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(54) **REFRIGERATOR**

(57) A refrigerator comprising: a storage compartment; a storage container located within the storage compartment, wherein the storage container includes a bottom wall, a front wall, a rear wall, a pair of side walls, and a container space enclosed by the bottom wall, the front wall, the rear wall, and the pair of side walls, the storage container further includes at least one separator located

within the container space, the at least one separator separates the container space into at least two side-by-side container subspaces, and the at least two container subspaces include a first container subspace and a second container subspace; a first lid, configured to cover the first container subspace; and a second lid, configured to cover the second container subspace.

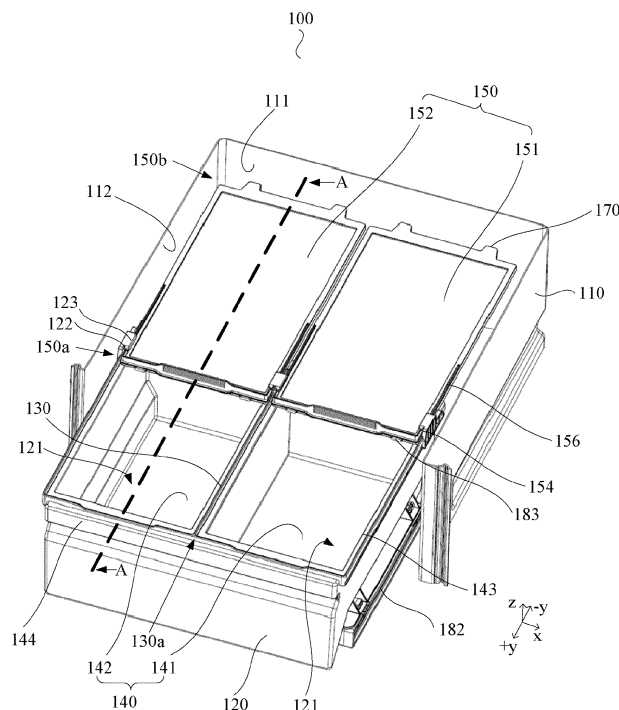


FIG. 1

Description**BACKGROUND****Technical Field**

[0001] The present invention relates to the field of refrigeration apparatuses, and in particular, to a refrigerator.

Related Art

[0002] With popularization of refrigeration apparatuses in people's daily life, increasingly more people start to store perishable food such as vegetables and fish and meat in refrigeration apparatuses such as refrigerators.

[0003] A refrigerator is used as an example. Generally, one or more drawers are disposed in a storage compartment (such as a refrigerating compartment) of the refrigerator to facilitate taking. When a stored product needs to be taken out, a user may pull out the drawer to take the required stored product. Afterwards, the user may push the drawer back into the storage compartment, so that the entire taking process is completed.

[0004] Because the drawers within the existing refrigerators are uncovered and have poor sealing performance, it is very likely to cause odor tainting between stored products within the storage compartments and even cause bacteria breeding, affecting food hygiene.

SUMMARY

[0005] Embodiments of the present invention are intended to provide an improved refrigerator. Therefore, the embodiments of the present invention provide a refrigerator, including: a storage compartment; a storage container located within the storage compartment, where the storage container includes a bottom wall, a front wall, a rear wall, a pair of side walls, and a container space enclosed by the bottom wall, the front wall, the rear wall, and the pair of side walls, the storage container further includes at least one separator located within the container space, the at least one separator separates the container space into at least two side-by-side container subspaces, and the at least two container subspaces include a first container subspace and a second container subspace; a first lid, configured to cover the first container subspace; and a second lid, configured to cover the second container subspace.

[0006] Compared with a lidless drawer of an existing refrigerator, the solutions of the embodiments of the present invention provide a refrigerator with a storage container. The storage container is provided with a separator, and a lid (such as a first lid and/or a second lid) is provided on each of a plurality of container subspaces separated by the separator. Through cooperation of the separator and the lid, the storage container can be separated into a plurality of mutually independent container subspaces. In addition, each container subspace may be uncovered or covered respectively, and the storage container may be wholly pulled out of or pushed into the storage compartment, not only facilitating separate storage of different foods to avoid odor tainting, but also helping a user to take the foods, thereby helping improve user experience.

[0007] Optionally, the at least two container subspaces are arranged side by side in a lateral direction, the lateral direction being a direction from one side wall to the other side wall. Accordingly, the at least two container subspaces may be arranged side by side in a width direction (that is, the lateral direction) of the refrigerator. When the storage container is pulled out of the storage compartment, all the container subspaces are displayed side by side in front of the user, so that the user can directly see all the container subspaces.

[0008] Optionally, at least one lid of the first lid and the second lid includes a sealing strip, when the lid covers the corresponding container subspace, the sealing strip contacting with an upper edge of the container subspace to form a sealed space within the corresponding container subspace, so that the storage container has better sealing performance.

[0009] Optionally, the sealing strip is fixed below the lid to ensure that the lid can be in close contact with the upper edge of the container subspace when covering the corresponding container subspace.

Optionally, at least one lid of the first lid and the second lid includes: a frame, the frame enclosing a viewing port; and a transparent member disposed within the viewing port and connected to the frame. Accordingly, when the storage container is pulled out of the storage compartment, an interior of the corresponding container subspace is directly visible without a need to push away the first lid and/or the second lid, and the user can accurately and quickly determine whether a stored product being sought is stored in the container subspace, thereby helping reduce a number of times of unnecessary uncovering and covering of the container subspace. In other words, the user can push away the corresponding lid to take the stored product after determining that the required stored product is indeed stored in the container subspace, instead of opening the lid first to determine whether the stored product is in the container subspace. This further reduces a possibility of odor tainting.

[0010] Optionally, at least one lid of the first lid and the second lid is slidably supported on an upper portion of a

corresponding container subspace, when the storage container is pulled out of the storage compartment, the lid being pulled out with the storage container while keeping the corresponding container subspace covered, and the lid may be slid relative to the container subspace to uncover or cover the container subspace. Accordingly, when the storage container is located within the storage compartment of the refrigerator and during pulling the storage container out of the storage compartment, the lid supported on the corresponding container subspace is configured to cover the container subspace, so that sealing performance of the at least one container subspace of the storage container can be effectively improved, and a stored product in the container subspace can be prevented from being tainted by other stored products in the storage compartment or in other container subspaces because of being directly exposed to the storage compartment, thereby helping improve food hygiene. Further, when the storage container is pulled out of the storage compartment, the lid may be pushed by a user to slide relative to a corresponding container subspace, to uncover or cover the corresponding container subspace, thereby helping the user conveniently take the stored product within the container subspace.

[0011] Optionally, when the lid is pulled out of the storage compartment with the storage container, the lid may be pushed back into the storage compartment relative to the corresponding container subspace, to uncover the container subspace, and when the storage container is pushed into the storage compartment, the lid covers the container subspace. Accordingly, when the storage container is pulled out of the storage compartment, the lid may be pushed by a user to slide forward/rearward relative to the corresponding container subspace. Forward/rearward sliding refers to sliding forward/rearward along a depth direction of the refrigerator, to uncover or cover the corresponding container subspace, thereby helping the user conveniently take the stored product within the container subspace.

[0012] Optionally, when the lid is pulled out of the storage compartment with the storage container, the lid may be slid toward a direction away from another container subspace relative to the corresponding container subspace to uncover the container subspace, and the lid may be further slid toward a direction approaching the another container subspace relative to the corresponding container subspace to cover the container subspace. Accordingly, when the storage container is pulled out of the storage compartment, the lid may be pushed by the user to slide leftward/rightward relative to the corresponding container subspace. Leftward/rightward sliding refers to sliding toward a direction away from an adjacent container subspace along a width direction of the refrigerator, to uncover or cover the corresponding container subspace, thereby helping the user conveniently take the stored product within the container subspace.

[0013] Optionally, the refrigerator further includes a block, the block being configured to prevent the lid from continuing sliding relative to the corresponding container subspace to keep the lid supported on the storage container that is pulled out. With the designed block, the lid can be prevented from detaching from the container subspace as a result of an excessive movement toward a direction away from the corresponding container subspace, to ensure that the lid is always supported on the container subspace (that is, the storage container) during sliding, thereby helping quickly pull the lid toward an opposite direction to cover the corresponding container subspace when necessary.

[0014] Optionally, the block is located on at least one side wall, the separator, the front wall, and/or the rear wall; the lid has a stop, and the lid sliding relative to the corresponding container subspace until the stop abuts against the block, to prevent the lid from continuing sliding relative to the container subspace. Accordingly, through cooperation of the block and the stop, when the lid is pushed toward the direction away from the corresponding container subspace to uncover the corresponding container subspace, the lid can be prevented from detaching from the container subspace as a result of excessively movement, to ensure that the lid is always supported on the container subspace, thereby helping quickly pull the lid toward the opposite direction to cover the container subspace when necessary.

[0015] Optionally, the refrigerator further includes an anti-tilting portion, the anti-tilting portion being configured to prevent a rear end of the lid from rotating downward during sliding of the lid relative to the corresponding container subspace. Accordingly, when the lid is pushed toward the direction away from the storage container to uncover more than half of the container subspace, the lid can be prevented from tilting (that is, the rear end of the lid rotates downward, and a front end of the lid rotates upward) relative to the container subspace due to an offset of a center of gravity of the lid when the lid continues moving, to ensure that the lid is always supported on the container subspace, thereby preventing the lid from rotating randomly on the container subspace, and helping quickly pull the lid toward the opposite direction to cover the container subspace when necessary.

[0016] Optionally, the anti-tilting portion is located on at least one side wall, the separator, the front wall, and/or the rear wall, the anti-tilting portion bending toward the storage container to form a limiting groove; the lid has an anti-tilting rib, when the lid slides relative to the corresponding container subspace to uncover the container subspace, the anti-tilting rib entering the limiting groove to abut against an inner wall of the limiting groove. Accordingly, through cooperation of the anti-tilting portion and the anti-tilting rib, the lid can be kept supported on the container subspace when being pushed toward the direction away from the corresponding container subspace, to prevent the lid turning over unexpectedly, and ensure that the lid always slides along the upper edge of the container subspace.

[0017] Optionally, a gap between the lid and the container subspace when the lid is slid relative to the corresponding container subspace to cover the container subspace is smaller than a gap between the lid and the container subspace when the lid is slid relative to the corresponding container subspace to uncover the container subspace. Accordingly,

with the properly designed spacing of the lid in a height direction relative to the corresponding container subspace when moving relative to the corresponding container subspace, it is possible to provide a sealing strip between the lid and the container subspace. Therefore, friction between the sealing strip and the lid/container subspace during movement of the raised lid is avoided. Further, when the lid covers the container subspace, the lid wholly sinks to fit closely with the upper edge of the container subspace, helping improve sealing performance of the container subspace while preventing the sealing performance from being affected due to unexpected displacement during covering of the container subspace by the lid.

[0018] Optionally, at least one lid of the first lid and the second lid is rotatably supported on one side wall or the separator of the storage container, when the storage container is pulled out of the storage compartment, the lid being pulled out with the storage container while keeping the corresponding container subspace covered, and can the lid can rotate around the side wall or the separator to uncover the container subspace. Accordingly, when the storage container is pulled out of the storage compartment, the lid may be overturned by a user around the side wall or the separator along the height direction of the refrigerator, to uncover or cover the corresponding container subspace, thereby helping the user conveniently take the stored product within the container subspace.

[0019] Optionally, a side of at least one lid of the first lid and the second lid is supported on a side wall of the storage compartment, when the storage container is pulled out of the storage compartment, the lid being supported within the storage compartment to uncover the corresponding container subspace. Accordingly, when the storage container is located within the storage compartment, a lid supported on each container subspace is configured to cover a corresponding container subspace, so that sealing performance of the storage container within the storage compartment can be effectively improved, and stored products within the storage container are prevented from being directly exposed outside and tainted with each other, thereby helping improve food hygiene. Further, when the storage container is pulled out of the storage compartment, the lid on the at least one container subspace may be supported within the storage compartment instead of being supported on the corresponding container subspace. In other words, the lid on the container subspace does not move forward/rearward along the depth direction of the refrigerator with the container subspace, so as to uncover the container subspace while pulling out the storage container, thereby providing a user with a humanized and convenient experience for taking stored products.

Optionally, one end of the separator is connected to the front wall, and the other opposite end of the separator is connected to the rear wall, to separate the storage container into at least two side-by-side container subspaces in a lateral direction.

[0020] Optionally, the separator is integrally formed with the front wall and the rear wall to avoid unexpected changes in a size of each container subspace formed through separation, facilitating manufacturing.

[0021] Optionally, the refrigerator further includes a guide rail, the guide rail being configured to movably fix the storage container within the storage compartment, the storage container being adapted to be pulled out of or pushed back into the storage compartment along the guide rail. Accordingly, the user can conveniently pull out or push back the storage container as required, and the storage container and/or the storage compartment are prevented from being damaged by dry friction with an inner wall of the storage compartment during forward/rearward movement of the storage container relative to the storage compartment, thereby helping improve user experience.

[0022] Optionally, the first lid and/or the second lid have/has a protrusion, when the storage container is pushed into the storage compartment, the protrusion of the first lid and/or the second lid abutting against a back plate of the storage compartment. Accordingly, accuracy of contact with the back plate is improved through point contact. Further, a location of the protrusion on the first lid and/or the second lid can avoid designed components such as an air duct and a cooling tube on the back plate, to prevent the first lid and/or the second lid from damaging the refrigerator because of touching the components of the back plate when moving rearward.

[0023] Optionally, the first lid and/or the second lid have/has a buffer portion, when the first lid covers the first container subspace and/or the second lid covers the second container subspace, the buffer portion abutting against the front wall of the storage container to reduce impact on the container subspace when the first lid and/or the second lid move/moves forward to cover the corresponding container subspace.

