

DESCRIPTION

Title of Invention

REFRIGERATOR

Technical Field

5 [0001]

The present invention relates to a refrigerator having a storage chamber opened and closed by a drawer-type door.

Background Art

[0002]

10 As a conventional refrigerator, for example, Patent Literature 1 discloses a refrigerator in which a sealing member is provided in a bottom face section of a partition wall defining a storage chamber. The sealing member provided in the refrigerator disclosed in Patent Literature 1 includes: an attachment section attaching the sealing member to the bottom face section of the partition wall; and a tip end
15 section extending from the attachment section. In Patent Literature 1, by bringing the tip end section of the sealing member into contact with a projection section provided on the rear face of the refrigerator when a drawer-type door is closed, cool air in the refrigerator is blocked from flowing to the outside of the refrigerator via a gap formed between the rear face of the door and the partition wall.

20 Citation List

Patent Literature

[0003]

Patent Literature 1: Japanese Patent Laid-open No. 2002-022351

Summary of Invention

25 Technical Problem

[0004]

However, in the refrigerator disclosed in Patent Literature 1, because the attachment section of the sealing member is configured to project from the bottom face of the partition wall, the attachment section of the sealing member may come
30 into contact with a stored item such as food housed in the storage chamber, due to

creep of the sealing member or warping of the sealing member caused during the formation thereof. When the attachment section of the sealing member comes into contact with the stored item, operability of the drawer-type door is degraded, and an abnormal sound occurs when the drawer-type door is operated. Further, as a result of the attachment section of the sealing member coming into contact with the stored item, there is also a high possibility for the tip end section of the sealing member to be damaged. In addition, because the attachment section of the sealing member projects from the bottom face of the partition wall, a housing space of the storage chamber is limited. Consequently, the refrigerator disclosed in Patent Literature 1 has a problem where it is not possible to ensure comfort during the use and reliability for the cooling capability.

[0005]

To solve the problem described above, it is an object of the present invention to provide a refrigerator capable of ensuring comfort during the use and reliability for the cooling capability.

Solution to Problem

[0006]

A refrigerator of an embodiment of the present invention includes: a box member of which a front face is open; a partition wall partitioning a space inside the box member; a drawer-type door being positioned on a bottom face side of a lower wall surface of the partition wall and being able to open and close a storage space defined by the partition wall; and a sealing element blocking an inflow of air into the storage space. The sealing element includes: an attachment member attached to a bottom face of the lower wall surface of the partition wall; and a blocking member extending from the attachment member, and blocking the inflow of the air into the storage space by being in contact with a face of the drawer-type door positioned on a side of the storage space while the drawer-type door is closed. A lower edge section of the attachment member is positioned higher than a lower edge section of the partition wall is, in a front view.

Advantageous Effects of Invention

[0007]

In the one embodiment of the present invention, the lower edge section of the attachment member of the sealing element is positioned higher than the lower edge section of the partition wall is, in a front view. Accordingly, because it is possible to avoid the situation where the attachment member of the sealing element comes into contact with a stored item, it is possible to maintain operability of the drawer-type door and to prevent the occurrence of abnormal sounds and damages in the sealing element. Further, it is also possible to avoid the situation where the sealing element limits a housing space of the storage. Consequently, according to the one embodiment of the present invention, it is possible to provide a refrigerator capable of ensuring comfort during the use and reliability for the cooling capability.

Brief Description of Drawings

[0008]

[Fig. 1] Fig. 1 is a schematic front view illustrating an example of an exterior configuration of a refrigerator 100 according to Embodiment 1 of the present invention.

[Fig. 2] Fig. 2 is a schematic vertical cross-sectional view of the refrigerator 100 according to Embodiment 1 of the present invention, being taken at line A-A in Fig. 1.

[Fig. 3] Fig. 3 is a cross-sectional view schematically illustrating an example of a part of a structure of a partition wall 10 included in the refrigerator 100 according to Embodiment 1 of the present invention.

[Fig. 4] Fig. 4 is a schematic drawing illustrating an example of a structure, as viewed from the bottom face, of the partition wall 10 included in the refrigerator 100 according to Embodiment 1 of the present invention.

[Fig. 5] Fig. 5 is a cross-sectional view schematically illustrating another example of a part of the structure of the partition wall 10 included in the refrigerator 100 according to Embodiment 1 of the present invention.

Description of Embodiments

[0009]

Embodiment 1.

