April 11, 1944. C. R. FORD 2,346,566

REFRIGERATOR CABINET CONSTRUCTION

Original Filed March 17, 1938 2 Sheets-Sheet 1

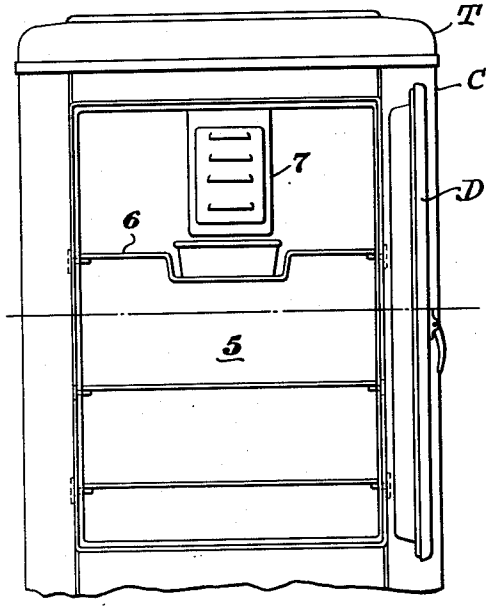


Fig. 1.

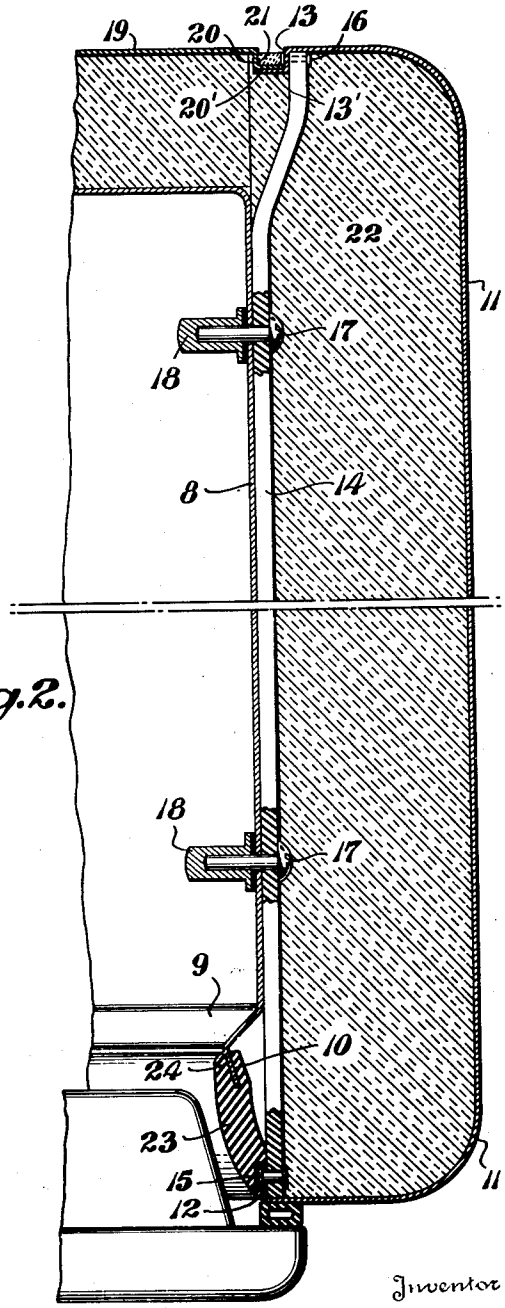


Fig. 2.

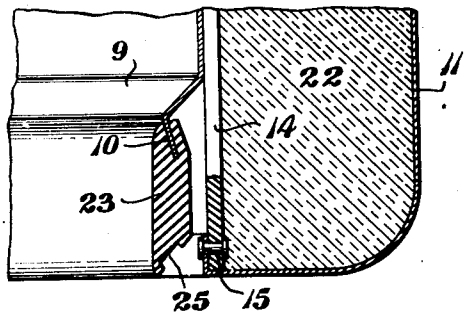


Fig. 3.

