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(54) **Refrigerator**

(57) Disclosed is a refrigerator. The refrigerator (1) includes a storage chamber (2) having a side wall; a shelf assembly (3) including a rear shelf (30) and a front shelf (40), where the front shelf is movable between a retraction position below the rear shelf and an extending position protruding in front of the rear shelf, the rear shelf includes a carrying portion (301) and a side frame portion (302) connected to the carrying portion, and the side frame portion has a rear rail portion (323) for supporting the front shelf portion at the retraction position; and a

support unit (4), connected to the side wall (21) to support the shelf assembly, and including a rear supporting portion (42) for supporting the horizontally placed rear shelf, where the rear supporting portion (42) has a horizontal rear supporting surface (420). As suggested by the present invention, the rear supporting portion (42) is located between the side frame portion (302) and the side wall (21) and is covered by the side frame portion (302) in a direction perpendicular to the side wall (21).

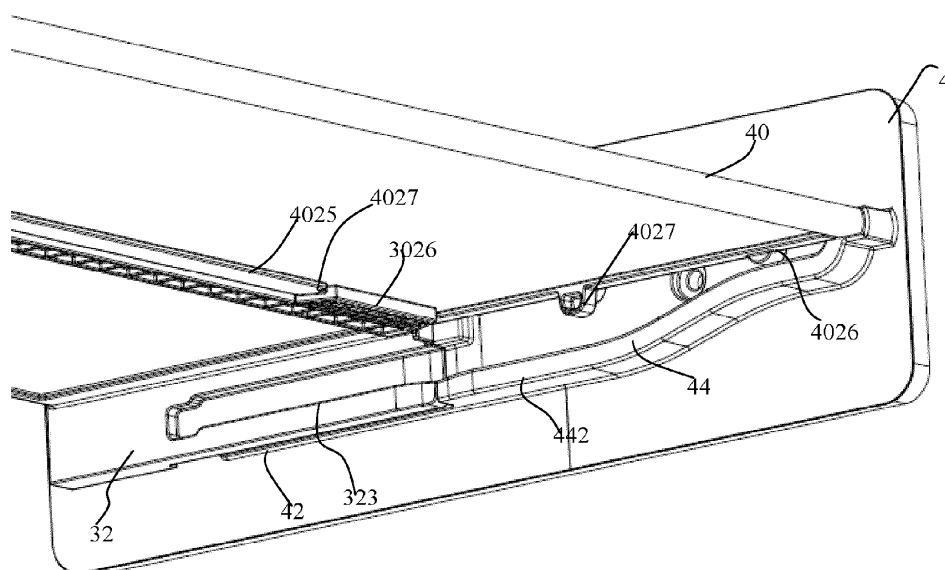


FIG. 7

Description

BACKGROUND OF THE INVENTION

Field of the Invention

[0001] The present invention relates to a refrigerator, and in particular, to a household refrigerator having a shelf assembly including a front shelf and a rear shelf.

Related Art

[0002] In order to better utilize the storage chamber of the refrigerator, a known practice is to dispose a rotatable shelf in the refrigerator. For example, in Utility Model Patent CN2316611Y, an adjustable shelf assembly of a refrigerator is disclosed, where the adjustable shelf assembly includes a rear shelf and a front shelf mounted on a fixed rotation shaft, and the front shelf may be inserted into and supported below the rear shelf or pulled from below the rear shelf to the front of the rear shelf.

[0003] In the case of storing food of normal size, the front shelf may be withdrawn from below the rear shelf and horizontally placed with the rear shelf, and the adjustable shelf assembly together with the ordinary shelf below form a two-layer shelving space; when it is necessary to store larger articles, the front shelf may be inserted into the rear shelf to form a one-and-a-half-layer shelving space; in the case of storing more and larger-size articles, after the front shelf is retracted below the rear shelf, the adjustable shelf assembly is rotated backward to approximately stand on one side of the storage chamber, and the large-size articles may be stored on the ordinary shelf below the adjustable shelf.

[0004] The rear shelf is provided with a pair of rear rail portions located below a rear carrying portion and used for supporting the front shelf located below the rear carrying portion, and when the front shelf is pushed backward below the rear shelf, two sides of the front shelf may be supported on the rear rail portions. The rear rail portions are usually not higher than front rail portions located in front of the rear shelf and used for guiding the front shelf to move, so as to smoothly insert the front shelf in the rail of the rear shelf. Therefore, in the prior art, the rear supporting portions for supporting the rear shelf are all lower than the front rail and exposed in the storage chamber, so that the interior of the refrigerator having the adjustable shelf assembly is cluttered.

SUMMARY OF THE INVENTION

[0005] An objective of the present invention is to solve at least one of the above technical problems, so as to provide a refrigerator helping to improve neatness of a storage chamber having an adjustable shelf assembly.

[0006] Therefore, one aspect of the present invention relates to a refrigerator. The refrigerator includes a storage chamber having a side wall; a shelf assembly, locat-

ed inside the storage chamber, and including a rear shelf and a front shelf, where the front shelf is movable between a retraction position below the rear shelf and an extending position protruding in front of the rear shelf, the rear shelf includes a carrying portion and a side frame portion connected to the carrying portion, and the side frame portion has a rear rail portion for supporting the front shelf portion at the retraction position; and a support unit, connected to the side wall to support the shelf assembly, and including a rear supporting portion for supporting the horizontally placed rear shelf, where the rear supporting portion has a horizontal rear supporting surface; the refrigerator is characterized in that, the rear supporting portion is located between the side frame portion and the side wall and is at least partially covered by the side frame portion in a direction perpendicular to the side wall.

[0007] As the rear supporting portion for supporting the rear shelf may be at least partially (preferably, at least most partially) concealed, this helps to improve neatness of the refrigerator provided with a shelf assembly. On the other hand, the rear supporting portion is concealed by the side frame portion provided with the rear rail portion, so that it is unnecessary to additionally dispose a cover element, and the rear supporting portion may be covered without significantly increasing the cost.

