Aug. 23, 1955 H. W. WHITMORE 2,715,976

BREAKER STRIP ASSEMBLY

Filed April 28, 1952 2 Sheets-Sheet 1

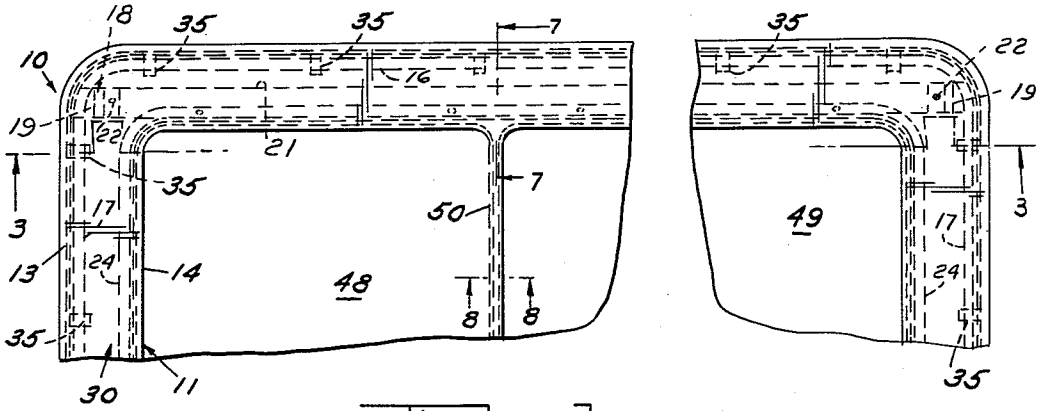


FIG. 1

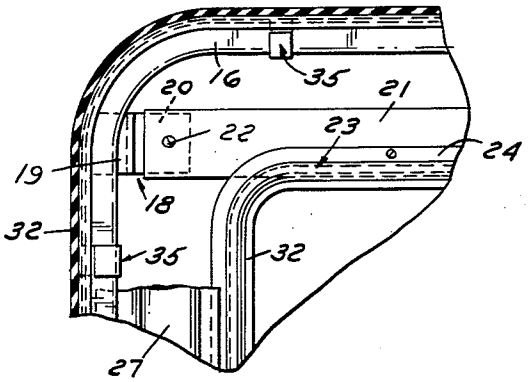


FIG. 6

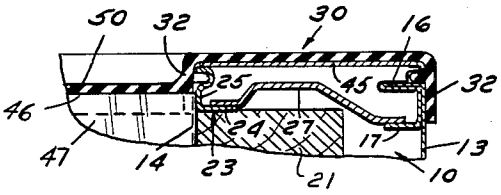


FIG. 7

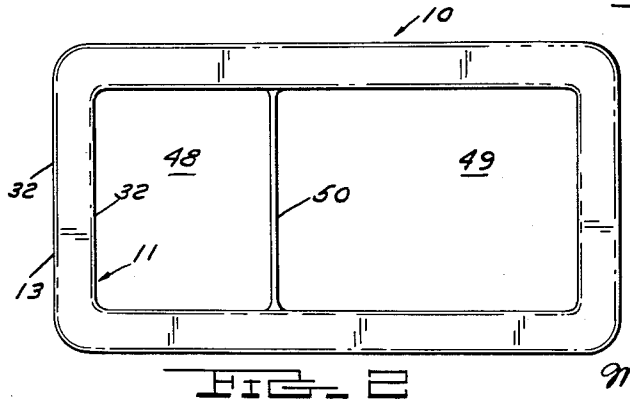


FIG. 2

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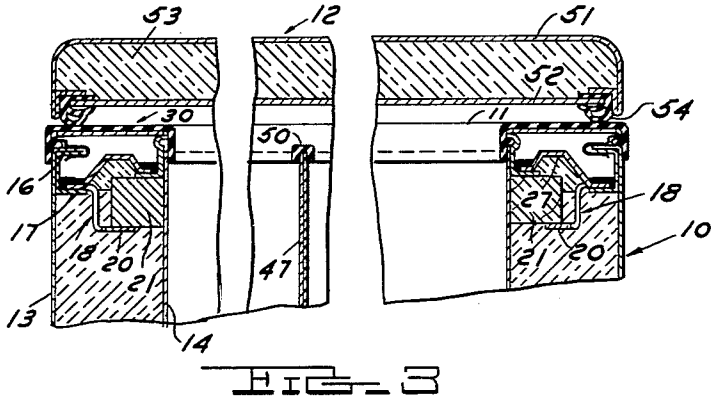


FIG. 3

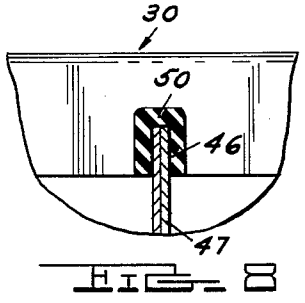


FIG. 8

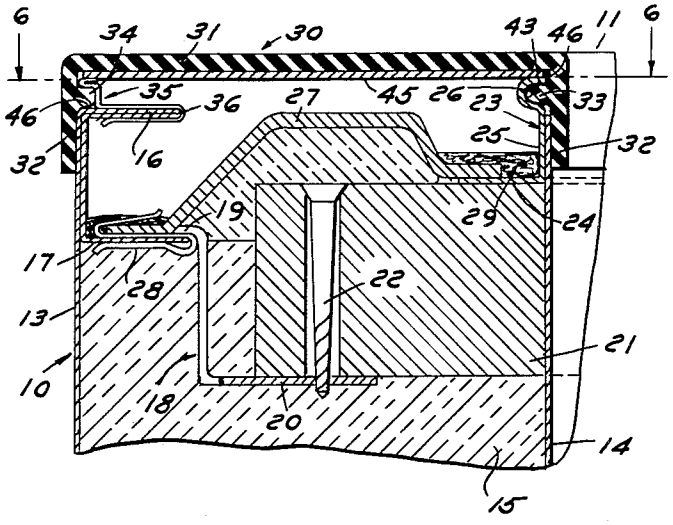


FIG. 4

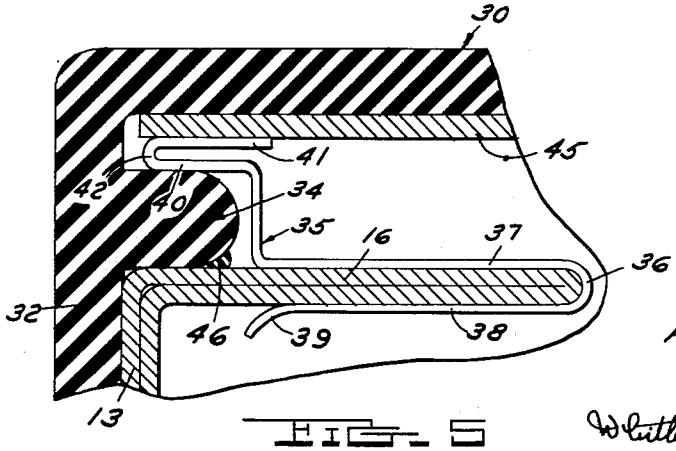


FIG. 5

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BREAKER STRIP ASSEMBLY

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2 Claims. (Cl. 220—9)

This invention relates generally to refrigerator cabinets, and refers more particularly to an improved breaker strip construction and mounting therefor.

It is an object of this invention to provide a breaker strip which is formed of a flexible heat insulating material and which is substantially channel-shaped in cross section to facilitate installation of the strip on a refrigerator cabinet. The construction is such that in use the base of the strip bridges the space usually provided between the shell and liner of the cabinet, and the flanges of the strip respectively overlie the outer surface of the shell and the inner surface of the liner.

