March 18, 1941. V. KOROPCHAK 2,235,454

REFRIGERATOR CABINET DOOR CONSTRUCTION

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Fig. 1.

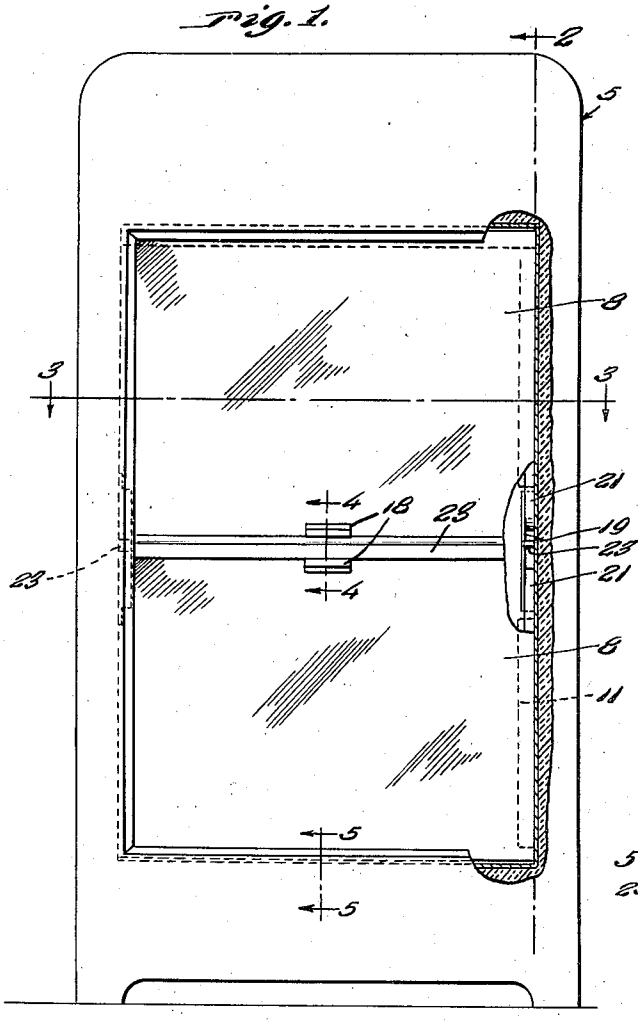
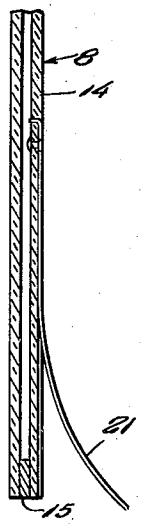


Fig. 7.



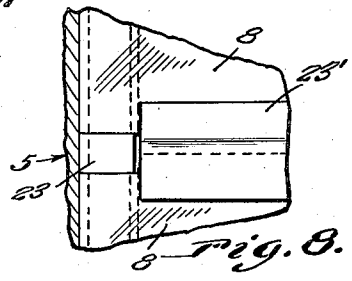


Fig. 8.

Fig. 6.

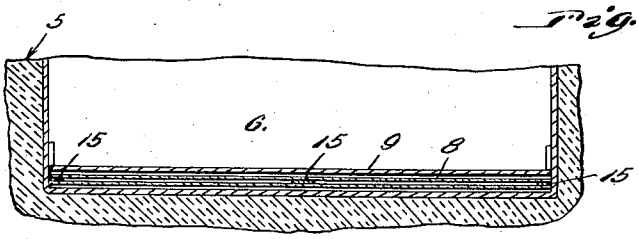
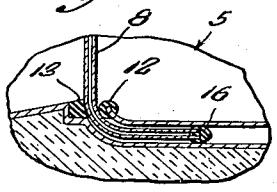


Fig. 5.



Inventor

Vladimir Koropchak

By Clarence A. O'Brien

Attorney

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Fig. 2.