[0008] Other individual features or features combined with other features to be regarded as characteristics of the present invention are described below in the following claims.

[0009] According to a preferable embodiment of the present invention, an outer side, facing the side wall, of the side frame portion has a step portion to form an accommodation space for accommodating the rear support portion.

[0010] According to a preferable embodiment of the present invention, the side frame portion includes a connection portion connected to the carrying portion and a mounting portion extending downwards from a lower surface of the connection portion, the rear rail portion is formed on the mounting portion, and the rear supporting portion is covered by the mounting portion.

[0011] According to a preferable embodiment of the present invention, a step portion is formed between outer side surfaces of the mounting portion and the connection portion to form an accommodation space, and the rear supporting portion is located in the accommodation space.

[0012] According to a preferable embodiment of the present invention, outer side surfaces of the mounting portion and the connection portion are connected by a step surface horizontally extending in a front and rear direction, and the step surface forms a lapping surface supported on the rear supporting surface. If the step surface between the mounting portion and the connection portion is supported on the rear supporting surface, this facilitates the mounting portion located below the step surface to cover the rear supporting surface.

[0013] According to a particularly preferable embodiment of the present invention, the side frame portion includes a lapping surface supported on the rear supporting surface, and the lapping surface is located between a top surface and a bottom surface of the side frame portion. Therefore, the portion, located below the lapping surface, of the side frame portion may be easily used to cover the rear supporting surface.

[0014] According to a particularly preferable embodiment of the present invention, the lapping surface is higher than the rear rail portion in a vertical direction.

[0015] According to a preferable embodiment of the present invention, the lapping surface is formed by a protruding rib protruding out of the outer side of the side frame portion.

[0016] According to a preferable embodiment of the present invention, the support unit includes a front rail portion for supporting the front shelf and/or guiding movement of the front shelf, and the front rail portion projects beyond the rear supporting portion and towards an opposite side wall opposite to the side wall.

[0017] According to a preferable embodiment of the present invention, a front end surface of the side frame portion is in face-to-face contact with a rear end surface of the front rail portion. This not only may prevent the rear shelf from moving forward, but also provides such a possibility: inner side surfaces of the side frame portion and the front rail portion away from the side walls may be at least approximately in the same plane.

[0018] According to a preferable embodiment of the present invention, the front rail portion includes a section connected to the rear rail portion, and a lower surface of the section is even with a bottom surface of the side frame portion.

[0019] According to a preferable embodiment of the present invention, the support unit includes a shaft portion, the rear shelf includes a receiving slot for receiving the shaft portion, a rear end of the receiving slot is open, and the rear shelf inserts into the storage chamber from the front to the rear, so that the shaft portion enters the receiving slot. In an alternative embodiment, the rear shelf includes a shaft portion, the support unit includes a receiving slot for receiving the shaft portion, a front end of the receiving slot is open, and the rear shelf inserts into the storage chamber from the front to the rear, so that the shaft portion enters the receiving slot.

[0020] According to a preferable embodiment of the present invention, the support unit includes an inclined guiding surface for guiding the rear shelf to be mounted in the storage chamber.

[0021] According to a preferable embodiment of the present invention, the shelf assembly is rotatable backward around a rotation shaft to stand at a rest position at a rear side of the storage chamber, the support unit includes a stopping portion for stopping the shelf assembly from further rotation after the shelf assembly reaches the rest position, the stopping portion is located above the rotation shaft, and at the rest position, the side frame

portion leans against the stopping portion.

[0022] The structure and other invention objectives as well as beneficial effects of the present invention will be more comprehensible with reference to the accompanying drawings and the description about the preferable embodiments.

BRIEF DESCRIPTION OF THE DRAWINGS

[0023] As a part of the specification and for facilitating further comprehension of the present invention, the following accompanying drawings illustrate specific implementation manners of the present invention, and describe the principle of the present invention together with the specification.

FIG. 1 is a schematic perspective view of a refrigerator in a non-fully assembled state according to a preferable embodiment of the present invention;

FIG. 2 is a schematic perspective view of a shelf assembly according to a preferable embodiment of the present invention, where the front shelf is retracted below the rear shelf;

FIG. 3 is a sectional view of the refrigerator shown in FIG. 1, where the shelf assembly is supported on the support unit and retracted to a rear side of the storage chamber;

FIG. 4 is a schematic perspective view of a shelf assembly according to a preferable embodiment of the present invention, where the shelf assembly is in an extending state and one side is connected to a support unit;

FIG. 5 is a schematic perspective view of a support unit according to a preferable embodiment of the present invention;

FIG. 6 is a schematic partial perspective view of a rear shelf according to a preferable embodiment of the present invention;

FIG. 7 is a schematic partial perspective view of a shelf assembly with one side supported on the support unit and in an extending state according to a preferable embodiment of the present invention; and

FIG. 8 is a schematic partial sectional view of a shelf assembly to be mounted on a support unit according to a preferable embodiment of the present invention.

DETAILED DESCRIPTION OF THE EMBODIMENTS

[0024] Referring to the accompanying drawings, and first particularly referring to FIG. 1, a refrigerator 1 has a heat-insulating storage chamber 2 for storing articles.

The storage chamber 2 is defined by an inner liner 20. The refrigerator further includes a heat-insulating layer (not shown) between the inner liner 20 and a housing (not shown). The storage chamber 2 includes a pair of opposite side walls 21 and a rear wall 22 connecting the two side walls 21. The storage chamber 2 has an opening at a front end and may be closed or opened through a heat-insulating door (not shown).

[0025] The storage chamber 2 is provided with an adjustable shelf assembly 3 and ordinary shelves 8 above and below the shelf assembly 3.

[0026] The shelf assembly 3 is supported in the storage chamber 2 through a pair of support units 4 located on two sides of the storage chamber 2. In this embodiment, the support units 4 are formed by separate supporting means connected to the corresponding side walls 21. In this embodiment, the support units 4 are unmovably fixed onto the side walls 21. The refrigerator 1 may include a reinforcing member 6 connected to the inner liner 20 for fixing the support units 4.

