Nov. 4, 1941. W. R. HOWARD 2,261,882

REFRIGERATOR CABINET CONSTRUCTION

Filed March 17, 1938 2 Sheets-Sheet 1

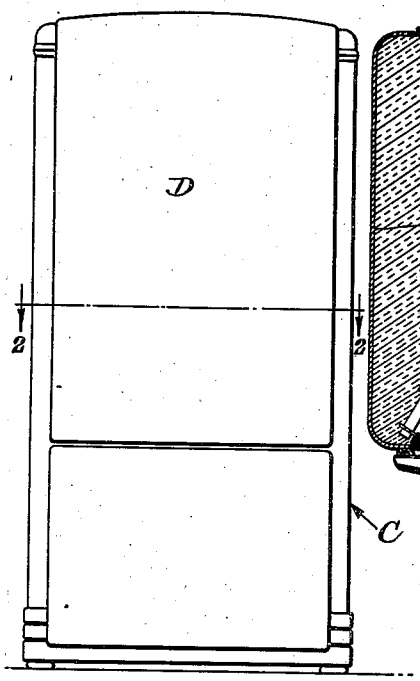


Fig. 1.

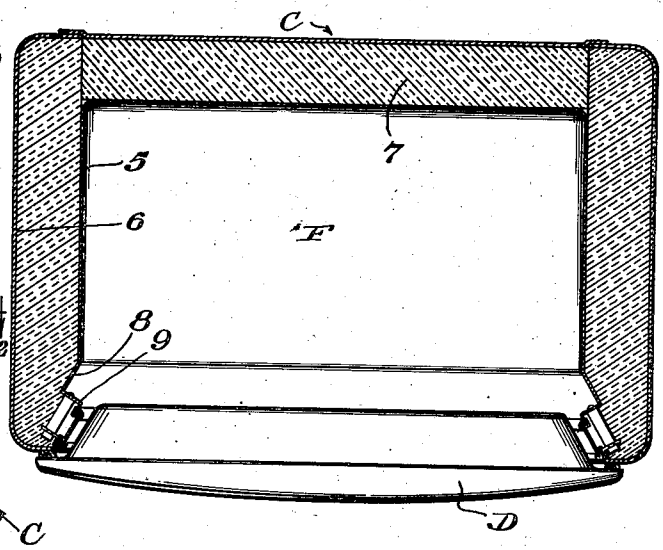


Fig. 2.

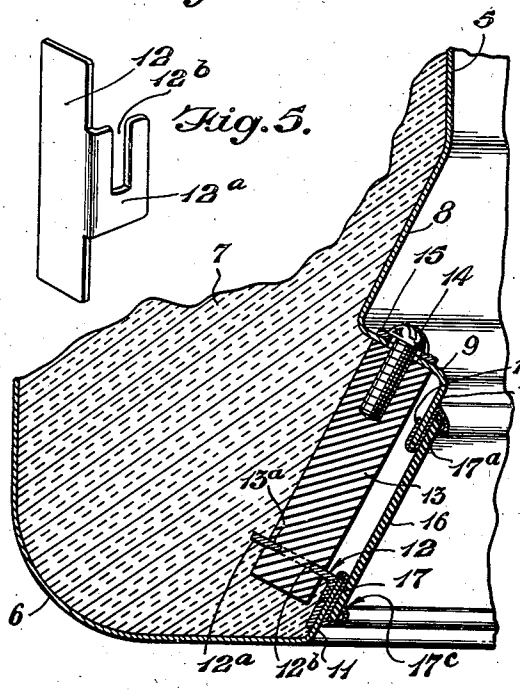


Fig. 3.

Fig. 5.

