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(54) DRAWER ASSEMBLY FOR REFRIGERATION APPLIANCE AND REFRIGERATION APPLIANCE

(57) A drawer assembly for a refrigeration appliance, including at least: a drawer body having a front surface and two opposite side walls defining a width of the drawer body; and a drawer panel, assembled on the front surface of the drawer body, where the drawer body is provided with a first receiving cavity on the side walls, the first receiving cavity is bounded by a first cavity wall and a second cavity wall, the second cavity wall is closer to the front surface than the first cavity wall, the drawer panel is provided with a first protruded portion, and the first protruded portion is configured to be inserted into the first receiving cavity. The side walls are provided with a reinforcing portion, and the reinforcing portion forms at least one cavity structure with the second cavity wall. The present invention further relates to a corresponding refrigeration appliance. Therefore, connection strength between the drawer panel and the drawer body can be increased and reliable assembly can be ensured.

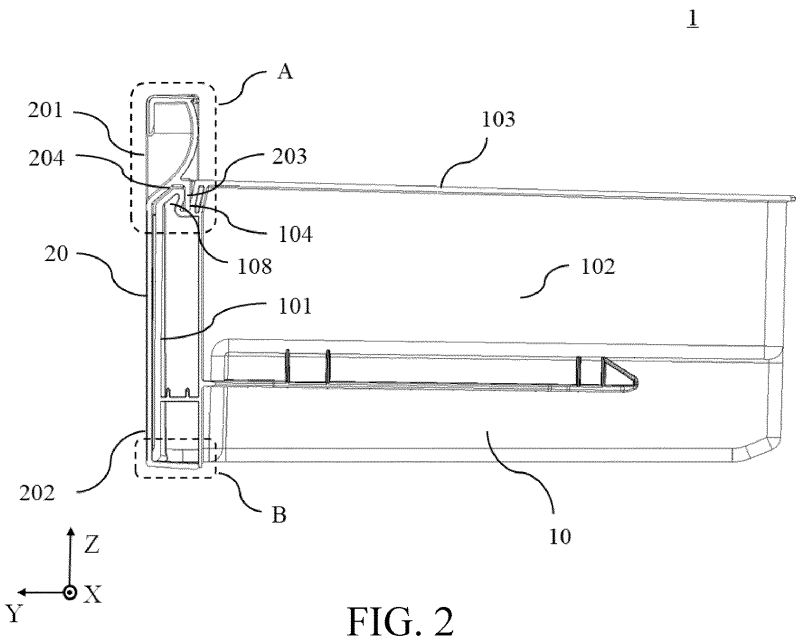

FIG. 2

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Description

TECHNICAL FIELD

[0001] The present invention relates to the field of household appliances, and in particular, to a drawer assembly for a refrigeration appliance and a corresponding refrigeration appliance.

BACKGROUND

[0002] In recent years, with the development of society and the improvement of living standards, household refrigeration appliances, particularly refrigerators, have played an important role in people's daily lives, and users put forward increasing requirements on appearance, safety and service life of the refrigeration appliances.

[0003] In an existing refrigeration appliance, based on considerations of factors such as textures and functions, a drawer of the refrigeration appliance is generally constructed in a split way, that is, a drawer body and a drawer panel of the drawer are constructed separately by different materials. Herein, the drawer body and the drawer panel are assembled together by a connection structure, for example a buckle connection structure. However, during long-time use of the refrigeration appliance, particularly when the drawer panel is disassembled and assembled or the drawer is pulled with a large force, the connection structure is prone to cracking, which may affect normal use of the drawer, or may even lead to a safety problem caused by dropping of the drawer.

SUMMARY

[0004] Therefore, an objective of the present invention is to provide an improved drawer assembly for a refrigeration appliance, so that the drawer assembly can increase connection strength between a drawer panel and a drawer body and ensure reliable assembly of the drawer panel and the drawer body during use of the refrigeration appliance.

[0005] According to a first aspect of the present invention, a drawer assembly for a refrigeration appliance is provided, including at least:

a drawer body, where the drawer body has a front surface and two opposite side walls defining a width of the drawer body; and

a drawer panel, where the drawer panel is assembled on the front surface of the drawer body.

[0006] The drawer body is provided with a first receiving cavity on the side walls, the first receiving cavity is bounded by a first cavity wall and a second cavity wall, the second cavity wall is closer to the front surface than the first cavity wall, the drawer panel is provided with a first protruded portion, and the first protruded portion is configured to be inserted into the first receiving cavity. The side walls are provided with a reinforcing portion, and the reinforcing portion forms at least one cavity structure with the second cavity wall.

[0007] In an existing refrigeration appliance, a slot is generally provided in a drawer body of a drawer, and a buckle is provided in the drawer panel. The slot is bounded only by a surrounding wall, and strength of the wall is relatively low and the wall is prone to cracking under the action of an external force during assembly, disassembly, and draw of the drawer, causing cracking of the slot, and affecting normal use of the drawer.

[0008] Unlike the prior art, in the drawer assembly for a refrigeration appliance according to the present invention, the first protruded portion of the drawer panel is inserted into the first receiving cavity of the drawer body and the first cavity wall and the second cavity wall of the first receiving cavity stop the first protruded portion in a depth direction or a motion direction of the drawer assembly, thereby implementing fixed assembly between the drawer panel and the drawer body. By providing the reinforcing portion forming the cavity structure with the second cavity wall, the external force acting on the first receiving cavity, particularly the second cavity wall during assembly, disassembly, and draw of the drawer assembly can be effectively transferred to the side walls of the drawer body or even the entire drawer body, to significantly increase strength of the second cavity wall and preventing the first receiving cavity from cracking, thereby ensuring reliable assembly between the drawer panel and the drawer body.

[0009] According to an exemplary embodiment of the present invention, in an assembled state, the first protruded portion is separately in contact with the first cavity wall and the second cavity wall. In this embodiment, it is helpful to prevent the drawer panel from shaking obviously and noise generated by the shaking during draw of the drawer assembly, which can improve operating experience of a user for the drawer assembly.

[0010] According to an exemplary embodiment of the present invention, the reinforcing portion and the second cavity wall form a second protruded portion with a cavity structure, the drawer panel is provided with a second receiving cavity, and the second receiving cavity is configured to receive the second protruded portion. The second receiving cavity is partially bounded by the first protruded portion; and/or a shape of the reinforcing portion is adapted to a shape of a portion of the drawer panel adjacent to the reinforcing portion. Therefore, strength of the first protruded portion can be increased and assembly reliability between the drawer panel and the drawer body can be further improved.

[0011] According to an exemplary embodiment of the present invention, when the first protruded portion is inserted into the first receiving cavity, the second protruded portion enters and is accommodated in the second receiving cavity.

[0012] According to an exemplary embodiment of the present invention, the first receiving cavity opens upward

in a height direction; and/or the first cavity wall has a first tilt portion tilting toward the front surface from top to bottom in the height direction and a first stop portion that is vertically oriented; and/or the second cavity wall has a second tilt portion tilting toward the front surface from top to bottom in the height direction and a second stop portion that is vertically oriented; and/or the first protruded portion is vertically oriented in the height direction in an assembled state of the drawer body and the drawer panel; and/or the second cavity wall is lower than the first cavity wall in the height direction; and/or the first protruded portion is connected to an upper portion of the drawer panel through a platform portion, and the platform portion is configured to be located above the second cavity wall and flush with an upper surface of the drawer body in the assembled state of the drawer body and the drawer panel; and/or the first receiving cavity and the second protruded portion are constructed as an integrated structure; and/or the first protruded portion and the second receiving cavity are constructed as an integrated structure; and/or the first cavity wall partially bounds another cavity structure adjacent to the first receiving cavity.

[0013] Therefore, the upper surface of the drawer body can be maintained horizontal and a protrusion can be avoided, so that the drawer body is in sealing fit with other structures of the drawer assembly, particularly a moisturizing cover plate. In addition, the assembly between the drawer panel and the drawer body can also be simplified.

[0014] The first receiving cavity and the second protruded portion are constructed as an integrated structure; and/or the first protruded portion and the second receiving cavity are constructed as an integrated structure, which can help manufacture of the drawer assembly, particularly when the drawer body is manufactured by using a mold through an injection molding process. In addition, the foregoing improvement helps to disperse a force at a joint of the drawer panel and the drawer body more during use of the drawer assembly, thereby further increasing connection strength between the drawer panel and the drawer body.

[0015] The first cavity wall partially bounds another cavity structure adjacent to the first receiving cavity. When the drawer assembly is pushed, a force applied to the first cavity wall may be dispersed to the another cavity structure adjacent the first receiving cavity, so that the first cavity wall is not prone to damage during use of the drawer assembly.

