013 and the positioning slot 709 enhances the stability of the front cover 401.

[0066] Specifically, the positioning slots 709 are arranged between the first accommodating cavity 701 and the second accommodating cavities 702.

[0067] The embedded box 7 comprises an upper shell 710 and a lower shell 711 that are vertically aligned. The left and right sides of the upper shell 710 are provided with first inclined surfaces, and the lower shell 711 has second inclined surfaces that are complementary to the first inclined surfaces. The front end of the first inclined surface is lower than the rear end of the first inclined surface, or the front end of the first inclined surface is higher than the rear end of the first inclined surface. When the upper shell 710 and the lower shell 711 are aligned, the first inclined surfaces and the second inclined surfaces serve as positioning guides, thereby facilitating the assembly of the upper shell 710 and the lower shell 711.

[0068] The wiring structure 8 is installed on the door body 3 and extends from the door body 3 into the interior of the second accommodating cavities 702. The door body 3 is provided with a wiring channel 301. The wiring structure 8 has a wiring channel 801 that is in communication with the wiring channel 301, and the wiring structure 8 is movable relative to the second accommodating cavities 702.

[0069] The wiring channel 801 of the wiring structure 8 is used to allow the wiring harnesses connected to the electronic components of the door body 3 to pass through. Since the wiring structure 8 extends into the embedded box 7, it enhances the utilization of space. This embodiment effectively avoids the phenomenon of the door body wiring harnesses being pulled during the opening and closing of the door body 3 through the wiring structure 8, and can adapt to door bodies 3 with various motion trajectories. When the door body 3 rotates, the wiring harnesses connected to the electronic components of the door body 3 and the wiring structure 8 move along with the door body 3, with the wiring structure 8 protecting the wiring harnesses during their movement. Additionally, the second accommodating cavities 702 in the embedded box 7 can protect the wiring harnesses, thereby preventing them from being exposed and worn, and also isolating the moving parts of the wiring harnesses from the control module 6 in the first accommodating cavity 701, thereby enhancing electrical safety.

[0070] Specifically, the door body 3 is provided with two wiring channels 301 distributed left and right, and both wiring channels 301 extend to the top of the door body 3 to form openings.

[0071] When the front cover assembly 4 is in the first state, the wiring structure 8 extends into the right second accommodating cavity 702 and connects with the right wiring channel 301. When the front cover assembly 4 is in the second state, the wiring structure 8 extends into the left second accommodating cavity 702 and connects with the left wiring channel 301.

[0072] Specifically, the wiring channel 801 extends to the end of the wiring structure 8 that extends into the second accommodating cavity 702 and forms an inlet.

[0073] The front side of the control module 6 is equipped with a connector (not shown), and the refrigeration appliance further comprises a door body wiring harness (not shown), which is connected to the connector and passes through the opening of the second accommodating cavity 702, then through the inlet, the wiring channel 801, and the wiring channel 301 in sequence.

[0074] Further, the embedded box 7 has a partition wall 712 that separates the first accommodating cavity 701 from the second accommodating cavities 702. The front side of the partition wall 712 has a recess, and the refrigeration appliance further comprises a sealing member 9 installed in the recess. The sealing member 9 has a wiring hole 901 through which the door body wiring harness passes. The sealing member 9 is used to allow the door body wiring harness to pass through and also enhances the sealing of the first accommodating cavity 701, thereby improving electrical safety.

[0075] Further, the wiring structure 8 has an axial part 802 that extends into the wiring channel 301 from the top opening of the wiring channel 301, and the axial part 802 can rotate relative to the wiring channel 301, thereby allowing the wiring structure 8 to be rotatably installed on the door body 3.

[0076] The hinge assembly 2 comprises a first fixing part 201 for connecting with the hinge fixing members 5, a second fixing part 202 for connecting with the door body 3, and at least one connecting rod 203. The first fixing part 201 and the second fixing part 202 are respectively pivotally connected to one connecting rod 203.

[0077] The first fixing part 201 is located above the wiring structure 8 and the second accommodating cavities 702, and the second fixing part 202 protrudes downward relative to the first fixing part 201 and is located in front of the wiring structure 8. The second fixing part 202 can cover the openings of the wiring structure 8 and the second accommodating cavities 702, thereby enhancing the aesthetic appearance of the refrigeration appliance.

[0078] Further, the hinge assembly 2 further comprises a third fixing part 204, with the second fixing part 202 being installed on the door body 3 via the third fixing part 204. The second fixing part 202 and the third fixing part 204 are connected by fasteners, and the third fixing part 204 is connected to the top of the door body 3 by fasteners. The top of the door body 3 is provided with a positioning ring surrounding the top opening of the wiring channel 301, and the third fixing part 204 has a hole that fits over the positioning ring.

[0079] When the front cover assembly 4 needs to switch between the first state and the second state, requiring the hinge assembly 2 to be installed on different sides of the hinge fixing members 5, the second fixing part 202 and the third fixing part 204 are separated from

the connecting rod 203. Then, the first fixing part 201 and the connecting rod 203 are rotated 180°, so that the first fixing part 201 and the connecting rod 203 are symmetrical in the left-right direction when installed on different sides. Finally, the second fixing part 202 and the third fixing part 204 are moved parallel, and the second fixing part 202 is installed on the connecting rod 203, and the third fixing part 204 is installed on the door body 3.

[0080] The second accommodating cavity 702 is smaller than the first accommodating cavity 701. The embedded box 7 has a first outlet 713 and a second outlet 714 distributed along the left-right direction and in communication with the first accommodating cavity 701, the first outlet 713 and the second outlet 714 are located behind the second accommodating cavity 702. Since there are more components in the first accommodating cavity 701, it is made larger, and the area behind the smaller second accommodating cavity 702 in the embedded box 7 is used to allow the wiring harnesses connected to the control module 6 to pass through.

[0081] The first outlet 713 and the second outlet 714 can be used to allow low-voltage and high-voltage wiring harnesses to pass through the embedded box 7 separately, thereby avoiding the crossover of high-voltage and low-voltage wiring harnesses in the control module 6, reducing electromagnetic interference from high voltage to low voltage, and ensuring the performance of the refrigeration appliance.

[0082] In a preferred embodiment of the present application, the refrigeration appliance further comprises a drag chain 10 disposed in the second accommodating cavity 702. A fixed end of the drag chain 10 is fixed to the inner wall of the second accommodating cavity 702, and a movable end of the drag chain 10 is installed on the end of the wiring structure 8 that is far from the door body 3, moving along with the wiring structure 8 when it moves. The door body wiring harness entering the second accommodating cavity 702 first passes through the drag chain 10, then enters the wiring channel 801. The drag chain 10 further protects the door body wiring harness, thereby preventing it from being worn during the movement of the door body 3 and the wiring structure 8.

[0083] During the use of the refrigeration appliance, the front cover 401 only covers one side of the second accommodating cavity 702, exposing a large opening on the other side of the second accommodating cavity 702, which affects the aesthetic appearance. Therefore, the following two embodiments provide two different solutions for covering the second accommodating cavity 702.

[0084] In the first embodiment of the present application, the refrigeration appliance further comprises a first decorative cover 11. When the front cover assembly 4 is in the first state, the first decorative cover 11 covers the right second accommodating cavity 702; when the front cover assembly 4 is in the second state, the first decorative cover 11 covers the left second accommodating cavity 702.

[0085] In this embodiment, only one first decorative cover 11 is defined, and the position of the first decorative cover 11 is adjusted during the switching process of the front cover assembly 4 between the first state and the second state to cover both sides of the second accommodating cavity 702, simplifying the structure.

[0086] The first decorative cover 11 has a first opening 1103 for exposing the second accommodating cavity 702. The first opening 1103 is used to allow the wiring structure 8 and the door body wiring harness in the wiring structure 8 to pass through.