BRIEF DESCRIPTION OF THE DRAWINGS

[0024]

FIG. 1 is a partial schematic structural diagram of a refrigerator according to an embodiment of the present invention;

FIG. 2 is an exploded view of a storage container and a lid in FIG. 1;

FIG. 3 is a partial schematic structural diagram of another refrigerator according to an embodiment of the present invention;

FIG. 4 is an exploded view of a storage container and a lid in FIG. 3;

FIG. 5 is a three-dimensional schematic structural diagram of a storage container in FIG. 3;

5 FIG. 6 is an exploded view of a lid in FIG. 3;

FIG. 7 is a view showing an effect of a storage container that is pushed into a storage compartment in FIG. 1;

10 FIG. 8 is a view showing an effect of a storage container that is pushed into a storage compartment in FIG. 3;

FIG. 9 is a cross-sectional view of FIG. 1 along a direction A-A;

FIG. 10 is a cross-sectional view of FIG. 7 along a direction B-B;

15 FIG. 11 is a schematic diagram of a principle of a manner of combining an anti-tilting rib and an anti-tilting portion in FIG. 9;

FIG. 12 is a schematic diagram of a principle of another manner of combining an anti-tilting rib and an anti-tilting portion in FIG. 9;

20 FIG. 13 is a schematic diagram of a process of separating a lid and a storage container in FIG. 1;

FIG. 14 is a cross-sectional view of FIG. 3 along a direction C-C;

25 FIG. 15 is a cross-sectional view of FIG. 8 along a direction D-D;

FIG. 16 is a schematic diagram of a principle for a lid to slide relative to a storage container according to an embodiment of the present invention;

30 FIG. 17 is a schematic diagram of another principle for a lid to slide relative to a storage container according to an embodiment of the present invention;

FIG. 18 is yet a schematic diagram of a principle for a lid to slide relative to a storage container according to an embodiment of the present invention.

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DETAILED DESCRIPTION

[0025] Those skilled in the art will understand that, as described in background, drawers in an existing refrigerator are all without lids, and consequently products cannot be stored in the drawer in a sealed manner.

40 In order to resolve the foregoing technical problem, embodiments of the present invention provide a refrigerator, including: a storage compartment; a storage container located within the storage compartment, where the storage container includes a bottom wall, a front wall, a rear wall, a pair of side walls, and a container space enclosed by the bottom wall, the front wall, the rear wall, and the pair of side walls, the storage container further includes at least one separator located within the container space, the at least one separator separates the container space into at least two side-by-side container subspaces, and the at least two container subspaces includes a first container subspace and a second container subspace; a first lid, configured to cover the first container subspace; and a second lid, configured to cover the second container subspace.

45 **[0026]** Those skilled in the art understand that, the solutions of the embodiments of the present invention provide a refrigerator with a storage container. The storage container is provided with a separator, and a lid (such as a first lid and/or a second lid) is provided for each of a plurality of container subspaces separated by the separator. Through cooperation of the separator and the lid, the storage container may be separated into a plurality of mutually independent container subspaces. In addition, each container subspace may be uncovered or covered, and the storage container can be wholly pulled out of or pushed into the storage compartment, not only facilitating separate storage of different foods to avoid odor tainting, but also helping a user to take the foods, thereby helping improve user experience.

50 **[0027]** To make the foregoing objectives, features, and advantages of the present invention clearer and easier to understand, specific embodiments of the present invention are described in detail below with reference to accompanying drawings.

[0028] FIG. 1 is a partial schematic structural diagram of a refrigerator according to an embodiment of the present

invention. In order to more clearly illustrate technical features of this embodiment, a storage compartment of the refrigerator and a storage container disposed therein are mainly used as an example in FIG. 1, and a specific structure of the storage container is further illustrated.

[0029] It should be noted that a design of this embodiment may be further applied to refrigeration apparatuses that need separation and store articles in a sealed manner such as a refrigerator or a freezer.

[0030] In particular, in this embodiment, a refrigerator 100 may include a storage compartment 110 and a storage container 120 located within the storage compartment 110.

[0031] For example, the storage compartment 110 may include a back plate 111, a pair of side walls 112, and an accommodation space enclosed by the back plate 111 and the pair of side walls 112 for accommodating the storage container 120.

[0032] A size of the accommodation space of the storage compartment 110 may match a size of the storage container 120, and the accommodation space may be adapted to accommodate one or more storage containers 120.

[0033] More particularly, referring to FIG. 1 and FIG. 2, the storage container 120 may include a bottom wall 120a, a front wall 120b, a rear wall 120c, and a pair of side walls 120d, and may further include a container space 121 enclosed by the bottom wall 120a, the front wall 120b, the rear wall 120c, and the pair of side walls 120d.

[0034] Further, the storage container 120 may further include at least one separator 130 located within the container space 121, the at least one separator 130 separating the container space 121 into at least two side-by-side container subspaces 140, and the at least two container subspaces 140 may include a first container subspace 141 and a second container subspace 142.

[0035] Next, that the storage container 120 includes one separator 130 is used as an example for specific description. In other words, the container space 121 is separated into two container subspaces 140 by the separator 130, and then the two container subspaces 140 are referred to as a first container subspace 141 and a second container subspace 142 respectively.

[0036] Further, each container subspace 140 may be provided with a lid 150.

In particular, the refrigerator 100 may further include: a first lid 151, configured to cover the first container subspace 141; and a second lid 152, configured to cover the second container subspace 142. Shapes and structures of the first lid 151 and the second lid 152 may be the same, and both may be collectively referred to as the lid 150. In other words, when the lid 150 is configured to cover the first container subspace 141 shown in FIG. 1 and FIG. 2, the lid 150 may be referred to as the first lid 151. When the lid 150 is configured to cover the second container subspace 142 shown in FIG. 1 and FIG. 2, the lid 150 may be referred to as the second lid 152.

[0037] Further, each of the container subspaces 140 may have an opening facing upward, the opening exposing a corresponding container subspace 140. The container subspace 140 may be adapted to accommodate stored products. A user may take the stored products placed in the container subspace 140 from the opening, or the user may place the stored products in the container subspace 140 from the opening. The lid 150 disposed above the opening may be configured to uncover or cover the opening to uncover or cover the corresponding container subspace 140.

[0038] For convenience of description, in this embodiment, a width direction of the refrigerator 100 is set to a direction x, a depth direction of the refrigerator 100 is set to a direction y, and a height direction of the refrigerator 100 is set to a direction z. A direction from the back plate 111 of the storage compartment 110 points to outside of the storage compartment 110 is a positive direction of the direction y (that is, a direction +y shown in the figure). In other words, a direction in which the storage container 120 is pulled out of the storage compartment 110 is the positive direction of the direction y.

[0039] For example, a plurality of storage containers 120 may be arranged side by side along the direction x, the direction y, and/or the direction z in the storage compartment 110.

[0040] FIG. 3 is a partial schematic structural diagram of another refrigerator according to an embodiment of the present invention. A difference from the foregoing refrigerator 100 shown in FIG. 1 and FIG. 2 lies in that a storage container 120 and/or a lid 150 of a refrigerator 100 shown in FIG. 3 are/is provided with a sliding structure such as a roller that facilitates sliding, to optimize a sliding effect of the lid 150 on the storage container 120, which is described in detail later.

Next, a common point of the refrigerator 100 shown in FIG. 3 and the refrigerator 100 shown in FIG. 1 and FIG. 2 is first described in detail.

[0041] Next, that one storage container 120 is disposed in the storage compartment 110 is used as an example for specific description.

[0042] In one or more embodiments, the at least two container subspaces 140 may be arranged side by side in a lateral direction, the lateral direction being a direction from one side wall 120d to the other side wall 120d. Accordingly, the at least two container subspaces 140 may be arranged side by side in the direction x. When the storage container 120 is pulled out of the storage compartment 110, all the container subspaces 140 are displayed side by side in front of a user, so that the user can directly see all the container subspaces 140.

[0043] In one or more embodiments, volumes of the at least two container subspaces 140 may be the same.

[0044] For example, still referring to FIG. 1 to FIG. 5, the separator 130 can separate the container space 121 into

two parts in the direction x to form the first container subspace 141 and the second container subspace 142 of a same volume (or with a same width at least in the direction x). In one or more alternative examples, the volumes of the at least two container subspaces 140 may be different, to be adapted to storage requirements of storage products of different volumes.

[0045] In one or more alternative examples, the separator 130 may be disposed parallel to the direction x, so that the container space 121 is separated into a plurality of container subspaces 140 along the direction y.

[0046] In one or more embodiments, one end 130a of the separator 130 may be connected to the front wall 120b, and the other opposite end 130b of the separator 130 may be connected to the rear wall 120c, to separate the storage container 120 into at least two side-by-side container subspaces 140 in a lateral direction (that is, the direction x).

In one or more embodiments, the separator 130 may be integrally formed with the front wall 120b and the rear wall 120c to avoid unexpected changes in a size of each container subspace 140 formed through separation, facilitating manufacturing.

[0047] In one or more embodiments, still referring to FIG. 2 and FIG. 4, the lid 150 may include a sealing strip 153, when the lid 150 covers a corresponding container subspace 140, the sealing strip 153 contacting with an upper edge 143 of the container subspace 140, to form a sealed space within the corresponding container subspace 140, so that the storage container 120 has better sealing performance. The lid 150 may be at least one of the first lid 151 and the second lid 152.

[0048] For example, the sealing strip 153 may be fixed below the lid 150 to ensure that the lid 150 can be in close contact with the upper edge 143 of the container subspace 140 when covering the corresponding container subspace 140. The upper edge 143 may include the front wall 120b, the side wall 120d, the rear wall 120c on which the container subspace 140 is located, and an upper edge of the separator 130.

[0049] Preferably, the sealing strip 153 may be a sealing rubber strip.

[0050] In one or more embodiments, referring to FIG. 6, the lid 150 may include a frame 160, the frame 160 enclosing a viewing port 163; and a transparent member 166 disposed within the viewing port 163 and connected to the frame 160.

[0051] Preferably, the sealing strip 153 may be disposed on the frame 160.

[0052] In one or more embodiments, one of the first lid 151 or the second lid 152 may use a structure design with the frame 160 and the viewing port 163 shown in FIG. 6 and the transparent member 166 disposed in the viewing port, and the other of the first lid 151 or the second lid 152 may use an opaque design to meet users' diversified requirements.

[0053] In one or more alternative examples, referring to FIG. 2 and FIG. 4, the first lid 151 and the second lid 152 may both have the structure design with the frame 160 and the viewing port 163 shown in FIG. 6 and the transparent member 166 disposed within the viewing port.

Accordingly, when the storage container 120 is pulled out of the storage compartment 110, an interior of the corresponding container subspace 140 is directly visible without a need to push away the first lid 151 and/or the second lid 152, and a user can accurately and quickly determine whether a stored product being sought is stored in the container subspace 140, thereby helping reduce a number of times of unnecessary uncovering and covering of the container subspace 140. In other words, the user can move a corresponding lid 150 to take the stored product after determining that the required stored product is indeed stored in the container subspace 140, instead of opening the lid 150 first to determine whether the stored product is in the container subspace 140. This further reduces a possibility of odor tainting.

[0054] Preferably, the transparent member 166 may be made of glass to enable the lid 150 to press against the upper edge 143 of the corresponding container subspace 140 due to a weight of the lid 150 while satisfying a transparency of the viewing port, thereby improving the sealing performance of the container subspace 140.

[0055] In one or more embodiments, referring to FIG. 7 and FIG. 8, at least one lid 150 of the first lid 151 and the second lid 152 is slidably supported on an upper portion of the corresponding container subspace 140. When the storage container 120 is pulled out of the storage compartment 110 in a state shown in FIG. 7 or FIG. 8, the lid 150 is pulled out with the storage container 120 while keeping the corresponding container subspace 140 covered, and may be slid relative to the container subspace 140 to uncover or cover the container subspace 140. A pull-out direction is a direction +y shown in the figure.

[0056] Accordingly, when the storage container 120 is located within the storage compartment 110 of the refrigerator 100 and when the storage container 120 is being pulled out of the storage compartment 110, the lid 150 supported on the corresponding container subspace 140 is configured to cover the container subspace 140, so that the sealing performance of at least one container subspace 140 of the storage container 120 can be effectively improved, and a stored product in the container subspace 140 can be prevented from being tainted by other stored products in the storage compartment 110 or in other container subspaces 140 because of being directly exposed to the storage compartment 110, thereby helping improve food hygiene.

Further, referring to FIG. 1 and FIG. 3, when the storage container 120 is pulled out of the storage compartment 110, the lid 150 may be pushed by a user to slide relative to a corresponding container subspace 140, to uncover or cover the corresponding container subspace 140, thereby helping the user conveniently take stored products within the container subspace 140.

[0057] For example, the first lid 151 may slide relative to the storage container 120 to uncover the first container subspace 141.

[0058] For another example, the second lid 152 may slide relative to the storage container 120 to uncover the second container subspace 142.

[0059] In one or more embodiments, the first lid 151 and the second lid 152 may both slide relative to the storage container 120 to uncover or cover a corresponding container subspace 140.

[0060] In one or more alternative examples, the first lid 151 or the second lid 152 may slide relative to the storage container 120 to uncover or cover a corresponding container subspace 140.

[0061] In one or more embodiments, referring to FIG. 1 and FIG. 3, when at least one lid 150 of the first lid 151 and the second lid 152 is pulled out of the storage compartment 110 with the storage container 120, the lid 150 may be pushed back into the storage compartment 110 relative to the corresponding container subspace 140 to uncover the container subspace 140, and the lid 150 covers the container subspace 140 when the storage container 120 is pushed into the storage compartment 110. Relative relationships between the container subspace 140, the lid 150, and the storage compartment 110 are shown in FIG. 7 and FIG. 8 after the container subspace 140 is covered. A pull-back direction is a direction -y shown in the figure.

[0062] Accordingly, when the storage container 120 is pulled out of the storage compartment 110, the lid 150 may be pushed by a user to slide forward/rearward relative to the corresponding container subspace 140. Forward/rearward sliding refers to sliding forward/rearward along a depth direction of the refrigerator (that is, sliding along the directions $\pm y$), to uncover or cover the corresponding container subspace 140, thereby helping the user conveniently take the stored product in the container subspace 140.

[0063] In one or more embodiments, referring to FIG. 1 to FIG. 8, the refrigerator 100 may further include: a block 122, the block being configured to prevent the lid 150 from continuing sliding relative to the corresponding container subspace 140 to keep the lid 150 supported on the storage container 120 that is pulled out.

[0064] Those skilled in the art understand that, the designed the block 122 can prevent the lid 150 from detaching from the container subspace 140 as a result of an excessive movement toward a direction away from the corresponding container subspace 140, to ensure that the lid 150 is always supported on the container subspace 140 (that is, the storage container 120) during sliding, thereby helping quickly pull out the lid 150 toward an opposite direction to cover the container subspace 140 when necessary.