[0016] According to an exemplary embodiment of the present invention, the first protruded portion is located at the upper portion of the drawer panel, a lower portion of the drawer panel has a structure protruding from a main plate of the drawer panel toward a direction of the drawer body and connected to the drawer body, so that the drawer panel makes the first protruded portion enter the first receiving cavity along the first tilt portion in a tilt posture. Therefore, in this solution, both the upper portion and the lower portion of the drawer panel are connected to the drawer body, which helps to increase stability and strength of the connection between the drawer panel and the drawer body. The first tilt portion can guide the first protruded portion to enter the first receiving cavity, thereby guiding smooth assembly of the drawer panel and the drawer body.

[0017] According to an exemplary embodiment of the present invention, one of the drawer body and the drawer panel is provided with a buckle protrusion, the other is provided with a buckle groove corresponding to the buckle protrusion, and the buckle protrusion or the buckle groove is provided particularly at the lower portion of the drawer panel in the height direction. Therefore, the fixed assembly between the drawer panel and the drawer body can be further increased.

[0018] According to an exemplary embodiment of the present invention, the drawer panel is provided with an anti-flip structure at a bottom in the height direction, and the anti-flip structure includes a bottom plate and an anti-flip protrusion and is configured to fit with a structured portion of the drawer body. Therefore, the drawer panel can be prevented from flipping and the assembly reliability between the drawer panel and the drawer body can be further improved.

[0019] According to an exemplary embodiment of the present invention, the drawer body has a guiding portion, and the guiding portion is configured to come into contact with side edges of the drawer panel and guide motion of the drawer panel during assembly. Therefore, an assembly process between the drawer panel and the drawer body, particularly a process of guiding the first protruded portion to enter the first receiving cavity, can be simplified.

[0020] According to an exemplary embodiment of the present invention, the guiding portion is parallel to the first tilt portion of the first cavity wall, and the first tilt portion tilts toward the front surface from top to bottom in the height direction. Therefore, during assembly, the drawer panel and the guiding portion keep moving in a contact manner, which can guide the first protruded portion to come into contact with the first tilt portion to smoothly enter the first receiving cavity.

[0021] Another cavity structure is formed between the guiding portion and the first cavity wall, and the guiding portion partially bounds the cavity structure. A force applied to the first cavity wall during pushing of the drawer assembly may be dispersed to the entire cavity structure, thereby greatly reducing a possibility of the first cavity wall being damaged during use of the drawer assembly.

[0022] According to an exemplary embodiment of the present invention, the upper portion of the drawer panel is constructed into an arc shape or a flat plate shape; and/or a grip portion is provided at the upper portion of the drawer panel; and/or the drawer panel is integrally formed by a polypropylene material or a polystyrene material through an injection molding process. Therefore, the drawer panel can be manufactured flexibly at favorable costs.

[0023] According to an exemplary embodiment of the

present invention, the drawer assembly further includes a drawer trim, and the drawer trim is assembled on the upper portion of the drawer panel. Therefore, appearance and touch texture of the drawer panel can be improved.

[0024] According to an exemplary embodiment of the present invention, the drawer assembly further includes a drawer trim, the drawer panel is provided with a plurality of support ribs for supporting the drawer trim, and the support ribs extend backward in a depth direction from the drawer panel and are evenly spaced apart from each other in a width direction; and/or the drawer panel is provided with two lateral support ribs, and the lateral support ribs respectively extend inward in the width direction from the side edges of the drawer panel. Therefore, support strength of the drawer panel for the drawer trim can be increased and deformation of the drawer trim can be prevented.

[0025] According to an exemplary embodiment of the present invention, the drawer assembly further includes a drawer trim, the drawer panel is provided with a transverse rib, the transverse rib extends in a width direction between two side edges of the drawer panel; and/or the drawer trim is provided with a first buckle portion on a front side in a depth direction, and the first buckle portion fits with an inner recessed portion of the drawer panel; and/or the drawer trim is provided with a second buckle portion on a rear side in the depth direction, and the second buckle portion fits with the transverse rib of the drawer panel. Therefore, reliable assembly between the drawer panel and the drawer trim can be implemented.

[0026] According to an exemplary embodiment of the present invention, the drawer assembly further includes a drawer trim, the drawer trim is provided with an anti-flip rib, and the anti-flip rib is configured to be inserted into an anti-flip slot of the drawer panel. The anti-flip rib is constructed in a form of a plurality of spaced apart ribs or continuous ribs. Therefore, relative motion of the drawer trim to the drawer panel can be prevented.

[0027] According to an exemplary embodiment of the present invention, the drawer assembly further includes a drawer trim, the drawer trim is provided with an extended cavity at an end portion facing the drawer body, and the extended cavity abuts against the drawer body or a moisturizing cover plate for covering the drawer body when the drawer assembly is in a closed state; and/or the drawer trim is integrally formed by ABS plastic through an extrusion process. The drawer trim can be manufactured at favorable costs. The extended cavity helps increase strength of the drawer trim, avoid a thin wall of the drawer trim, and is deformed by extrusion of the drawer body or the moisturizing cover plate for covering the drawer body.

[0028] According to an exemplary embodiment of the present invention, the drawer panel is provided with oblique ribs on the two side edges respectively, and the oblique ribs are separated from the main plate of the drawer panel; and/or the oblique ribs partially bound the second receiving cavity adapted to receive the second protruded portion. Strength of the drawer panel and portions of the drawer panel can be further increased by the oblique ribs and the second receiving cavity.

[0029] According to an exemplary embodiment of the present invention, the drawer assembly further includes the moisturizing cover plate, the moisturizing cover plate is configured to cover the upper surface of the drawer body and a sealing element is arranged at a front end of the moisturizing cover plate in the depth direction, and the sealing element adheres to the drawer panel or the drawer trim for the drawer panel when the moisturizing cover plate completely covers the upper surface of the drawer body. A moisturizing space of the drawer assembly can be implemented by the moisturizing cover plate and the sealing element arranged in the moisturizing cover plate.

[0030] According to a second aspect of the present invention, a refrigeration appliance is provided, including at least one storage compartment and at least one drawer assembly received in the storage compartment and constructed according to the present invention.

BRIEF DESCRIPTION OF THE DRAWINGS

[0031] In the following, by referring to the accompanying drawings describing the present invention in more detail, the principles, features, and advantages of the present invention can be better understood. The accompanying drawings include:

FIG. 1 is a three-dimensional view of a drawer assembly of a refrigeration appliance according to an exemplary embodiment of the present invention;

FIG. 2 is a cross-sectional view of a drawer assembly of a refrigeration appliance according to an exemplary embodiment of the present invention;

FIG. 3 is a detailed view of part A in FIG. 2;

FIG. 4 is a three-dimensional view of a drawer assembly of a refrigeration appliance according to an exemplary embodiment of the present invention;

FIG. 5 is a detailed view of part B in FIG. 2;

FIG. 6 and FIG. 7 are respectively partial views of an assembly process of a drawer assembly of a refrigeration appliance according to an exemplary embodiment of the present invention;

FIG. 8 is a three-dimensional view of a drawer assembly of a refrigeration appliance according to another exemplary embodiment of the present invention;

FIG. 9 to FIG. 11 are respectively partial views of a drawer assembly of a refrigeration appliance according to another exemplary embodiment of the present invention; and

FIG. 12 is a cross-sectional view of a refrigeration appliance according to an exemplary embodiment of the present invention.

DETAILED DESCRIPTION

[0032] To make the technical problems to be resolved by the present invention, technical solutions, and beneficial technical effects clearer and more comprehensible, the following further describes the present invention in detail with reference to the accompanying drawings and a plurality of exemplary embodiments. It should be understood that the specific embodiments described herein are used merely for explaining the present invention and are not intended to limit the protection scope of the present invention.

[0033] In the description of this embodiment, words indicating a direction or position relationship, such as "above", "below", "front", "back", "vertical", "horizontal", "top", "bottom", "inside", and "outside" are used to refer to position relationships of constituent elements of the accompanying drawings, and are only for conveniently describing the specification and simplifying the description, but not indicating or implying that a mentioned apparatus or element has a particular direction and is constructed and operated in the particular direction, and therefore cannot be construed as a limitation on the present disclosure. The position relationship of the constituent elements changes appropriately according to a direction in which each constituent element is described. Therefore, words are not limited to those described in the specification, and may be replaced appropriately according to a situation. Herein, according to a definition of an XYZ rectangular coordinate system in the accompanying drawings: An X direction corresponds to a width direction of a refrigeration appliance, a Y direction corresponds to a depth direction of the refrigeration appliance, and a Z direction corresponds to a height direction of the refrigeration appliance.

[0034] It should be understood that the expressions "first", "second", and the like are used in the specification for descriptive purposes only and should not be understood as an indication or implication of relative importance nor implicit indication of the number of indicated technical features. A feature restricted by "first" or "second" may explicitly indicate or implicitly include at least one such feature.