[0087] Two second accommodating cavities 702 are provided with first grooves 715 on the inner walls that are far from the first accommodating cavity 701 in the left-right direction, and both the top and bottom walls of the second accommodating cavities 702 are provided with second slots 716 that are longitudinally symmetrical; a rear side of the first decorative cover 11 has a first fastening part 1101 for engaging with the first slot 715, and two second fastening parts 1102 that are longitudinally symmetrical and for engaging with the second slots 716. When the refrigeration appliance needs to change the position of the first decorative cover 11 between the first state and the second state, the first decorative cover 11 needs to be rotated 180° to adapt to the first slots 715 and the second slots 716 on the inner walls of both sides of the second accommodating cavity 702.

[0088] When the front cover assembly 4 is in the first state, the first fastening part 1101 is located in the right part area of the first decorative cover 11, engaging with the right first slot 715, the upper second fastening part 1102 engaging with the upper second slot 716, and the lower second fastening part 1102 engaging with the lower second slot 716. When the front cover assembly 4 is in the second state, the first decorative cover 11 is rotated 180° relative to the previous state, the first fastening part 1101 is located in a left part area of the first decorative cover 11, engaging with the left first slot 715. The originally upper second fastening part 1102 moves to the lower position, engaging with the lower second slot 716, and the originally lower second fastening part 1102 moves to the upper position, thereby engaging with the upper second slot 716.

[0089] In this embodiment, when it is necessary to adjust the position of the first decorative cover 11, rotating the first decorative cover 11 instead of simply moving it parallel is intended to make the first fastening part 1101 of the first decorative cover 11 symmetrical in the left-right direction when the front cover assembly 4 is in the first state and the second state, thereby facilitating the cooperation of the first fastening part 1101 with the symmetrical first slots 715 on both sides.

[0090] Limited by the installation position of the wiring structure 8, the first opening 1103 cannot be set at a center of the first decorative cover 11. If the first decorative cover 11 is only moved parallel when installed on different sides, the position of the first opening 1103 will be asymmetrical in the first state and the second state, and the wiring structure 8 cannot pass through the first

opening 1103 into the second accommodating cavity 702. By rotating the first decorative cover 11, it is ensured that the first opening 1103 is symmetrical in the first state and the second state, ensuring that the wiring structure 8 and the wiring harness within the wiring structure 8 can pass through the first opening 1103 in both the first state and the second state.

[0091] Further, an area of the first decorative cover 11 is larger than the opening area of the second accommodating cavity 702. In this way, the first decorative cover 11 can also cover the walls of the embedded box 7, further enhancing the aesthetic appearance.

[0092] Since the wiring structure 8 is located above the door body 3, and limited by the volume of the refrigeration appliance, the cabinet body 1 cannot be much higher than the door body 3, so the longitudinal length of the accommodation compartment 104 is small, and it cannot ensure enough space for the center of the wiring structure 8 to be at the same height as the center of the opening of the first accommodating cavity 701. Therefore, the center of the first decorative cover 11 and the center of the wiring structure 8 cannot be ensured to be at the same height. After the first decorative cover 11 is rotated, the wiring structure 8 cannot be able to pass through the first hole.

[0093] To solve this problem, the first decorative cover 11 further has a block 1104 installed on the first opening 1103. The longitudinal length of the first opening 1103 is greater than the longitudinal length of the block 1104. The first decorative cover 11 further has a first block fixing part 1105 and a second block fixing part 1106, which are distributed along the longitudinal direction.

[0094] When the front cover assembly 4 is in the first state, the block 1104 is connected to the first block fixing part 1105, and the area of the first opening 1103 not covered by the block 1104 is used for the wiring structure 8 and the wiring harness in the wiring structure 8 to pass through. When the front cover assembly 4 is in the second state, the block 1104 is connected to the second block fixing part 1106, and the area of the first opening 1103 not covered by the block 1104 is used for the wiring structure 8 and the wiring harness in the wiring structure 8 to pass through.

[0095] After the first decorative cover 11 is rotated, by moving the block 1104 up and down, the exposed position of the first opening 1103 is made symmetrical in the left-right direction, ensuring that the first decorative cover 11 can effectively block the opening of the second accommodating cavity 702 while preventing the wiring structure 8 from not being able to pass through the first decorative cover 11.

[0096] Specifically, the first block fixing part 1105 and the second block fixing part 1106 are arranged on the rear side of the first decorative cover 11. Two first block fixing parts 1105 are symmetrically disposed on both sides of the first opening 1103, and two second block fixing parts 1106 are symmetrically arranged on both sides of the first opening 1103. The first block fixing part 1105 and the second block fixing part 1106 are both provided with horizontally extending holes. The two sides of the block 1104 have limiting protrusions 11041 for abutting against the rear side of the first decorative cover 11, and the limiting protrusions 11041 are provided with teeth 11042 for cooperating with the first block fixing part 1105 and the second block fixing part 1106.

[0097] The sealing member 9 is disposed behind the front cover 401 and the first decorative cover 11. In this way, the wiring harness passing through the sealing member 9 is blocked by the first decorative cover 11 and will not be exposed, which not only enhances the aesthetic appearance but also prevents the wiring harness from being exposed and worn.

[0098] In the third embodiment of the present application, the refrigeration appliance further comprises a second decorative cover 12 and a third decorative cover 13 that are symmetrical in the left-right direction. When the front cover assembly 4 is in the first state, the second decorative cover 12 covers the right second accommodating cavity 702; when the front cover assembly 4 is in the second state, the third decorative cover 13 covers the left second accommodating cavity 702.

[0099] The second decorative cover 12 and the third decorative cover 13 are respectively provided with a second opening 1201 and a third opening 1301 for exposing the second accommodating cavity 702.

[0100] The top wall and/or bottom wall of the second accommodating cavity 702 is provided with a third slot 717 and a guide slot 718. The guide slot 718 extends horizontally at a preset angle to the left-right direction and forms an opening at the front side of the embedded box 7.

[0101] A rear side of the second decorative cover 12 has a third fastening part 1202 for cooperating with the right third slot 717 and a first guide block 1203 for cooperating with the guide slot 718 on a right side. A rear side of the third decorative cover 13 has a fourth fastening part 1302 for cooperating with the left third slot 717 and a second guide block 1303 for cooperating with the guide slot 718 on a left side.

[0102] When assembling the second decorative cover 12, the first guide block 1203 is inserted from front to back into the guide slot 718, then the second decorative cover 12 is pushed, making the first guide block 1203 move along the guide slot 718 until the third fastening part 1202 cooperates with the third slot 717. When assembling the third decorative cover 13, the second guide block 1303 is inserted from front to back into the guide slot 718, then the third decorative cover 13 is pushed, thereby making the second guide block 1303 move along the guide slot 718 until the fourth fastening part 1302 cooperates with the third slot 717.

[0103] The rear side of the second decorative cover 12 further has a first support block 1204 for placing on the bottom wall of the second accommodating cavity 702. The rear side of the third decorative cover 13 further has a second support block 1304 for placing on the bottom wall of the second accommodating cavity 702. The first support block 1204 and the second support block 1304 are

respectively used to enhance the stability of the second decorative cover 12 and the third decorative cover 13.

[0104] The detailed descriptions listed above are merely specific explanations for the feasible implementation of the present application and are not intended to limit the protection scope of the present application. Any equivalent implementation or modification made without departing from the spirit of the present application should be included within the protection scope of the present application.

Claims

1. A refrigeration appliance, comprising:

a cabinet body, the cabinet body having a compartment with a front opening, and two hinge fixing members distributed along a left-right direction on a front side of the cabinet body;
a door body, the door body being positioned in front of the cabinet body;
a front cover assembly, the front cover assembly being positioned in front of the cabinet body;
characterized in that: the front cover assembly has a first state covering the hinge fixing member on a left side and a second state covering the hinge fixing member on a right side, the front cover assembly has an overlapping area that overlaps in both the first and second states and a non-overlapping area that does not overlap in the first and second states, the non-overlapping area is used to cover the hinge fixing members.

2. The refrigeration appliance according to claim 1, wherein when the front cover assembly is in the first state, the front cover assembly exposes the hinge fixing member on the right side, and when the front cover assembly is in the second state, the front cover assembly exposes the hinge fixing member on the left side;
the refrigeration appliance further comprises a hinge assembly, the hinge assembly is connected to the exposed hinge fixing member and the door body.