[0027] In an alternative embodiment, the support units 4 may also be mounted in the storage chamber 2 together with the shelf assembly 3 or removed from the storage chamber 2 together with the shelf assembly 3.

[0028] In another alternative embodiment, the support units 4 may also be at least partially formed by the inner liner 20 directly, that is, the support units 4 and the inner liner 20 are integrally formed.

[0029] Referring to FIG. 2 to FIG. 4, the shelf assembly 3 includes a rear shelf 30 and a front shelf 40 capable of moving with respect to the rear shelf 30. The front shelf 40 may selectively move to an extending position protruding in front of the rear shelf 30. At the extending position, the front shelf 40 is located in front of the rear shelf 30 and is approximately on the same horizontal plane with the rear shelf 30. As shown in FIG. 1 and FIG. 4, articles to be cooled may be stored on the front shelf 40 and the rear shelf 30.

[0030] The front shelf 40 may be pushed below the horizontally placed rear shelf 30 to a retraction position where the front shelf 40 overlaps the rear shelf 30. As shown in FIG. 2, at the retraction position, two sides of the front shelf 40 are supported in a pair of rear rail portions 323 below a rear carrying plate 301 of the rear shelf 30.

[0031] When the front shelf 40 is retracted below the rear shelf 30, the shelf assembly 3 is capable of rotating backward around a rotation shaft from a horizontal state capable of storing the articles to retract to a rear side of the storage chamber 2, as shown in FIG. 3, in this state, the shelf assembly 3 extends longitudinally to stand at the rear side of the storage chamber 2, therefore, the shelf assembly 3 is at a rest position and the articles may not be placed therein, but the shelf 8 below the shelf assembly 3 may store articles with higher dimensions.

[0032] Referring to FIG. 2 to FIG. 7, the rear shelf 30 includes a plate-like rear carrying portion 301 for placing articles and a first frame portion 302 connected to at least

part of edges of the rear carrying portion 301.

[0033] In this embodiment, the first frame portion 302 surrounds peripheral edges of the rear carrying portion 301, and includes a first front frame portion 3021, a first rear frame portion 3022, and a first side frame portion 3023 respectively disposed along a front edge portion 30a, a rear edge portion 30b, and a corresponding side edge portion 30c of the rear carrying portion 301.

[0034] In a preferable embodiment, the rear carrying portion 301 is preferably supported by glass or glass-like materials, and the first frame portion 302 made of plastics is fixed to an edge of the rear carrying portion 301. In an alternative embodiment, the rear carrying portion 301 and the first frame portion 302 connected to at least part of edges of the rear carrying portion 301 are integrally formed.

[0035] In this embodiment, the first front frame portion 3021 includes an extending portion 3025 extending forward and with a claw-shaped cross section. A hook portion 3026 is formed at a free end of the extending portion 3025, and the hook portion 3026 bends upward from a horizontal plate portion 3027 of the extending portion 3025.

[0036] Each first side frame portion 3022 includes a connection portion 31 connected to the corresponding side edge portion 30c and a mounting portion 32 extending downwards from a lower surface of the connection portion 31. A top surface 311 of the connection portion 31 may be exposed in the storage chamber 2. In this embodiment, the mounting portion 32 is located below the rear carrying portion 301.

[0037] A slot-shaped receiving slot 321 for receiving a shaft portion 51 formed on the corresponding support unit 4 is formed at an outer side of each mounting portion 32. A rear end of the receiving slot 321 is open, and a curved surface 3211 for coordinating with the shaft portion 51 to rotate is formed on a front end.

[0038] In a direction from the rear end to the front end, the receiving slot 321 gradually contracts. In this embodiment, the receiving slot 321 includes an upper slot wall 3212 parallel to a horizontal plane and an inclined lower slot wall 3213. The upper slot wall 3212 and the lower slot wall 3213 are connected by the curved surface 3211. An angle α formed between the lower slot wall 3213 and the horizontal plane may be 10 degrees-30 degrees.

[0039] Each first side frame portion 3022 includes a lapping surface 322 for being supported on the support unit 4 when the rear shelf 30 is at a horizontal position. The lapping surface 322 extends in a front and rear direction and is parallel to the horizontal plane, and is located between the top surface 311 and a bottom surface 320.

[0040] In this embodiment, a step portion 33 is formed between outer side surfaces of the mounting portion 32 and the connection portion 31 facing the corresponding side walls 21 to form an accommodation space 325. The lapping surface 322 is formed on the step surface (in this embodiment, it is the lower surface of the connection

portion 31) horizontally extending in the front and rear direction.

[0041] In an alternative embodiment, the lapping surface 322 may also be formed by a protruding rib protruding out of the outer side surface of the mounting portion 32 or the connection portion 31.

[0042] The outer side of the mounting portion 32 may be provided with multiple reinforcing ribs 324 for improving strength of the mounting portion 32.

[0043] Inner sides of the mounting portion 32 away from the corresponding side walls 21 adjacent thereto have rear rail portions 323 located below the rear carrying portion 301 and extending in the front and rear direction. The pair of rear rail portions 323 are formed face to face on the inner side of the corresponding first side frame portion 3022. A side portion of the front shelf 40 may move backward along the corresponding rear rail portion 323.

[0044] The front shelf 40 includes a front carrying portion 401 made of plastics and a second frame portion 402 connected to at least part of edges of the front carrying portion 401.

[0045] In this embodiment, the second frame portion 402 surrounds peripheral edges of the front carrying portion 401, and includes a second front frame portion 4021, a second rear frame portion 4022, and a second side frame portion 4023 respectively disposed along a front edge portion 40a, a rear edge portion 40b, and a corresponding side edge portion 40c of the front carrying portion 401.