[0035] FIG. 1 is a three-dimensional view of a drawer assembly 1 of a refrigeration appliance according to an exemplary embodiment of the present invention. FIG. 2 is a cross-sectional view of the drawer assembly 1 of a refrigeration appliance according to an exemplary embodiment of the present invention.

[0036] As shown in FIG. 1, the drawer assembly 1 includes a drawer body 10, a drawer panel 20, and a moisturizing cover plate 30, through which a storage space of the drawer assembly 100 is formed. Herein, the drawer assembly 1 is received in a storage compartment of the refrigeration appliance in a drawable manner.

[0037] As shown in FIG. 2, the drawer body 10 has a front surface 101, two opposite side walls 102 defining a width of the drawer body 10 in a width direction X, and an upper surface 103. The drawer body 10 may be provided with a cover plate or an opening at the front surface 101. Herein, the moisturizing cover plate 30 of the drawer assembly 1 adheres to the upper surface 103 of the drawer body 10 and forms a moisturizing space in the drawer body 10.

[0038] As shown in FIG. 2, the drawer panel 20 is divided into an upper portion 201 and a lower portion 202 in a height direction Z The upper portion exceeds the front surface 101 of the drawer body 10 in the height direction Z, and the lower portion overlaps the front surface 101 of the drawer body 10 in the height direction Z. Herein, the drawer panel 20 is fixedly assembled on the front surface 101 of the drawer body 10, and when a user draws the drawer panel 20 in a depth direction Y, the drawer panel 20 drives the drawer body 10 to move in the depth direction Y A first protruded portion 203 of the drawer panel 20 is inserted into a first receiving cavity 104 of the drawer body 10, as shown in part A. For details, refer to the following.

[0039] FIG. 3 is a detailed view of part A in FIG. 2.

[0040] As shown in FIG. 3, the drawer body 10 is provided with the first receiving cavity 104 on the two side walls 102, the first receiving cavity is bounded by a first cavity wall 105 and a second cavity wall 106. and the second cavity wall 106 is closer to the front surface 101 of the drawer body 10 than the first cavity wall 105. The drawer panel 20 is provided with the first protruded portion 203, and the first protruded portion is inserted into the first receiving cavity 104. When the drawer panel 20 is pushed backward in the depth direction Y, the first protruded portion 203 of the drawer panel 20 stops on the first cavity wall 105 and transfers a push force to the first cavity wall 105, thereby driving the drawer body 10 to be pushed backward into the storage compartment of the refrigeration appliance in the depth direction Y. When the drawer panel 20 is pulled forward in the depth direction Y, the first protruded portion 203 of the drawer panel 20 stops on the second cavity wall 106 and transfers a pull force to the second cavity wall 106, thereby driving the drawer body 10 to be pulled out of the storage compartment of the refrigeration appliance in the depth direction Y. Herein, the drawer body 10 is further provided with a reinforcing portion 107 at the side walls 102, and the reinforcing portion and the second cavity wall 106 form at least one cavity structure. However, it may alternatively be considered that the reinforcing portion 107 and the second cavity wall 106 form a plurality of cavity structures arranged side by side. Therefore, a force applied to the second cavity wall 106 through the first protruded portion 203 is transferred onto the reinforcing portion 107, thereby sharing load of the second cavity wall 106 and correspondingly increasing bearing strength of the first receiving cavity 104. In addition, the cavity structure formed by the reinforcing portion 107 and the second cavity wall 106 provides cushioning for the force applied to the second cavity wall 106, thereby further preventing the second cavity wall 106 from cracking under the action of an

external force.

[0041] For example, in an assembled state, the first protruded portion 203 is separately in contact with the first cavity wall 105 and the second cavity wall 106. Therefore, the drawer panel can be prevented from shaking and generating noise when the drawer assembly is drawn, thereby improving the user experience.

[0042] For example, the second cavity wall 106 and the reinforcing portion 107 form a second protruded portion 108 with a cavity structure, and the drawer panel 20 is provided with a second receiving cavity 204. The second receiving cavity can receive the second protruded portion 108, and the second receiving cavity 204 is partially bounded on one side by the first protruded portion 203 and bounded on the other side by, for example, the upper portion 201 of the drawer panel 20. When the first protruded portion 203 is inserted into the first receiving cavity 104, the second protruded portion 108 is correspondingly inserted into the second receiving cavity 204. Herein, when the drawer panel 20 is pushed or pulled, the push force or pull force in the depth direction Y applied to the first protruded portion 203 is transferred to the second receiving cavity 204 of the drawer panel 20, which correspondingly increases bearing strength of the first protruded portion 203. Herein, a shape of the reinforcing portion 107 is adapted to a shape of a portion of the drawer panel 20 adjacent to the reinforcing portion 107, so that the second protruded portion 108 can be easily inserted into the second receiving cavity 204.

[0043] As shown in FIG. 2, the first receiving cavity 104 opens upward in the height direction Z. Therefore, on one hand, the upper surface 103 of the drawer body 10 in the assembled state can be flat and the first protruded portion 203 can be prevented from protruding from the upper surface 103 of the drawer body 10, thereby implementing sealed bonding between the moisturizing cover plate 30 adhering to the upper surface 103 and the drawer body 10. On the other hand, insertion of the first protruded portion 203 into the first receiving cavity 104 can be simplified, thereby simplifying the assembly between the drawer panel 20 and the drawer body 10.

[0044] For example, the first cavity wall 105 has a first tilt portion 1051 tilting toward the front surface (101) from top to bottom in the height direction (Z) and a first stop portion (1052) that is vertically oriented; and the second cavity wall 106 has a second tilt portion 1061 tilting toward the front surface (101) from top to bottom in the height direction (Z) and a second stop portion (1062) that is vertically oriented. Herein, insertion of the first protruded portion 203 into the first receiving cavity 104 can be simplified by the first tilt portion 1051 and the second tilt portion 1061, and fixing of the first protruded portion 203 relative to the first receiving cavity 104 in the depth direction Y can be implemented by the first stop portion 1052 and the second stop portion 1062.

[0045] For example, the second cavity wall 106 is lower than the first cavity wall 105 in the height direction Z, thereby also simplifying insertion of the first protruded portion 203 into the first receiving cavity 104. It may be considered herein that the first protruded portion 203 is connected to the upper portion 201 of the drawer panel 20 through a platform portion 205, and the platform portion is located above the second cavity wall 106 and flush with the upper surface 103 of the drawer body 10 in the assembled state of the drawer body 10 and the drawer panel 20. Therefore, the upper surface of the drawer assembly 1 can be flat overall in the assembled state, thereby implementing the sealed bonding between the moisturizing cover plate 30 and the drawer body 10.

[0046] For example, the first receiving cavity 104 and the second protruded portion 108 are constructed into an integrated structure, and the first protruded portion 203 and the second receiving cavity 204 are constructed into an integrated structure, thereby implementing manufacture of the drawer assembly, particularly by using a mold through an injection molding process, and helping to disperse a force at a joint of the drawer panel and the drawer body more during use of the drawer assembly, thereby further increasing connection strength between the drawer panel and the drawer body.

[0047] FIG. 4 is a three-dimensional view of the drawer assembly 1 of a refrigeration appliance according to an exemplary embodiment of the present invention.

[0048] Herein, the first protruded portion 203 is located on the upper portion 201 of the drawer panel 20, and the lower portion 202 of the drawer panel 20 has a structure protruding from a main plate 214 of the drawer panel 20 in a direction toward the drawer body 10 and connected to the drawer body 10, so that the drawer panel 20 can make the first protruded portion 203 enter the first receiving cavity 104 along the first tilt portion 1051 in a tilt posture. Therefore, both the upper portion 201 and the lower portion 202 of the drawer panel 20 are connected to the drawer body 10, helping to increase stability and strength of connection between the drawer panel 20 and the drawer body 10. The first tilt portion 1051 can guide the first protruded portion 203 to enter the first receiving cavity 104, thereby guiding smooth assembly of the drawer panel 20 and the drawer body 10.

[0049] Specifically, as shown in FIG. 4, the drawer panel 20 is provided with a buckle groove 208 on side edges 207, and the drawer body 10 is provided with a buckle protrusion 110 corresponding to the buckle groove 208. Buckling connection between the drawer panel 20 and the drawer body 10 can be implemented through fitting of the buckle groove and the buckle protrusion, and assembly strength between the drawer panel 20 and the drawer body 10 can be increased by the buckling connection. Particularly, the buckle groove 208 is provided at the lower portion 202 of the drawer panel 20 in the height direction Z, thereby implementing fixing of the drawer panel 20 relative to the drawer body 10 in the height direction Z. In addition, it may be considered that the drawer panel 20 is provided with a buckle protrusion in the side edges 207, and the drawer body 10 is provided with a buckle groove corresponding to the buckle protru-

sion.