3. The refrigeration appliance according to claim 1, wherein the cabinet body further has an accommodation compartment with a front opening, the front cover assembly covers at least part of the accommodation compartment.

4. The refrigeration appliance according to claim 3, wherein the refrigeration appliance further comprises a control module disposed in the accommodation compartment, the overlapping area covers the control module.

5. The refrigeration appliance according to claim 4, wherein the front cover assembly comprises a front cover and a first electronic device mounted on a rear side of the front cover, the first electronic device is disposed in the overlapping area, the control module has a connecting part for connecting with the first electronic device, the front cover assembly rotates 180° about an axis passing through a center of the first electronic device and extends along a front-back direction when transitioning from the first state to the second state.

6. The refrigeration appliance according to claim 5, wherein the first electronic device is a magnetic sensitive switch.

7. The refrigeration appliance according to claim 5, wherein the first electronic device is offset from a center of the front cover in the left-right direction, and is aligned with the center of the front cover in height.

8. The refrigeration appliance according to claim 5, wherein the refrigeration appliance further comprises an embedded box disposed in the accommodation compartment, the control module is disposed in the embedded box;
when the front cover assembly is in the first state and the second state, the front cover is mounted on a front side of the embedded box.

9. The refrigeration appliance according to claim 8, wherein the rear side of the front cover is equipped with two sets of snap structures symmetrically arranged up and down, the embedded box has two sets of upper and lower distributed upper matching structures and lower matching structures, the upper matching structures and lower matching structures are used to cooperate with the snap structures respectively when the front cover assembly is in the first state and the second state to fix the front cover assembly.

10. The refrigeration appliance according to claim 9, wherein the hinge fixing member comprises a first connecting plate for connecting with the hinge assembly, the embedded box is located behind the first connecting plate;
a length of the embedded box in the left-right direction is greater than a length of the front cover in the left-right direction, the upper matching structure comprises two first upper matching parts respectively corresponding to the two first connecting plates, and a second upper matching part located between the two first upper matching parts, the snap structure has a first snap part for cooperating with the first upper matching part and a second snap part for cooperating with the second upper matching part, the first snap part and the second snap part extend rearward from the rear side of the front cover, the first

connecting plate is provided with a matching through hole for allowing the first snap part to pass through.

11. The refrigeration appliance according to claim 10, wherein an extending length of the first snap part is greater than an extending length of the second snap part.

12. The refrigeration appliance according to claim 10 or 11, wherein the lower matching structure comprises two first lower matching parts respectively located below the two first upper matching parts, and a second lower matching part located between the two first lower matching parts;

when the front cover assembly is in the first state, the two first snap parts respectively cooperate with the left first upper matching part and the left first lower matching part, and the two second snap parts respectively cooperate with the first upper matching part and the second lower matching part;
when the front cover assembly is in the second state, the two first snap parts respectively cooperate with the right first upper matching part and the right first lower matching part, and the two second snap parts respectively cooperate with the first upper matching part and the second lower matching part.

13. The refrigeration appliance according to claim 10 or 11, wherein the first snap part is located in the non-overlapping area, and the second snap part is located in the overlapping area.