[0065] In one or more embodiments, the block 122 may be located on at least one side wall 120d, the separator 130, the front wall 120b, and/or the rear wall 120c.

[0066] Further, with reference to FIG. 1, FIG. 2, FIG. 7, FIG. 9, and FIG. 10, the lid 150 may have a stop 154, and the lid 150 slides relative to the corresponding container subspace 140 until the stop 154 abuts against the block 122, to prevent the lid 150 from continuing sliding relative to the container subspace 140.

[0067] Accordingly, through cooperation of the block 122 and the stop 154, when the lid 150 is pushed toward the direction away from the corresponding container subspace 140 to uncover the corresponding container subspace 140, the lid 150 can be prevented from detaching from the container subspace 140 as a result of an excessive movement, to ensure that the lid 150 is always supported on the container subspace 140, thereby helping quickly pull the lid 150 toward an opposite direction to cover the container subspace 140 when necessary.

[0068] In one or more embodiments, with reference to FIG. 1, FIG. 2, FIG. 7, FIG. 9, and FIG. 10, when the first lid 151 and the second lid 152 are supported on the storage container 120 and each can slide forward/rearward relative to the storage container 120, the block 122 may be located on the at least one side wall 120d and/or the separator 130.

[0069] For example, for the first container subspace 141 and the first lid 151, the block 122 may be located on one side wall 120d and the separator 130 on which the first container subspace 141 is located, and extends to an upper portion of the first container subspace 141.

[0070] Similarly, for the second container subspace 142 and the second lid 152, the block 122 may be located on one side wall 120d and the separator 130 on which the second container subspace 142 is located, and extends to an upper portion of the second container subspace 142.

[0071] That the second lid 152 slides forward/rearward relative to the second container subspace 142 is used as an example. Referring to FIG. 9, a height of the stop 154 along the direction z may be greater than a height of the block 122 along the direction z, to ensure that the stop 154 can abut against the block 122 when the stop 154 moves with the second lid 152 to the block 122 along the direction -y and relative to the second container subspace 142, thereby preventing the second lid 152 from continuing sliding rearward.

[0072] For another example, in the direction z shown in FIG. 9, an uppermost end of the stop 154 is higher than a lowermost end of the block 122, to ensure that the stop 154 can abut against the block 122 when the stop 154 moves with the second lid 152 to the block 122 along the direction -y and relative to the second container subspace 142.

[0073] In one or more embodiments, the stop 154 and the lid 150 may be integrally formed.

[0074] Alternatively, the stop 154 may also be fixed on an upper surface of the lid 150 through bonding, interference fit, or bolting.

[0075] In one or more embodiments, a distance for the lid 150 to slide rearward relative to the storage container 120 may be adjusted by adjusting a specific location of the stop 154 on the lid 150 and/or a specific location of the block 122 on the storage container 120, thereby adjusting an uncovered area of the corresponding container subspace 140.

The second lid 152 and the second container subspace 142 are still used as an example. Still referring to FIG. 9, in order to uncover the second container subspace 142 as large as possible, the stop 154 may be located at a front end of the upper surface of the second lid 152, the front end being one close to the front wall 120b; the block 122 may be located at an end close to the rear wall 120c on the side wall 120d on which the second container subspace 142 is located, so that the second lid 152 is prevented by the block 122 from continuing moving rearward only when moving rearward relative to the second container subspace 142 to a place close to the rear wall 120c close to the storage container 120.

[0076] In one or more embodiments, still referring to FIG. 1, FIG. 2, and FIG. 7, for any lid 150 of the first lid 151 and the second lid 152, the stop 154 may be connected to a handle 155 of the lid 150, improving overall aesthetic appearance of the storage container 120.

[0077] In one or more embodiments, the uncovered area of the corresponding container subspace 140 may also be adjusted by adjusting a length of the stop 154 extending from the handle 155 of the lid 150 toward the direction -y.

[0078] Further, a height of the handle 155 of the lid 150 in the direction z may also be higher than a height of the block 122 to assist the stop 154 in preventing the lid 150 from continuing moving rearward relative to the corresponding container subspace 140.

[0079] In one or more embodiments, referring to FIG. 1 to FIG. 10, the refrigerator 100 may further include an anti-tilting portion 123, the anti-tilting portion being configured to prevent the lid 150 from rotating downward (that is, a direction opposite to the direction z shown in the figure) away from an end (that is, an end of the lid 150 close to the rear wall 120c when the container subspace 140 is covered, which is referred to as a rear end 150b of the lid 150 below) of the storage container 120 during sliding of the lid 150 relative to the corresponding container subspace 140.

[0080] Accordingly, when the lid 150 is pushed toward a direction away from a corresponding container subspace 140 to uncover more than half of the container subspace 140, the lid 150 can be prevented from tilting (that is, the rear end 150b of the lid 150 rotates downward, and an end (that is, an end of the lid 150 close to the front wall 120b when the container subspace 140 is covered, which is referred to as a front end 150a of the lid 150 below) of the lid 150 close to the container subspace 140 rotates upward) relative to the container subspace 140 due to an offset of a center of gravity of the lid 150 when the lid 150 continues moving toward a direction away from the container subspace 140, to ensure that the lid 150 is always supported on the container subspace 140, thereby preventing the lid 150 from rotating randomly on the container subspace 140, and helping quickly pull the lid 150 toward an opposite direction to cover the container subspace 140 when necessary. The front end 150a and the rear end 150b of the lid 150 are two ends of the lid 150 along the direction y.

[0081] In one or more embodiments, with reference to FIG. 1, FIG. 2, FIG. 7, FIG. 9, and FIG. 10, the anti-tilting portion 123 may be located on at least one side wall 120d, the separator 130, the front wall 120b, and/or the rear wall 120c, the anti-tilting portion 123 bending toward the storage container 120 to form a limiting groove 124. The lid 150 may have an anti-tilting rib 156, when the lid 150 slides relative to the corresponding container subspace 140 to uncover the container subspace 140, the anti-tilting rib 156 entering the limiting groove 124 to abut against an inner wall of the limiting groove 124.

[0082] Accordingly, through cooperation of the anti-tilting portion 123 and the anti-tilting rib 156, the lid 150 can be kept supported on the container subspace 140 when being pushed toward the direction away from the corresponding container subspace 140, to prevent the lid 150 from overturning unexpectedly and ensure that the lid 150 always slides along the upper edge 143 of the container subspace 140.

[0083] In one or more embodiments, with reference to FIG. 1, FIG. 2, FIG. 7, FIG. 9, and FIG. 10, when the first lid 151 and the second lid 152 are supported on the storage container 120 and each can slide forward/rearward relative to the storage container 120, the anti-tilting portion 123 may be located on the at least one side wall 120d and/or the separator 130.

[0084] For example, for the first container subspace 141 and the first lid 151, the anti-tilting portion 123 may be located at a top (for example, an upper edge 143 of one side wall 120d and the separator 130 on which the first container subspace 141 is located) of the first container subspace 141, and at least one face of the anti-tilting portion 123 bends downward toward the first container subspace 141 to form a Γ -shaped structure shown in FIG. 11 or an inverted L-shaped structure shown in FIG. 12. A space between the structure and the first lid 151 encloses the limiting groove 124. A difference between the structures shown in FIG. 11 and FIG. 12 lies in that the limiting groove 124 shown in FIG. 11 has three inner walls and the limiting groove 124 shown in FIG. 12 has two inner walls.

[0085] Similarly, for the second container subspace 142 and the second lid 152, the anti-tilting portion 123 may be located at a top (for example, the upper edge 143 of one side wall 120d and the separator 130 on which the second container subspace 142 is located) of the second container subspace 142, and at least one face of the anti-tilting portion 123 bends downward toward the second container subspace 142 to form a Γ -shaped structure shown in FIG. 11 or an inverted L-shaped structure shown in FIG. 12. A space between the structure and the second lid 152 encloses the limiting

groove 124. A difference between the structures shown in FIG. 11 and FIG. 12 lies in that the limiting groove 124 shown in FIG. 11 has three inner walls and the limiting groove 124 shown in FIG. 12 has two inner walls.

[0086] That the second lid 152 slides rearward relative to the second container subspace 142 to the location shown in FIG. 1 is used as an example. Still referring to FIG. 9 to FIG. 12, a cross-sectional shape of the anti-tilting rib 156 formed on a plane in the direction y and the direction z matches a shape of the limiting groove 124, so that the anti-tilting rib 156 can extend into the limiting groove 124 to abut against the inner wall of the limiting groove 124 when the second lid 152 slides rearward relative to the second container subspace 142, thereby preventing two ends (corresponding to the front end 150a and the rear end 150b of the lid 150 respectively) of the second lid 152 along the direction y from rotating along the direction z.

[0087] In one or more non-limiting embodiments, the anti-tilting portion 123 may be integrally formed with the block 122, to reduce a number of parts, facilitate assembling, and simplify a whole structure of the storage container 120.

[0088] In one or more embodiments, the lid 150 may be disassembled from the storage container 120 (in particular, the corresponding container subspace 140), so as to clean the lid 150 and/or the corresponding container subspace 140.

[0089] A process of disassembling the first lid 151 from the first container subspace 141 is used as an example. Referring to FIG. 13, a handle 132 of the first lid 151 may be grasped to lift one end (corresponding to the front end 150a of the lid 150) of the first lid 151 approaching the direction +y to be pulled along the direction +y and the direction z, so as to take the first lid 151 from the first container subspace 141.

[0090] For another example, when the first lid 151 needs to be installed on the first container subspace 141, inverted implementation may be performed according to the process shown in FIG. 13. In other words, an end (corresponding to the rear end 150B of the lid 150) of the first lid 151 approaching the direction -y is placed on the upper edge 143 of the side wall 120d and the separator 130 on which the first container subspace 141 is located, and is pushed along directions opposite to the direction -y and the direction z, to place the first lid 151 on the upper portion of the first container subspace 141.

[0091] In one or more embodiments, any container subspace 140 of the first container subspace 141 and the second container subspace 142 may have a handle portion 144 to pull or push the container subspace 140.

[0092] In one or more embodiments, referring to FIG. 3 to FIG. 6, FIG. 8, FIG. 14, and FIG. 15, a difference from the foregoing refrigerator 100 shown in FIG. 1 lies in that the lid 150 of the refrigerator 100 shown in FIG. 3 and/or the corresponding container subspace 140 further have/has a sliding structure, to significantly improve a sliding effect of the lid 150 on the corresponding container subspace 140, thereby optimizing user experience.

[0093] In one or more embodiments, the roller structure may include a rolling wheel and a limiting groove.

[0094] In particular, referring to FIG. 14 and FIG. 15, a front end 150a of any lid 150 of the first lid 151 and the second lid 152 may be provided with a first rolling wheel 157, and an upper edge 143 of side wall 120d and/or a separator 130 on which a corresponding container subspace 140 is located may have a first limiting groove 145. When the lid 150 covers the first container subspace 140, the first rolling wheel 157 falls into the first limiting groove 145, and when the lid 150 is pushed back into the storage compartment 110, the first rolling wheel 157 slides out of the first limiting groove 145 and rolls on the upper edge 143 of the side wall 120d and/or the separator 130.

[0095] Accordingly, the sliding effect of the lid 150 can be significantly improved, and user experience can be optimized. With an appropriately designed spacing of the lid 150 in a height direction (that is, the direction z) relative to the container subspace 140 during forward/rearward movement (that is, along the directions $\pm y$), it is possible to provide a sealing strip 153 between the lid 150 and the container subspace 140. Therefore, friction between the sealing strip 153 and the lid 150/the container subspace 140 during movement of the raise lid 150 may be avoided.

[0096] In this example, the upper edge 143 of the side wall 120d and/or the separator 130 may be understood as a support portion for cooperating with the first rolling wheel 157 when the lid 150 uncovers or covers the corresponding container subspace 140, to support the lid 150.

[0097] Further, the first limiting groove 145 may be located at an end of the upper edge 143 of the side wall 120d and/or the separator 130 close to the front wall 120b. Accordingly, when the lid 150 covers the corresponding container subspace 140, the first limiting groove 145 is used to give way to the first rolling wheel 157 on the lid 150, so that the lid 150 can seal the container subspace 140 after freely falling.

[0098] Further, when the lid 150 covers the container subspace 140, the first rolling wheel 157 falls into the first limiting groove 145, so that the lid 150 wholly sinks along a direction opposite to the direction z to fit closely with the upper edge 143 of the container subspace 140, thereby helping improve sealing performance of the container subspace 140 while preventing the sealing performance from being affected due to unexpected displacement during covering of the container subspace 140 by the lid 150.

[0099] In one or more non-limiting embodiments, referring to FIG. 3, FIG. 8, FIG. 14, and FIG. 15, the lid 150 moves rearward relative to the container subspace 140 until the first rolling wheel 157 abuts against the block 122, to prevent the lid 150 from continuing moving rearward.

Accordingly, the first rolling wheel 157 can function as the foregoing stop 154 described in the embodiment shown in FIG. 1. In this embodiment, through cooperation of the block 122 and the first rolling wheel 157, when the lid 150 is

pushed into the storage compartment 110 along the direction -y to uncover the container subspace 140, the lid 150 can be prevented from detaching from the container subspace 140 as a result of an excessive rearward movement, thereby ensuring that the lid 150 is always supported on the storage container 120, and helping quickly pull the lid 150 forward to cover the container subspace 140 when necessary.

[0100] For example, referring to FIG. 14, a diameter of the first rolling wheel 157 may be greater than a height (or at least higher than a lowermost end of the block 122 along the direction z) of the block 122 along the z direction, to ensure that the first rolling wheel 157 can abut against the block 122.

[0101] In one or more embodiments, referring to FIG. 3, FIG. 8, FIG. 14, and FIG. 15, the anti-tilting portion 123 may be located on two side walls (the side walls 120d and the separator 130 on which the first container subspace 141 or the second container subspace 142 are located shown in the figures) of the container subspace 140 along the direction x, and bends toward the container space 121 to form a limiting groove 124. When the lid 150 is pushed rearward, the first rolling wheel 157 enters the limiting groove 124 to abut against an inner wall of the limiting groove 124.