A refrigerator 100 according to Embodiment 1 of the present invention will be explained. Fig. 1 is a schematic front view illustrating an example of an exterior configuration of the refrigerator 100 according to Embodiment 1 described herein. The positional relationship (e.g., the positional relationship in the up-and-down, left-and-right, front-and-back directions) among the constituent elements of the refrigerator 100 described below are, in principle, based on a positional relationship exhibited while the refrigerator 100 is installed in a usable state. Further, in the drawings referenced below including Fig. 1, the dimensional relationships and the shapes of the constituent elements may be different from those in actuality. Further, in the drawings referenced below, for some of the members and parts that are mutually the same as or similar to one another, either the same reference characters are used for reference or the use of reference characters is omitted.

[0010]

As illustrated in Fig. 1, the refrigerator 100 includes, in the uppermost section thereof, a refrigerator chamber left door 2a and a refrigerator chamber right door 2b, as rotation-type double-hinged doors 2. Further, below the refrigerator chamber left door 2a, an ice making chamber door 3a is provided. Also, below the refrigerator chamber right door 2b, a switch chamber door 3b is provided. Below the ice making chamber door 3a and the switch chamber door 3b, a freezer chamber door 3c is provided. Below the freezer chamber door 3c, a vegetable chamber door 3d is provided. The ice making chamber door 3a, the switch chamber door 3b, the freezer chamber door 3c, and the vegetable chamber door 3d are structured as drawer-type doors 3. The double-hinged doors 2 and the drawer-type doors 3 are configured to be able to maintain the cooling capability of the interior of the refrigerator. For example, although not illustrated in the drawings referenced below including Fig. 1, it is possible to arrange the double-hinged doors 2 and the drawer-type doors 3 to each include a door inner plate, a door outer plate, and a thermal insulation material filling in a space formed between the door inner plate and the door outer plate.

[0011]

In Embodiment 1 described herein, it is sufficient when the refrigerator 100 includes at least one drawer-type door 3. For example, the refrigerator 100 may be configured not to include the ice making chamber door 3a or the switch chamber door 3b. Further, a partial selection from the ice making chamber door 3a, the switch chamber door 3b, the freezer chamber door 3c, and the vegetable chamber door 3d may be configured, for example, as a rotation-type single-hinged door.

[0012]

Fig. 2 is a schematic vertical cross-sectional view of the refrigerator 100 according to Embodiment 1 described herein, being taken at line A-A in Fig. 1. As illustrated in Fig. 2, the refrigerator 100 is provided with a box member 5 of which the front face is open and which is thermally insulative and includes: an outer box 5a being made of a steel plate and structuring an outer casing of the refrigerator 100; an inner box 5b being made of resin and structuring an inner wall of the refrigerator 100; and a thermal insulation material 5c filling in a space formed between the outer box 5a and the inner box 5b.

[0013]

The refrigerator 100 is provided with a plurality of partition walls 10 partitioning an internal space of the box member 5 and being thermally insulative. In the refrigerator 100, a plurality of storage spaces 20 partitioned by the partition walls 10 are defined. In Fig. 2, the refrigerator 100 includes a first partition wall 12, a second partition wall 14, and a third partition wall 16. Above the space partitioned by the first partition wall 12, a refrigerator chamber 20a serving as an example of the storage spaces 20 is defined. The refrigerator chamber 20a is opened and closed by rotation operations of the refrigerator chamber left door 2a and the refrigerator chamber right door 2b. In the space partitioned by the first partition wall 12 and the second partition wall 14 and formed between the first partition wall 12 and the second partition wall 14, an ice making chamber 20b serving as another example of the storage spaces 20 is defined. The ice making chamber 20b is opened and closed by pushing and pulling the ice making chamber door 3a. In the space partitioned by the second partition wall 14 and the third partition wall 16 and formed between the

second partition wall 14 and the third partition wall 16, a freezer chamber 20c serving as yet another example of the storage spaces 20 is defined. The freezer chamber 20c is opened and closed by pushing and pulling the freezer chamber door 3c.

Beneath the space partitioned by the third partition wall 16, a vegetable chamber 20d serving as yet another example of the storage spaces 20 is defined. The vegetable chamber 20d is opened and closed by pushing and pulling the vegetable chamber door 3d. Although not illustrated in the drawings referenced below including Fig. 2, in the space formed between the first partition wall 12 and the second partition wall 14, a switch chamber serving as yet another example of the storage spaces 20 is formed. The switch chamber is opened and closed by pushing and pulling the switch chamber door 3b.