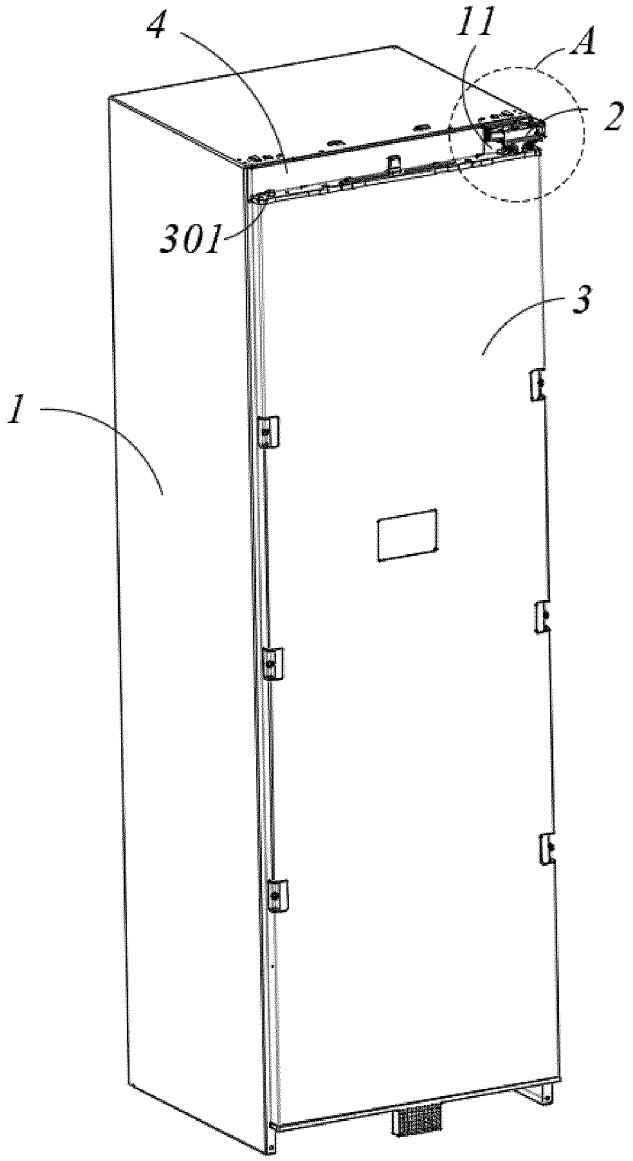

FIG. 1

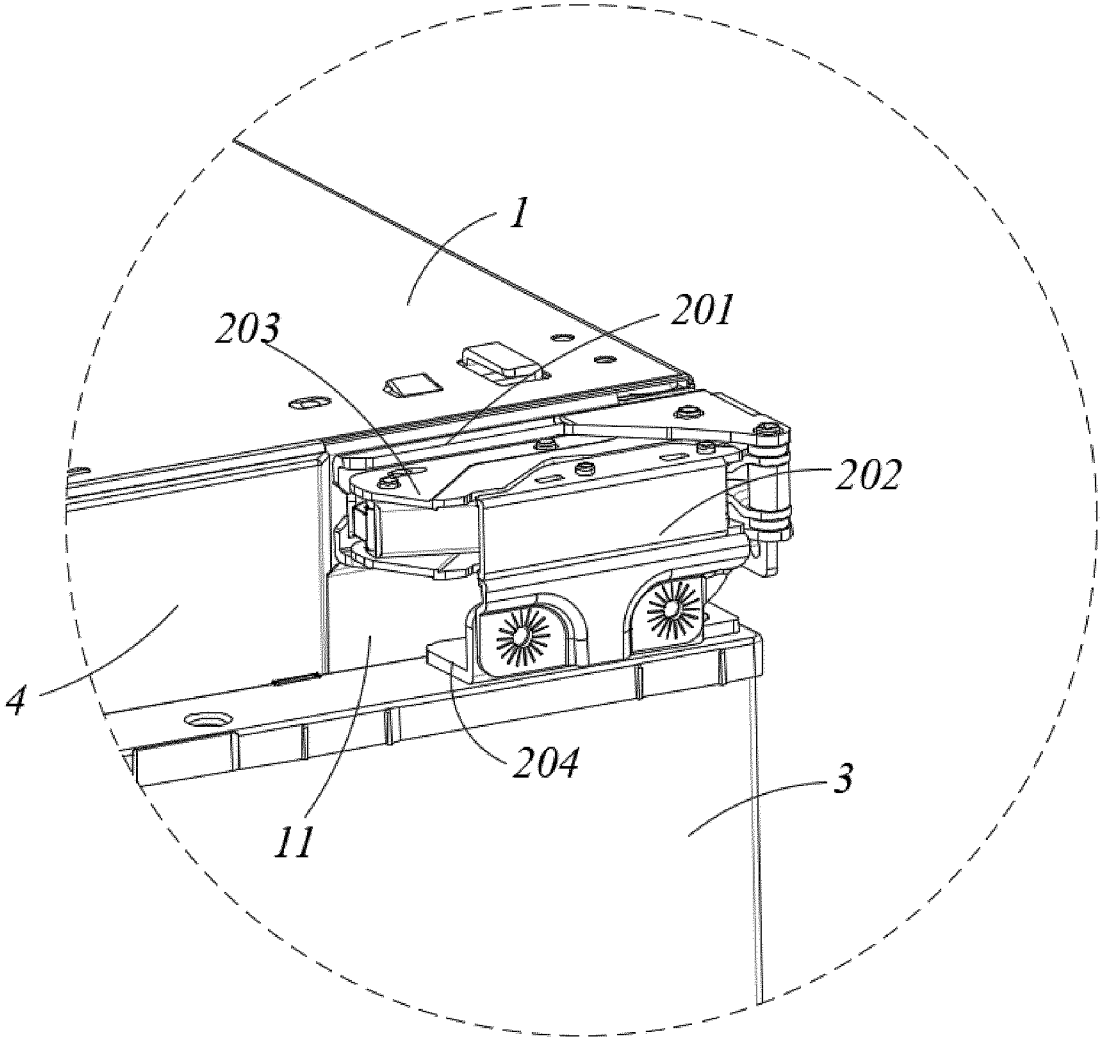

FIG. 2

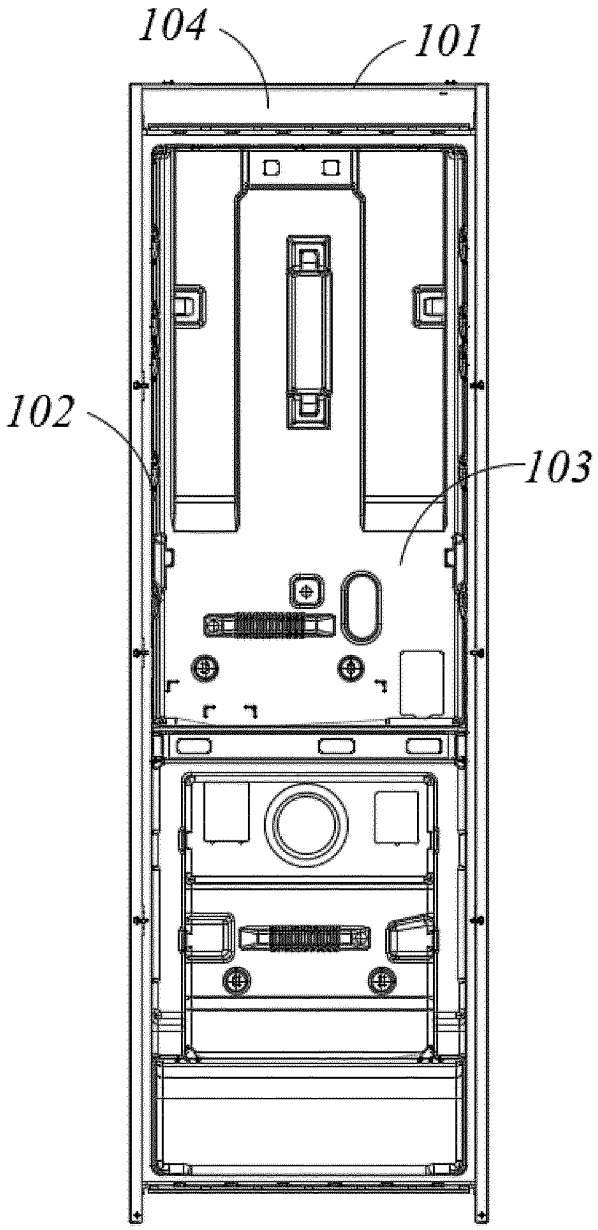

FIG. 3

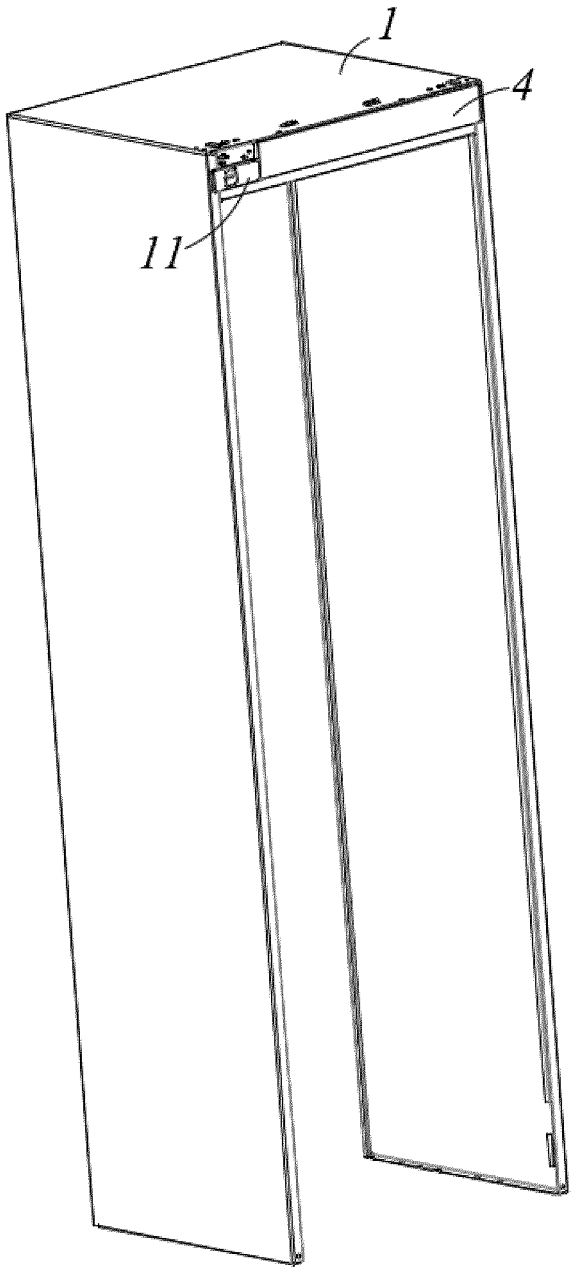

FIG. 4

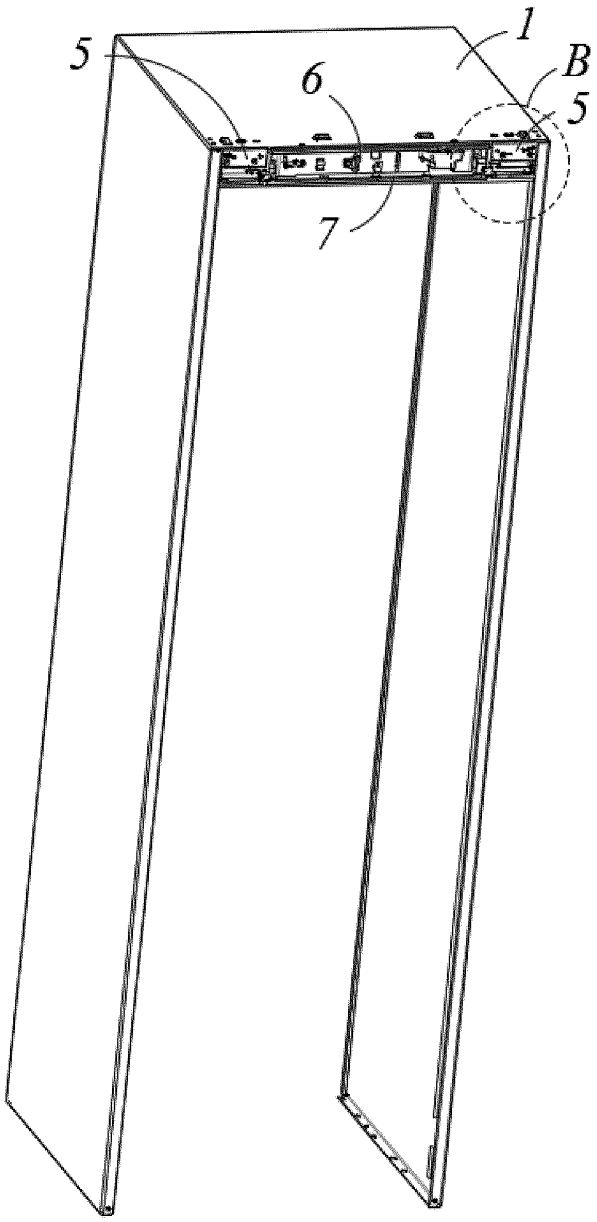