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REFRIGERATOR CABINET CONSTRUCTION

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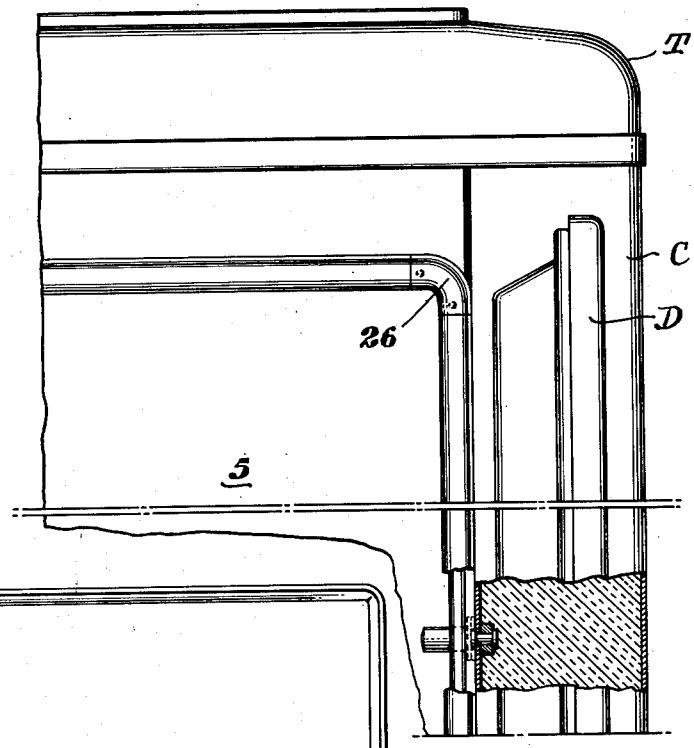


Fig. 4.

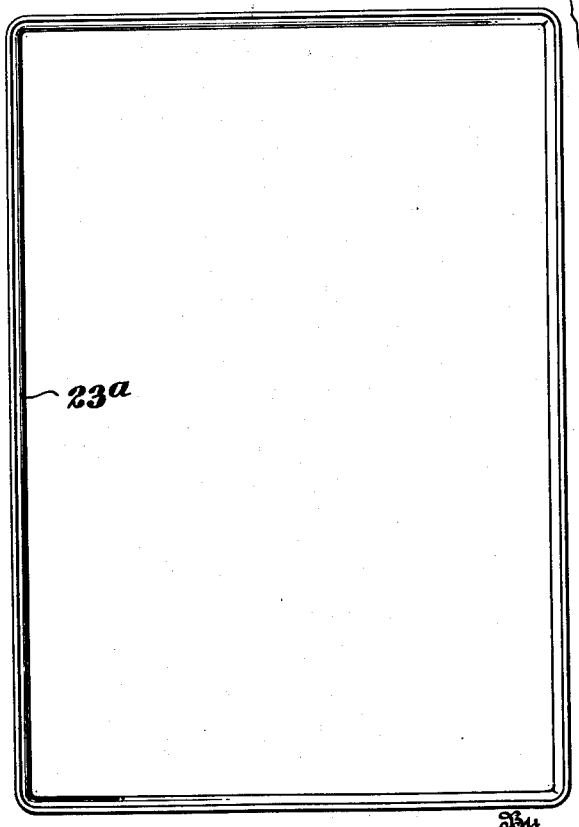


Fig. 5.

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2,346,566

REFRIGERATOR CABINET CONSTRUCTION

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Original application March 17, 1938, Serial No. 196,567. Divided and this application May 1, 1941, Serial No. 391,392

5 Claims. (Cl. 220—9)

This invention relates to refrigerator cabinet construction, and the present application is a division of my copending application Serial No. 196,567, filed March 17, 1938, and now matured into Patent No. 2,275,482, which is dedicated primarily to a refrigerator cabinet embodying supporting means for the food compartment liner which also function to brace the outer shell and body parts generally and by the use of which certain parts are eliminated and the assembling operation is expedited. The present application is dedicated primarily to an improved coacting liner and breaker strip organization whereby the gap between the inner shell or food compartment liner and the outer shell around the door opening is effectively bridged and sealed by a breaker strip which is not only easily applied, to thereby facilitate the initial assembly operation, but which is also readily removable and replaceable at any time during the life of the cabinet, requires no exterior fastenings and has a neat and attractive appearance.

The present application also includes a novel and highly efficient seal for the joint between the back plate and the outer shell.