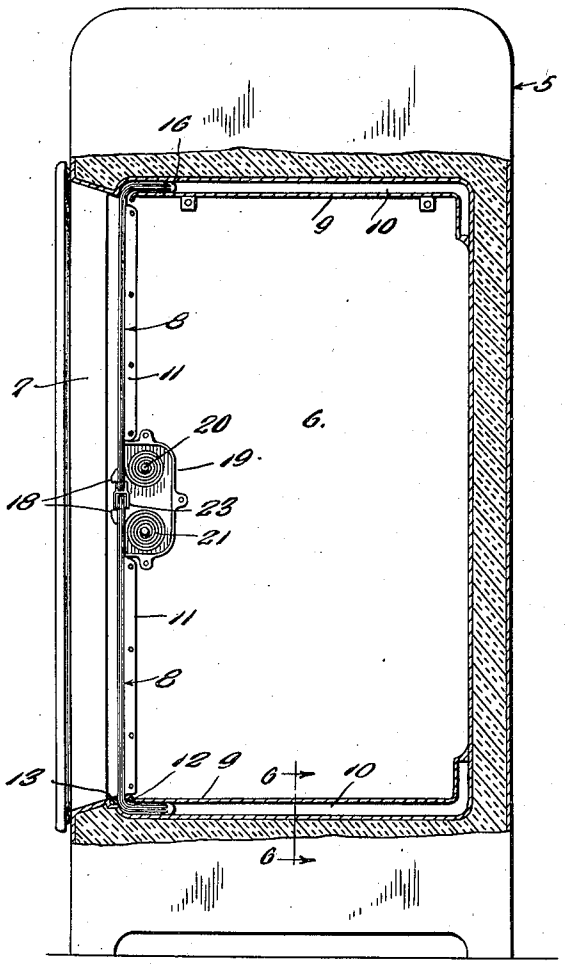
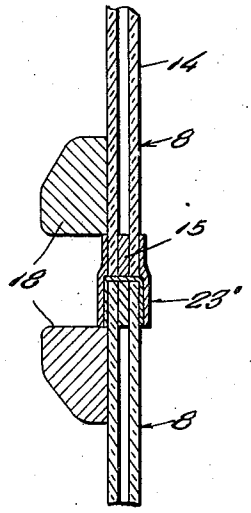


Fig. 4.



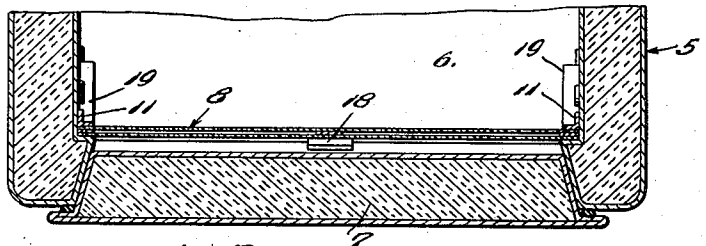


Fig. 3.

Inventor

Vladimir Koropchak

By Clarence O'Brien

Attorney

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REFRIGERATOR CABINET DOOR CONSTRUCTION

Vladimir Koropchak, Kearny, N. J.

Application April 27, 1940, Serial No. 332,112

1 Claim. (Cl. 156—10)

This invention relates to refrigerator cabinets, and more particularly to an inner door construction therefor to prevent excess loss of cold air from the interior of the cabinet when the main door is opened for the placing in or removal of articles from the storage compartment of the cabinet.

The primary object of this invention is the provision of self-closing transparent doors for the cabinet which will permit full view of the interior of the storage compartment of the cabinet to be had on the opening of the main or ordinary door of said cabinet, so that a person may conveniently select or determine the exact location of a particular article in the compartment without admitting outside air to said compartment.

A further object of this invention is the provision of an inner door construction comprising sliding transparent flexible condensation-proof doors and mountings therefor, whereby each flexible door closes one-half of the cabinet storage compartment so that only half of the compartment entrance needs to be opened to obtain an article from the storage compartment or to place an article therein.

A further object of this invention is the provision of means for automatically closing the transparent doors when manually released from an open position.

With these and other objects in view, as will become more apparent as the description proceeds, the invention consists in certain novel features of construction, combination and arrangement of parts as will be hereinafter more fully described and claimed.

For a complete understanding of my invention, reference is to be had to the following description and accompanying drawings, in which

Figure 1 is a front elevation, partly in section, illustrating a refrigerator cabinet with the main or ordinary door removed and showing the application of the present invention to the cabinet.

Figure 2 is a sectional view taken on the line 2—2 of Figure 1.

Figure 3 is a sectional view taken on the line 3—3 of Figure 1.

Figure 4 is a sectional view taken on the line 4—4 of Figure 1.

Figure 5 is a detail sectional view taken on the line 5—5 of Figure 1.

Figure 6 is a detail sectional view taken on the line 6—6 of Figure 2.

Figure 7 is an enlarged fragmentary sectional view illustrating a portion of one of the sliding transparent flexible doors.