[0014]

On the rear face 2c side of the refrigerator chamber left door 2a and the refrigerator chamber right door 2b, a plurality of racks 22 are provided to accommodate therein stored items such as food, beverage, and other items. Further, on the back face side of the refrigerator chamber 20a, a plurality of shelves 24 on which stored items can be placed are provided. Beneath the shelf 24 on the back face lower side of the refrigerator chamber 20a, a plurality of spaces in which the temperature can be adjusted to keep stored items fresh are provided. In these spaces, a plurality of chilled cases 26a each serving as an accommodation container 26 are housed.

[0015]

In the ice making chamber 20b, an ice making chamber case 26b serving as an accommodation container 26 is housed. Although not illustrated in the drawings, the ice making chamber case 26b may be configured in such a manner that, for example, a bottom face section of the ice making chamber case 26b is attached to a frame being made of a steel plate and being provided on the rear face 3e side of the ice making chamber door 3a.

[0016]

In the freezer chamber 20c, a large-capacity freezer chamber case 26c and a small-capacity freezer chamber case 26d each serving as an accommodation container 26 are housed. The small-capacity freezer chamber case 26d is, for example, configured so that the dimension thereof in the depth direction is smaller than that of the large-capacity freezer chamber case 26c and may be configured to be able to slide on an upper edge section of the large-capacity freezer chamber case 26c in the front-and-back direction. Although not illustrated in the drawings, the large-capacity freezer chamber case 26c may be configured in such a manner that, for example, a bottom face section of the large-capacity freezer chamber case 26c is attached to a frame being made of a steel plate and being provided on the rear face 3e side of the freezer chamber door 3c.

[0017]

In the vegetable chamber 20d, a large-capacity vegetable chamber case 26e and a small-capacity vegetable chamber case 26f each serving as an accommodation container 26 are housed. The small-capacity vegetable chamber case 26f is, for example, configured so that the dimension thereof in the depth direction is smaller than that of the large-capacity vegetable chamber case 26e and may be configured to be able to slide on an upper edge section of the large-capacity vegetable chamber case 26e in the front-and-back direction. Although not illustrated in the drawings, the large-capacity vegetable chamber case 26e may be configured in such a manner that, for example, a bottom face section of the large-capacity vegetable chamber case 26e is attached to a frame being made of a steel plate and being provided on the rear face 3e side of the vegetable chamber door 3d.

[0018]

Although not illustrated in the drawings referenced below including Fig. 2, in the switch chamber, a switch chamber case serving as an accommodation container 26 is housed. The switch chamber case may be configured in such a manner that, for example, a bottom face section of the switch chamber case is attached to a frame being made of a steel plate and being provided on the rear face 3e side of the switch chamber door 3b.

[0019]

Provided on the back face side of the bottom face of the refrigerator 100 is a machine chamber 27 housing therein a part of component parts (e.g., a compressor) of a refrigeration cycle circuit. Further, provided above the machine chamber 27 is a cooler chamber 29 housing therein a cooler 29a and a fan 29b. In the refrigerator 100, the compressor, a condenser, a decompressing device, and the cooler 29a are sequentially connected with pipes, to structure the refrigeration cycle circuit in which refrigerant is circulated. In the cooler 29a, a heat exchange process is performed between the refrigerant flowing through the inside of the cooler 29a and air passing through the cooler 29a. Accordingly, cool air for cooling the storage spaces 20 is generated in the cooler chamber 29. The cool air generated in the cooler chamber 29 is circulated through the storage spaces 20 by the fan 29b.

[0020]

As a result of the heat exchange process performed in the cooler 29a, moisture in the air condenses and forms frost in the cooler 29a. The frost adhering to the cooler 29a is regularly melted by using an electric heater or other devices, for example, for the purpose of maintaining performance of the cooler 29a and is accumulated, as defrost water, in an evaporation pan provided in a bottom section of the refrigerator 100, for example. The defrost water accumulated in the evaporation pan is, for example, evaporated as being heated by the condenser and is thus released to the outside of the refrigerator 100 as vapor. In the drawings referenced below including Fig. 2, the compressor, the condenser, the decompressing device, the electric heater, and the evaporation pan are not illustrated.

[0021]

Next, a structure of one of the partition walls 10 included in the refrigerator 100 according to Embodiment 1 described herein will be explained.