It is another object of this invention to provide the breaker strip with projections which extend laterally inwardly from the flanges of the strip in spaced relationship to the base of the strip. The projection on the outer flange of the channel-shaped breaker strip is adapted to seat on a flange which extends inwardly from the shell and the projection on the inner flange of the breaker strip is adapted to be received in an inwardly opening recess on the liner.

It is still another object of this invention to removably clamp the outer side of the breaker strip to the cabinet shell by a plurality of spring clips mounted on the shell flange in spaced relation to each other lengthwise of the flange, and having parts overlying the projection extending inwardly from the outer flange of the channel-shaped breaker. More particularly, the spring clips have outwardly opening return-bent portions for receiving the inner edge portion of the shell flange, and have the top legs of the return-bent portions offset sufficiently in an upward direction to overlie the top surface of the projection extending inwardly from the outer flange of the channel-shaped breaker strip.

It is a still further object of this invention to provide spring clips of the above general type wherein the offset projection engaging parts are turned laterally inwardly to form inwardly opening return-bent retaining portions.

The invention has as another object to provide a resilient substantially channel-shaped breaker strip of the above general construction wherein the base of the strip is supported by a rigid backing strip having the outer edge portion held in contact with the base of the breaker strip by the top legs of the inwardly opening return-bent portions on the spring clips, and having the inner edge positioned in contact with the base of the breaker strip by means carried by the liner.

In addition to the foregoing the present invention contemplates a one-piece rectangular shaped breaker strip of the above construction having a division bar integrally connecting opposite sides of the strip between opposite ends of the latter and shaped to receive the adjacent edge portion of a dividing wall for the liner.

The foregoing as well as other objects will be made more apparent as this description proceeds especially when considered in connection with the accompanying drawings wherein:

Figure 1 is a fragmentary top plan view of a home freezer type of cabinet having a breaker strip embodying the features of this invention;

Figure 2 is a top plan view of the breaker strip shown in Figure 1;

Figure 3 is a sectional view taken on the line 3—3 of Figure 1 and being reduced in size;

Figure 4 is an enlarged fragmentary cross sectional view through a part of the cabinet and showing the breaker strip mounted on the cabinet;

Figure 5 is a fragmentary enlarged cross sectional view showing the mounting of the breaker strip on the shell of the cabinet;

Figure 6 is a sectional view taken on the line 6—6 of Figure 4;

Figure 7 is a sectional view taken on the line 7—7 of Figure 1; and

Figure 8 is an enlarged cross sectional view taken on the line 8—8 of Figure 1.

The breaker strip and mounting therefor forming the subject matter of the present invention is shown herein for the purpose of illustration in connection with a home freezer type of cabinet 10 having an access opening 11 at the top normally closed by a suitable door 12. The cabinet 10 has an outer metal shell 13 and a metal liner 14 suitably supported within the shell 13. The walls of the liner 14 are spaced laterally inwardly from the adjacent walls of the shell 13, and suitable insulating material 15 is supported within the space provided between the aforesaid walls.

As shown in Figures 3–5 inclusive, the upper end of the shell is turned laterally inwardly to provide a flange 16 which terminates short of the liner 14 and is return-bent in a manner to provide a double thickness of metal. The bottom leg of the return-bent flange 16 is continued downwardly along the inner surfaces of the side walls of the shell, and is then turned inwardly to provide an attaching flange 17. Suitable angle brackets 18 have outwardly extending flanges 19 secured at spaced points to the flange 17 and have inwardly extending flanges 20 which form a support for rails 21. The rails 21 are secured to the flanges 20 by suitable fastener elements 22 and coact with the brackets 18 to secure the liner 14 in position relative to the shell 13.

