CLAIMS

[Claim 1]

A refrigerator comprising:

a housing in which a storage space for storage of material is provided, the housing having an opening that is provided in a front of the housing and is configured to allow the material to be moved into and out of the storage space;

a partition wall dividing an interior of the storage space into an upper space and a lower space; and

a door provided in front of the storage space and configured to open and close the opening,

wherein

in the storage space, a plurality of storage compartments are defined by the housing and the partition wall,

the plurality of storage compartments include a first storage compartment located above the partition wall and a second storage compartment provided below the partition wall,

a temperature of the first storage compartment is set higher than a temperature of the second storage compartment,

the door is provided as a single door configured to open and close the first storage compartment and the second storage compartment at the same time, and the door has an upper protrusion ~~protruding~~ and a lower protrusion that protrude from a surface of the door that is adjacent to the storage space,

when the door is in a closed state, in the housing, a gap is provided between the partition wall and the door, ~~and~~ between the partition wall and the upper protrusion, and between the partition wall and the lower protrusion, the gap causing the first storage compartment and the second storage compartment to communicate with each other, ~~and~~

when the door is in the closed state, the upper protrusion is located above the partition wall, with a gap provided between the upper protrusion and the partition wall, ~~and extends rightward and leftward in a direction of extension of the partition wall as~~

~~viewed in head-on view, and a distal end side of the upper protrusion in a protruding direction overlaps with the partition wall as viewed in top plan view~~

when the door is in the closed state, the lower protrusion is located below the partition wall, with the gap provided between the lower protrusion and the partition wall,

the upper protrusion and the lower protrusion extend rightward and leftward as viewed in head-on view, protrude in a depth direction of the housing as viewed in top plan view, and have respective distal end portions that overlap with the partition wall as viewed in top plan view,

to the distal end portion of the upper protrusion, packing is attached, the packing being located between the upper protrusion and the partition wall, and

to the distal end portion of the lower protrusion, lower packing is attached, the lower packing being located between the lower protrusion and the partition wall.

[Claim 2]

The refrigerator of claim 1, wherein the partition wall is detachably provided in the housing.

[Claim 3]

The refrigerator of claim 1 or 2, wherein the door is rotatably supported by the housing, and in the first storage compartment, one or more storage cases configured to store the material are provided.

[Claim 4]

The refrigerator of claim 3, wherein

the storage case has an air vent that is a through hole, and

the air vent is provided in one side of the storage case in a left-right direction of the housing, at a deeper position than central part of the storage case in a depth direction of the housing, and below central part of the storage case in an up-down direction of the housing.

[Claim 5]

The refrigerator of any one of claims 1 to 4, wherein

a plurality of partition walls including the partition wall are provided,

in the storage space, the plurality of storage compartments including the first storage compartment and the second storage compartment and partitioned off by the plurality of partition walls are provided, and

the door is configured to open and close the plurality of storage compartments.

[Claim 6]

The refrigerator of any one of claims 1 to 5, wherein the partition wall is provided with neither a heat radiation pipe configured to radiate heat to reduce occurrence of dew condensation nor a sheet metal covering the heat radiation pipe.

[Claim 7]

The refrigerator of any one of claims 1 to 6, wherein

~~the upper protrusion has packing on a distal end portion of the upper protrusion in the protruding direction,~~

the packing has a fixed portion that is attached to the distal end portion of the upper protrusion and a thin plate-like fin that extends downward from the fixed portion, and

when the door is in the closed state, the fin is located between the upper protrusion and the partition wall.

[Claim 8]

The refrigerator of any one of claims 1 to 6, wherein

the lower packing has a lower fixed portion and a lower fin, the lower fixed portion being attached to the distal end portion of the lower protrusion, the lower fin being thin and plate-like, and extending upward from the lower fixed portion, and

when the door is in the closed state, the lower fin is located between the lower protrusion and the partition wall.

[Claim ~~8~~9]

The refrigerator of any one of claims 1 to 7, wherein the packing is molded from resin.

[Claim ~~9~~10]

The refrigerator of claim 7 ~~or 8~~, wherein the packing has a plurality of fins including the fin.

[Claim ~~10~~11]

The refrigerator of any one of claim ~~9~~10, wherein one of the plurality of fins is in contact with an upper surface of the partition wall, and another one of the plurality of fins is in contact with the one of the plurality of fins to form an air layer.

[Claim ~~11~~12]

The refrigerator of any one of claims 1 to ~~10~~11, further comprising a heater provided on an upper surface of the partition wall and configured to warm the material.

[Claim ~~12~~13]

The refrigerator of any one of claims 1 to ~~11~~12, wherein the first storage compartment has a temperature zone from -5 degrees C to -7 degrees C.

[Claim ~~13~~14]

The refrigerator of any one of claims 1 to ~~11~~12, wherein the first storage compartment has a temperature zone from a freezing point of water to -15 degrees C.

~~[Claim 14]~~

~~The refrigerator of any one of claims 1 to 13, wherein~~

~~the door further has a lower protrusion protruding from the surface of the door that is adjacent to the storage space,~~

~~when the door is in the closed state, in the housing, a gap is provided between the partition wall and the door, between the partition wall and the upper protrusion, and between the partition wall and the lower protrusion, the gap causing the first storage compartment and the second storage compartment to communicate with each other, and~~

~~when the door is in the closed state, the lower protrusion is located below the partition wall, with the gap provided between the lower protrusion and the partition wall, and extends rightward and leftward in the direction of extension of the partition wall as viewed in head-on view.~~

[Claim 15]

The refrigerator of any one of claims 1 to 14, further comprising a cooler configured to cool the storage space,

wherein the cooler is provided below the partition wall.

[Claim 16]

The refrigerator of claim 10 or 11, further comprising:

a heater provided on an upper surface of the partition wall and configured to warm the material,

wherein

the plurality of fins include a first fin and a second fin,

when the door is in the closed state, the first fin and the second fin are located between the upper protrusion and the partition wall, and the second fin is located at a deeper position in the first storage compartment than the first fin in a depth direction of the refrigerator as viewed from the opening, and

one of end portions of the heater that is closer to the door than the other is closer to the opening than the distal end portion of the upper protrusion and the first fin in the depth direction of the refrigerator as viewed from the opening.

[Claim 17]

The refrigerator of any one of claims 7, 10, and 11, wherein the fixed portion is C-shaped in a section perpendicular to a longitudinal direction or as viewed side-on.

[Claim 18]

The refrigerator of any one of claims 1 to 17, wherein the gap between the upper protrusion and the partition wall is approximately 5 mm.

[Claim 19]

The refrigerator of any one of claims 1 to 18, wherein the gap between the lower protrusion and the partition wall is approximately 5 mm.