In the drawings:

Fig. 1 is a view in front elevation of a refrigerator cabinet constructed in accordance with the invention, the door being shown in open position;

Fig. 2 is an enlarged horizontal section taken through one side of the cabinet;

Fig. 3 is a view of the corner portion of Fig. 2 showing the breaker strip in the process of being removed;

Fig. 4 is a front elevation of the upper corner portion of the cabinet with the breaker strip and adjacent front wall structure partly broken away;

Fig. 5 illustrates a one-piece breaker strip adapted for the present type of cabinet.

Referring to the drawings in detail, a refrigerator cabinet is generally indicated at C and has a food compartment 5 therein in which are mounted a series of shelves 6. The conventional evaporator 7 is shown in the center of the upper portion of the food compartment. The cabinet door is generally indicated at D.

Referring to the sectional views in Figs. 2 and 3, it will be noted that the cabinet is provided with an inner shell or food-compartment liner 8 which is usually made of sheet metal having its interior surface enameled, the said liner being open at the front to provide a door opening, and around this opening the liner is provided with an inturned edge portion 9 terminating in a reversely-turned marginal breaker-strip flange 10.

The cabinet illustrated is of that type wherein the liner side panels and back are made up as separate units, insulated and assembled with a top T fitted thereon. The opposite side portions of the cabinet are identical, each side comprising an outer shell 11 of sheet metal which at its front edge terminates in an inturned flange 12 and at its back edge is formed with an inturned portion 13 terminating in an outturned flange 13'.

To provide a support for the food compartment liner 8 and to reinforce the parts of the cabinet generally, a series of supporting members in the form of elongated brackets or strips 14 are provided and are preferably, but not necessarily, formed in whole of fibrous or like material having a low ratio of heat conductivity. Each of these strips is shown extending transversely from front to back with its front end engaging the front edge of the outer shell 11 and having the flange 12 secured thereto as by rivets 15, and its rear end engaging the rear edge of the shell 11 and having the flange 13 of the latter secured thereto as by rivets 16. The intermediate portion of the strip has projected therethrough a plurality of screws 17, each of which also extends through the liner 8. Shelf studs 18 are threaded on the projecting ends of the screws 17 and firmly clamp the strips and liner in assembled relation.

The back wall or panel 19 comprising part of the outer shell is preferably formed along its marginal edge with an inturned portion 20 terminating in an outturned flange 20' coacting or mating with the portion 13 and flange 13' of the outer shell 11 to form a recess or channel 21 for sealing material.

Suitable insulating material 22 is inserted between the outer shell of the cabinet and inner liner or food compartment.

After the cabinet has been built up and insulated, the back panel is put in place and attached to the flange 13' of the outer shell by suitable means, such as metal screws, and a sealing compound is then poured in the channel 21 over the screw heads. A highly effective seal is thus provided which is at all times visible from the back of the cabinet so that it is possible simply by exterior inspection to know that the cabinet is sealed. The sealing compound is preferably of that type that can be scraped or otherwise removed from the channel 34 with relative ease, after which the screws or fastening means are

rendered accessible for easy removal of the back panel.

This back panel sealing construction is of particular advantage when using loose insulation between the inner and outer walls of the cabinet, such for example as Balsam wool fiber and the like. It will be seen that when the back panel is removed, the insulation compartments between the inner and outer walls will be accessible at all points, rendering it comparatively easy to pack the loose insulation into said compartments. After the insulation operation is completed, it is only necessary to lay in the back panel and then apply the securing means or screws and the sealing compound in channel 34. It will be noted that not only are the retaining means or screws covered by the sealing compound, but the joint as well is also covered by the seal.

The front or outer edge of the breaker strip abuts snugly against adjacent inturned edge of flange 12 of the outer shell 11, the said edge at this point being recessed as at 25 to engage over the rivets or fastening means 15, providing a smooth fit for the breaker strip where it contacts the flange and concealing the fastening means from exterior view. The angle of the inturned flanged edge 10 of the food compartment liner is such as will cause the resilient breaker strip to bear against the adjacent flange 12 of the outer shell 11. The breaker strip 23 is preferably of substantial thickness and may be made of rubber, rubber composition or other suitable flexible material having sufficient body to maintain the strip in position and present an outward appearance of rigidity.

Fig. 3 illustrates how the breaker strip may be readily applied or removed by simply inserting the kerfed edge thereof over the flange 10 and then releasing the outer edge permitting the strip to move from the full line position of Fig. 3 to the full line position of Fig. 2.