[0102] Accordingly, the first rolling wheel 157 can further function as the foregoing anti-tilting rib 156 described in the embodiment shown in FIG. 1. Through mutual cooperation of the anti-tilting portion 123 and the first rolling wheel 157, the lid 150 can be kept supported on the container subspace 140 when being pushed rearward, to prevent the lid 150 from overturning unexpectedly, and ensure that the lid 150 always slides forward/rearward along the upper edge 143 of the container subspace 140.

[0103] In one or more embodiments, the first limiting groove 145 may be recessed from the upper edge 143 of the side wall 120d and the separator 130 toward a direction opposite to the direction z shown in the figure, to ensure that the lid 150 can wholly sink toward the direction opposite to the direction z when the first rolling wheel 157 falls into the first limiting groove 145, thereby having a better sealing effect.

In one or more embodiments, still referring to FIG. 3, FIG. 8, FIG. 14, and FIG. 15, a rear end (that is, a rear end 125 of the storage container 120) of an upper edge 143 located on the side walls 120d and the separator 130 of the container subspace 140 may be further provided with a second rolling wheel 146, the rear end 125 being an end of the container subspace 140 close to the rear wall 120c. The lid 150 may have a second limiting groove 158, when the lid 150 covers the container subspace 140, the second rolling wheel 146 being located within the second limiting groove 158, and when the lid 150 is pushed back into the storage compartment 110, the second rolling wheel 146 sliding out of the second limiting groove 158.

[0104] Accordingly, the sliding effect of the lid 150 can be significantly improved, and user experience can be optimized. Further, when the lid 150 covers the container subspace 140, the second rolling wheel 146 is located within the second limiting groove 158, so that the lid 150 wholly sinks to fit closely with the upper edge 143 of the container subspace 140, helping improve sealing performance of the container subspace 140 while preventing the sealing performance from being affected due to unexpected displacement during covering of the container subspace 140 by the lid 150.

[0105] In one or more embodiments, depths of the first limiting groove 145 and the second limiting groove 158 may be the same, and radiuses of the first rolling wheel 157 and the second rolling wheel 146 may also be the same, so that the lid 150 always slides forward/rearward relative to the container subspace 140 parallel to the upper edge 143 of the container subspace 140.

[0106] In one or more embodiments, the lid 150 may have a sliding rib 159, two ends of the sliding rib 159 being respectively connected to the first rolling wheel 157 and the second limiting groove 158. When the lid 150 is pushed back into the storage compartment 110, the second rolling wheel 146 rolls on the sliding rib 159.

[0107] Accordingly, when the lid 150 slides forward/rearward relative to the container subspace 140, the second rolling wheel 146 rolls on the sliding rib 159 of the lid 150, helping better improve the sliding effect of the lid 150 on the container subspace 140.

Further, when the lid 150 covers the container subspace 140, the sliding rib 159 fits with the upper edge 143 of the container subspace 140, helping better improve the sealing performance of the container subspace 140.

[0108] For example, the sliding rib 159 may extend parallel to the upper edge 143 of the side walls 120d, so that the second rolling wheel 146 can roll synchronously on the sliding rib 159 when the first rolling wheel 157 rolls on the upper edge 143 of the side wall 120d and the separator 130 of the container subspace 140, thereby ensuring that the lid 150 keeps sliding forward/rearward parallel to the container subspace 140.

[0109] In one or more embodiments, a frame 160 of the lid 150 may have one sliding rib 159 on each of two sides along the direction x. When the lid 150 is pushed back into the storage compartment 110, the sliding rib 159 cooperates with the second rolling wheel 146 on the corresponding container subspace 140, so that the lid 150 is supported on the container subspace 140 to slide forward/rearward.

[0110] Further, the second limiting groove 158 may be located at an end of the sliding rib 159 close to the rear end 150b of the lid 150. Accordingly, when the lid 150 covers the corresponding container subspace 140, the sliding rib 159 gives way to the second rolling wheel 146 on the container subspace 140 using the second limiting groove 158, so that the lid 150 can wholly seal the container subspace 140 after freely falling.

[0111] Further, the transparent member 166 of the lid 150 may be made of glass, not only helping a user observe

stored products within a drawer, but also enabling the lid 150 to closely press against the corresponding container subspace 140 to optimize the sealing effect due to a large weight of glass.

[0112] In a typical application scenario, the storage container 120 may initially be located within the storage compartment 110, the first lid 151 covering the first container subspace 141, and the second lid 152 covering the second container subspace 142.

[0113] Further, referring to FIG. 8, the storage container 120 is pulled out of the storage compartment 110. In this case, the first lid 151 and the second lid 152 are both pulled out of the storage compartment 110 with the storage container 120 and keep the first container subspace 141 and the second container subspace 142 covered. For example, the handle portion 144 may be grasped and pulled toward the direction +y to pull the storage container 120 out of the storage compartment 110.

[0114] Further, the first lid 151 is pushed along the direction -y, the first lid 151 being pushed back into the storage compartment 110 along the direction -y and relative to the first container subspace 141 to reach the state shown in FIG. 3. For example, a handle 155 of the first lid 151 may be grasped and pushed toward the direction -y to push back the first lid 151 into the storage compartment 110.

[0115] As the first lid 151 is pushed back to the storage compartment 110, the first container subspace 141 is gradually uncovered, so that a user may adjust, as required, a distance for pushing the first lid 151 pushed along the direction -y to uncover the first container subspace 141 to a required size.

[0116] Similarly, the second lid 152 may also be pushed along the direction -y, and the second lid 152 is pushed back into the storage compartment 110 along the direction -y and relative to the second container subspace 142 to reach the state shown in FIG. 3.

[0117] A maximum distance for any lid 150 of the first lid 151 and the second lid 152 to slide rearward relative to the corresponding container subspace 140 may be less than a maximum distance for the container subspace 140 to be pulled out of the storage compartment 110. In other words, a length of the lid 150 along the direction y may be less than a depth of the storage compartment 110. Accordingly, when the lid 150 is completely pushed back into the storage compartment 110, a gap may still exist between the rear end 150b (including a protrusion 170 located at the rear end 150b) of the lid 150 and a back plate 111 of the storage compartment 110, to better prevent a damage between the lid 150 and the back plate 111 of the storage compartment 110 due to frequent collisions.

[0118] In an optional application scenario, when the uncovered container subspace 140 needs to be covered, if the first container subspace 141 needs to be covered, the first lid 151 may be pulled along the direction +y in the state shown in FIG. 3, to cover the first container subspace 141. Similarly, the second lid 152 may alternatively be pulled to cover the second container subspace 142. Then, the storage container 120 is pushed again toward the direction -y to wholly push the storage container 120 back into the storage compartment 110 together with the lid 150 covering the upper portion thereof.

[0119] In another optional application scenario, when the uncovered container subspace 140 needs to be covered, the storage container 120 may also be directly pushed along the direction -y in the state shown in FIG. 3, to push the storage container 120 and the lid 150 supported thereon together into the storage compartment 110. In this case, because the lid 150 is still in a state of uncovering the corresponding container subspace 140, as the storage container 120 is pushed into the storage compartment 110, the protrusion 170 of the lid 150 abuts against the back plate 111 of the storage compartment 110.

[0120] As the storage container 120 continues being pushed into the storage compartment 110, the lid 150 remains in the storage compartment 110 and no longer moves toward the direction -y, and the storage container 120 continues moving along the direction -y until the storage container 120 is completely pushed into the storage compartment 110. In this case, the first rolling wheel 157 of the lid 150 falls into the first limiting groove 145 of the corresponding container subspace 140, and the second rolling wheel 146 of the container subspace 140 is located within the second limiting groove 158 of the lid 150, not only preventing relative displacement from occurring between the lid 150 and the container subspace 140, but also sealing the container subspace 140 in that the lid 150 sinks to cover the upper portion of the container subspace 140 due to a gravity of the lid 150.

[0121] In one or more embodiments, a gap1 between the container subspace 140 and the lid 150 when the lid 150 is slid relative to the corresponding container subspace 140 to cover the container subspace 140, may be smaller than a gap2 between the lid 150 and the container subspace 140 when the lid 150 is slid relative to the corresponding container subspace 140 to uncover the container subspace 140.

[0122] Accordingly, with the properly designed spacing of the lid 150 in a height direction relative to the corresponding container subspace 140 when moving relative to the corresponding container subspace 140, it is possible to provide a sealing strip 153 between the lid 150 and the container subspace 140. Therefore, friction between the sealing strip 153 and the lid 150/container space 140 during movement of the raised lid 150 may be avoided. Further, when the lid 150 covers the container subspace 140, the lid 150 completely sinks to fit closely with the upper edge 143 of the container subspace 140, helping improve sealing performance of the container subspace 140 while preventing the sealing performance from being affected due to unexpected displacement during covering of the container subspace 140 by the

lid 150.

[0123] In one or more embodiments, referring to FIG. 16, when the lid 150 is pulled out of the storage compartment 110 with the storage container 120, the lid 150 may be slid relative to the corresponding container subspace 140 toward a direction away from another container subspace 140 to uncover the container subspace 140. The lid 150 may be further slid relative to the corresponding container subspace 140 toward a direction approaching the another container subspace 140 to cover the container subspace 140.

[0124] Accordingly, when the storage container 120 is pulled out of the storage compartment 110, the lid 150 may be pushed by a user to slide leftward/rightward relative to the corresponding container subspace 140. Leftward/rightward sliding refers to sliding toward a direction away from/approaching an adjacent container subspace 140 along a width direction of the refrigerator 110, to uncover or cover the corresponding container subspace 140, thereby helping the user conveniently take stored products in the container subspace 140.

[0125] The first container subspace 141 and the first lid 151 are used as an example. After the first lid 151 is pulled out of the storage compartment 110 with the storage container 120, the first lid 151 may be slid relative to the first container subspace 141 toward a direction (that is, the direction x shown in the figure) away from the second container subspace 142 to uncover the first container subspace 141. Further, the first lid 151 may also be slid relative to the first container subspace 141 toward a direction (that is, a direction opposite to the direction x shown in the figure) approaching the second container subspace 142 to cover the first container subspace 141.

[0126] Similarly, the second container subspace 142 and the second lid 152 are used as an example. After the second lid 152 is pulled out of the storage compartment 110 with the storage container 120, the second lid 152 may be slid relative to the second container subspace 142 toward a direction (that is, a direction opposite to the direction x shown in the figure) away from the first container subspace 141 to uncover the second container subspace 142. Further, the second lid 152 may also be slid relative to the second container subspace 142 toward a direction (that is, the direction x shown in the figure) approaching the first container subspace 141 to cover the second container subspace 142.

[0127] In the embodiment shown in FIG. 16, the block 122 and the anti-tilting portion 123 may be located at the upper edge 143 of the front wall 120b and/or the rear wall 120c to keep the lid 150 supported on the corresponding container subspace 140 when the lid 150 slides leftward/rightward along the direction x.

[0128] In this example, the lid 150 and the corresponding container subspace 140 may also be respectively provided with a first rolling wheel 157, a first limiting groove 145, a second rolling wheel 146, and a second limiting groove 158. The lid 150 may be further provided with a sliding rib 159, and the sliding rib 159 may be located on two sides of the frame 160 of the lid 150 along directions $\pm y$.

[0129] In one or more embodiments, referring to FIG. 17, at least one lid 150 of the first lid 151 and the second lid 152 is rotatably supported on one side wall 120d or the separator 130 of the storage container 120. When the storage container 120 is pulled out of the storage compartment 110, the lid 150 is pulled out with the storage container 120 while keeping the corresponding container subspace 140 covered, and the lid can rotate around the side wall 120d or the separator 130 to uncover the container subspace 140.

[0130] Accordingly, when the storage container 120 is pulled out of the storage compartment 110, the lid 150 may be overturned by a user around the side wall 120d or the separator 130 along a height direction (that is, the direction z) of the refrigerator 100, to uncover or cover the corresponding container subspace 140, thereby helping the user conveniently take the stored products within the container subspace 140.

[0131] The first container subspace 141 and the first lid 151 are used as an example. The first lid 151 is rotatably supported on the side wall 120d on which the first container subspace 141 is located. After the first lid 151 is pulled out of the storage compartment 110 with the storage container 120, an end of the first lid 151 close to the separator 130 can rotate along the direction +z around the side wall 120d to uncover the first container subspace 141. Further, the first lid 151 may also rotate toward a direction -z around the side wall 120d to cover the first container subspace 141.

[0132] Similarly, the second container subspace 142 and the second lid 152 are used as an example. The second lid 152 is rotatably supported on the separator 130. After the second lid 152 is pulled out of the storage compartment 110 with the storage container 120, an end of the second lid 152 close to the side wall 120d on which the second container subspace 142 is located can rotate along the direction +z around the separator 130, to uncover the second container subspace 142. Further, the second lid 152 may also rotate toward the direction -z around the separator 130 to cover the second container subspace 142.

[0133] In the embodiment shown in FIG. 17, the lid 150 may be hinged to the side wall 120d or separator 130, and a hinge is not shown in the figure.

[0134] In one or more embodiments, referring to FIG. 18, one side of at least one lid 150 of the first lid 151 and the second lid 152 may be supported on a side wall 112 of the storage compartment 110. When the storage container 120 is pulled out of the storage compartment 110, the lid 150 is supported within the storage compartment 110 to uncover the corresponding container subspace 140.

[0135] Accordingly, when the storage container 120 is located within the storage compartment 110, the lid 150 supported on each container subspace 140 is used to cover a corresponding container subspace 140, so that sealing

performance of the storage container 120 within the storage compartment 110 can be effectively improved, and stored products within the storage container 120 are prevented from being tainted by each other because of being directly exposed outside, thereby helping improve food hygiene.

[0136] Further, when the storage container 120 is pulled out of the storage compartment 110, a lid 150 on at least one container subspace 140 may be supported within the storage compartment 110 instead of being supported on the corresponding container subspace 140. In other words, the lid 150 on the container subspace 140 does not move forward/rearward along a depth direction (that is, the direction y) of the refrigerator 100 with the container subspace 140, so as to uncover the container subspace 140 while pulling out the storage container 120, thereby providing a user with a humanized and convenient experience of taking stored products.