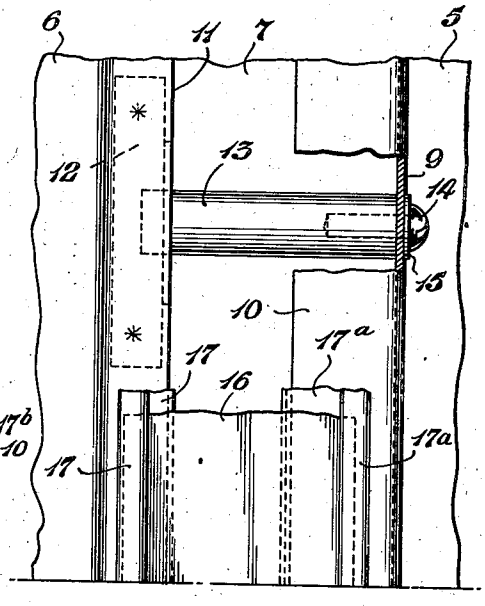


Fig. 4.

Inventor
W. R. Howard

By

Attorney

Nov. 4, 1941. W. R. HOWARD 2,261,882

REFRIGERATOR CABINET CONSTRUCTION

Filed March 17, 1938 2 Sheets-Sheet 2

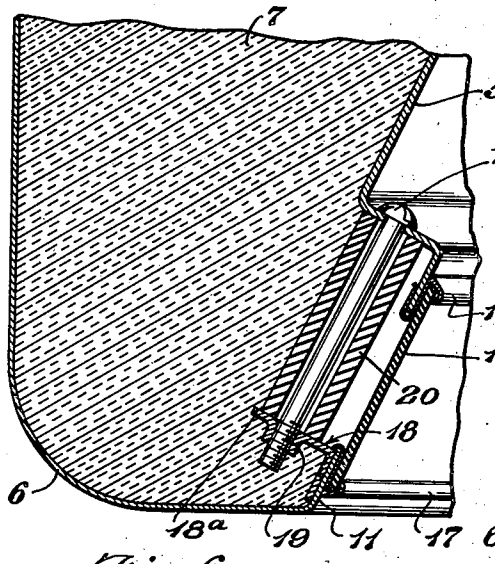


Fig. 6.

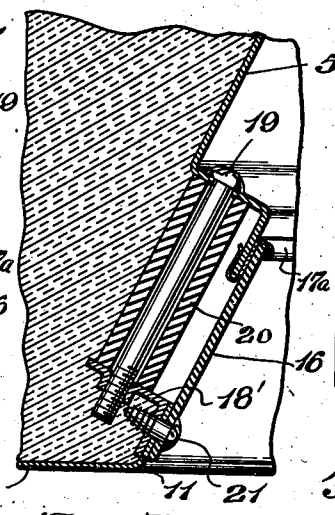


Fig. 7.

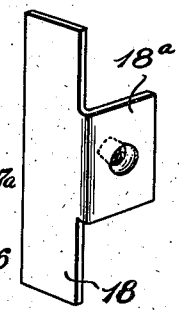


Fig. 8.

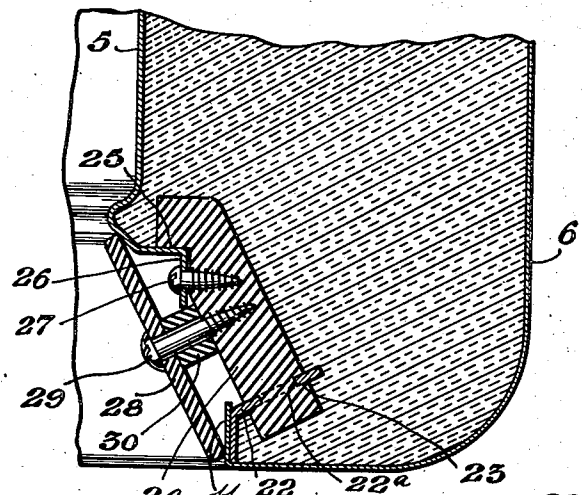


Fig. 9.

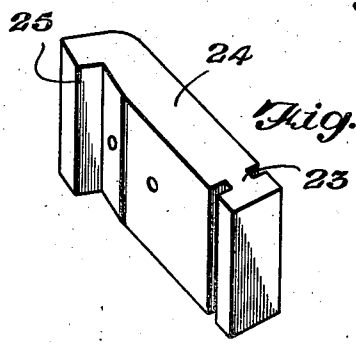


Fig. 10.