The breaker strip may be made up in end-abutting sections, for example four sections for each installation abutting at the corners of the door opening, or it can be made up of a continuous strip such as indicated at 23*a* in Fig. 5. In either instance, corner plates 26 may or may not be used, since the brackets 14 serve to retain the inner and outer shells in assembled relation. The form of breaker strip shown in Fig. 5 is particularly desirable where corner plates are not utilized.

In assembling the cabinet, each side panel comprising the liner 11 with its insulation 22 and the strips 14 secured in place at opposite ends thereof may be applied as a unit to the food compartment liner 8 with the screws 17 projecting through the latter. The shelf studs 18 may then be applied and secured tightly in place, thereby locking the side panel and liner together while at the same time providing reinforced supports for the shelf 6. The back wall or panel 19 may then be installed and sealed. With the cabinet thus assembled, it is only a simple matter to apply the breaker strip 23.

Substantially the entire body of the cabinet, with the exception of course of the insulation, may be made of sheet metal parts. While the base portion of the cabinet including the machinery compartment is not shown herein, it will be understood that the side panels may be extended and reinforced by suitable metal structure or shapes to provide a supporting base. The liner supporting members or brackets 14 serve to anchor the said liner to the front and back ends of the cabinet and in conjunction with the flanged edges of the outer shell provide the necessary rigidity to take up shocks incident to door opening and closing operations.

It will be understood that certain minor changes in structure and design may be adopted without departing from the spirit or scope of the invention as defined by the appended claims.

What is claimed is:

1. In a refrigerator cabinet, an inner liner defining a food compartment and an outer wall or shell spaced from said inner liner with insulation material therebetween, said outer shell being formed with a panel opening at the back of the cabinet, and a back panel closing said opening, the contiguous edges of the shell and panel having a sealing channel formed therein, means connecting the said edges to one another, and a sealing compound in said channel covering said connecting means.

2. In a refrigerator cabinet, an inner liner defining a food compartment and an outer shell spaced from said liner with insulation material therebetween, said outer shell at the back of the cabinet being formed with a panel opening, a back panel closing said opening, the free contiguous edges of the shell and panel being formed with overlapping flange portions defining an elongated sealing channel, means connecting the overlapping flanged edges of the shell and panel, and sealing material in said channel covering said connecting means.

3. In a refrigerator cabinet, an inner liner defining a food compartment and an outer shell spaced from said liner with insulation material therebetween, said shell at the back of the cabinet being formed with a panel opening with the edge of said shell adjacent said opening formed with an inturned angular flange, a back panel closing said opening, said panel being formed with a flange adapted to coact with the flange of the shell and with the latter forming an elongated sealing channel, the free edges of the said coacting flanges overlapping at the base of the channel and having fastening means connecting one to the other, and sealing compound in said channel covering said fastening means.

4. In a refrigerator cabinet, an inner liner defining a food compartment and an outer shell spaced from said liner with insulation material therebetween, said shell at the back of the cabinet being formed with a panel opening, a back panel closing said opening, the marginal edge of the shell surrounding said panel opening being formed with an inturned marginal edge portion terminating in a free edge flange and the marginal edge of said panel being formed with a similar marginal edge portion and flange, the flange of the panel overlying and substantially paralleling the flange of the shell, fastening means projecting through the flanges to connect the same one to the other, and a removable sealing compound in said channel covering the joint, thereby providing a highly effective seal visible from the back of the cabinet while at the same time rendering the panel removable.

5. In a refrigerator cabinet, an inner liner defining a food compartment and an outer shell spaced from said liner with insulation material therebetween, said shell at the back of the cabinet being formed with an opening greater in area than the back wall of the food compartment to render the space between the inner and outer walls of the refrigerator accessible for insulation purposes, a back panel closing said opening, the

marginal portion of said shell around said opening being formed with a substantially right angular flange terminating in a free edge extending in a substantial vertical plane and the marginal portion of the panel being formed with a similar flange, the free edge of which overlies the free edge of the shell in completely overlapping relation, the said flanges coacting to provide a sealing groove of substantially rectangular contour, fastening members projected through the free edges of the panel and shell connecting one to the other, and a removable sealing compound in said channel covering said fastening means, thereby providing a highly effective seal visible from the back of the cabinet, while at the same time rendering the panel removable.

CHARLES RUSSELL FORD.