[0050] As shown in FIG. 4, the drawer body 10 is further provided with a guiding portion 109 in the side walls 102, and the guiding portion can come into contact with the side edges 207 of the drawer panel 20 during assembly and guide motion of the drawer panel 20, so that the first protruded portion 203 of the drawer panel 20 is easily inserted into the first receiving cavity 104 of the drawer body 10. Herein, the guiding portion 109 is particularly parallel to the first tilt portion 1051 of the first cavity wall 105, and the first tilt portion tilts toward the front surface 101 of the drawer body 10 from top to bottom in the height direction Z. For details, refer to FIG. 6.

[0051] FIG. 5 is a detailed view of part B in FIG. 2.

[0052] As shown in FIG. 5, the drawer panel 20 is provided with an anti-flip structure at a bottom in the height direction Z, and the anti-flip structure includes a bottom plate 209 and an anti-flip protrusion 210. Herein, the anti-flip structure can fit with a structured portion 111 of the drawer body 10, for example, a protrusion of the structured portion 111 is clamped between the bottom plate 209 and the anti-flip protrusion 210, thereby preventing the drawer panel 20 from detaching from the drawer body 10 and flipping when being pulled, which further implements reliable assembly between the drawer panel 20 and the drawer body 10.

[0053] FIG. 6 and FIG. 7 are respectively partial views of an assembly process of the drawer assembly 1 of a refrigeration appliance according to an exemplary embodiment of the present invention.

[0054] As shown in FIG. 6 and FIG. 7, during assembly, the side edges 207 of the drawer panel 20 are made to first tilt downward along the guiding portion 109 until the first protruded portion 203 comes into contact with the first tilt portion 1051 of the first cavity wall 105 of the first receiving cavity 104. The first protruded portion 203 then continues to tilt and move downward adhering to the first tilt portion 203, until the first protruded portion 203 reaches a bottom of the first receiving cavity 104. The drawer panel 20 is then rotated until the first protruded portion 203 comes into contact with the first stop portion 1052 of the first cavity wall 105 that is vertically oriented and the second stop portion 1062 of the second cavity wall 106 that is vertically oriented, thereby implementing fixed assembly of the first protruded portion 203 relative to the first receiving cavity 104 in the depth direction Y. Herein, the first protruded portion 203 is vertically oriented in the height direction Z in the assembled state of the drawer body 10 and the drawer panel 20. For example, in the same process, the buckle protrusion 110 of the drawer body 10 is embedded into the buckle groove 208 in the side edges 207 of the drawer panel 20, and the structured portion 111 of the drawer body 10 is clamped into the anti-flip structure of the drawer panel 20. Therefore, fixed assembly between the drawer body 10 and the drawer panel 20 can be implemented to the greatest extent.

[0055] For example, the first cavity wall 105 and the guiding portion 109 form another cavity structure, and the another cavity structure is adjacent to the first receiving cavity 104. The first cavity wall 105 and the guiding portion 109 respectively partially bound the another cavity structure. Therefore, when the drawer assembly 1 is pushed in the depth direction Y, the force applied by the first protruded portion 203 to the first cavity wall 105 may be dispersed to the another cavity structure, so that the first cavity wall is less prone to damage during use of the drawer assembly.

[0056] For example, the upper portion 201 of the drawer panel 20 is constructed into an arc shape, and a grip portion 206 is provided at the upper portion 201. The grip portion is constructed into, for example, a flanging structure, so that draw of the drawer panel 20 and the drawer body 10 can be simplified.

[0057] FIG. 8 is a three-dimensional view of the drawer assembly 1 of a refrigeration appliance according to another exemplary embodiment of the present invention. FIG. 9 to FIG. 11 are respectively partial views of the drawer assembly 1 of a refrigeration appliance according to another exemplary embodiment of the present invention.

[0058] As shown in FIG. 8, the drawer assembly 1 further includes a drawer trim 40, and the drawer trim is assembled on the upper portion 201 of the drawer panel 20. Appearance and touch texture of the drawer assembly 1 can be improved by the drawer trim 40. Herein, the upper portion 201 of the drawer panel 20 is constructed into a flat plate shape.

[0059] As shown in FIG. 9, the drawer trim 40, for example, is provided with a first buckle portion 403 on a front side 401 in the depth direction Y, and the first buckle portion fits with an inner recessed portion 211 of the drawer panel 20 particularly by buckling, thereby preventing the front side 401 of the drawer trim 40 from detaching from the drawer panel 20.

[0060] As shown in FIG. 9, the drawer trim 40, for example, is further provided with a second buckle portion 404 on a rear side 402 in the depth direction Y, and the second buckle portion fits with a transverse rib 213 of the drawer panel 20 particularly by buckling, thereby preventing the rear side 402 of the drawer trim 40 from detaching from the drawer panel 20. Herein, the rear side 402 of the drawer trim 40 is supported on support ribs 212 and the transverse rib 213 of the drawer panel 20, and the transverse rib extends between the two side edges 207 of the drawer panel 20 in the width direction X. For detail, refer to FIG. 10 and FIG. 11.

[0061] As described in FIG. 9, the drawer trim 40 is provided with an anti-flip rib 405, and the anti-flip rib can be inserted into an anti-flip slot 216 of the drawer panel 20, thereby preventing the drawer trim 40 from flipping and further preventing the drawer trim 40 from detaching from the drawer panel 20. Herein, the anti-flip slot 216 may be provided in the support ribs 212 or the transverse rib 213 of the drawer panel 20.

[0062] As shown in FIG. 9, an end portion of the drawer trim 40 facing the drawer body 10 is provided with an

extended cavity 406, and the extended cavity can abut against the drawer body 10 or the moisturizing cover plate 30 for covering the drawer body 10 in a closed state of the drawer assembly and form sealed bonding with the drawer body 10 or the moisturizing cover plate 30, thereby preventing an airflow above the moisturizing cover plate 30 from entering a moisturizing space of the drawer body 10. Herein, the extended cavity 406 can increase strength of the drawer trim, and prevent the drawer trim from being extruded and deformed by the drawer body 10 due to a thin wall.

[0063] For example, the drawer trim 40 is integrally formed by ABS plastic through an extrusion process. Therefore, the drawer trim 40 can be manufactured at favorable costs. Certainly, other materials and manufacturing processes that a person skilled in the art considers meaningful may also be considered.

[0064] As shown in FIG. 10, the drawer panel 20 is provided with a plurality of support ribs 212 for supporting the drawer trim 40, and the support ribs extend backward from the main plate 214 of the drawer panel 20 in the depth direction Y and are evenly spaced apart from each other in the width direction X. The drawer trim 40 assembled on the drawer panel 20 can be effectively supported and deformation of the drawer trim 40 can be prevented by the support ribs 212.

[0065] For example, the drawer panel 20 is further provided with two lateral support ribs 215, and the lateral support ribs respectively extend inward from the side edges 207 of the drawer panel 20 in the width direction Y Depressions on two sides of the drawer trim 40 can be prevented by the lateral support ribs 215.

[0066] As shown in FIG. 10, the drawer panel 20 is provided with the transverse rib 213, and the transverse rib extends between the two side edges 207 of the drawer panel 20 in the width direction X and exceeds the support ribs 212 in the depth direction Y The drawer trim 40 can be reliably supported through fitting of the transverse rib 213 and the support ribs 212.

[0067] As shown in FIG. 10, the anti-flip slot 216 of the anti-flip rib 405 for the drawer trim 40 is constructed in a form of continuous ribs, so that the anti-flip rib 405 can be inserted into the anti-flip slot 216 as a whole.

[0068] As shown in FIG. 11, the anti-flip slot 216 of the anti-flip rib 405 for the drawer trim 40 is constructed in a form of a plurality of spaced-apart ribs, thereby simplifying assembly of the drawer trim 40 and the drawer panel 20.

[0069] For example, the drawer panel 20 is provided with oblique ribs 217 at the two side edges 207 respectively, and the oblique ribs are separated from the main plate 214 of the drawer panel 20. Strength of the drawer panel 20, particularly a hand-clasping space 407 can be increased by the oblique ribs 217. It may be considered herein that the oblique ribs 217 partially bound the second receiving cavity 204 for receiving the second protruded portion 108.

[0070] For example, the drawer panel 20 is integrally formed by a polypropylene (PP) material or a polystyrene (PS) material through an injection molding process. Therefore, the drawer panel 20 can be manufactured at favorable costs. Certainly, other materials and manufacturing processes that a person skilled in the art considers meaningful may also be considered.

[0071] FIG. 12 is a cross-sectional view of a refrigeration appliance according to an exemplary embodiment of the present invention. Herein, the refrigeration appliance, for example, is constructed as an air-cooled refrigerator.