[0137] The second container subspace 142 and the second lid 152 are used as an example. One side of the second lid 152 close to the side wall 112 of the storage compartment 110 may be supported on the side wall 120d (for example, fixed on the side wall 120d through bolting, bonding, etc.). When the storage container 120 is pulled out of the storage compartment 110, the second lid 152 is supported within the storage compartment 110 and does not move with the storage container 120, and the first lid 151 is supported on the first container subspace 141 and moves with the storage container 120. Therefore, when the storage container 120 is pulled out, the second container subspace 142 is directly uncovered and the first container subspace 141 is still in a sealed state.

[0138] Further, after the storage container 120 is pushed back into the storage compartment 110, the second lid 152 covers the second container subspace 142 again to seal the second container subspace 142.

[0139] In one or more alternative examples, one lid 150 of the first lid 151 and the second lid 152 is slidably supported on the corresponding container subspace 140, and the other lid 150 is rotatably supported on the side wall 120d or on the separator 130. A sliding direction may be directions $\pm y$, or may be the direction x and the opposite direction.

[0140] In one or more alternative examples, as shown in FIG. 17 one lid 150 of the first lid 151 and the second lid 152 is rotatably supported on the side wall 120d or the separator 130, and one side of the other lid 150 is supported on the side wall 112 of the storage compartment 110.

[0141] In one or more alternative examples, the first lid 151 and the second lid 152 are both slidably supported on the corresponding container subspace 140, and two lids 150 slide relative to respective container subspaces 140 in different directions.

[0142] In one or more embodiments, the refrigerator 100 may further include a guide rail 180, the guide rail being configured to movably fix the storage container 120 within the storage compartment 110, the storage container 120 being adapted to be pulled out or pushed back into the storage compartment 110 along the guide rail 180. Accordingly, a user can conveniently pull out or push back the storage container 120 as required, and avoid the storage container 120 and/or the storage compartment 110 are/is prevented from being damaged by dry friction with an inner wall (the pair of side walls 112) of the storage compartment 110 during forward/rearward movement of the storage container 120 relative to the storage compartment 110, thereby helping effectively improve user experience.

[0143] In particular, the guide rail 180 may include: a fixed rail (not shown) fixed to an inner wall of the storage compartment 110; and a movable rail 182 fixed to an outer wall of the storage container 120 and coupled to the fixed rail, and the movable rail 182 may slide forward/rearward relative to the fixed rail. The forward/rearward sliding refers to moving forward/rearward along directions $\pm y$.

[0144] For example, the fixed rail may be fixed to the pair of side walls 112 of the storage compartment 110, and the movable rail 182 is fixed to outer sides of the pair of side walls 120d of the storage container 120.

[0145] For another example, the fixed rail may be fixed to the pair of side walls 112 of the storage compartment 110, and the movable rail 182 is fixed to an outer side of the bottom wall 120a of the storage container 120.

[0146] For example, the guide rail (also referred to as a sliding rail) 180 may be selected from a roller-type guide rail, a steel-ball-type guide rail, a gear-type guide rail, or a damping-type sliding rail. Those skilled in the art may also select other types of guide rails as required, and details are not described herein.

[0147] In one or more embodiments, the fixed rail may be fixed to the inner wall of the storage compartment 110 through bolting. Similarly, the movable rail 182 may also be fixed to an outer wall of the storage container 120 through bolting and coupled to the fixed rail.

[0148] In one or more alternative examples, the fixed rail and/or the movable rail 182 may also be fixed to the inner wall of the storage compartment 110 and/or the outer wall of the storage container 120 respectively through interference fit, bonding, or the like.

In one or more embodiments, the first lid 151 and/or the second lid 152 may have a protrusion 170, when the storage container 120 is pushed into the storage compartment 110, the protrusion 170 of the first lid 151 and/or the second lid 152 abutting against a back plate 111 of the storage compartment 110.

[0149] Accordingly, accuracy of contact with the back plate 111 may be improved through point contact.

[0150] Further, a location of the protrusion 170 on the first lid 151 and/or the second lid 152 may avoid designed components such as an air duct and a cooling tube on the back plate 111, to prevent the first lid 151 and/or the second lid 152 from damaging the refrigerator 100 because of touching the components of the back plate 111 when moving

rearward.

[0151] Preferably, each lid 150 may have two protrusions 170. Those skilled in the art may also adjust a number of the protrusions 170 and a length of the protrusion 170 extending along the direction -y as required. Different lids 150 may have different number of the protrusions 170.

[0152] In one or more embodiments, the first lid 151 and/or the second lid 152 may have a buffer portion 183. When the first lid 151 covers the first container subspace 141 and/or when the second lid 152 covers the second container subspace 142, the buffer portion 183 abuts against the front wall 120b of the storage container 120 to reduce impact on the container subspace 140 when the first lid 151 and/or the second lid 152 move/moves forward to cover the corresponding container subspace 140.

[0153] For example, the buffer portion 183 may be a rubber block to play an effective buffer function between the lid 150 and the corresponding container subspace 140.

[0154] For example, each lid 150 may have two buffer portions 183 located on two sides of the handle 155 of the lid 150 along the direction x. In actual application, those skilled in the art may also adjust a number of the buffer portions 183 disposed on each lid 150 and specific locations for the buffer portions 183 to be disposed on the front end 150a of the lid 150 as required. Different lids 150 may have different numbers of buffer portions 183.

Accordingly, through the cooperation of the separator 130 with the lid 150 (such as the first lid 151 and/or the second lid 152), the storage container 120 can be separated into a plurality of mutually independent container subspaces 140, and each container subspace 140 may be separately uncovered or covered, and the storage container 120 may be wholly pulled out or pushed into the storage compartment 110, that is, not only facilitating separate storage of different foods to avoid odor tainting, but also helping a user take the foods. Further, in the embodiments of the present invention, the storage container 120 separated into a plurality of container subspaces 140 with each container subspace 140 provided with a lid 150 has a simple overall structure and is easy to manufacture.

[0155] Although the present invention has been disclosed above, the present invention is not limited thereto. Any changes and modifications may be made by those skilled in the art without departing from the spirit and scope of the present invention. Therefore, protection scope of the present invention should be subject to scope defined by the claims.

List of Reference Signs

100	Refrigerator;	150	Lid;
110	Storage compartment;	150a	Front end of a lid;
111	Back plate;	150b	Rear end of a lid;
112	Side wall;	151	First lid;
120	Storage container;	152	Second lid;
120a	Bottom wall;	153	Sealing strip;
120b	Front wall;	154	Stop;
120c	Rear wall;	155	Handle;
120d	Side wall;	156	Anti-tilting rib;
121	Container space;	157	First rolling wheel;
122	Block;	158	Second limiting groove;
123	Anti-tilting portion;	159	Sliding rib;
124	Limiting groove;	160	Frame;
125	Rear end of a storage container;	163	Viewing port;
130	Separator; 1	166	Transparent member;
30a	One end of a separator;	170	Protrusion;
130b	Opposite end of a separator;	180	Guide rail;
140	Container subspace;	182	Movable rail;
141	First container subspace;	183	Buffer portion;
142	Second container subspace;	x	Width direction of a refrigerator;
143	Upper edge;	y	Depth direction of a refrigerator;
144	Handle portion;	+y	Pull-out direction of a drawer;
145	First limiting groove;	-y	Push-back direction of a drawer;
146	Second rolling wheel;	Z	Height direction of a refrigerator
gap1	Gap between a lid and a container subspace when the lid covers a container subspace;	gap2	Gap between a lid and a container subspace when the lid uncovers a container subspace;

Claims

1. A refrigerator (100), **characterized by** comprising:

5 a storage compartment (110);
 a storage container (120) located within the storage compartment (110), wherein the storage container (120) comprises a bottom wall (120a), a front wall (120b), a rear wall (120c), a pair of side walls (120d), and a container space (121) enclosed by the bottom wall (120a), the front wall (120b), the rear wall (120c), and the pair of side walls (120d), the storage container (120) further comprises at least one separator (130) located within the
 10 container space (121), the at least one separator (130) separates the container space (121) into at least two side-by-side container subspaces (140), and the at least two container subspace (140) comprises a first container subspace (141) and a second container subspace (142);
 a first lid (151), configured to cover the first container subspace (141); and
 a second lid (152), configured to cover the second container subspace (142).

15 2. The refrigerator (100) according to claim 1, **characterized in that** the at least two container subspaces (140) are arranged side by side in a lateral direction, the lateral direction being a direction from one side wall (120d) to the other side wall (120d).

20 3. The refrigerator (100) according to anyone of claims 1 or 2, **characterized in that** at least one lid (150) of the first lid (151) and the second lid (152) comprises a sealing strip (153), when the lid (150) covers a corresponding container subspace (140), the sealing strip contacting with an upper edge (143) of the container subspace (140); or additionally the sealing strip (153) is fixed below the lid (150).

25 4. The refrigerator (100) according to anyone of claims 1 to 3, **characterized in that** at least one lid (150) of the first lid (151) and the second lid (152) comprises:

a frame (160), the frame (160) enclosing a viewing port (163);
 a transparent member (166) disposed within the viewing port (163) and connected to the frame (160).

30 5. The refrigerator (100) according to anyone of claims 1 to 4, **characterized in that** at least one lid (150) of the first lid (151) and the second lid (152) is slidably supported on an upper portion of the corresponding container subspace (140), when the storage container (120) is pulled out of the storage compartment (110), the lid (150) being pulled out with the storage container (120) while keeping the corresponding container subspace (140) covered, and may
 35 be slid relative to the container subspace (140) to uncover or cover the container subspace (140).

6. The refrigerator (100) according to claim 5, **characterized in that** the lid (150) may be pushed back into the storage compartment (110) relative to the corresponding container subspace (140) to uncover the container subspace (140) when the lid (150) is pulled out of the storage compartment (110) with the storage container (120), and covers the
 40 container subspace (140) when the storage container (120) is pushed into the storage compartment (110); and/or when the lid (150) is pulled out of the storage compartment (110) with the storage container (120), the lid (150) may be slid toward a direction away from another container subspace (140) relative to the corresponding container subspace (140) to uncover the container subspace (140), and the lid (150) may also be slid toward a direction
 45 approaching the another container subspace (140) relative to the corresponding container subspace (140) to cover the container subspace (140).

7. The refrigerator (100) according to claim 5, **characterized by** further comprising:
 a block (122), configured to prevent the lid (150) from continuing sliding relative to the corresponding container subspace (140) to keep the lid (150) supported on the storage container (120) that is pulled out; or additionally the
 50 block (122) is located on at least one side wall (120d), the separator (130), the front wall (120b), and/or the rear wall (120c); the lid (150) having a stop (154), and the lid (150) sliding to the stop (154) relative to the corresponding container subspace (140) to abut against the block (122), to prevent the lid (150) from continuing sliding relative to the container subspace (140).

55 8. The refrigerator (100) according to claim 5, **characterized by** further comprising:
 an anti-tilting portion (123), configured to prevent a rear end (150b) of the lid (150) from rotating downward during sliding of the lid (150) relative to the corresponding container subspace (140).

9. The refrigerator (100) according to claim 8, **characterized in that** the anti-tilting portion (123) is located on at least one side wall (120d), the separator (130), the front wall (120b), and/or the rear wall (120c), and the anti-tilting portion (123) bending toward the storage container (120) to form a limiting groove (124); and the lid (150) has an anti-tilting rib (156), when the lid (150) slides relative to the corresponding container subspace (140) to uncover the container subspace (140), the anti-tilting rib (156) entering the limiting groove (124) to abut against an inner wall of the limiting groove (124).
10. The refrigerator (100) according to claim 6, **characterized in that** a gap (gap1) between the lid (150) and the container subspace (140) when the lid (150) is slid relative to the corresponding container subspace (140) to cover the container subspace (140) is smaller than a gap (gap2) between the lid (150) and the container subspace (140) when the lid (150) is slid relative to the corresponding container subspace (140) to uncover the container subspace (140).
11. The refrigerator (100) according to anyone of claims 1 to 12, **characterized in that** at least one lid (150) of the first lid (151) and the second lid (152) is rotatably supported on one side wall (120d) or the separator (130) of the storage container (120), when the storage container (120) is pulled out of the storage compartment (110), the lid (150) being pulled out with the storage container (120) while keeping the corresponding container subspace (140) covered, and the lid (150) can rotate around the side wall (120d) or the separator (130) to uncover the container subspace (140); and/or one side of at least one lid (150) of the first lid (151) and the second lid (152) is supported on a side wall (112) of the storage compartment (110), when the storage container (120) is pulled out of the storage compartment (110), the lid (150) being supported within the storage compartment (110) to uncover the corresponding container subspace (140).
12. The refrigerator (100) according to anyone of claims 1 to 11, **characterized in that** one end (130a) of the separator (130) is connected to the front wall (120b), and the other opposite end (130b) of the separator (130) is connected to the rear wall (120c); or additionally the separator (130) is integrally formed with the front wall (120b) and the rear wall (120c).
13. The refrigerator (100) according to anyone of claims 1 to 12, **characterized by** further comprising:
a guide rail (180), configured to movably fix the storage container (120) within the storage compartment (110), the storage container (120) being adapted to be pulled out of or pushed back into the storage compartment (110) along the guide rail (180).
14. The refrigerator (100) according to anyone of claims 1 to 13, **characterized in that** the first lid (151) and/or the second lid (152) have/has a protrusion (170), when the storage container (120) is pushed into the storage compartment (110), the protrusion (170) of the first lid (151) and/or the second lid (152) abutting against a back plate (111) of the storage compartment (110).
15. The refrigerator (100) according to anyone of claims 1 to 14, **characterized in that** the first lid (151) and/or the second lid (152) have/has a buffer portion (183), when the first lid (151) covers the first container subspace (141) and/or the second lid (152) covers the second container subspace (142), the buffer portion (183) abutting against the front wall (120b) of the storage container (120).