As shown particularly in Figure 4 of the drawings, a rectangularly shaped frame 23 of angular cross section is welded or otherwise suitably secured to the upper end of the shell 14 at the outer side of the latter. The frame 23 has an outwardly extending flange 24 which overlies the top surfaces of the rails and has a vertical flange 25 which extends upwardly beyond the top of the liner 14. The portion of the flange 25 above the liner 14 is substantially U-shaped in cross section and provides a laterally inwardly opening recess 26.

Extending along opposite sides of the cabinet between the side walls of the shell and liner are rigid strips 27 of insulating material. The outer marginal portions of the strips 27 are secured to the flange 17 by clips 28 and the inner marginal edges of the strips are secured to the flange 24 on the frame 23. A suitable bonding material 29 is employed to seal the points between the edges of the strips 27 and adjacent supporting structure.

The space at the top of the cabinet between the walls of the shell 13 and the walls of the liner 14 is spanned or bridged by a breaker strip 30 molded or otherwise formed of a flexible resilient material such for example as rubber, synthetic rubber or materials having characteristics similar to rubber. The breaker strip 30 is preferably of one-piece construction and extends continuously around the access opening 11 at the top of the cabinet 10.

In detail the breaker strip 30 is substantially channel-shaped in cross section comprising a base or wall 31 and

flanges 32 depending from the outer and inner edges of the wall 31. As shown particularly in Figure 4 of the drawings the wall 31 extends across the opening at the top of the cabinet between the walls of the shell 13 and the walls of the liner 14. The depending flanges 32 respectively overlie the outer surfaces of the side walls of the shell 13 and the inner surfaces of the side walls of the liner 14. Thus, the channel-shaped breaker strip 30 in effect telescopically engages the shell 13 and liner 14 of the cabinet 10.

The inner depending flange 32 of the channel-shaped breaker strip 30 is fashioned with a projection 33 which extends in an outward direction from the flange 32 into the recess 26 formed by the U-shaped portion at the upper end of the liner frame 23. The outer flange 32 on the channel-shaped breaker strip 30 has a similar projection 34 which extends laterally inwardly from the flange 32 and seats on the top surface of the shell flange 16.

The projection 34 is removably clamped in place on the shell flange 16 by a plurality of the spring clips 35 shown best in Figure 5 of the drawings and mounted on the flange 16 of the shell in spaced relationship lengthwise of this flange. In detail, each spring clip 35 comprises an outwardly opening return-bent portion 36 having vertically spaced legs 37 and 38. The return-bent portion 36 receives therebetween the inner edge portion of the shell flange 16 and the legs 37, 38 respectively frictionally engage opposite sides of the flange 16. The bottom leg 38 of each clip 35 is flared downwardly as at 39 in order to facilitate installation of the clips on the flange 16.

The top leg 37 of each clip 35 is bent upwardly and is then turned laterally outwardly to provide a flange 40 which in the assembled position of the clip overlies the top surface of the projection 34 on the outer flange 32 of the channel-shaped breaker strip 30. The outer end of the flange 40 of each clip is bent upwardly and is then turned inwardly to form a flange 41. The flange 41 is spaced vertically from the flange 40 and coacts with the latter to form an inwardly opening return-bent portion 42 on each clip 35. The flanges 41 on the clips 35 lie in substantially a common plane with the top walls 43 (Fig. 3) of the U-shaped portion of the frame 23.

Due to the nature of the material from which the breaker strip 30 is formed, it is advantageous to provide a support for the bridging wall 31 of the breaker strip. For accomplishing this result, backing strips 45 are provided directly below the wall 31 of the breaker strip in contact with the latter wall. As shown in Figures 3 and 4 the outer edges of the backing strips 45 are seated on the flanges 41 of the spring clips 35 and the inner edges of the strips 45 are seated on the wall 43 of the U-shaped portion at the upper end of the liner frame 23.