[0072] As shown in FIG. 12, the refrigeration appliance includes at least one storage compartment 2 and at least one drawer assembly 1, and the drawer assembly is received in the storage compartment. Certainly, it may be alternatively considered that the refrigeration appliance includes a plurality of storage compartments 2 and drawer assemblies 1 respectively received in the storage compartments 2.

[0073] As shown in FIG. 12, a moisturizing cover plate 30 of the drawer assembly 1 covers an upper surface 103 of a drawer body 10 and a sealing element 301 is arranged at a front end of the moisturizing cover plate 30 in a depth direction Y The sealing element 301 adheres to an extended cavity 406 of a drawer trim 40 for a drawer panel 20 when the moisturizing cover plate 30 completely covers the upper surface 103 of the drawer body 10, thereby forming sealed bonding between the moisturizing cover plate 30 and the drawer trim 40, and preventing an airflow above the moisturizing cover plate 30 from entering the drawer body 10.

[0074] Although specific implementations have been described above, the implementations are not intended to limit the scope of the present disclosure, even though only one implementation is described with respect to specific features. The feature examples provided in the present disclosures are intended to be illustrative rather than limiting, unless different expressions are made. During specific implementation, a plurality of features may be combined with each other according to an actual requirement in a technically feasible case. Various replacements, modifications, and alternations may alternatively be conceived without departing from the spirit and scope.

Claims

1. A drawer assembly (1) for a refrigeration appliance, comprising at least:

   a drawer body (10), wherein the drawer body has a front surface (101) and two opposite side walls (102) defining a width of the drawer body (10); and

   a drawer panel (20), wherein the drawer panel is assembled on the front surface (101) of the drawer body (10), **characterized in that**,

   the drawer body (10) is provided with a first re-

ceiving cavity (104) on the side walls (102), the first receiving cavity is bounded by a first cavity wall (105) and a second cavity wall (106), the second cavity wall is closer to the front surface (101) than the first cavity wall, the drawer panel (20) is provided with a first protruded portion (203), and the first protruded portion is configured to be inserted into the first receiving cavity (104), wherein

the side walls (102) are provided with a reinforcing portion (107), and the reinforcing portion forms at least one cavity structure with the second cavity wall (106).

2. The drawer assembly (1) for a refrigeration appliance according to claim 1, **characterized in that**,

the reinforcing portion (107) and the second cavity wall (106) form a second protruded portion (108) having a cavity structure, the drawer panel (20) is provided with a second receiving cavity (204), and the second receiving cavity is configured to receive the second protruded portion (108), wherein the second receiving cavity (204) is partially bounded by the first protruded portion (203); and/or

a shape of the reinforcing portion (107) is adapted to a shape of a portion of the drawer panel (20) adjacent to the reinforcing portion (107).

3. The drawer assembly (1) for a refrigeration appliance according to claim 1 or 2, **characterized in that**, the drawer assembly (1) has at least one of the following features:

the first receiving cavity (104) opens upward in a height direction (Z); and/or

the first cavity wall (105) has a first tilt portion (1051) tilting toward the front surface (101) from top to bottom in the height direction (Z) and a first stop portion (1052) that is vertically oriented; and/or

the second cavity wall (106) has a second tilt portion (1061) tilting toward the front surface (101) from top to bottom in the height direction (Z) and a second stop portion (1062) that is vertically oriented; and/or

the first protruded portion (203) is vertically oriented in the height direction (Z) in an assembled state of the drawer body (10) and the drawer panel (20); and/or

the second cavity wall (106) is lower than the first cavity wall (105) in the height direction (Z); and/or

the first protruded portion (203) is connected to an upper portion (201) of the drawer panel (20) through a platform portion (205), and the platform portion is configured to be located above the second cavity wall (106) and flush with an upper surface (103) of the drawer body (10) in the assembled state of the drawer body (10) and the drawer panel (20); and/or

the first receiving cavity (104) and the second protruded portion (108) are constructed as an integrated structure; and/or

the first protruded portion (203) and the second receiving cavity (204) are constructed as an integrated structure; and/or

the first cavity wall (105) partially bounds another cavity structure adjacent to the first receiving cavity (104).

4. The drawer assembly (1) for a refrigeration appliance according to one or more of claims 1 to 3, **characterized in that**, the first protruded portion (203) is located at the upper portion of the drawer panel (20), a lower portion (202) of the drawer panel (20) has a structure protruding from a main plate (214) of the drawer panel (20) toward a direction of the drawer body (10) and connected to the drawer body (10), so that the drawer panel (20) makes the first protruded portion (203) enter the first receiving cavity (104) along the first tilt portion (1051) in a tilt posture.

5. The drawer assembly (1) for a refrigeration appliance according to any one of the preceding claims, **characterized in that**,

one of the drawer body (10) and the drawer panel (20) is provided with a buckle protrusion (110), the other is provided with a buckle groove (208) corresponding to the buckle protrusion (110), and the buckle protrusion or the buckle groove is provided particularly at the lower portion (202) of the drawer panel (20) in the height direction (Z).

6. The drawer assembly (1) for a refrigeration appliance according to any one of the preceding claims, **characterized in that**,

the drawer panel (20) is provided with an anti-flip structure at a bottom in the height direction (Z), and the anti-flip structure includes a bottom plate (209) and an anti-flip protrusion (210) and is configured to fit with a structured portion (111) of the drawer body (10).

7. The drawer assembly (1) for a refrigeration appliance according to any one of the preceding claims, **characterized in that**,

the drawer body (10) has a guiding portion (109), and the guiding portion is configured to come into contact with side edges (207) of the drawer panel (20) during assembly and guide motion of the drawer panel (20).

8. The drawer assembly (1) for a refrigeration appliance according to claim 7, **characterized in that**, the guid-

ing portion (109) is parallel to the first tilt portion (1051) of the first cavity wall (105), and
the first tilt portion (1051) tilts toward the front surface (101) from top to bottom in the height direction (Z).

9. The drawer assembly (1) for a refrigeration appliance according to claims 7 or 8, **characterized in that**,
another cavity structure is formed between the guiding portion (109) and the first cavity wall (105), and the guiding portion (109) partially bounds the cavity structure.

10. The drawer assembly (1) for a refrigeration appliance according to any one of the preceding claims, **characterized in that**,

the drawer assembly (1) further comprises a drawer trim (40), the drawer panel (20) is provided with a plurality of support ribs (212) for supporting the drawer trim (40), and the support ribs extend backward in a depth direction (Y) from the drawer panel (20) and are evenly spaced apart from each other in a width direction (X); and/or
the drawer panel (20) is provided with two lateral support ribs (215), and the lateral support ribs respectively extend inward in the width direction (X) from side edges (207) of the drawer panel (20); and/or
the drawer assembly (1) further comprises a drawer trim (40),
the drawer panel (20) is provided with a transverse rib (213), and the transverse rib extends in a width direction (X) between two side edges (207) of the drawer panel (20); and/or
the drawer trim (40) is provided with a first buckle portion (403) on a front side (401) in a depth direction (Y), and the first buckle portion fits with an inner recessed portion (211) of the drawer panel (20); and/or
the drawer trim (40) is provided with a second buckle portion (404) on a rear side (402) in the depth direction (Y), and the second buckle portion fits with the transverse rib (213) of the drawer panel (20).

11. The drawer assembly (1) for a refrigeration appliance according to any one of the preceding claims, **characterized in that**,
the drawer assembly (1) further comprises a drawer trim (40), the drawer trim (40) is provided with an anti-flip rib (405), and the anti-flip rib is configured to be inserted into an anti-flip slot (216) of the drawer panel (20), wherein the anti-flip rib (405) is constructed in a form of a plurality of spaced apart ribs or continuous ribs.

12. The drawer assembly (1) for a refrigeration appliance according to any one of the preceding claims, **characterized in that**,

the drawer assembly (1) further comprises a drawer trim (40), the drawer trim (40) is provided with an extended cavity (406) at an end portion facing the drawer body (10), and the extended cavity (406) abuts against the drawer body (10) or a moisturizing cover plate (30) for covering the drawer body (10) when the drawer assembly is in a closed state; and/or
the drawer trim (40) is integrally formed by ABS plastic through an extrusion process.

13. The drawer assembly (1) for a refrigeration appliance according to any one of the preceding claims, **characterized in that**,

the drawer panel (20) is provided with oblique ribs (217) on the two side edges (207) respectively, and the oblique ribs are separated from the main plate (214) of the drawer panel (20); and/or
the oblique ribs (217) partially bound the second receiving cavity adapted to receive the second protruded portion (108).