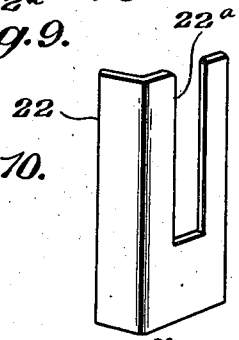


Fig. 11.

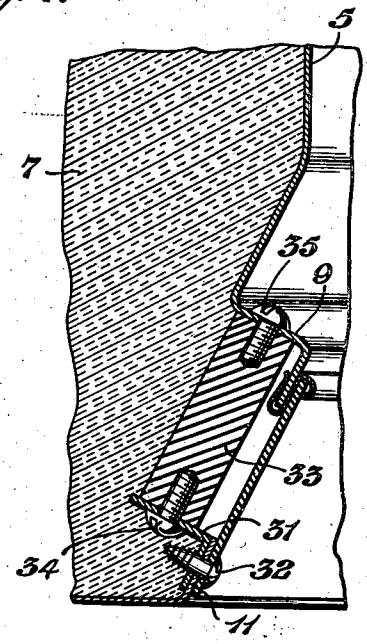


Fig. 12.

Inventor

W. R. Howard

By Watts Donnell

Attorney

Patented Nov. 4, 1941

2,261,882

UNITED STATES PATENT OFFICE

2,261,882

REFRIGERATOR CABINET CONSTRUCTION

Wallace Ray Howard, Connersville, Ind., assignor, by mesne assignments, to Reconstruction Finance Corporation, Chicago, Ill., a corporation of the United States

Application March 17, 1938, Serial No. 196,569

4 Claims. (Cl. 220—15)

This invention relates to refrigerator body construction, and is primarily concerned with refrigerator bodies of the "all steel" type wherein woodwork around the door casing is in whole or in part eliminated.

The invention has in view the provision of means in a refrigerator cabinet for supporting the food compartment, or inner liner which defines the food compartment, in a simple yet durable and thermally efficient manner. More specifically stated, the invention contemplates the construction of a refrigerator cabinet wherein the outer shell or casing and the inner food compartment or liner terminate in spaced edge portions around the door opening, or adjacent the door jamb portion of the cabinet, and means are provided for connecting these walls one to the other including a simplified yet attractive trim, molding or breaker strip assembly whereby the liner is firmly supported in position in the cabinet without utilizing the conventional casing structure while at the same time obtaining maximum thermal insulating efficiency and simplifying and economizing in the cabinet construction generally and expediting the assembling operation, the latter feature being an important factor in the modern volume-production type of body plant.

In the drawings:

Fig. 1 is a view in front elevation of a refrigerator cabinet constructed in accordance with the features of the present invention;

Fig. 2 is an enlarged horizontal section taken substantially on the line 2—2, Fig. 1;

Fig. 3 is an enlarged fragmentary horizontal sectional view taken through the door jamb or casing portion of the cabinet;

Fig. 4 is an enlarged fragmentary view in elevation and partly broken away of the door jamb;

Fig. 5 is a detailed perspective view of a supporting bracket;

Figs. 6 to 12, inclusive, are views similar to Figs. 3 and 5 of modifications in structure.

Referring to the drawings in detail, the refrigerator cabinet is generally indicated at C, the food compartment F and the door at D. The food compartment F is defined by a liner 5 which is generally of sheet metal having an enameled inner surface. An outer shell 6, also of sheet metal, forms the exterior wall of the cabinet, and in the example shown said shell is made up of side panels and a back panel suitably secured to said side panels, the latter being extended and resting on suitable base members or structural work, not shown. However, for the purposes of the present invention, the outer shell may be assumed as comprising a unitary wall structure made up in any manner desired.

Between the inner liner 5 and outer shell 6 suitable insulation material 7 is provided.

The present invention is primarily concerned with the casing or door jamb construction of the cabinet. The inner liner 5 is preferably formed adjacent the door opening with an outturned portion 8, which terminates in an angular flange comprising the wall 9 and free edge 10, the latter providing in effect part of the door casing.