Inasmuch as the breaker strip 30 is formed of a flexible and resilient material it is possible to deform the latter sufficiently to facilitate installation. In assembling the breaker strip 30 with the cabinet, the clips 35 are attached in proper spaced relationship to the shell flange 16 and the backing strips 45 are located in their proper positions illustrated in Figure 4 of the drawings. The depending flanges 32 on the channel-shaped breaker strip 30 may then be spread apart sufficiently to engage the projection 33 on the inner flange 32 into the recess 26 on the liner 14, and to also engage the projection 34 on the outer flange 32 within the space provided between the shell flange 16 and the flanges 40 on the clips 35. If desired, a suitable plastic sealing compound 46 may be provided between the projection 33 and the walls of the recess 26, and between the projection 34 and the shell flange 16.

In instances where the breaker strip is used in connection with a home freezer having a wall 47 dividing the interior of the liner into two compartments 48 and 49, the breaker strip 30 is fashioned with an integral division bar 50. As shown in Figures 1 and 8 of the drawings, the division bar 50 is of inverted U-shaped cross section and is positioned to receive the top edge portion of the dividing wall 47. If desired, the joint between the division bar 50 and adjacent surfaces of the dividing wall 47 may also be filled with a suitable sealing compound 46.

The door 12 for the access opening 11 at the top of the cabinet comprises a top panel 51 and a bottom panel 52 suitably secured to the top panel. The two panels of the door are spaced from each other and insulating material 53 is housed within the space between the panels. Also a resilient sealing gasket 54 is secured to the bottom panel 52 of the door and extends around the perimeter of this panel. When the door 12 is in its closed position the sealing gasket 54 engages the wall 31 of the breaker strip 30 directly above the flanges 41 on the spring clips 35. The flanges 41 are free to flex to some extent and thereby coact with the door gasket 54 to assure the provision of tight seal around the door in the closed position of the latter.

What I claim as my invention is:

1. A heat insulated cabinet having walls comprising an outer shell member and an inner liner member with insulation therebetween, said cabinet having a front access opening into its interior, said shell and liner members each having coplanar edges surrounding said opening, the plane occupied by the edges of one of said members being parallel to but spaced rearwardly from the edges of the other of said members, the edges of said one member comprising a continuous flange extending toward the adjacent edge portions of said other member, relatively narrow clips carried by said flange in spaced relation, said clips including retainer portions spaced forwardly from the front surface of said flange and located substantially in the plane occupied by the edges of said other member, said other member having a channel opening away from said one member and located directly adjacent its said edges, a flexible resilient breaker strip having the characteristics of rubber spanning the space between the edges of said members, said strip being of U-shaped cross-section and having a flat web extending completely across the space between the edges of said members and legs at the edges of said web engaging the opposite edge portions of said members, said legs having beads at the inner sides thereof spaced substantially from the free edge of said legs and located directly adjacent the web and receiving the forward edge of said channel and the retainer portions of said clips closely engaged between said bead and web.

2. A heat insulated cabinet having walls comprising an outer shell and an inner liner with insulation therebetween said cabinet having a front access opening into its interior, said shell and liner each having coplanar edges surrounding said opening, the plane occupied by the edges of said shell being parallel to but spaced rearwardly from the plane occupied by the edges of said liner, the edges of said shell comprising a continuous flange extending toward the adjacent edge portions of said liner, relatively narrow clips carried by said flange in spaced relation, said clips including retainer portions spaced forwardly from the front surface of said flange and located substantially in the plane occupied by the edges of said liner, said liner having a channel directly adjacent its said edges, a flexible resilient breaker strip having the characteristics of rubber spanning the space between the edges of said shell and liner, said strip being of U-shaped cross-section and having a flat web extending completely across the space between the edges of said shell and liner and legs at the edges of said web engaging the opposite edge portions of said shell and liner, said legs having beads at the inner sides thereof spaced substantially from the free edge of said legs and located directly adjacent the web and receiving the forward edge of said channel and the retainer portions of said clips closely engaged between said bead and web.

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