[0022]

Fig. 3 is a cross-sectional view schematically illustrating an example of a part of the structure of the one of the partition walls 10 included in the refrigerator 100 according to Embodiment 1 described herein. As an example of the partition walls

10, Fig. 3 illustrates, in an enlarged manner, a structure of a part of the second partition wall 14 defining the ice making chamber 20b and the freezer chamber 20c, together with internal structures of the ice making chamber door 3a and the freezer chamber door 3c.

5 [0023]

In Fig. 3, the second partition wall 14 is provided with a main body section 30 that is formed by the inner box 5b and includes: an outer casing section having a projecting shape and extending horizontally from the back face of the refrigerator 100 in the direction toward the front face; and a thermal insulation material housed in the outer casing section and foamed to fill in the space. Further, arranged on the front face side of the main body section 30 is a partition member 32 extending in the left- and-right direction in a front view and being joined with a lateral face section of the inner box 5b and the front face of the main body section 30.

[0024]

15 The partition member 32 functions as a distal end section of the partition wall 10 maintaining thermal insulation capability on the inside of the storage spaces 20 and enhancing sealing characteristics between the drawer-type doors 3 and the partition walls 10. The partition member 32 includes a front face plate 36 structuring the front wall face of the partition wall 10, while facing the rear faces 3e of the ice making chamber door 3a and the freezer chamber door 3c. The front face plate 36 is configured by using a magnetic material such as a steel plate, for example. In the partition member 32, a dew prevention pipe 38 for removing condensation and frost from the front face plate 36 is provided behind the front face plate 36. The dew prevention pipe 38 may be configured, for example, as a part of the refrigerant pipe in the freezer cycle circuit to supply hot gas having high temperature and high pressure. The partition member 32 is provided with a partition member thermal insulation material 40. The front face of the partition member thermal insulation material 40 is covered by the front face plate 36. The top face, the rear face, and the bottom face of the partition member thermal insulation material 40 are covered by a partition cover 42. In other words, the dew prevention pipe 38 and the partition member thermal

insulation material 40 are surrounded by the front face plate 36 and the partition cover 42.

[0025]

The partition member 32 structures the partition wall 10 by joining the rear face of the partition cover 42 with the front face of the main body section 30. Further, the bottom face side of the partition cover 42 and the bottom face side of the main body section 30 structure a bottom face 10a of a lower wall surface of the partition wall 10 included in the refrigerator 100 according to Embodiment 1 described herein.

[0026]

A gasket 44 is arranged on the peripheral surface of each of the rear faces 3e of the ice making chamber door 3a and the freezer chamber door 3c. The gasket 44 is arranged in the entire perimeter of the peripheral surface of each of the rear faces 3e of the ice making chamber door 3a and the freezer chamber door 3c. The gasket 44 is provided with a magnet 46 to join the gasket 44 and the front face plate 36 of the partition member 32 together by using a magnetic force. While the ice making chamber door 3a and the freezer chamber door 3c are closed, because the gasket 44 and the front face plate 36 are joined with each other by the magnetic force, it is possible to seal the ice making chamber 20b and the freezer chamber 20c. It is therefore possible to enhance airtightness for the storage spaces 20.

[0027]

In a top face section of the rear face 3e of the freezer chamber door 3c, a projection section 49 extending horizontally from the direction of the front face toward the direction of the back face is provided. A space is formed between the projection section 49 and the bottom face 10a of the lower wall surface of the partition wall 10. In Embodiment 1 described herein, this space will be referred to as a throat section 50. In the refrigerator 100 of Embodiment 1 described herein, a sealing element 52 blocking an inflow of air to the inside of the freezer chamber 20c is arranged on the bottom face 10a of the lower wall surface of the partition wall 10, by bringing the sealing element 52 into contact with the projection section 49 formed on the rear face 3e of the freezer chamber door 3c. The throat section 50 is arranged by the sealing

element 52 to be a space that is isolated from the cool air circulating inside the freezer chamber 20c and is formed in the surroundings of the partition wall 10. It is therefore possible to enhance thermal insulation characteristics of the freezer chamber 20c.

5 [0028]

Next, a structure and a positional arrangement of the sealing element 52 included in the refrigerator 100 according to Embodiment 1 described herein will be explained.

