Feb. 27, 1945. R. S. BUCHANAN 2,370,446

REFRIGERATION APPARATUS

Filed Sept. 1, 1942 2 Sheets-Sheet 1

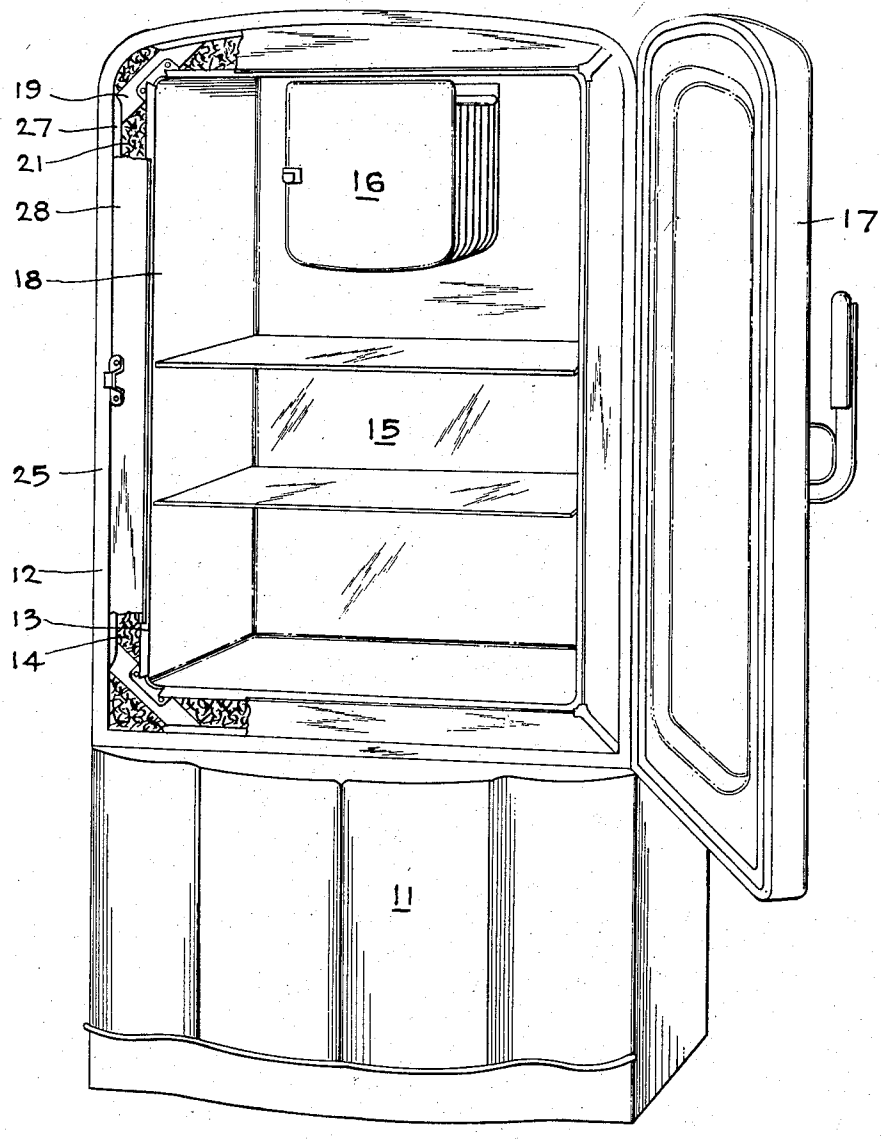


FIG. 1.

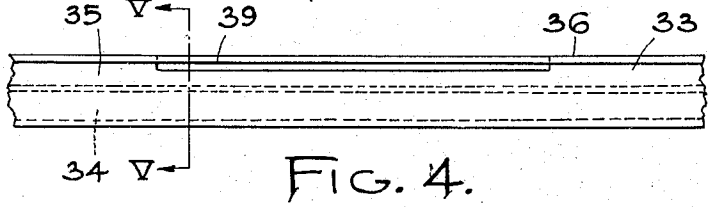


FIG. 4.

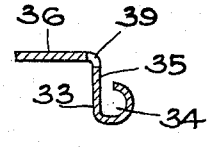


FIG. 5.