The outer shell 6 terminates in an inturned free edge flange 11; and secured to this flange is a supporting bracket 12, note the detail view in Fig. 5, the bracket having a hanger lug 12*a* formed thereon which is slotted as at 12*b*. This bracket may be fabricated from steel or any other metal or material of such gauge and strength as will properly support the food compartment. In the form shown in Fig. 3, bracket 12 is welded to the flange 11, but it may be secured thereto by other suitable means.

A combined support and spacer member 13 is connected to each of said brackets 12 through the medium of a necked or grooved portion 13*a* which engages in the slot 12*b* of the hanger lug 12*a*. The opposite end of the supporting spacer abuts the inturned wall 9 and is tapped or bored to receive a screw 14 provided with a sealing washer 15. This combined support and spacer may be made from any suitable fibrous or like material having a low coefficient of heat conductivity, such as mallet rubber or red fiber and it may be of suitable shape, its form as illustrated in Figs. 2, 3 and 4 being rod-shaped.

A breaker strip 16 overlies the space between the free edge flanges 10 and 11 of the liner 5 and outer shell 6, respectively, said strip being detachably mounted through the medium of co-acting combined retainer and trim members 17 and 17*a*. These members 17 and 17*a*, in the form shown in Figs. 2, 3 and 4 are each formed with a return or hook flange 17*b* which is hooked over the edge of its coacting flange, and the trim portion of each of the members 17 and 17*a* is formed with a receiving slot or channel 17*c* adapted to engage over one of the edges of the breaker strip 16.

Since the food compartment or liner 5 is supported wholly at the front of the cabinet by the bracket and spacer construction above described, the trim and breaker strips used may be of relatively thin material, with the result that heat conductivity from the inner to the outer wall

members is materially reduced. The combined retaining and trim strips 17 and 17a may be made of thin sheet metal such as stainless steel, although other materials may be used, such as hard rubber, fiber or the like.

In the assembling operation, the brackets 12 having been welded to the flange 11, it is only necessary to hook the supporting spacers 13 in the slots 12b, apply the screws 14, and when the edges of the flanges 10 and 11 are brought together, install the breaker strip with its coacting trim and retainer members. It will be seen that the shape of the liner as it approaches the door casing or jamb is such as to facilitate access to the screws 14.

Fig. 6 shows a modification in the structure of the supporting brackets and coacting spacers. In this instance, each of the supporting brackets is indicated at 18, note the detail view in Fig. 8, and is formed with a hanger portion or lug 18a having a screw threaded hole therein adapted to receive the threaded end of a screw bolt 19, which is passed through a central bore formed through a spacer 20. In this instance, the screw bolt 19 takes the brunt of the hanging stresses and the member 20 serves purely as a spacer. The breaker strip and combined retaining and trim strips may be the same as in Figs. 2, 3 and 4 and have the same reference characters applied thereto.

Fig. 7 shows substantially the same construction as in Fig. 6, except that the breaker strip 16 has its one edge secured against the flange 11 by means of screws 21, the opposite edge of the breaker strip engaging in the channel of the member 17a.

In Figs. 9, 10 and 11, the inturned flange 11 of the outer shell 6 has secured thereto a bracket 22 shown in detail in Fig. 11, the hanger portion of said bracket being formed with a slot 22a adapted to receive the neck portion 23 of a combined supporting and spacing member 24 having at its one end an inturned portion or boss 25 adapted to engage over a right-angle flange 26 formed on the edge portion of the liner 5. A screw 27 is passed through the free edge of the flange 26 and engages the combined spacer and support 24 to hold the latter in interlocking relation with the flange 26. The breaker strip in this instance is indicated at 28 and may be of the conventional type and is secured to the supporting spacer member 24 by means of screws 29 with a spacer 30 interposed between the breaker strip and said member.