[0046] Each side frame portion 4023 is provided with a first protruding portion 4026 located in the front of the front shelf 40 and protruding outwardly toward the corresponding side wall 21 and a second protruding portion 4027 located in a rear side of the corresponding first protruding portion 4026. When the front shelf 40 is located below the rear shelf 30, the first protruding portion 4026 and the second protruding portion 4027 may be supported on the rear rail portions 323.

[0047] Referring to FIG. 4 and FIG. 7, when the front shelf 40 is at the extending position protruding, the first protruding portion 4026 is supported on the support unit 4, the second protruding portion 4027 may be at a suspended state, and the second rear frame portion 4022 lays on the plate portion 3027 of the extending portion 3025 to be supported on the rear shelf 30. At this position, the hook portion 3026 is clamped to a front end surface of a lower covered edge 4025, disposed along a lower surface of the rear carrying portion 401, of the second rear frame portion 4022, so as to clamp the front shelf 40 in the extending state to the rear shelf 30. Therefore, a front end surface of the first front frame portion 3021 contacts a rear end surface of the second rear frame portion 4022, so that a very small gap may be kept between the front shelf 40 and the rear shelf 30.

[0048] Referring to FIG. 3, FIG. 5 and FIG. 7, in this embodiment, each support unit 4 includes a plate-like base portion 40. A hole 401 capable of being fixed in the

inner liner 20 may be formed on the base portion 40.

[0049] Each support unit 4 includes a shaft portion 41 protruding from a rear portion the base portion 40. In this embodiment, the outer circumferential surface of the shaft portion 41 includes a cylindrical surface capable of matching the curved surface 3211 of the receiving slot 321. When the rear shelf 30 rotates, the cylindrical surface of the shaft portion 41 is concentric with and contacts the curved surface 3211 of the receiving slot 321, to make the rear shelf 30 rotate around the shaft portion 41. In this embodiment, the shaft portion 41 and the receiving slot 321 define the rotation shaft of the rear shelf 30.

[0050] In this embodiment, a section of the shaft portion 41 is approximately kidney-shaped. In an alternative embodiment, the shaft portion 41 may also be a circular body.

[0051] Each support unit 4 includes a rear supporting portion 42 for supporting the rear shelf 30. The rear supporting portion 42 has a rear supporting surface 420 extending in the front and rear direction and parallel to the horizontal plane. When the rear shelf 30 is at the horizontal position, the lapping surface 322 located between the top surface 311 and the bottom surface 320 of the first side frame portion 3023 rests on the rear supporting surface 420 to be supported on the support unit 4. The rear supporting portion 42 is located in the accommodation space 325. In a direction perpendicular to the side wall 21, the rear supporting portion 42 is located between the mounting portion 32 and the corresponding side wall 21, and the rear supporting portion 42 is covered by the mounting portion 32 extending downwards and is blocked. Therefore, the rear supporting portion 42 is basically not exposed in the storage chamber 2, and a user may not see the rear supporting portion 42.

[0052] Each support unit 4 may further include a guiding portion 43 for guiding the rear shelf 30 to be mounted in the storage chamber 2 in a predetermined direction. An upper end surface of the guiding portion 43 inclines downwards in a direction from the front to the rear to form an inclined guiding surface 430. An angle formed between the guiding inclined surface 430 and the horizontal plane is approximately the same as the angle α . The guiding inclined surface 430 may be connected to the rear end of the rear supporting portion 42.

[0053] As shown in FIG. 8, when the shelf assembly 3 or the rear shelf 30 is mounted, the lower slot wall 3213 of the rear shelf 30 may slide backward along the upper end surface of the guiding portion 43, which may make the shaft portion 41 insert into the receiving slot 31 whose rear end is open, and reaches the closed front end of the receiving slot 31. Afterwards, the front end of the rear shelf 30 is grasped to rotate downwards, and the lapping surface 322 may be supported on the rear supporting portion 42, so as to accomplish mounting of the rear shelf 30 or the shelf assembly 3.

[0054] Each support unit 4 includes a front rail portion 44 protruding from the base portion 40. The front rail portion 44 is located in front of the rear supporting portion

42. As shown in FIG. 5, in a direction perpendicular to the corresponding side wall 21, compared with the rear supporting portion 42, the front rail portion 44 is more protruding from the base portion 40. Therefore, when the rear shelf 30 is horizontally mounted on the support unit 4, as shown in FIG. 7, the outer side surface of the mounting portion 32 covering the rear supporting portion 42 and an outer side surface of the front rail portion 44 are basically in the same vertical plane.

[0055] The front rail portion 44 includes an approximately horizontal first section 441 located in a front end, an approximately horizontal second section 442 located in a rear end, and an inclined third section 443 connecting the first section 441 and the second section 442. As shown in FIG. 7, when the rear shelf 30 is at the horizontal position, a front end surface of the mounting portion 32 contacts a rear end surface of the second section 442 face to face. The second section 442 and the rear rail portion 323 are smoothly connected without a step therebetween, so that the front shelf 40 may smoothly move from the front rail portion 44 to the front rail portion 323.

[0056] A lower end surface of the second section 442 is even with a bottom surface 320 of the first side frame portion 3022. This helps to make the mounting portion 32 and the front rail portion 44 look like a member, so as to make the interior of the storage chamber 2 more concise.

[0057] When the front shelf 40 is at the extending position protruding, the first protruding portion 4026 is supported on the first section 441, and the second rear frame portion 4022 is supported on and clamped to the extending portion 3025 of the rear shelf 30. When it is necessary to overlap the front shelf 40 below the rear shelf 30, the front end of the front shelf 40 may be grasped and slightly pressed downwards to unlock the front shelf 40 and the rear shelf 30, then the front shelf 40 is slightly pulled forward, and the front end of the front shelf 40 inclines downwards to make the second protruding portion 4027 lap on the front rail portion 44. Afterwards, the front shelf 40 is pushed backward, and slides along the front rail portion 44 and the following front rail portion 323 through the second protruding portion 4027, and the front shelf 40 is guided to move below the rear shelf 30 and is supported on the rear rail portion 323.