FIG. 5

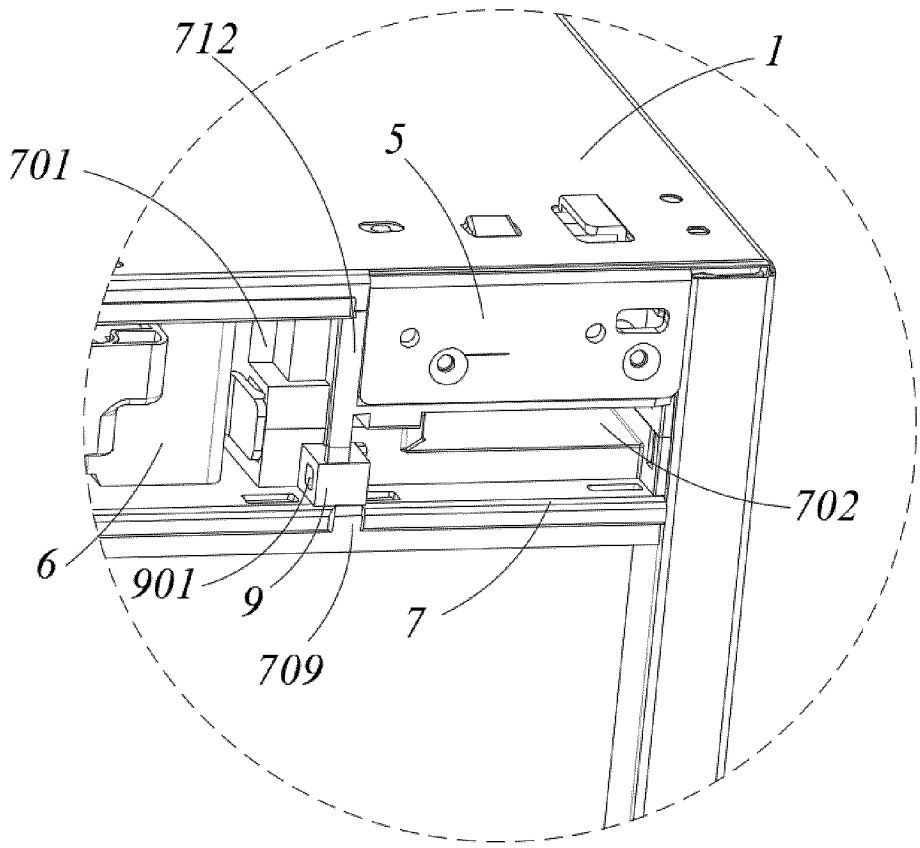
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FIG. 6

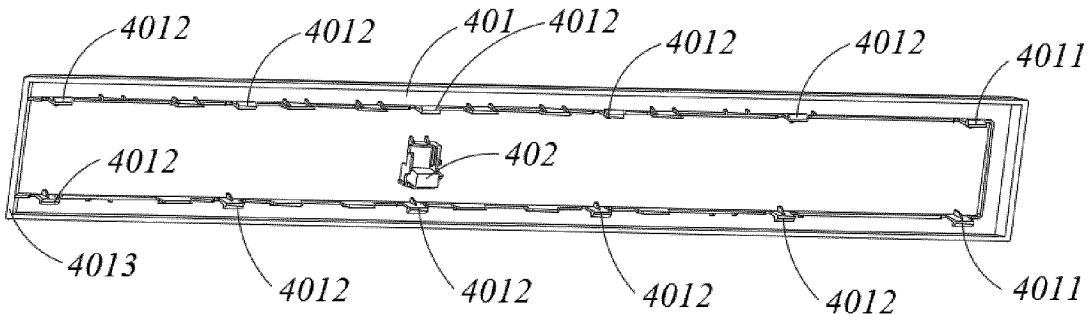
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FIG. 7