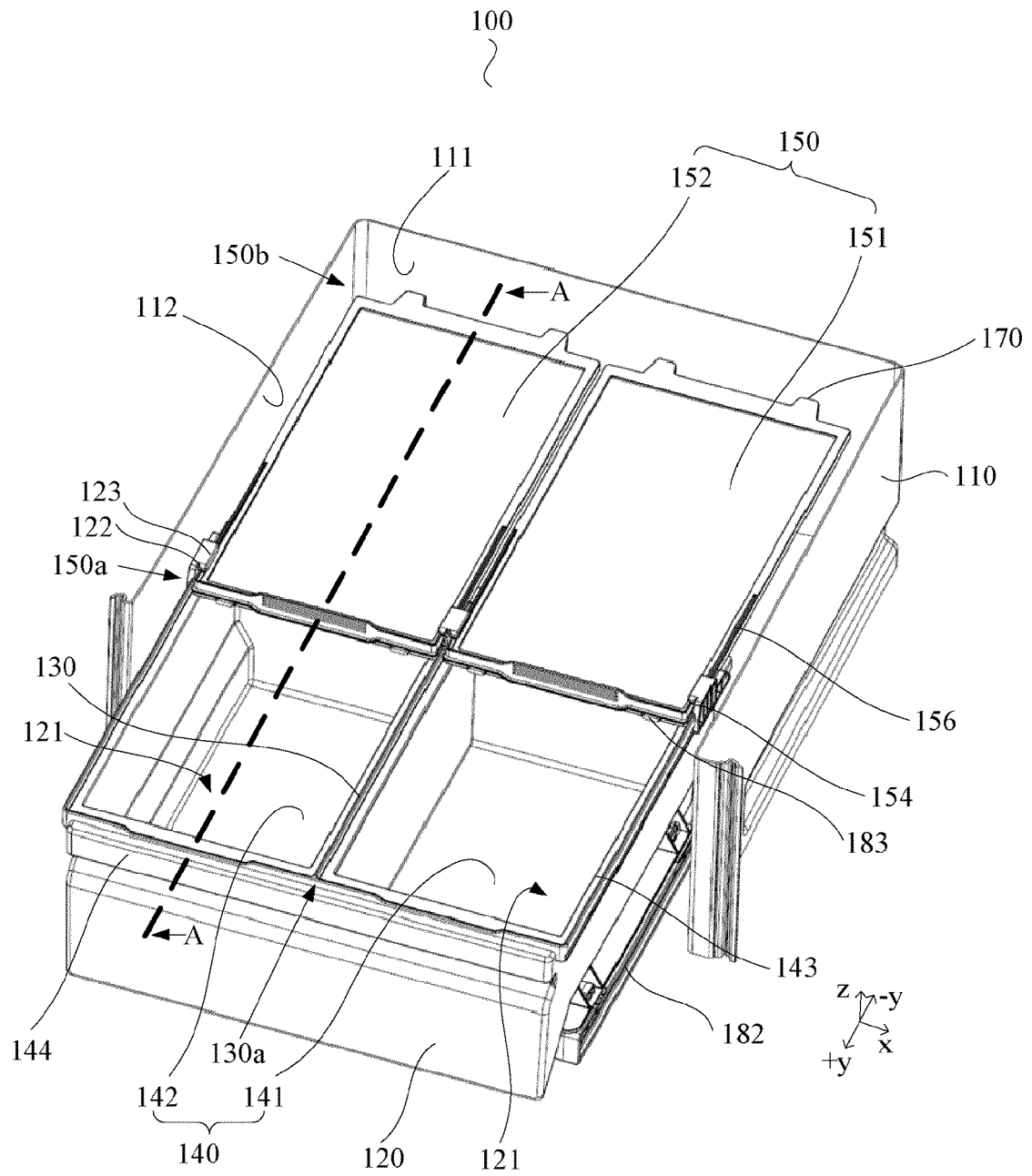


FIG. 1

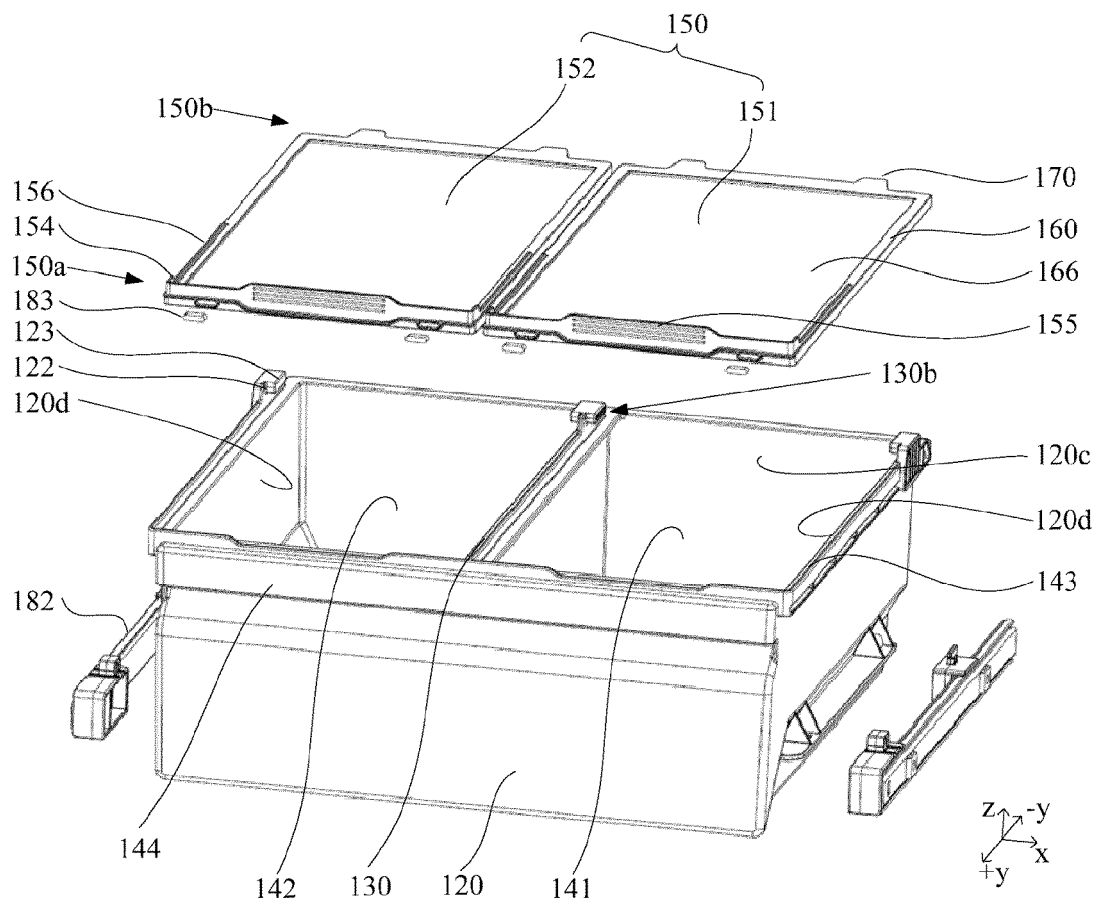


FIG. 2

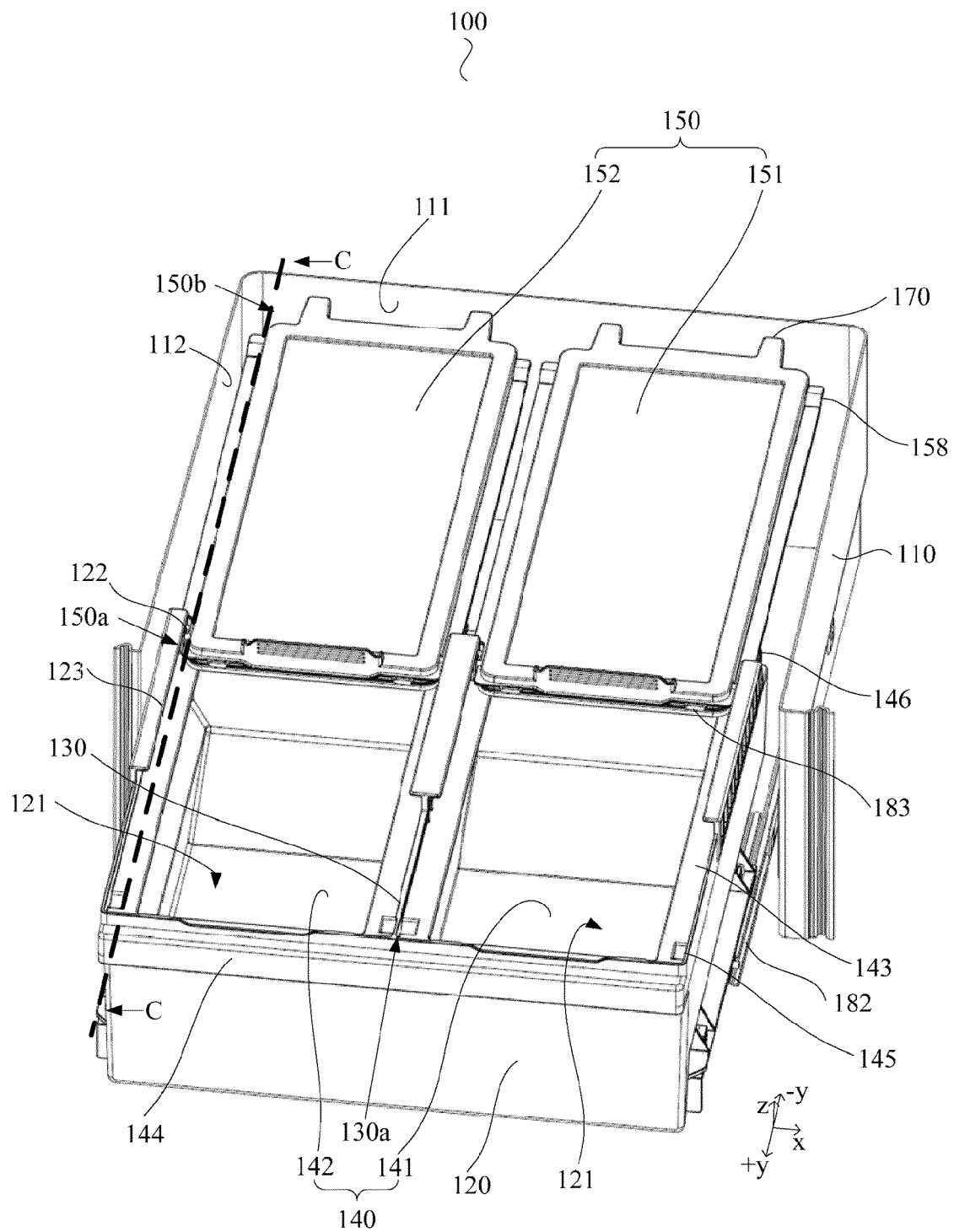


FIG. 3

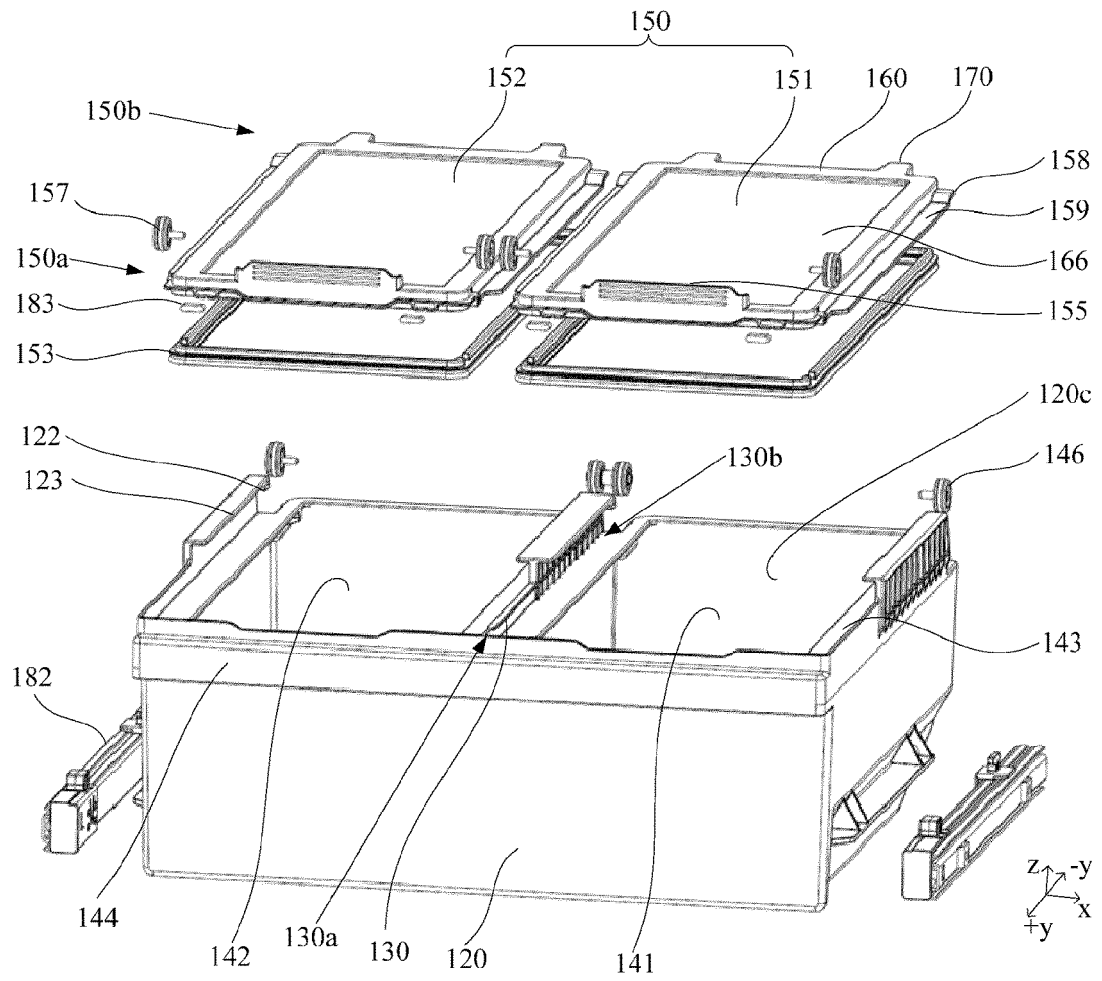


FIG. 4

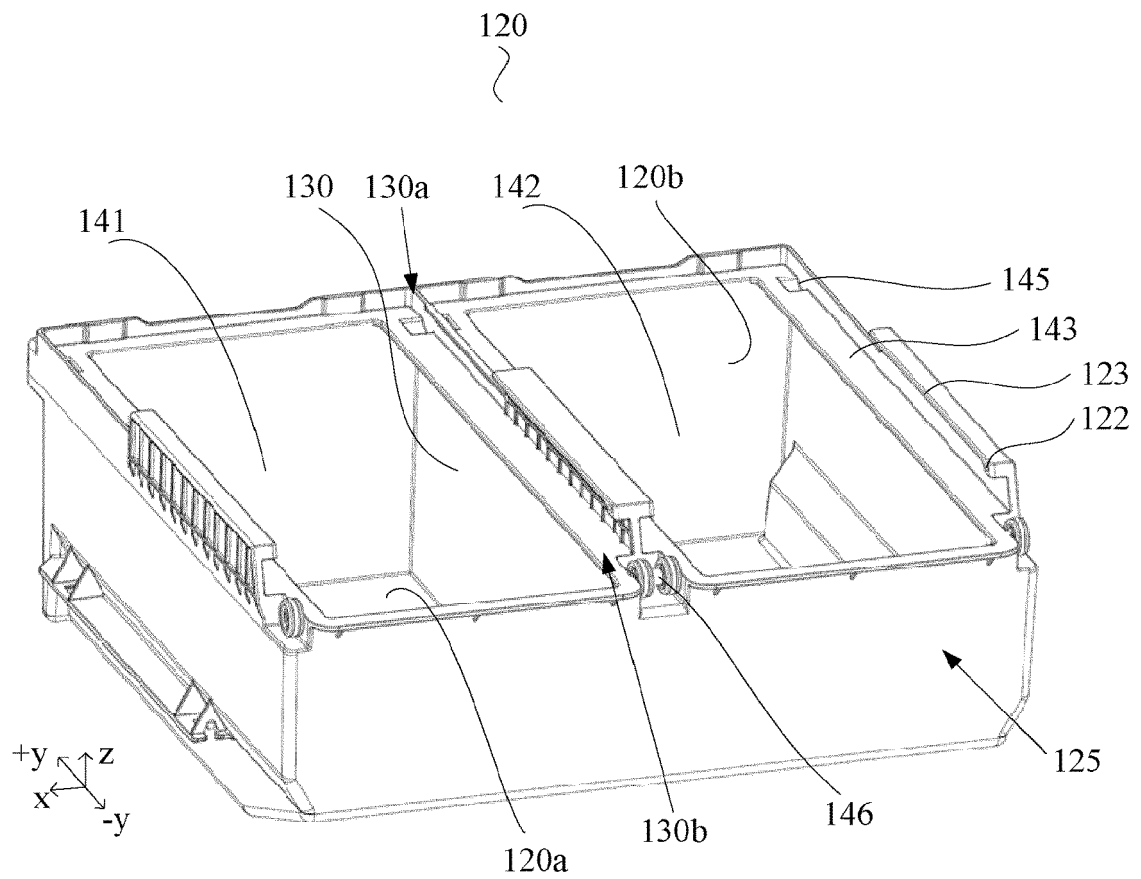


FIG. 5

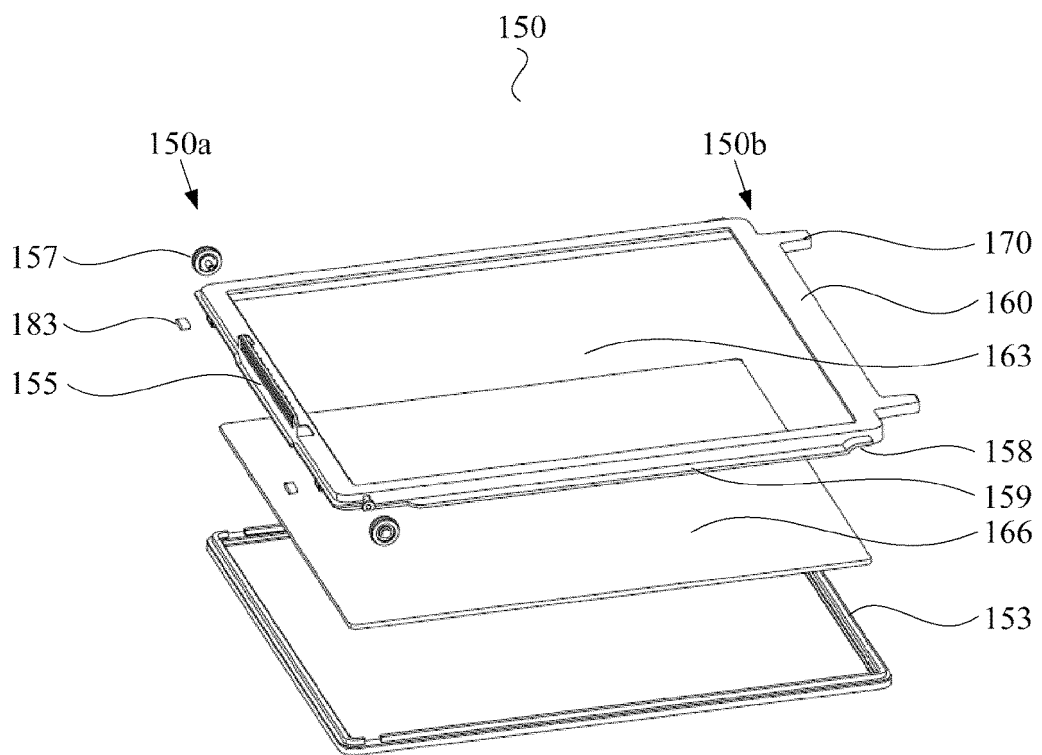


FIG. 6

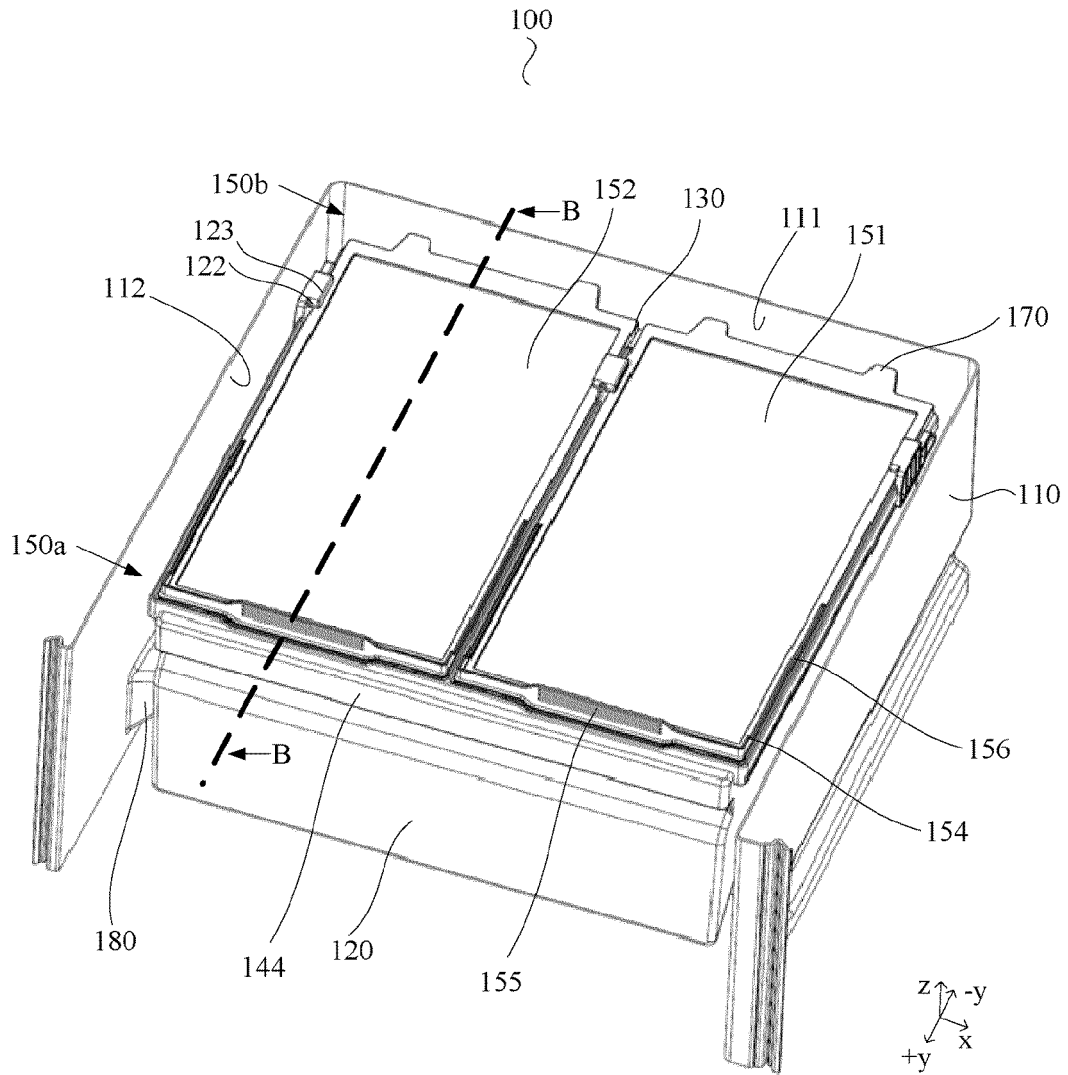


FIG. 7

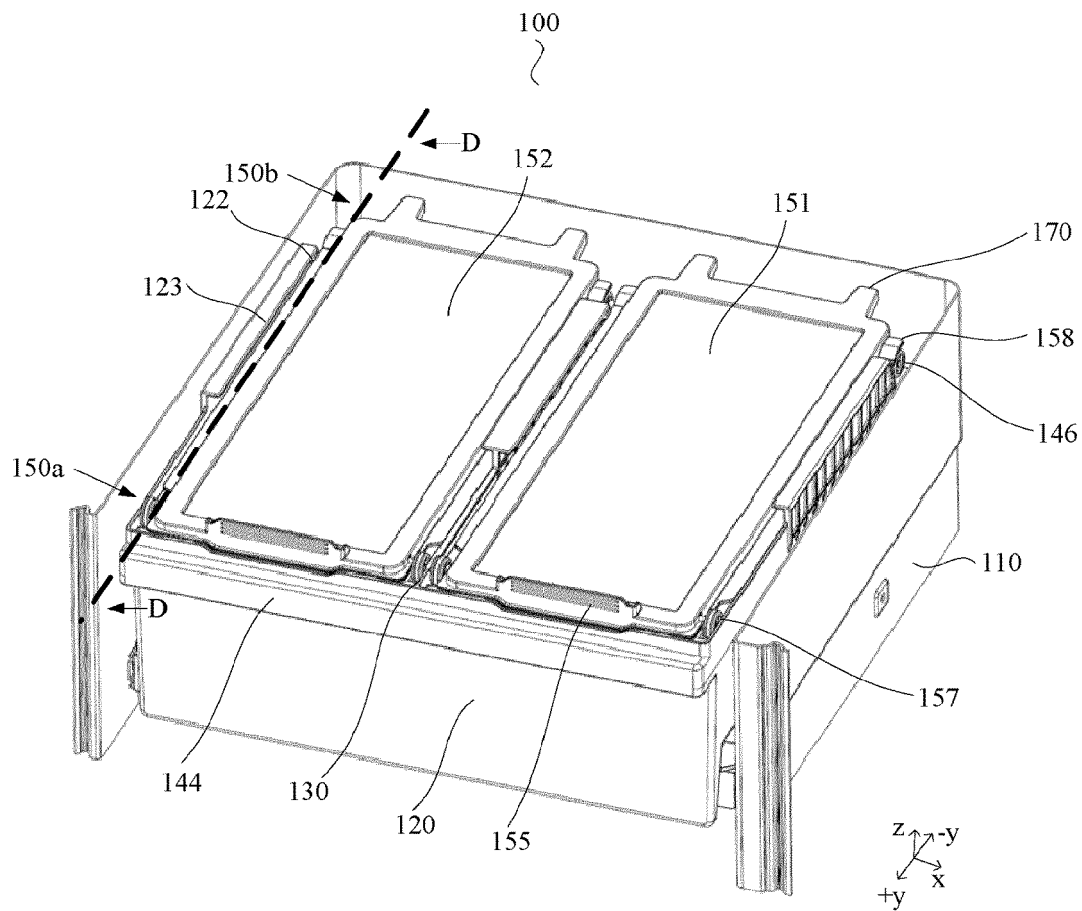


FIG. 8

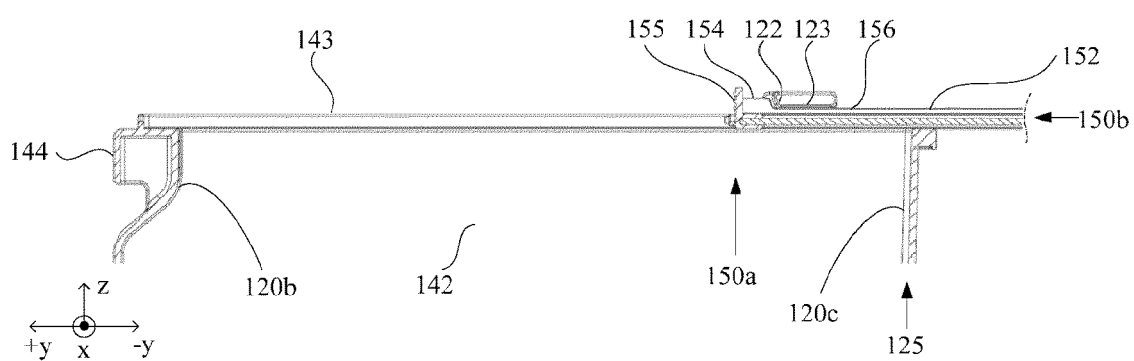


FIG. 9

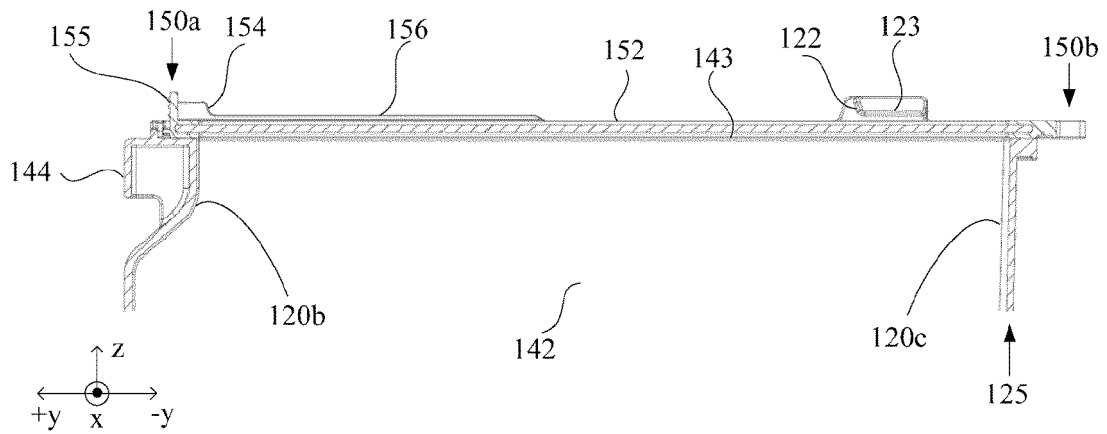