[0058] Each support unit 4 includes a cover rib 45 located above the front rail portion 44. The cover rib 45 extends in the front and rear direction, and at least partially covers the front rail portion 44 in a vertical direction.

[0059] When the front shelf 40 is at the extending position protruding, as shown in FIG. 4, the cover rib 45 covers a gap between the two sides of the front shelf 40 and the corresponding base portion 40. An upper surface of the cover rib 45 is preferably on the same plane with the top surface 311. This may further improve visual consistency of the refrigerator 1 having the shelf assembly 3 and the ordinary shelf 8.

[0060] Correspondingly, the top surface 311 may further include a trench 312 extending in the front and rear

direction and basically even with a gap between the cover rib 45 and the front shelf 40. This brings a more uniform impression of the rear shelf 30 and the front shelf 40.

[0061] Each support unit 4 may further include a stopping portion 46 located on the rear portion of the base portion 40, for stopping the shelf assembly 3 from further rotation backward after the shelf assembly 3 is retracted to one side of the storage chamber 2. The stopping portion 46 is located above the shaft portion 41, and when the rear side of the shelf assembly 3 leans against the stopping portion 46, the shelf assembly 3 may not continue to rotate backward. As shown in FIG. 3, at a standing state, a gap still exists between the shelf assembly 3 and the rear wall 22 of the storage chamber 2, which may avoid influences of the standing shelf assembly 3 on air circulation in the storage chamber 2.

[0062] A stop surface 461, towards the front, of the stopping portion 46 is a plane. Preferably, an angle formed between the stop surface 461 and the horizontal plane is between 95 degrees and 100 degrees, for example, 100 degrees.

Claims

1. A refrigerator (1), comprising:

a storage chamber (2), comprising a side wall (21);

a shelf assembly (3), located inside the storage chamber (2), and comprising a rear shelf (30) and a front shelf (40), where the front shelf (40) is movable between a retraction position below the rear shelf (30) and an extending position protruding in front of the rear shelf (30), the rear shelf (30) comprises a carrying portion (301) and a side frame portion (302) connected to the carrying portion (301), and the side frame portion has a rear rail portion (323) for supporting the front shelf portion (40) at the retraction position; and

a support unit (4), connected to the side wall (21) to support the shelf assembly (3), and comprising a rear supporting portion (42) for supporting the horizontally placed rear shelf (30), wherein the rear supporting portion (42) has a horizontal rear supporting surface (420);

characterized in that, the rear supporting portion (42) is located between the side frame portion (302) and the side wall (21) and is at least partially covered by the side frame portion (302) in a direction perpendicular to the side wall (21).

2. The refrigerator (1) according to claim 1, **characterized in that**, an outer side, facing the side wall (21), of the side frame portion (302) has a step portion (33) to form an accommodation space for accommodating at least a part of the rear supporting portion

- (42).
3. The refrigerator according to claim 1, **characterized in that**, the side frame portion (302) comprises a connection portion (31) connected to the carrying portion (301) and a mounting portion (32) extending downwards from a lower surface of the connection portion (31), the rear rail portion (323) is formed on the mounting portion (32), and the rear supporting portion (42) is covered by the mounting portion (32). 5
 4. The refrigerator according to claim 3, **characterized in that**, a step portion (3) is formed between outer side surfaces of the mounting portion (32) and the connection portion (31) to form an accommodation space (325), and the rear supporting portion (42) is located in the accommodation space (325). 10
 5. The refrigerator according to claim 3 or 4, **characterized in that**, outer side surfaces of the mounting portion (32) and the connection portion (31) are connected by a step surface horizontally extending in a front and rear direction, and the step surface rests on the rear supporting surface (420). 15
 6. The refrigerator (1) according to any one of claims 1 to 4, **characterized in that**, the side frame portion (302) comprises a lapping surface (322) laying on the rear supporting surface (420), and the lapping surface (322) is located between a top surface (311) and a bottom surface (320) of the side frame portion (302). 20
 7. The refrigerator (1) according to claim 6, **characterized in that**, the lapping surface (322) is higher than the rear rail portion (323) in a vertical direction. 25
 8. The refrigerator according to claim 6 or 7, **characterized in that**, the lapping surface (322) is formed by a protruding rib protruding out of the outer side of the side frame portion (302). 30
 9. The refrigerator according to any one of claims 1 or 8, **characterized in that**, the support unit (4) comprises a front rail portion (44) for supporting the front shelf (40) and/or guiding movement of the front shelf (40), and the front rail portion (44) projects beyond the rear supporting portion (42) and towards an opposite side wall, opposite to the side wall, of the storage chamber (2). 35
 10. The refrigerator according to claim 9, **characterized in that**, a front end surface of the side frame portion (302) is in face-to-face contact with a rear end surface of the front rail portion (44). 40
 11. The refrigerator according to claim 9 or 10, **characterized in that**, the front rail portion (44) comprises a section (442) connected to the rear rail portion (323), and a lower surface of the section (442) is even with the bottom surface (320) of the side frame portion (302). 45
 12. The refrigerator according to claim 1, **characterized in that**, the support unit (4) comprises a shaft portion (41), the rear shelf (30) comprises a receiving slot (321) for receiving the shaft portion (41), a rear end of the receiving slot (321) is open, and the rear shelf (30) inserts into the storage chamber (2) from the front to the rear, so that the shaft portion (41) enters the receiving slot (321). 50
 13. The refrigerator according to claim 1, **characterized in that**, the rear shelf comprises a shaft portion, the support unit comprises a receiving slot for receiving the shaft portion, a front end of the receiving slot is open, and the rear shelf inserts into the storage chamber from the front to the rear, so that the shaft portion enters the receiving slot. 55
 14. The refrigerator according to claim 12 or 13, **characterized in that**, the support unit (4) comprises an inclined guiding surface (43) for guiding the rear shelf (30) to be mounted in the storage chamber (2), and the rear shelf (30) is mounted in the storage chamber (2) along the inclined guiding surface (43) from the front to the rear.
 15. The refrigerator according to claim 1, **characterized in that**, the shelf assembly (3) is rotatable backward around a rotation shaft to stand at a rest position at a rear side of the storage chamber (2), the support unit (2) comprises a stopping portion (46) for stopping the shelf assembly (3) from further rotation after the shelf assembly reaches the rest position, the stopping portion (46) is located above the rotation shaft, and at the rest position, the side frame portion (302) leans against the stopping portion (46).