Fig. 12 shows a further modification wherein the flange 11 has secured thereto brackets 31. Spacers 33 are each arranged with opposite ends in abutting relation to the flange 31 and wall 9 of liner 5 and secured in position by means of screws 34 and 35. The breaker strip in this instance is engaged at its inner edge in a combined retainer and trim member which may be similar to those heretofore described and at its outer edge is secured in position against the flange 11 by means of screws 32. In this instance also, the breaker strip may be made of relatively thin material since it performs no supporting function nor is it subjected to any stresses or strains which might cause breakage thereof during service.

From the foregoing it will be seen that the outer and inner walls of the cabinet are securely held in spaced relation with the inner liner or food compartment supported from the outer shell at the front of the cabinet by combined spacing and supporting members which are simple in construction and thermally efficient. This construction also provides for comparative ease of removal of the inner liner whenever necessary, and it also results in ease and expedition in the assembling operation. It should be noted that the free flanged edges of the inner liner and outer shell are well braced with respect to one another and that these flanges form a firm support for the breaker strip.

It will be understood that certain changes in construction and design of the respective parts may be made at will without departing from the realm or scope of the invention as defined by the appended claims.

I claim:

1. In a refrigerator cabinet having an inner liner defining a food compartment with a door opening and an outer shell spaced and insulated from said liner, said liner and shell having spaced marginal edge portions terminating in flanges projecting inwardly toward one another about the door opening, a plurality of liner supporting and spacer members formed of insulating material positioned transversely between the said marginal edge portions inwardly of said flanges, hanger brackets for said members connected to the flanged edge of the shell, said brackets each being provided with an open recess and each of said members being formed with a necked portion detachably engaging in said recess, the inner end of each of said members abutting the marginal portions of the liner, means accessible from the interior of the food compartment for securing the inner end of each member to the liner, a breaker strip overlying the space between said flanges, and hook-shape members engaging the opposite edges of the breaker strip and said flanges for detachably connecting the breaker strip to the flanges.

2. In a refrigerator cabinet having an inner liner defining a food compartment with a door opening and an outer shell spaced and insulated from said liner, said liner and shell having spaced marginal edge portions terminating in flanges projecting inwardly towards one another about the door opening, a plurality of liner supporting and spacer members formed of insulating material positioned transversely between the marginal edge portions inwardly of said flanges, each of said members having the outer end thereof formed with a grooved or necked portion and the inner end thereof abutting the marginal portion of the liner, a series of hanger brackets each connected to the flange of the outer shell and having an open slot in which the neck end of each of said members engages, means accessible from the food compartment for detachably connecting the opposite end of each of said members to the liner, and a breaker strip detachably connected to said flanges and overlying the space between the latter.

3. In a refrigerator cabinet having an inner wall providing a food compartment liner with a door opening and an outer wall spaced and insulated from said inner wall, said walls having spaced marginal edge portions terminating in flanges projecting inwardly toward one another about the door opening, a plurality of liner-supporting and spacer members of insulating material positioned transversely between the said marginal edge portions inwardly of said flanges, hanger brackets for said members connected to the flanged edge of one of said walls, said hanger brackets and said members being constructed for

releasable inter-connecting engagement one with the other and whereby said members may be hung from the brackets without the use of screws or like fastenings, said members projecting from their hanger brackets to the opposite wall and engaging the latter holding said walls in definite spaced relation, means securing each of said members to said opposite wall, a breaker strip overlying the space between said flanges, and means detachably mounting said breaker strip.

4. In a refrigerator cabinet having an inner wall providing a food compartment liner with a door opening and an outer wall spaced and insulated from said inner wall, said walls having spaced marginal edge portions terminating in flanges projecting inwardly toward one another about the door opening, a plurality of liner supporting and spacer members formed of insulating material positioned transversely between said marginal edge portions inwardly of said flanges, hanger brackets for said members connected to the flanged edge of the outer wall, said hanger brackets and said members being provided with inter-connecting portions whereby said members may be hung from the brackets without the use of screws or like fastenings, said members each projecting from the outer to the inner wall and engaging the latter holding said walls in definite spaced relation, means accessible from the food compartment for securing said members to the inner wall, and a breaker strip overlying the space between said flanges and detachably connected to the latter.

WALLACE RAY HOWARD.