[0029]

10 The sealing element 52 includes: an attachment member 52a attached to the bottom face 10a of the lower wall surface of the partition wall 10; and blocking members 52b extending from the attachment member 52a, and blocking the inflow of the air into the storage space 20 by being in contact with a face 3e of the drawer-type door 3 positioned on a side of the storage space 20 while the drawer-type door 3 is
15 closed. A lower edge section 52e of the attachment member 52a of the sealing element 52 is, in a front view, arranged with the partition wall 10 to be positioned higher than a lower edge section 10b of the partition wall 10 is.

[0030]

20 The bottom face 10a of the lower wall surface of the partition wall 10 may be structured as a step-shaped wall surface on which, in a lateral view, bottom face sections each extending from the direction of the front face of the refrigerator 100 toward the direction of the back face of the refrigerator 100 and lateral face sections each extending from the direction of the bottom face toward the direction of the top face are formed to alternate. For example, in Fig. 3, the bottom face 10a of the
25 lower wall surface of the partition wall 10 includes: a first bottom face section 42a; a second bottom face section 42b positioned higher than the first bottom face section 42a is; a third bottom face section 42c positioned higher than the second bottom face section 42b is; a first lateral face section 42d joining together the first bottom face section 42a and the second bottom face section 42b; and a second lateral face
30 section 42e joining together the second bottom face section 42b and the third bottom

face section 42c. In Embodiment 1 described herein, the first bottom face section 42a serves as the lower edge section 10b of the partition wall 10 in a front view.

[0031]

The bottom face 10a of the lower wall surface of the partition wall 10 is provided with a supporting member 54 extending from the first lateral face section 42d along the second bottom face section 42b and supporting a distal end section 52f of the attachment member 52a positioned on the front face side while pinching the distal end section 52f from underneath. Further, provided on the bottom face 10a of the lower wall surface of the partition wall 10 is a fastening member 55 being positioned higher than the supporting member 54 is and fastening a distal end section 52g of the attachment member 52a positioned on the back face side. For example, the fastening member 55 may be configured to be provided in the second lateral face section 42e. Note that the supporting member 54 and the fastening member 55 may be structured by using the same material as that of the partition cover 42 of the partition wall 10 to be integrally formed or may be structured by using a different material from that of the partition cover 42.

[0032]

Further, in the refrigerator 100 of Embodiment 1 described herein, the distal end section 52g positioned on the back face side of the attachment member 52a of the sealing element 52 may be structured as a distal end section 52c having a U-shape in a lateral view. Further, the fastening member 55 may be structured as a projecting member 55a extending from the second lateral face section 42e. With these arrangements, it is possible to fasten the U-shaped distal end section 52c by fitting the U-shaped distal end section 52c onto the fastening member 55. Note that the projecting member 55a may be integrally formed with the partition cover 42 of the partition wall 10 or may be structured as a member separate from the partition cover 42 of the partition wall 10. When the projecting member 55a is structured as a member separate from the partition cover 42 of the partition wall 10, it is possible to easily manufacture the projecting member 55a.

[0033]

Further, the blocking members 52b may each be structured as a fin-shaped member extending downward from the attachment member 52a. The blocking members 52b are arranged over the entire area of the attachment member 52a to be in contact with the projection section 49 provided in the top face section of the rear face 3e of the freezer chamber door 3c. Fig. 3 illustrates the sealing element 52 having three fin-shaped members as the blocking members 52b.

[0034]

Note that the attachment member 52a of the sealing element 52 may be formed by using hard resin, such as rigid polyvinyl chloride or polypropylene. With this arrangement, it is possible to avoid the situation where the attachment member 52a comes off the supporting member 54. Further, the blocking members 52b of the sealing element 52 may be formed by using soft resin such as flexible polyvinyl chloride or an olefin-based elastomer. With this arrangement, it is possible to avoid the situation where a stored item such as food or the drawer-type door 3 is damaged by the blocking members 52b.

[0035]

Fig. 4 is a schematic drawing illustrating an example of a structure, as viewed from the bottom face, of the partition wall 10 included in the refrigerator 100 according to Embodiment 1 described herein. In Fig. 4, the top side of the drawing page corresponds to the front side of the refrigerator 100.