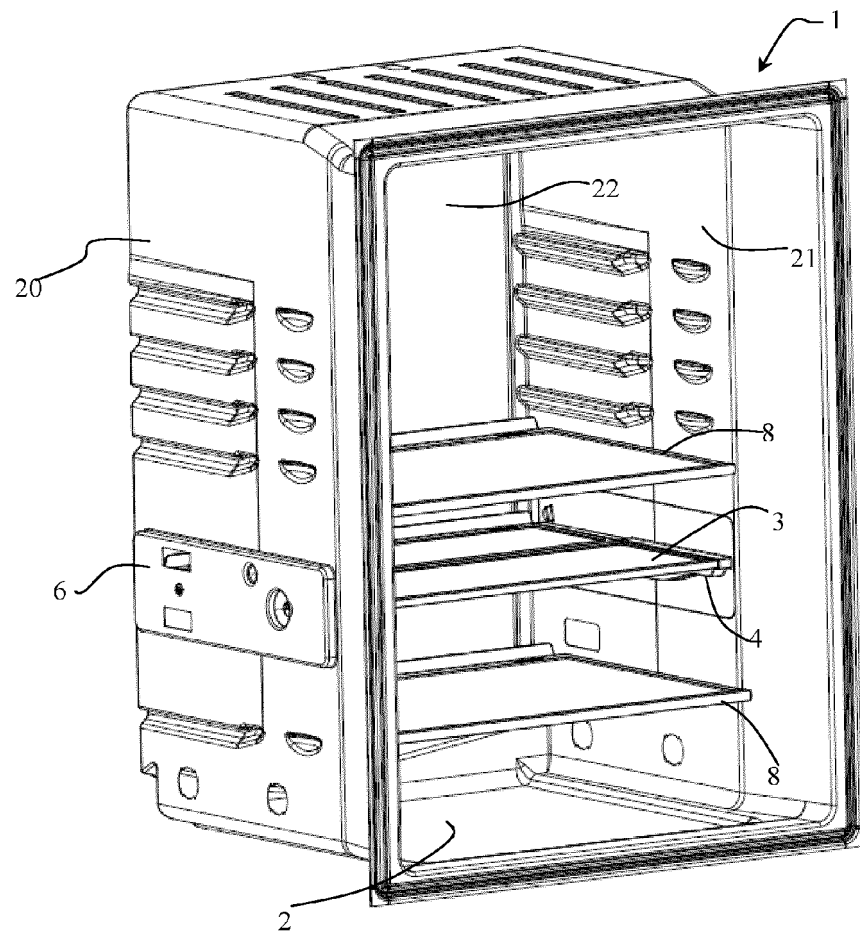


FIG. 1

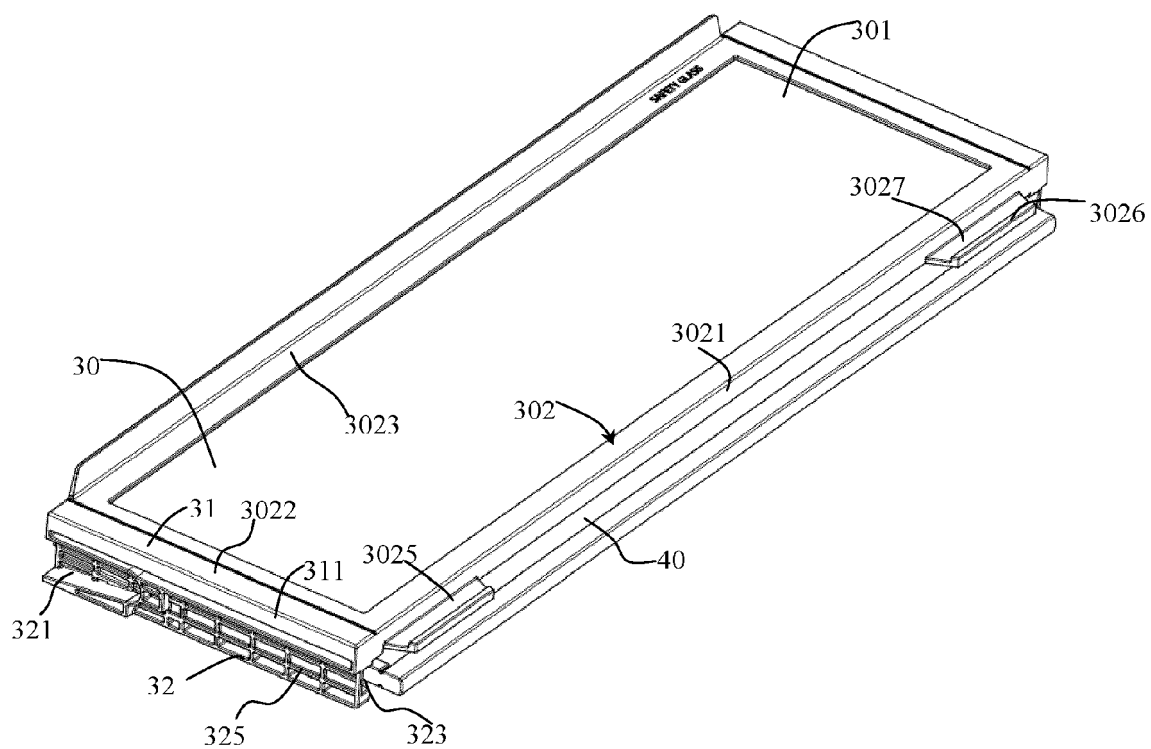


FIG. 2

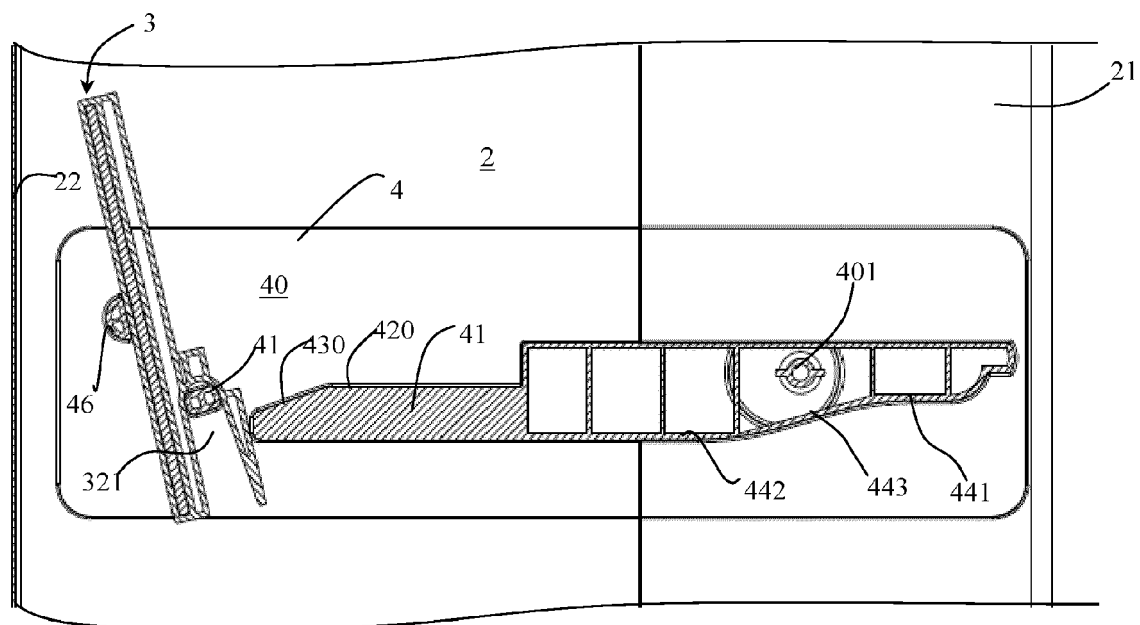


FIG. 3