Figure 8 is a fragmentary sectional view illustrating an interlocking connection between the adjacent ends of the flexible transparent doors.

Referring in detail to the drawings, the numeral 5 indicates a refrigerator cabinet of any conventional construction, the main door of the storage compartment 6 being indicated by the character 7. In order to prevent an excess amount of outside air from entering the storage compartment 6 when the main door 7 is opened, the present invention is adapted to the cabinet and consists primarily of a pair of transparent flexible sliding doors 8 which when in closed position will lie in close proximity to the main or ordinary door 7 and will exclude to the storage compartment 6 outside air when the door 7 is in an open position and still permit a person to readily view the interior of the storage compartment for the purpose of selecting a particular article therein. Either of the doors 8 may be conveniently moved into an open position and whenever either of said doors is moved into an open position the other door closes approximately one-half of the compartment and consequently reduces the amount of exchange of air from the outside of the cabinet to the interior of the storage compartment.

In adapting the sliding doors 8 to the cabinet, auxiliary walls 9 are mounted in the compartment 6 and spaced a selected distance from the top and bottom walls of said compartment to form door chambers 10 in which the sliding doors 8 may move when moving into an open position. By referring to Figure 2 it will be seen that the sliding doors when in closed position still partly remain in the door compartment or chambers 10.

Vertical guide strips 11 are secured to the vertical walls of the compartment 6 adjacent the main entrance over which slide the doors 8. The lowermost guide strip has positioned between itself and the wall 9 a gasket 12 to engage with the lowermost sliding door 8 to prevent moisture from entering the lower door chamber 10 from the storage compartment 6. The main door frame also is equipped with a gasket 13 which contacts the lower sliding door to further close the lower door compartment 10 to the entrance of moisture thereto.

Each sliding door 8 consists of a pair of spaced sheets of flexible transparent material 14 between which are arranged spacing strips 15. The spacing strips are secured to the transparent sheets

of material 14 and act to close the space therebetween for the purpose of forming a dead air chamber between the sheets of material 14 comprising the sliding door for the purpose of preventing the accumulation of condensation thereon.

Channel strips 16 are applied to the edges of the doors 8 for protecting the flexible transparent material from which said doors are constructed in the sliding movement of the doors into and out of the door chambers 10 and over the guide strips 11. Hand grips 18 are secured to the doors 8, as clearly shown in Figure 4.

Casings 19 are mounted in the compartment 6 adjacent the entrance and located therein are posts 20 on which are mounted clock type springs 21. The springs each have one end secured to a post. The other ends of the springs are secured to the doors 8 so that when said doors are moved into an open position the springs are caused to wind and thereby become tensioned so that on freeing the doors the springs automatically move the doors into closed position.

The casings 19 carry door stops 23 to be engaged by the adjacent or closing edges of the doors when said doors assume closed position. The doors 8 are notched to receive the stops 23.

The upper door 8 has a channeled member 23' mounted therein to receive the lower door 8 when said doors 8 move into closed position to provide a seal between the adjacent ends of the doors 8.

From the foregoing description taken in connection with the accompanying drawings, it will be seen that if unintentionally or otherwise, the main door should be left open, the cold temperature in the storage compartment of the cabinet is still retained by the present invention. Further it will be seen that the sliding doors constituting the principal part of the present invention make it possible to open one-half of the storage compartment of the cabinet at one time while the other half remains closed. Thus the operating time of the refrigerating machine of the cabinet is reduced also if ice is used for cooling of the cabinet, melting time of the ice is reduced thereby realizing a saving in the operating costs of the refrigerator.

While I have shown and described a preferred embodiment of my invention, it will be understood that minor changes in construction, combination and arrangement of parts may be made without departing from the spirit and scope of the invention as claimed.

Having thus described the invention, what I claim is:

In a refrigerator cabinet having an entrance to a storage compartment, transparent flexible slidable doors for said entrance, guide strips carried by said cabinet to slidably support said doors vertically and for movement from and toward each other to close and open said entrance of the cabinet, horizontally arranged door chambers formed in the upper and lower portions of said cabinet and connecting with the guide strips to receive portions of the flexible doors on the latter moving toward open position, casings mounted in the cabinet adjacent the entrance, posts mounted in said casings, and clock type springs mounted on said posts and secured thereto and to said doors and slidably engaging the guide strips for automatically closing the doors on the latter being released from an open position.

VLADIMIR KOROPCHAK.