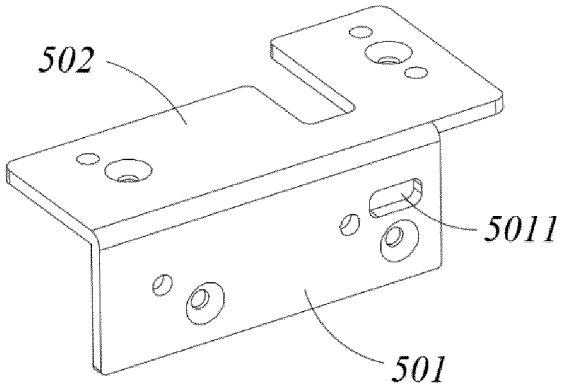

FIG. 8

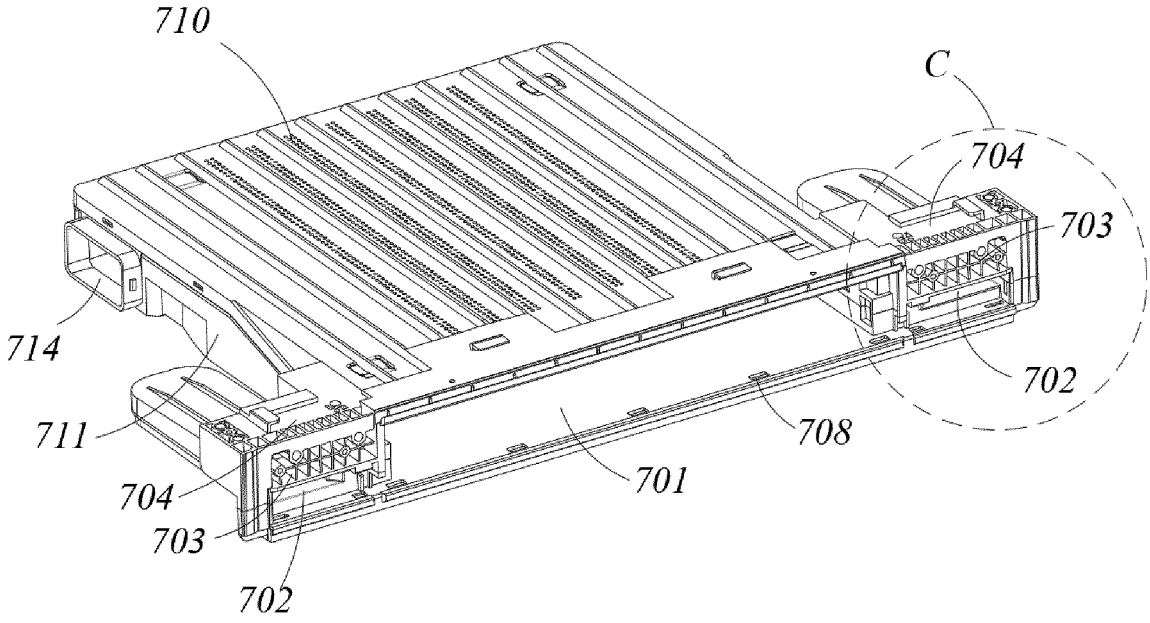

FIG. 9

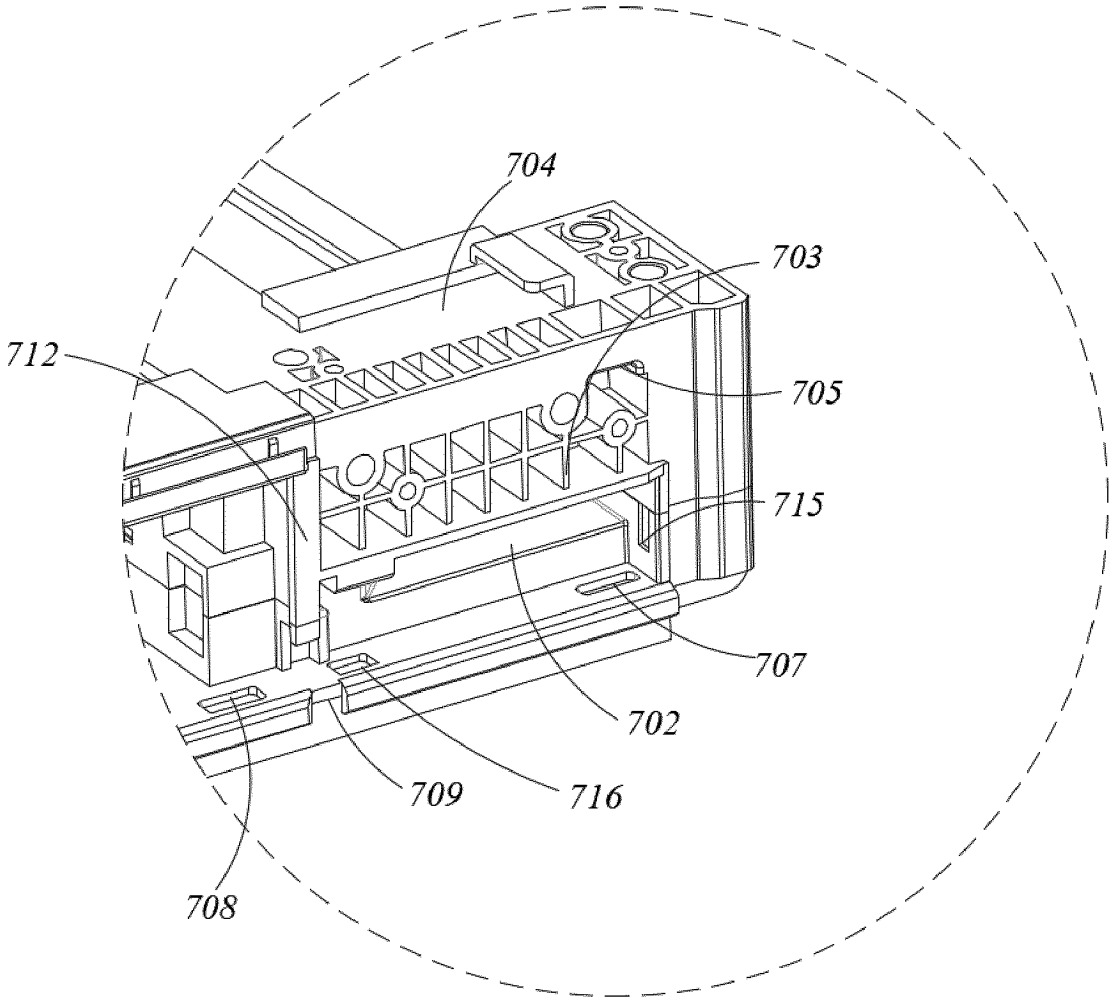

FIG. 10

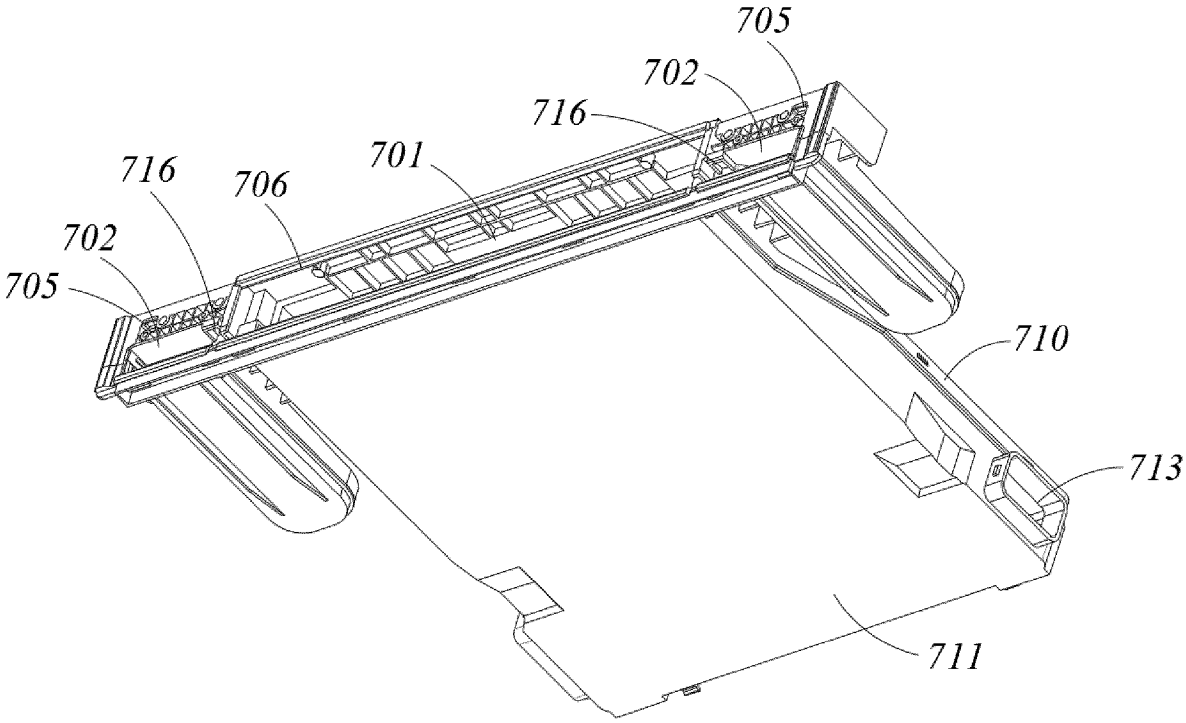
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FIG. 11

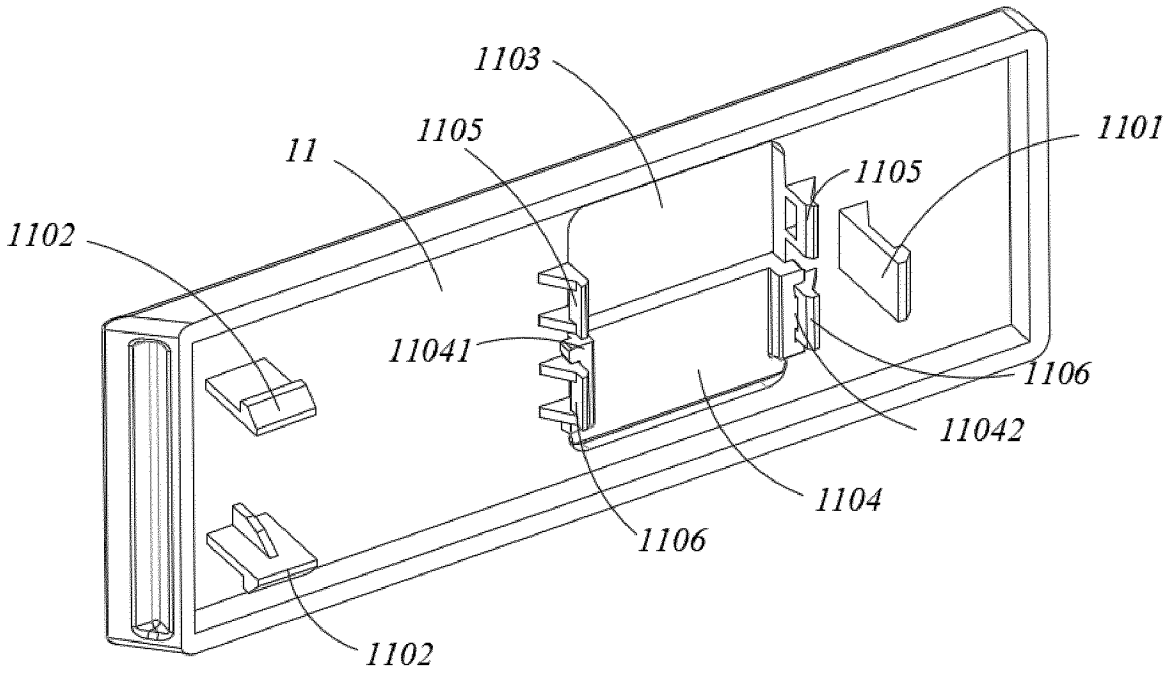
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FIG. 12