[0036]

The refrigerator 100 of Embodiment 1 described herein may be provided with a plurality of supporting members 54 and a plurality of fastening members 55. In Fig. 4, four supporting members 54 are provided along the longitudinal direction of the wall surface of the first lateral face section 42d of the partition cover 42. Also, five fastening members 55 are provided along the longitudinal direction of the wall surface of the second lateral face section 42e of the partition cover 42. Further, as illustrated in Fig. 4, the supporting members 54 are arranged so that the positions thereof do not overlap with those of the fastening members 55 in a front view. Note that the supporting members 54 and the fastening members 55 may be structured in such a

manner that the plurality of supporting member 54 and the plurality of fastening members 55 are integrally formed along the longitudinal direction of the first lateral face section 42d and the second lateral face section 42e.

[0037]

5 Fig. 5 is a cross-sectional view schematically illustrating another example of a part of the structure of the partition wall 10 included in the refrigerator 100 according to Embodiment 1 described herein.

[0038]

10 In the refrigerator 100 of Embodiment 1 described herein, joining sections 52d joining together the attachment member 52a and the blocking members 52b are arranged to be positioned higher than the lower edge section 10b of the partition wall 10 is, in a front view. Specifically, as illustrated in Fig. 5, the joining sections 52d joining the attachment member 52a and the blocking members 52b together are arranged in such a manner that a distance X between the joining sections 52d and
15 the first bottom face section 42a, i.e., between the joining sections 52d and the lower edge section 10b of the partition wall 10 in a front view, is equal to or longer than 3 mm. With this arrangement, it is possible to avoid the situation where a stored item such as food accommodated in the storage space 20 comes into contact with the joining sections 52d as the drawer-type door 3 opens and closes. It is therefore
20 possible to prevent the blocking members 52b from being torn off from the joining sections 52d.

[0039]

25 Further, in Fig. 5, provided at the tip end of the supporting member 54 is a guiding member 56 guiding the distal end section 52f of the attachment member 52a positioned on the front side into the space formed between the supporting member 54 and the second bottom face section 42b. This arrangement makes the assembly process to attach the sealing element 52 easier.

[0040]

30 As explained above, the refrigerator 100 of Embodiment 1 described herein includes: the box member 5 of which the front face is open; the partition walls 10

partitioning the space provided inside the box member 5; the drawer-type doors 3 each being positioned on the bottom face 10a side of the lower wall surface of a corresponding one of the partition walls 10 and each being able to open and close the storage space 20 defined by the partition wall 10; and the sealing elements 52 each blocking the inflow of air into a corresponding one of the storage spaces 20. Each of the sealing elements 52 includes the attachment member 52a attached to the bottom face 10a of the lower wall surface of a corresponding one of the partition walls 10; and the blocking members 52b extending from the attachment member 52a, and blocking the inflow of the air into a corresponding one of the storage spaces 20 by being in contact with a face 3e of the drawer-type door 3, i.e., the face positioned on a side of the storage space 20 side, while the drawer-type door 3 is closed. The lower edge section 52e of the attachment member 52a is positioned higher than the lower edge section 10b of the partition wall 10 is, in a front view.

[0041]

In the configuration described above, the lower edge section 52e of the attachment member 52a of the sealing element 52 is positioned higher than the lower edge section 10b of the partition wall 10 is, in a front view. Accordingly, it is possible to avoid the situation where the attachment member 52a of the sealing element 52 comes into contact with a stored item. It is therefore possible to maintain operability of the drawer-type doors 3, to inhibit the occurrence of abnormal sounds, and to prevent the sealing element 52 from being damaged. Further, in the configuration described above, it is possible to avoid the situation where the sealing element 52 limits the housing space of the refrigerator 100. In addition, in the configuration described above, it is possible to prevent the sealing element 52 from being damaged and to avoid the situation where the housing space in the refrigerator 100 is limited, without having to provide additional members other than the sealing element 52. Consequently, according to the one embodiment of the present invention, it is possible to inexpensively provide the refrigerator 100 capable of ensuring comfort during the use and reliability for the cooling capability. In addition, because it is

possible to prevent the sealing element 52 from being damaged, it is possible to reduce energy consumption of the refrigerator 100.

[0042]

Further, the bottom face 10a of the lower wall surface of the partition wall 10 may be structured as the step-shaped wall surface on which, in a lateral view, the bottom face sections each extending from the direction of the front face toward the direction of the back face and the lateral face sections extending in the up-and-down direction are formed to alternate. With this arrangement, it is easier to arrange the lower edge section 52e of the attachment member 52a of the sealing element 52 to be positioned higher than the lower edge section 10b of the partition wall 10 is, in a front view.