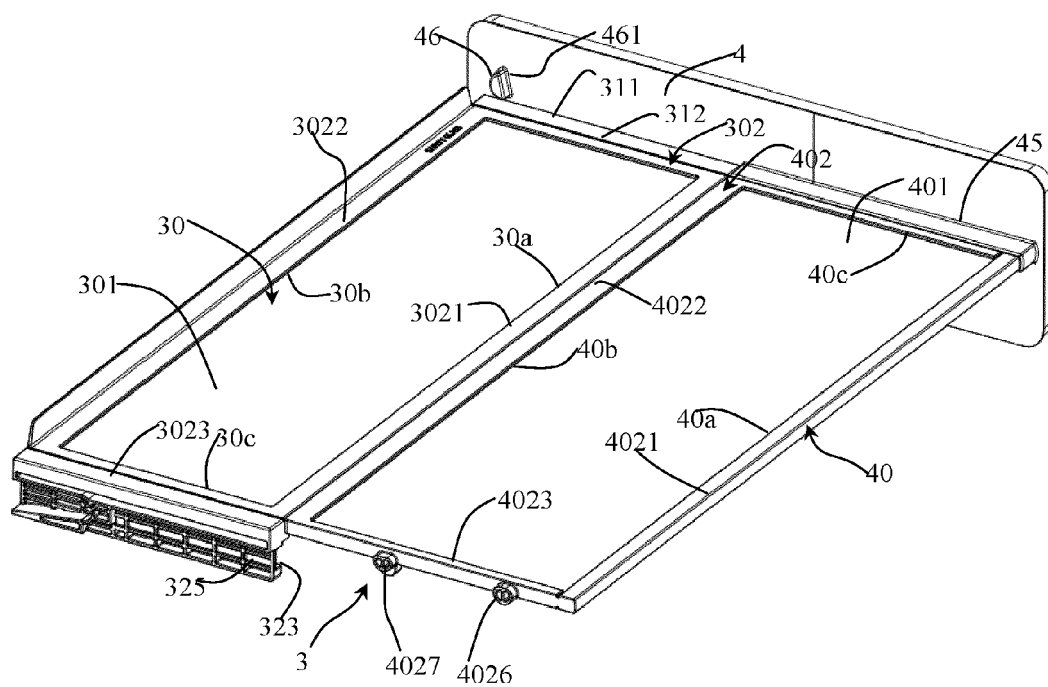


FIG. 4

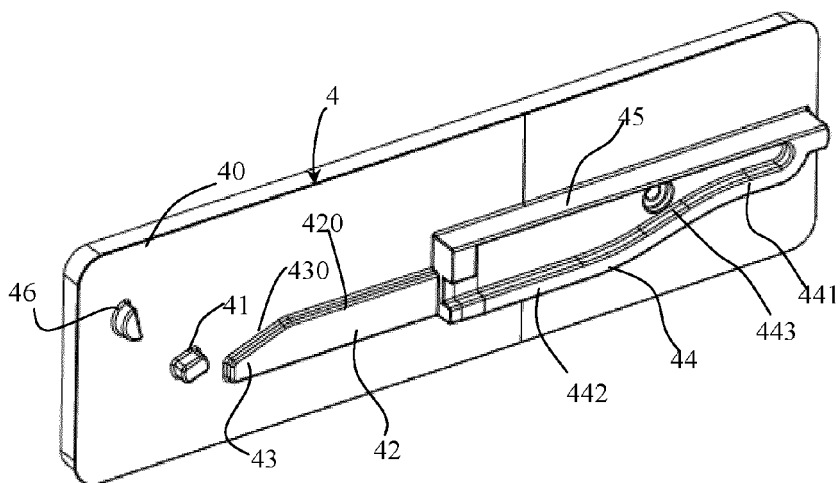
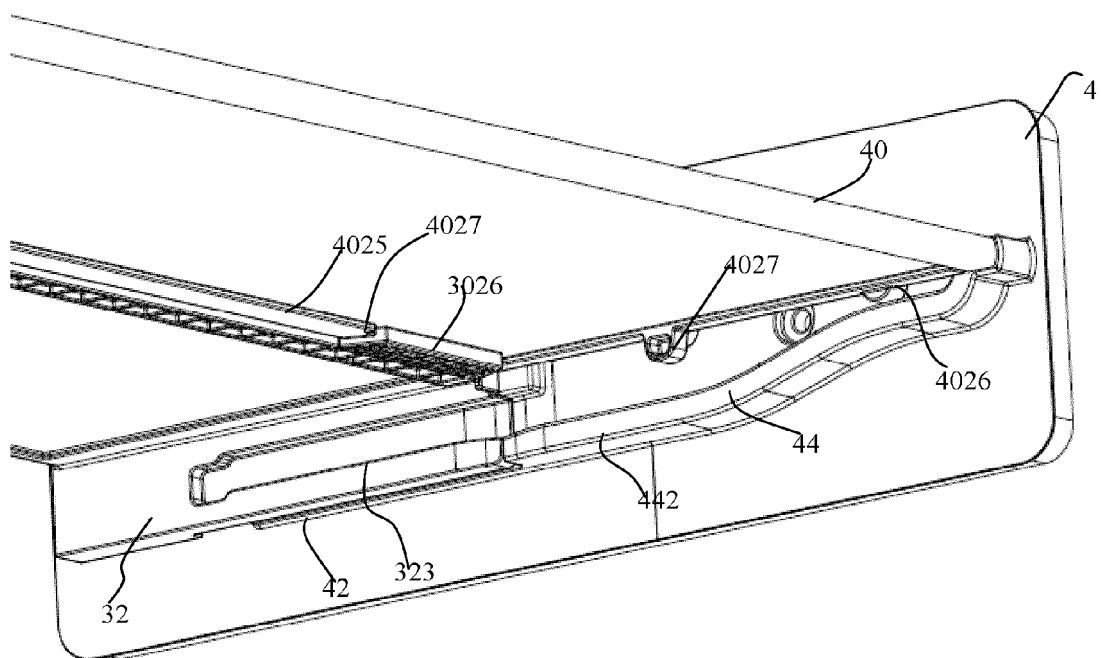
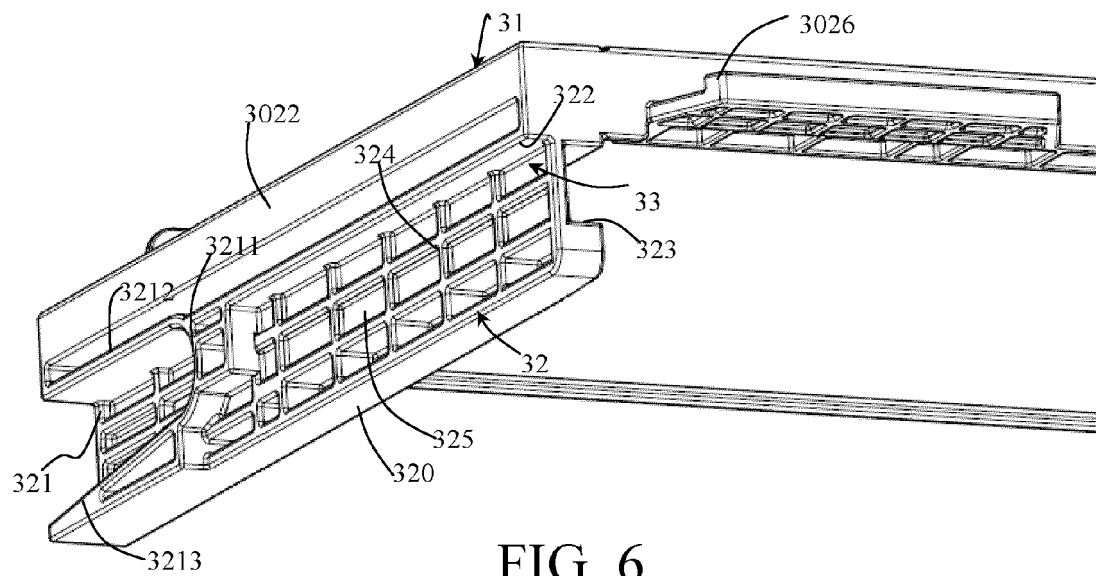