14. The drawer assembly (1) for a refrigeration appliance according to any one of the preceding claims, **characterized in that**,
the drawer assembly (1) further comprises the moisturizing cover plate (30), the moisturizing cover plate is configured to cover the upper surface (103) of the drawer body (10) and a sealing element (301) is arranged at a front end of the moisturizing cover plate 30 in the depth direction (Y), and the sealing element adheres to the drawer panel (20) or the drawer trim (40) for the drawer panel (20) when the moisturizing cover plate (30) completely covers the upper surface (103) of the drawer body (10).

15. A refrigeration appliance, comprising at least one storage compartment (2) and at least one drawer assembly (1) received in the storage compartment (2) and constructed according to any one of the preceding claims.

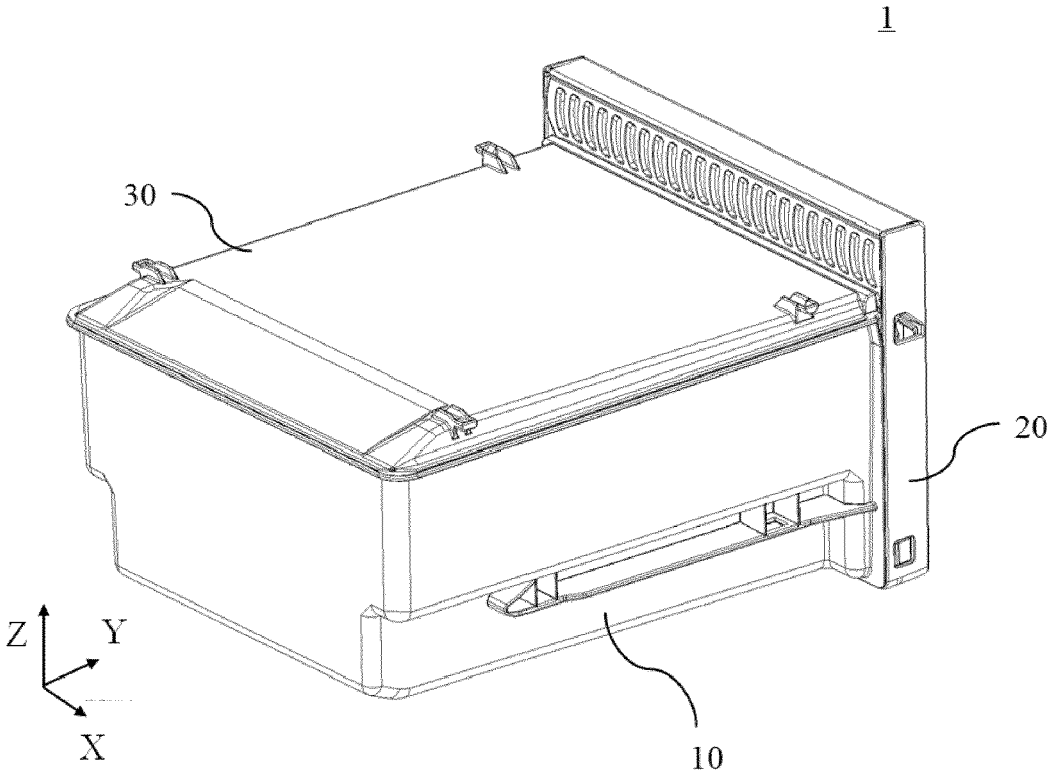

FIG. 1

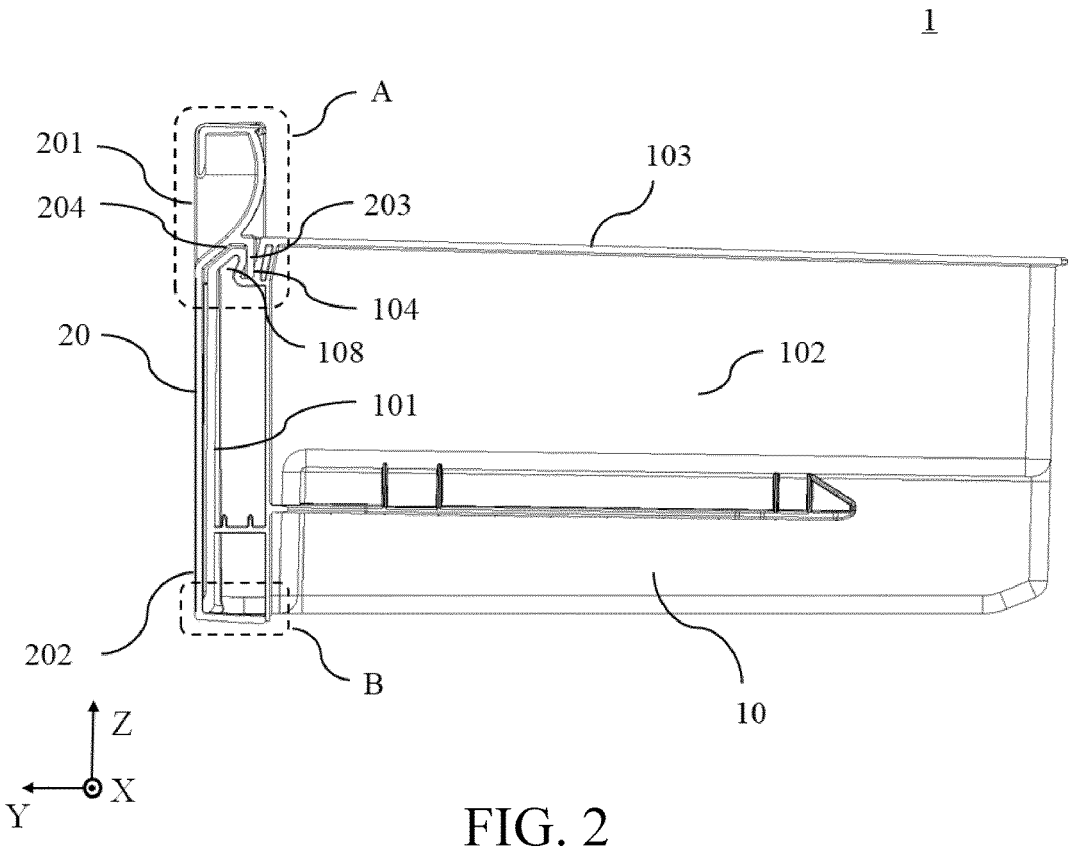

FIG. 2

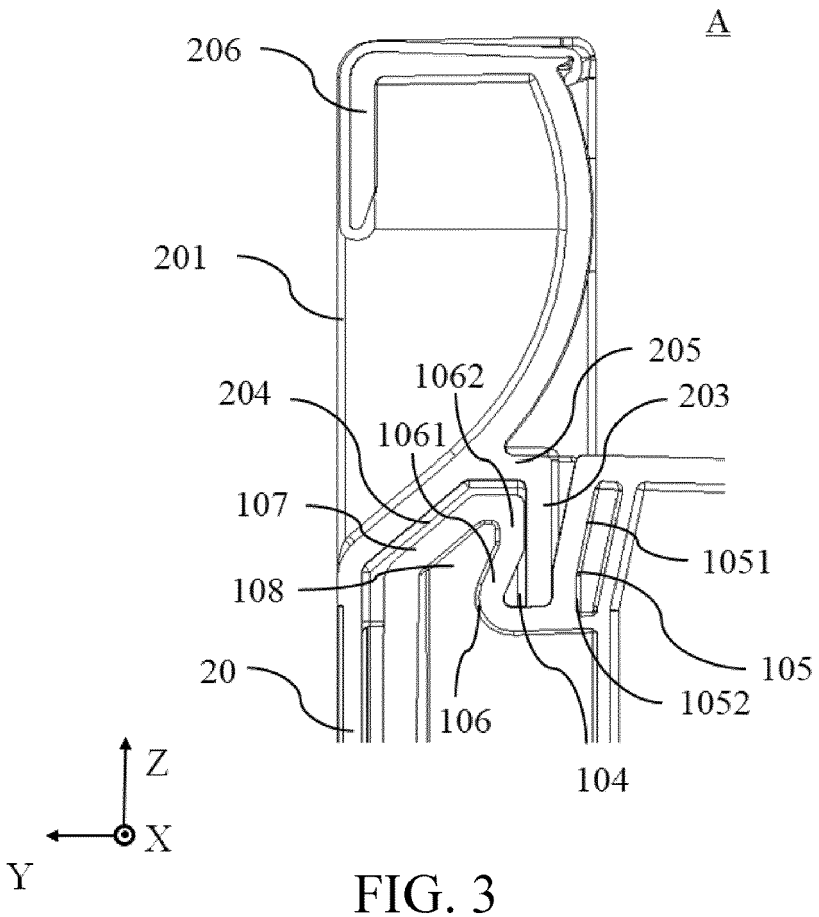
A
206
201
205
1062
204
203
1061
107
1051
108
105
20
1052
106
104
Z
X
Y