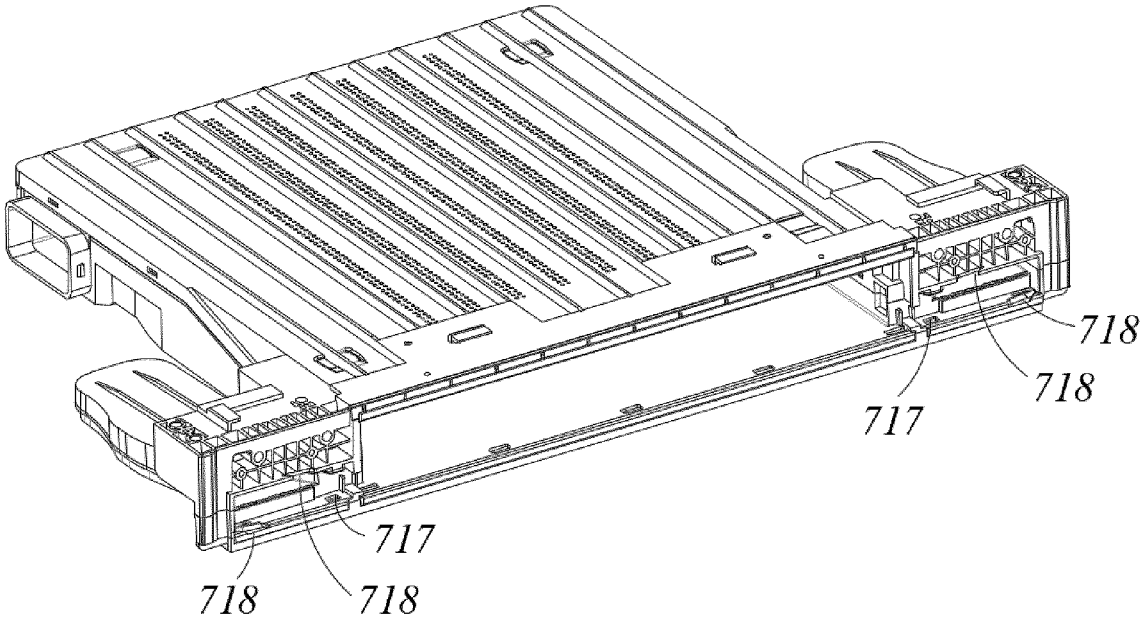
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FIG. 13

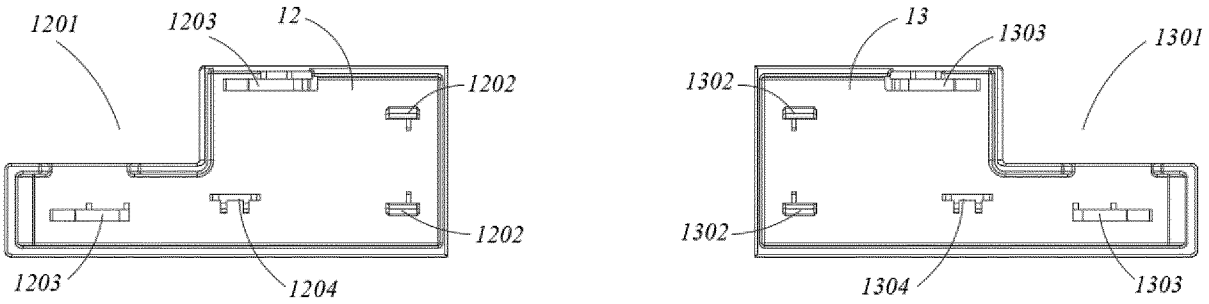
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FIG. 14