[0043]

Further, provided on the bottom face 10a of the lower wall surface of the partition wall 10 may be the supporting member 54 extending from the lateral face sections along the bottom face section and supporting the distal end section 52f of the attachment member 52a positioned on the front face side by pinching the distal end section 52f from underneath, and the fastening member 55 being positioned higher than the supporting member 54 is and fastening the distal end section 52g of the attachment member 52a positioned on the back face side. With this arrangement, it is easier to arrange the lower edge section 52e of the attachment member 52a of the sealing element 52 to be positioned higher than the lower edge section 10b of the partition wall 10 is, in a front view. In addition, it is possible to avoid the situation where the sealing element 52 comes off. Furthermore, by providing the plurality of supporting members 54 and the plurality of fastening members 55, it is possible to enhance stability against the sealing element 52 coming off.

[0044]

Further, the distal end section 52g of the attachment member 52a positioned on the back face side may be structured as the U-shaped distal end section 52c in a lateral view. The fastening member 55 may be structured as the projecting member

55a capable of fastening the U-shaped distal end section 52c by having the U-shaped distal end section 52c fitted thereon. With these arrangements, because it is possible to have the U-shaped distal end section 52c fastened by being fitted, it is possible to further enhance stability against the sealing element 52 coming off.

5 Furthermore, by structuring the projecting member 55a as a member separate from the partition wall 10, it is possible to easily manufacture the projecting member 55a.
[0045]

Further, the joining sections 52d joining together the attachment member 52a and the blocking members 52b may be configured to be positioned higher than the lower edge section 10b of the partition wall 10 is, in a front view. With this arrangement, it is possible to avoid the situation where a stored item such as food stored in the storage space 20 comes into contact with the joining sections 52d as the drawer-type door 3 opens and closes. Accordingly, it is possible to prevent the blocking members 52b from being torn off from the joining sections 52d.

15 Consequently, with these arrangements, it is possible to enhance reliability for the cooling capability of the refrigerator 100.
[0046]

Further, the blocking members 52b may each be structured as a fin-shaped member extending downward from the attachment member 52a. Provided on the rear face 3e of the drawer-type door 3, i.e., on the face positioned on the storage space 20 side, may be the projection section 49 with which the fin-shaped members are brought into contact. With these arrangements, it is possible to block the inflow of the air into the storage space 20 by blocking the throat section 50 with the blocking members 52b, the throat section 50 being the space formed between the projection section 49 and the bottom face 10a of the lower wall surface of the partition wall 10. Accordingly, with these arrangements, it is possible to enhance reliability for the cooling capability of the refrigerator 100.

[0047]

Further, the attachment member 52a may be formed by using hard resin. The blocking members 52b may be formed by using soft resin. With these

arrangements, it is possible to avoid the situation where the attachment member 52a comes off the supporting member 54. It is also possible to avoid the situation where a stored item such as food or the drawer-type door 3 is damaged by the blocking members 52b.

5 [0048]

Other Embodiments

The present invention is not limited to Embodiment 1 described above, and it is possible to apply various modifications thereto without departing from the gist of the present invention. For example, the refrigerator 100 does not necessarily have to be configured as illustrated in Fig. 1 and Fig. 2. For instance, the refrigerator 100 may be configured to include only the refrigerator chamber 20a and the freezer chamber 20c.

Reference Signs List

[0049]

15 2 double-hinged door 2a refrigerator chamber left door 2b
refrigerator chamber right door 2c rear face 3 drawer-type door 3a ice
making chamber door 3b switch chamber door 3c freezer chamber door
3d vegetable chamber door 3e rear face 5 box member 5a
outer box 5b inner box 5c thermal insulation material 10 partition wall
20 10a bottom face of lower wall surface 10b lower edge section 12 first
partition wall 14 second partition wall 16 third partition wall 20 storage space
20a refrigerator chamber 20b ice making chamber 20c freezer
chamber 20d vegetable chamber 22 rack 24 shelf 26 accommodation
container 26a chilled case 26b ice making chamber case 26c large-capacity
25 freezer chamber case 26d small-capacity freezer chamber case 26e large-
capacity vegetable chamber case 26f small-capacity vegetable chamber case
27 machine chamber 29 cooler chamber 29a cooler 29b fan 30
main body section 32 partition member 36 front face plate 38 dew
prevention pipe 40 partition member thermal insulation material 42 partition
30 cover 42a first bottom face section 42b second bottom face section 42c

third bottom face section 42d first lateral face section 42e second lateral face
section 44 gasket 46 magnet 49 projection section 50 throat section 52
sealing element 52a attachment member 52b blocking member 52c U-
shaped distal end section 52d joining section 52e lower edge section 52f
5 distal end section on front face side 52g distal end section on back face side 54
supporting member 55 fastening member 55a projecting member 56
guiding member 100 refrigerator.