FIG. 5



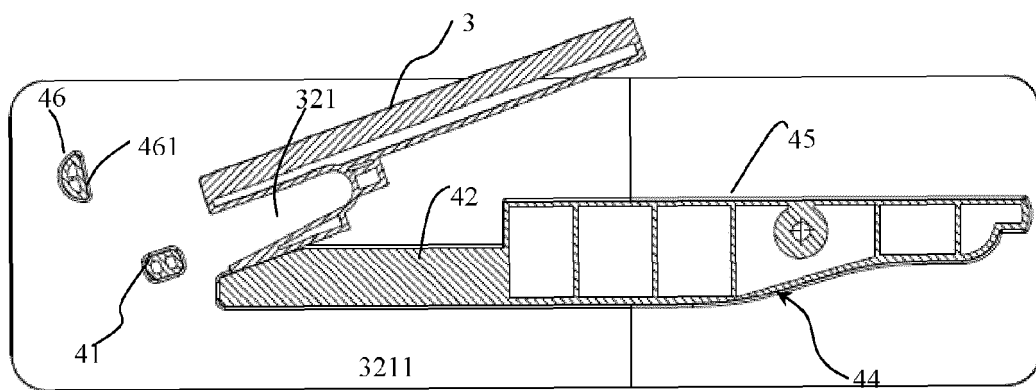


FIG. 8

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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