FIG. 10

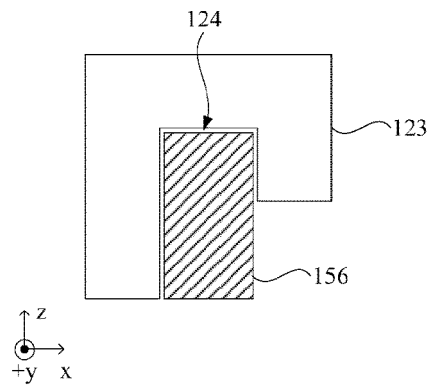


FIG. 11

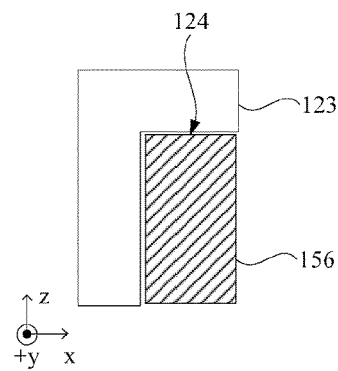


FIG. 12

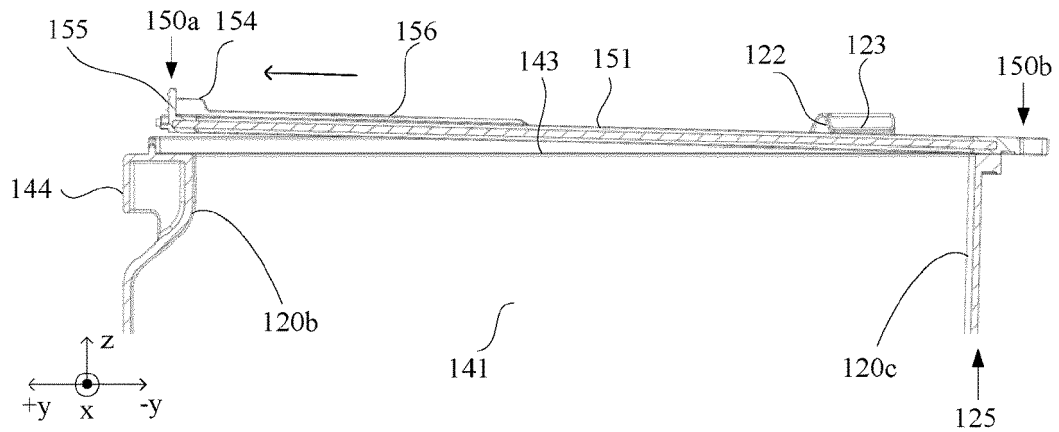


FIG. 13

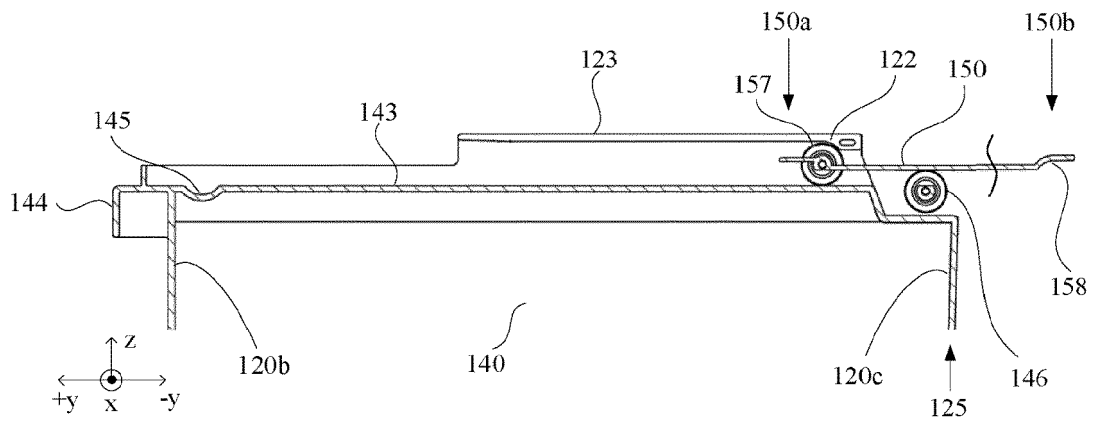


FIG. 14

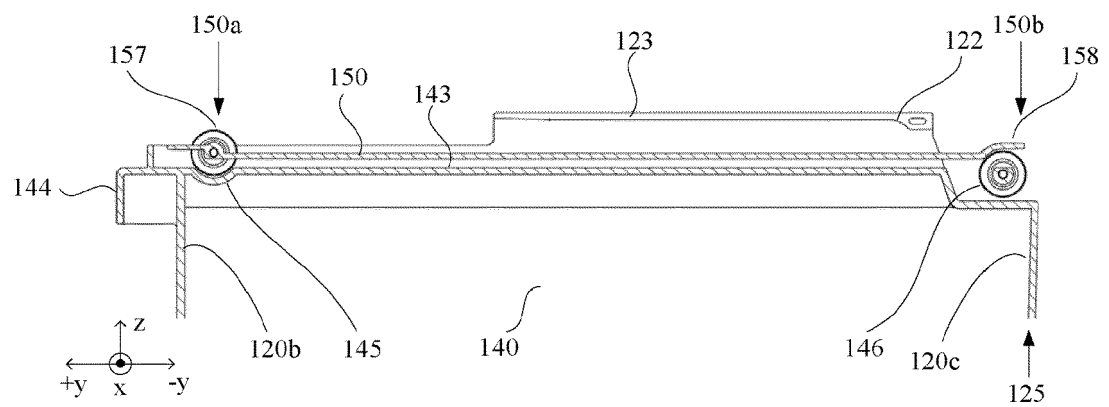


FIG. 15

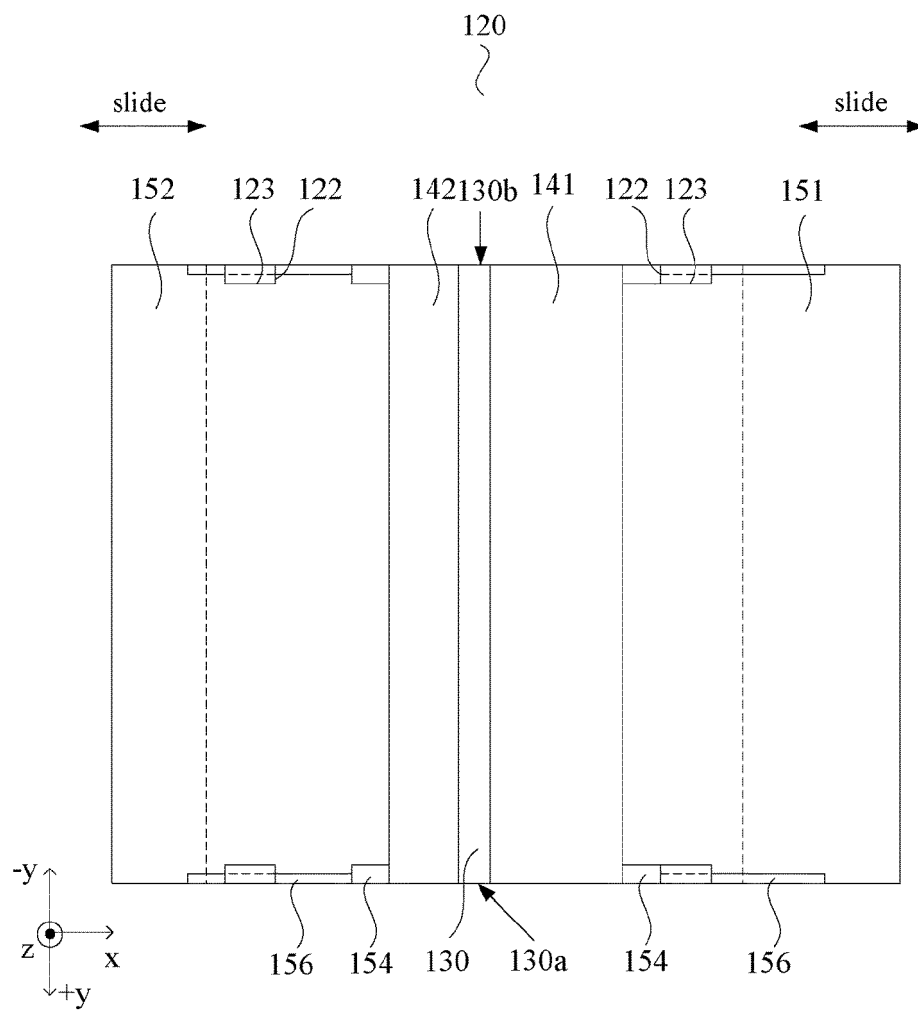


FIG. 16

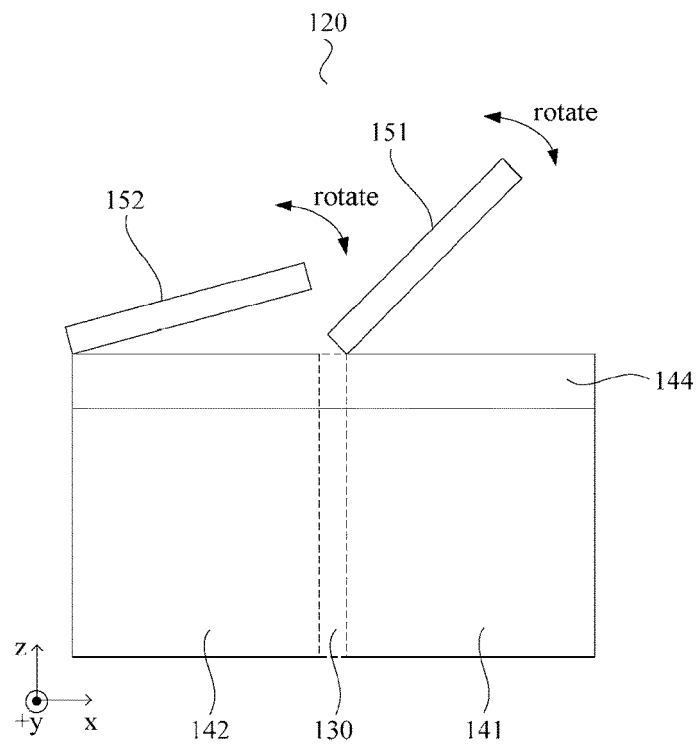


FIG. 17

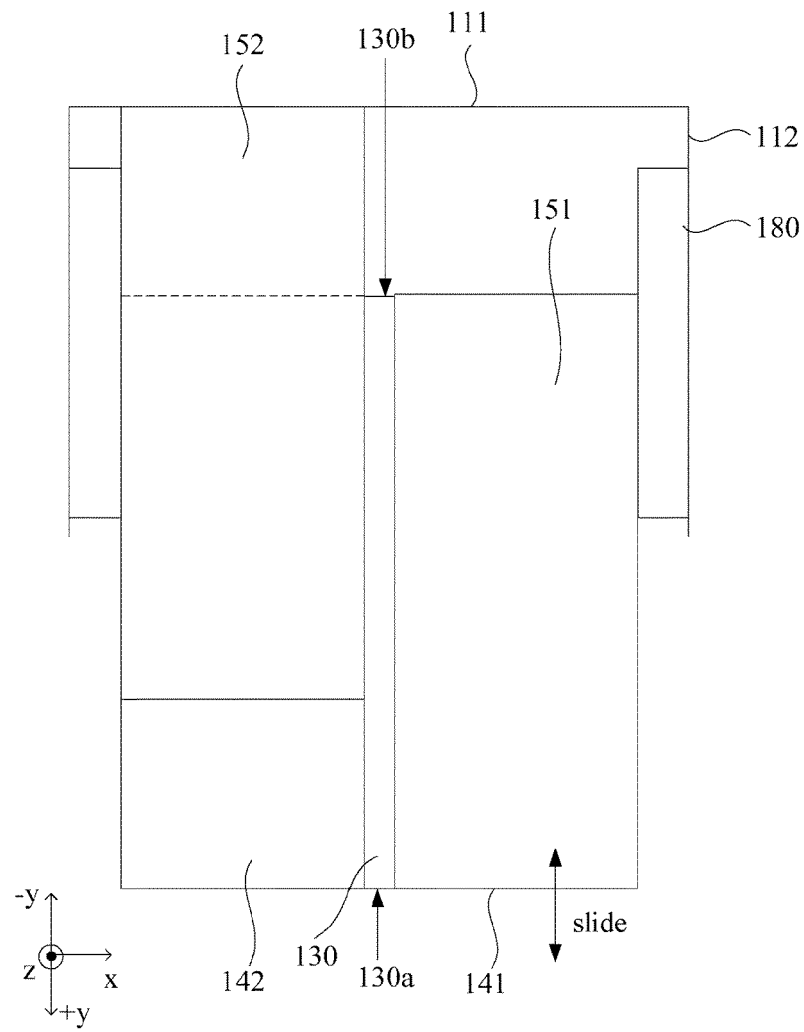


FIG. 18



EUROPEAN SEARCH REPORT

 Application Number
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A	* figures 3,8,42,43 *	11	
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			F25D
Place of search		Date of completion of the search	Examiner
The Hague		16 January 2020	Kuljis, Bruno
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

EPO FORM 1503 03.02 (P04C01)

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The members are as contained in the European Patent Office EDP file on
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