CLAIMS

[Claim 1]

A refrigerator comprising:

5 a box member of which a front face is open;

a partition wall partitioning a space inside the box member;

a drawer-type door being positioned on a bottom face side of a lower wall surface of the partition wall and being able to open and close a storage space defined by the partition wall; and

10 a sealing element blocking an inflow of air into the storage space,

wherein the sealing element includes

an attachment member attached to a bottom face of the lower wall surface of the partition wall, and

15 a blocking member blocking the inflow of the air into the storage space by extending from the attachment member and being in contact with a face of the drawer-type door positioned on a side of the storage space while the drawer-type door is closed,

wherein a lower edge section of the attachment member is positioned higher than a lower edge section of the partition wall is, in a front view,

20 wherein the bottom face of the lower wall surface of the partition wall is structured as a step-shaped wall surface on which, in a lateral view, bottom face sections each extending from a direction of the front face toward a direction of a back face and lateral face sections each extending in an up-and-down direction are formed to alternate, and

25 wherein provided on the bottom face of the lower wall surface of the partition wall are:

a supporting member extending from one of the lateral face sections along one of the bottom face sections and supporting a distal end section of the attachment member positioned on a side of the front face by pinching the distal end section from underneath; and

a fastening member being positioned higher than the supporting member and fastening a distal end section of the attachment member positioned on a side of the back face.

[Claim 2]

5 A refrigerator comprising:
a box member of which a front face is open;
a partition wall partitioning a space inside the box member;
a drawer-type door being positioned on a bottom face side of a lower wall
surface of the partition wall and being able to open and close a storage space defined
10 by the partition wall; and
a sealing element blocking an inflow of air into the storage space, wherein
the sealing element includes:
an attachment member attached to a bottom face of the lower wall
surface of the partition wall; and
15 a blocking member extending from the attachment member, and blocking
the inflow of the air into the storage space by being in contact with a face of the
drawer-type door positioned on a side of the storage space while the drawer-type
door is closed,
wherein, provided on the bottom face of the lower wall surface of the partition
20 wall is a fastening member fastening a distal end section of the attachment member
positioned on a side of the back face,
wherein the distal end section of the attachment member positioned on the
back face side is structured as a U-shaped distal end section in a lateral view, and
wherein the fastening member is structured as a projecting member capable of
25 fastening the U-shaped distal end section by having the U-shaped distal end section
fitted thereon.

[Claim 3]

The refrigerator of claim 2, wherein a lower edge section of the
attachment member is positioned higher than a lower edge section of the partition
30 wall is, in a front view.

[Claim 4]

The refrigerator of claim 2 or 3, wherein the projecting member is structured as a member separate from the partition wall.

[Claim 5]

5 The refrigerator of any one of claim 2 to 4, wherein
the bottom face of the lower wall surface of the partition wall is structured as a step-shaped wall surface on which, in a lateral view, bottom face sections each extending from a direction of the front face toward a direction of a back face and lateral face sections each extending in an up-and-down direction are formed to
10 alternate.

[Claim 6]

 The refrigerator of claim 5, wherein
provided on the bottom face of the lower wall surface of the partition wall is a supporting member extending from the lateral face sections along the bottom face
15 section and supporting a distal end section of the attachment member positioned on the front face side by pinching the distal end section from underneath; and
wherein the fastening member is positioned higher than the supporting member.

[Claim 7]

20 The refrigerator of claim 1 or 6, wherein
a plurality of the supporting members and a plurality of the fastening members are provided.

[Claim 8]

25 The refrigerator of any one of claims 1 to 7, wherein
a joining section joining together the attachment member and the blocking member is positioned higher than a lower edge section of the partition wall is, in a front view.

[Claim 9]

The refrigerator of any one of claims 1 to 8,

wherein the blocking member is structured as a fin-shaped member extending downward from the attachment member, and

wherein, provided on a face of the drawer-type door positioned on the storage space side is a projection section with which the fin-shaped member is brought into contact.

[Claim 10]

The refrigerator of any one of claims 1 to 9,

wherein the attachment member is formed by using hard resin, and

wherein the blocking member is formed by using soft resin.