FIG. 3

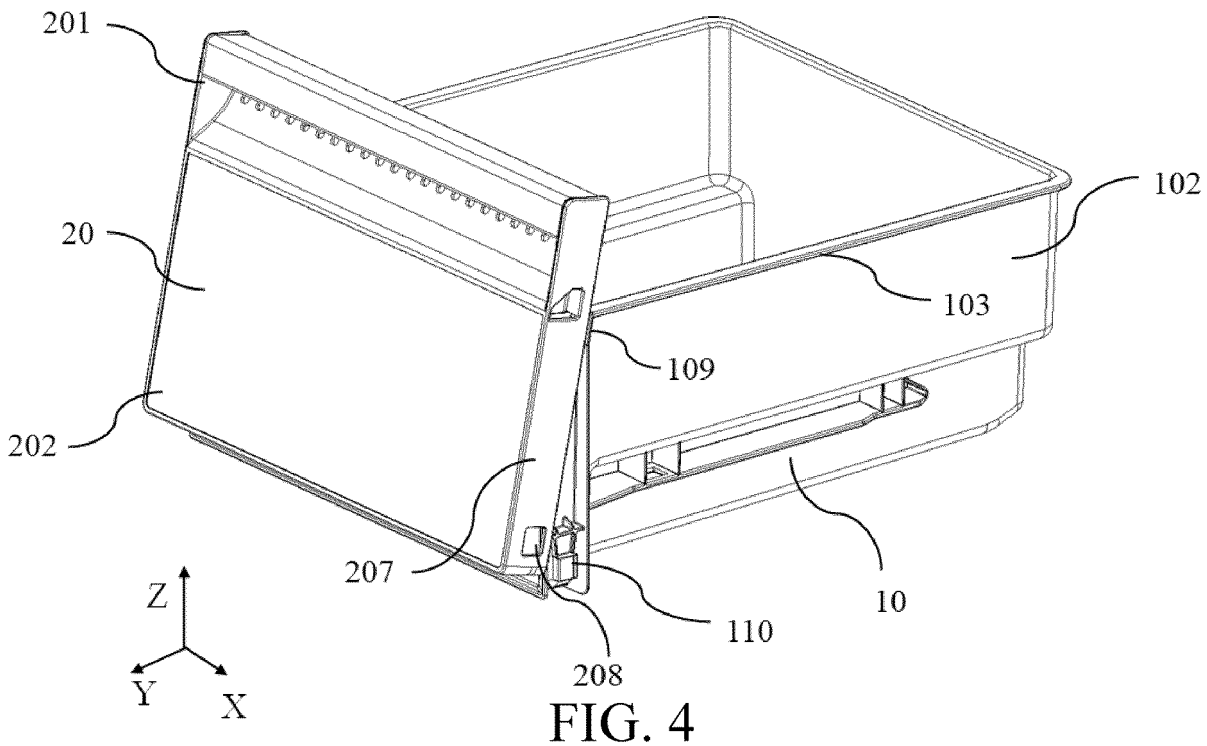

FIG. 4

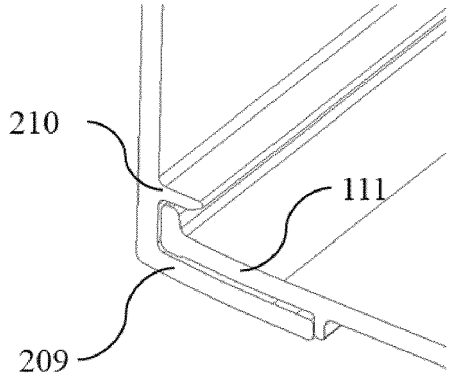

FIG. 5

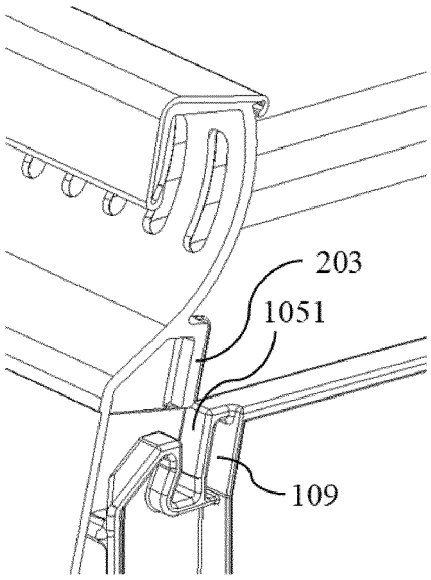

FIG. 6

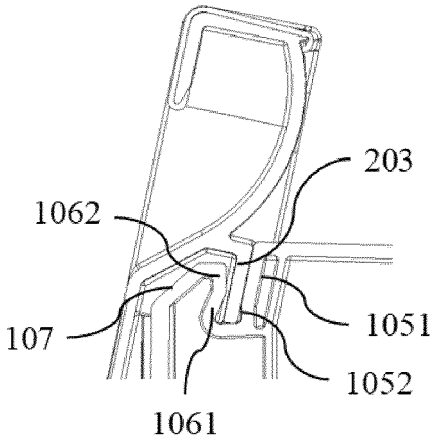

FIG. 7

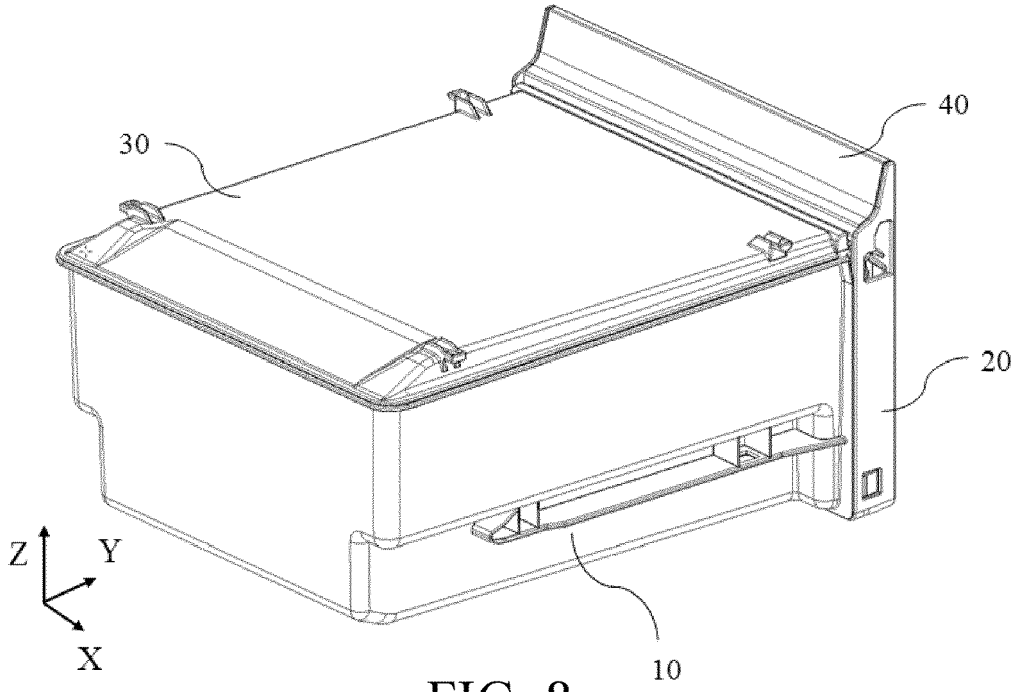

FIG. 8

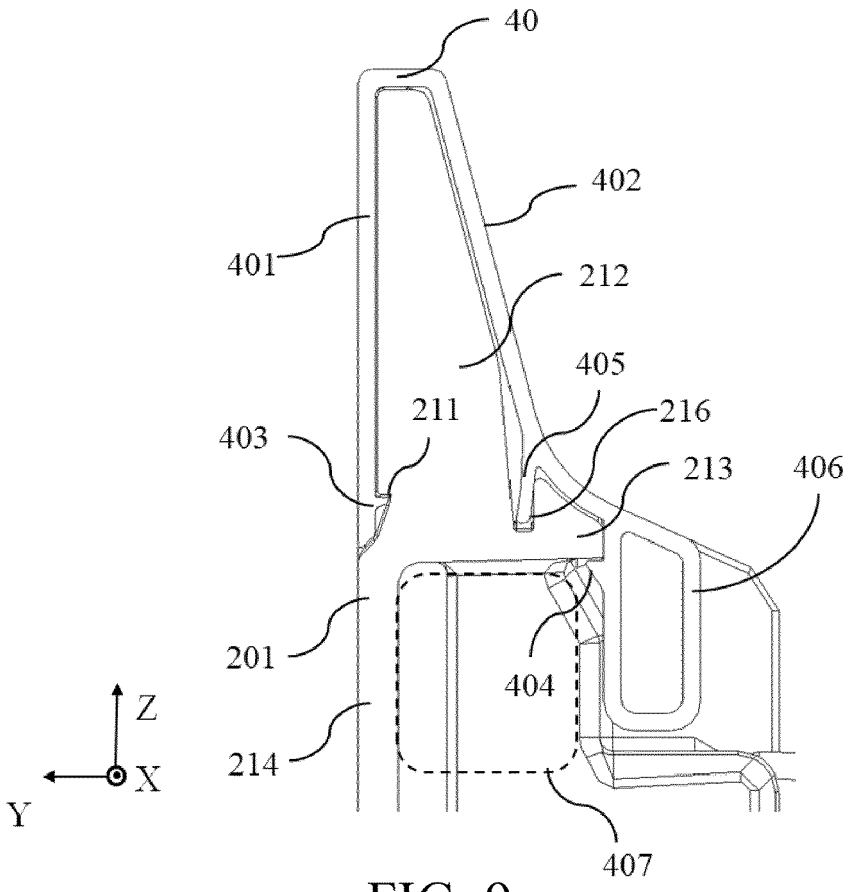

FIG. 9

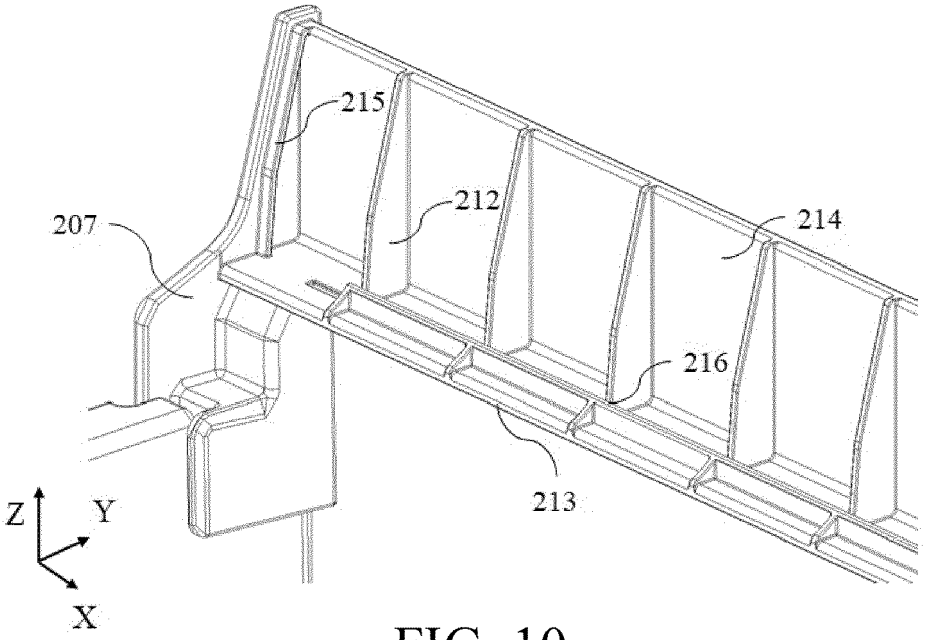

FIG. 10

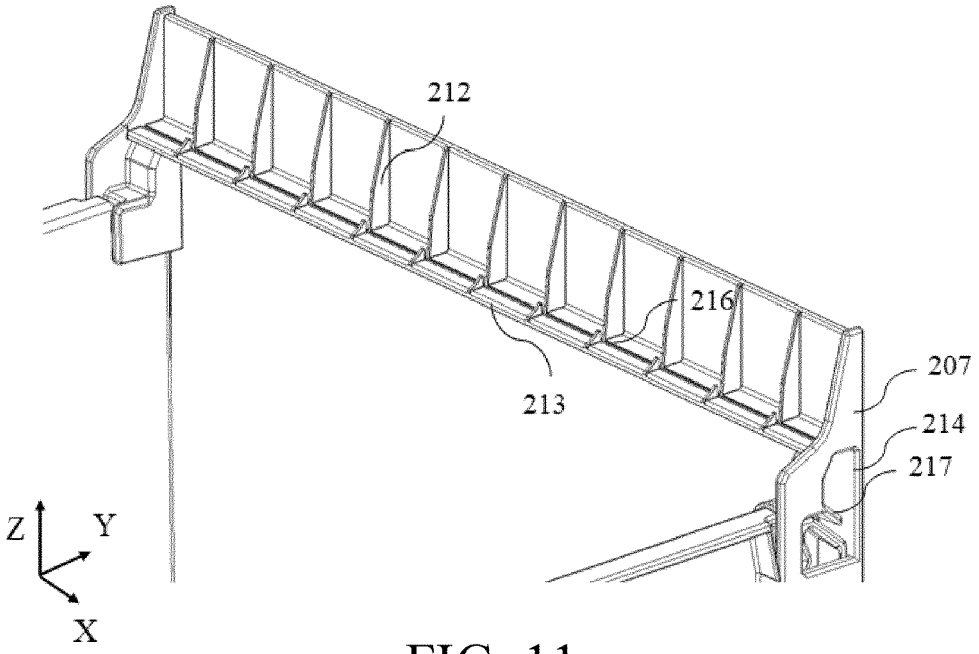

FIG. 11

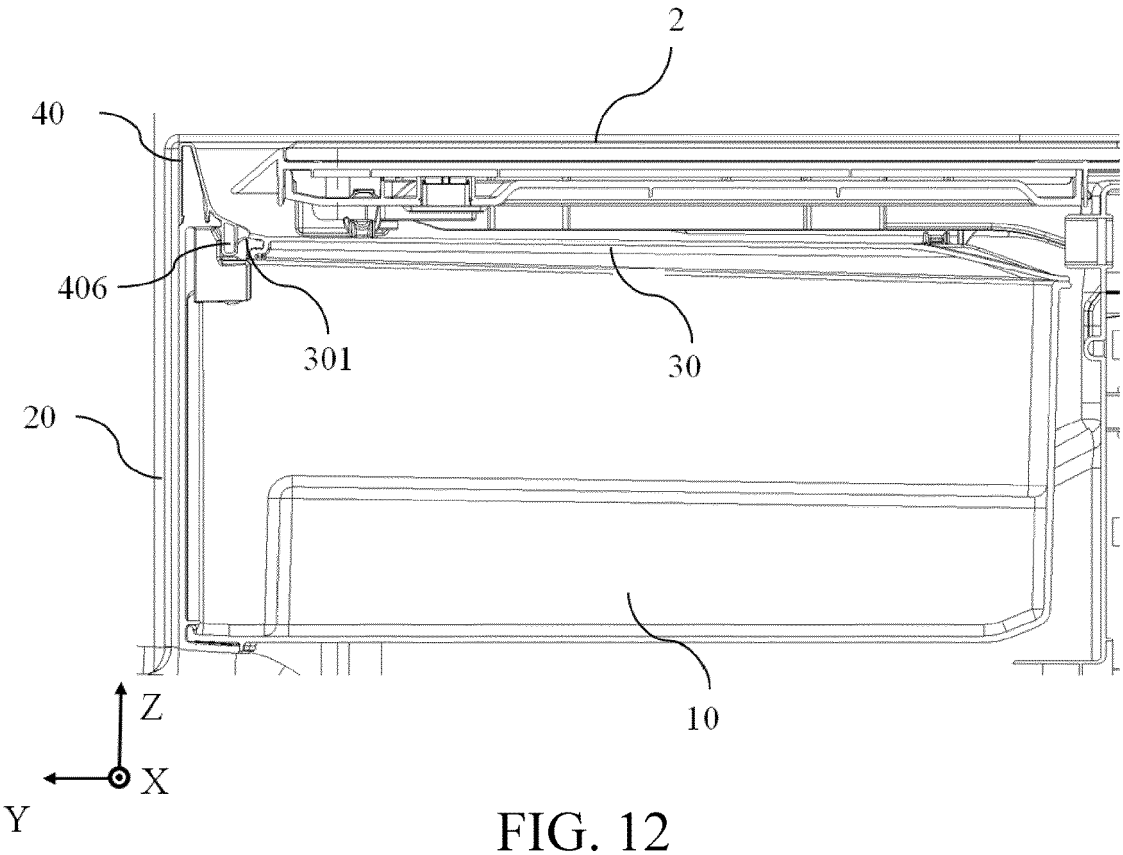

FIG. 12

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EUROPEAN SEARCH REPORT

Application Number
EP 22 21 3465

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	KR 102 177 020 B1 (WINIAMANDO INC [KR]) 10 November 2020 (2020-11-10) * figure 2 *	1,4,5,15	INV. F25D25/02
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TECHNICAL FIELDS SEARCHED (IPC)

F25D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	24 April 2023	Kuljis, Bruno

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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L : document cited for other reasons

& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 22 21 3465

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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24-04-2023

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EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82