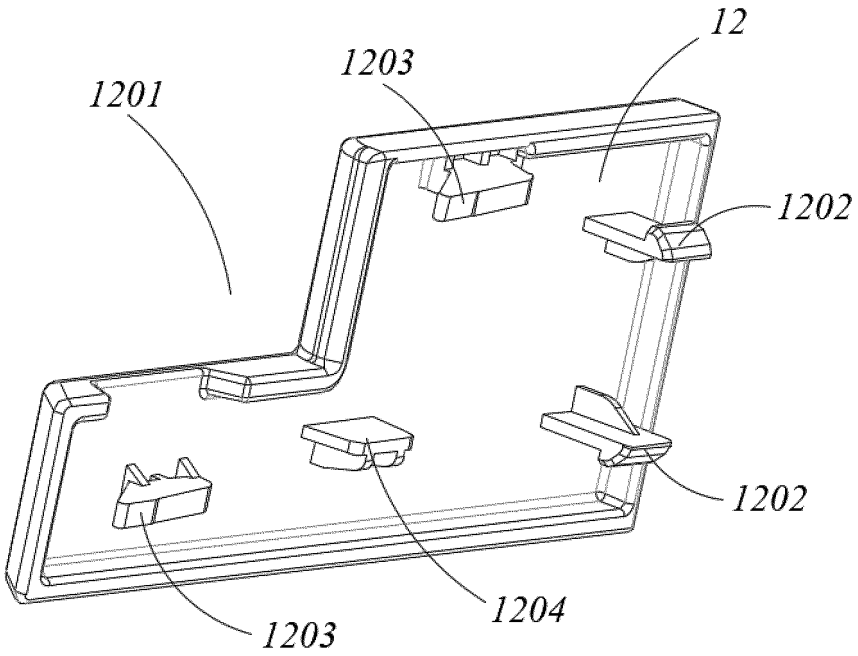

FIG. 15

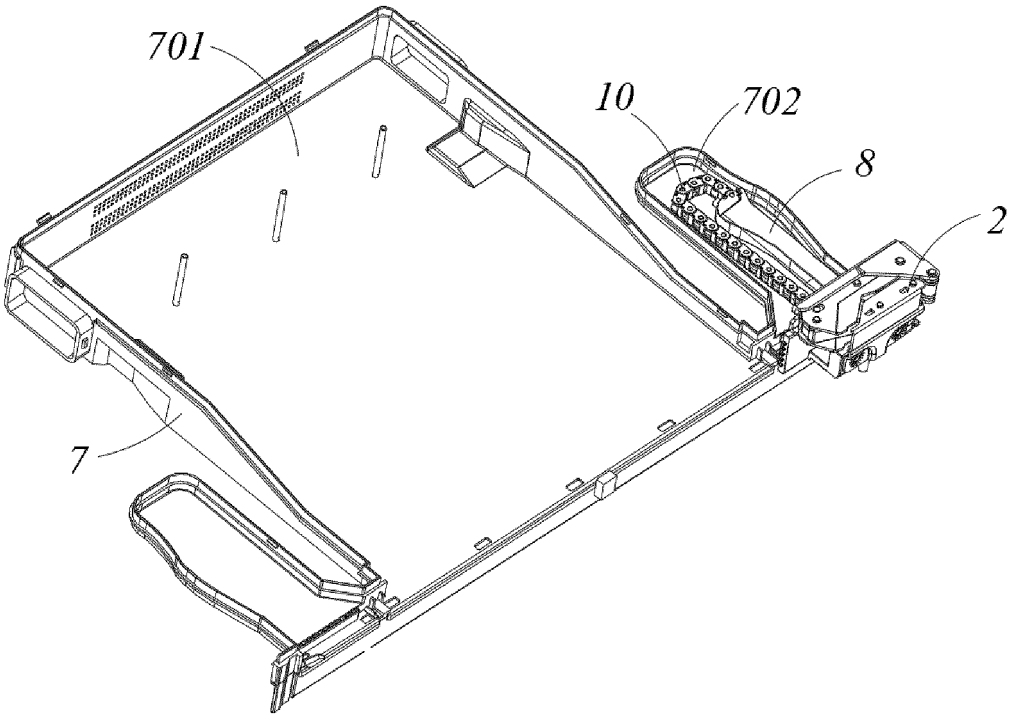

FIG. 16

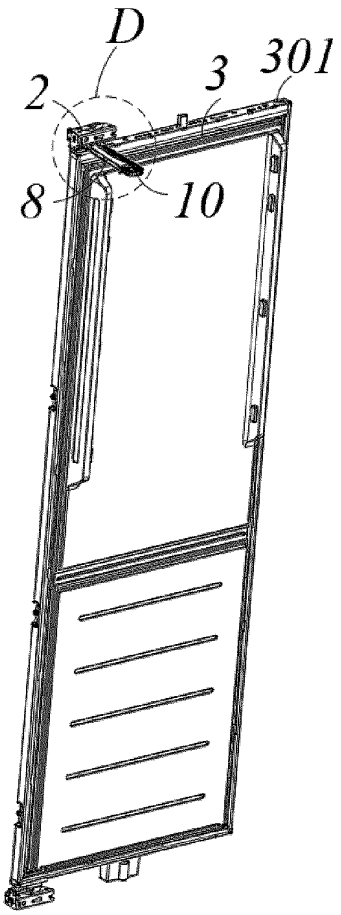

FIG. 17

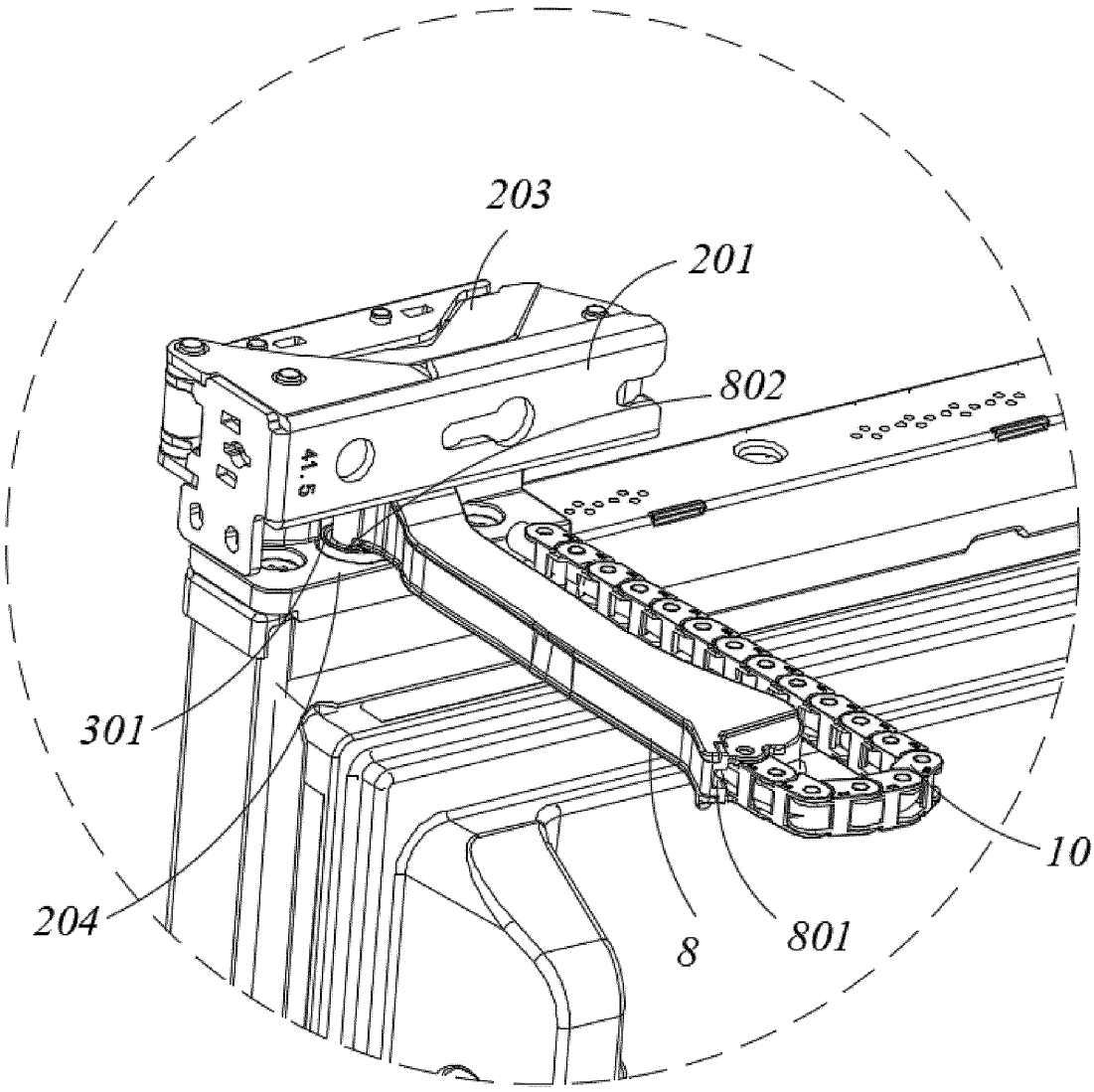

FIG. 18

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2023/086114

A. CLASSIFICATION OF SUBJECT MATTER

F25D23/0(2006.01)i; E05D7/081(2006.01)i; E05D11/00(2006.01)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)

IPC: F25D, E05D

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)

CNTXT, CNABS, CNKI, VEN, ENTXTC: 冰箱, 铰链, 盖, 磁敏开关, 预埋盒, 卡扣, 孔, refrigerator, hinge, cover, magnetic, switch, embedded, box, buckle, hole

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
PX	CN 218096826 U (QINDAO HAIER REFRIGERATOR CO., LTD. et al.) 20 December 2022 (2022-12-20) description, paragraphs [0004]-[0128], and figures 1-18	1-13
PX	CN 218495573 U (QINDAO HAIER REFRIGERATOR CO., LTD. et al.) 17 February 2023 (2023-02-17) description, paragraphs [0057]-[0134], and figures 1-18	1-13
Y	CN 216080529 U (QINGDAO HAIER SPECIAL FREEZER CO., LTD. et al.) 18 March 2022 (2022-03-18) description, paragraphs [0045]-[0071], and figures 1-14	1-4
Y	CN 102564020 A (HAIER GROUP CORPORATION et al.) 11 July 2012 (2012-07-11) description, paragraphs [0019]-[0032], and figures 1-4	1-4
A	CN 111189286 A (QINDAO HAIER REFRIGERATOR CO., LTD. et al.) 22 May 2020 (2020-05-22) entire document	1-13

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

* Special categories of cited documents:
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"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"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
07 August 2023	**11 August 2023**

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

Form PCT/ISA/210 (second sheet) (July 2022)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2023/086114

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	CN 202582020 U (HEFEI ROYALSTAR SANYO ELECTRIC APPLIANCE CO., LTD.) 05 December 2012 (2012-12-05) entire document	1-13
A	CN 216245099 U (HISENSE (SHANDONG) REFRIGERATOR CO., LTD.) 08 April 2022 (2022-04-08) entire document	1-13
A	KR 20040082706 A (LG ELECTRONICS INC.) 30 September 2004 (2004-09-30) entire document	1-13

Form PCT/ISA/210 (second sheet) (July 2022)

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/CN2023/086114

Patent document cited in search report	Publication date (day/month/year)	Patent family member(s)	Publication date (day/month/year)
CN 218096826 U	20 December 2022	None	
CN 218495573 U	17 February 2023	None	
CN 216080529 U	18 March 2022	None	
CN 102564020 A	11 July 2012	None	
CN 111189286 A	22 May 2020	None	
CN 202582020 U	05 December 2012	None	
CN 216245099 U	08 April 2022	None	
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Form PCT/ISA/210 (patent family annex) (July 2022)

REFERENCES CITED IN THE DESCRIPTION

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- CN 202210738549 **[0001]**