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REFRIGERATION APPARATUS

Filed Sept. 1, 1942 2 Sheets-Sheet 2

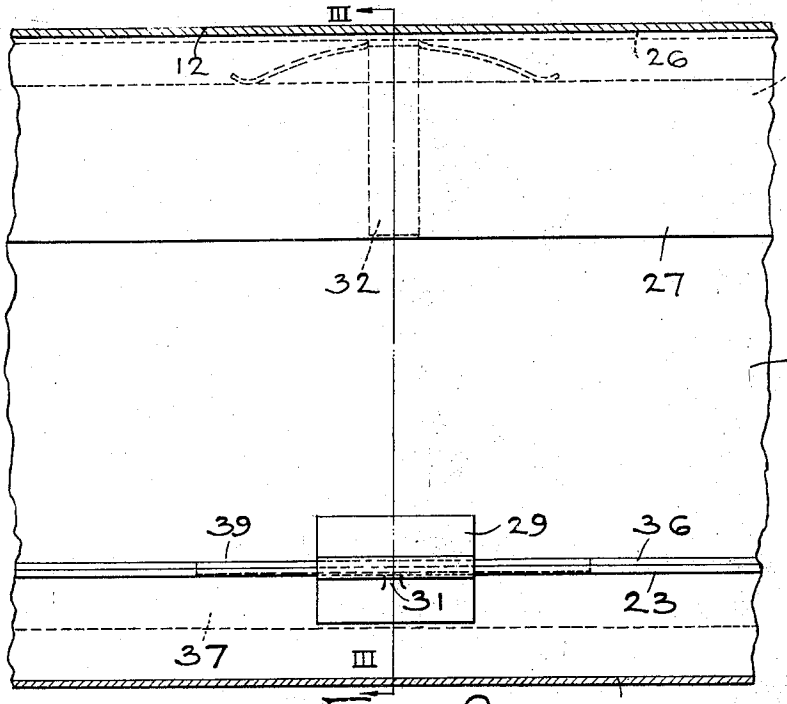


FIG. 2.

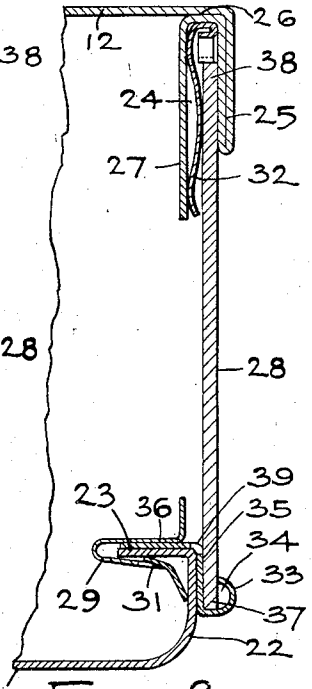


FIG. 3.

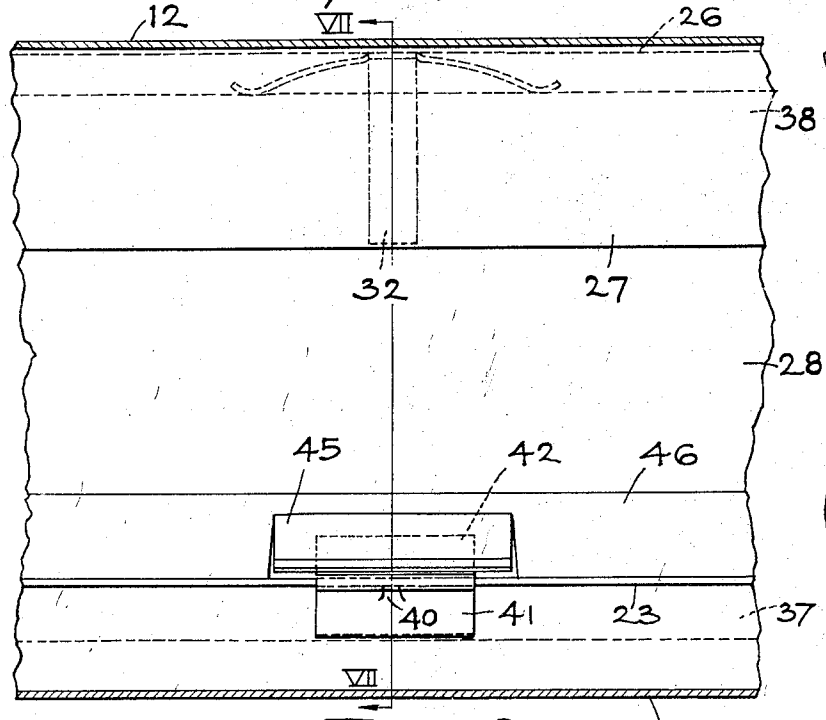


FIG. 6.

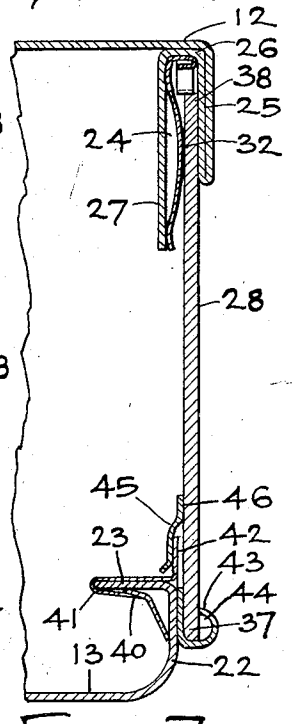


FIG. 7.

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Patented Feb. 27, 1945 2,370,446

UNITED STATES PATENT OFFICE

2,370,446

REFRIGERATION APPARATUS

Royal S. Buchanan, Mansfield, Ohio, assignor to Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa., a corporation of Pennsylvania

Application September 1, 1942, Serial No. 456,844

6 Claims. (Cl. 220—9)

My invention relates to refrigerator cabinet construction and particularly to a breaker strip assembly for a refrigerator cabinet.

It is an object of my invention to provide a novel and improved structure for attaching a breaker strip to a refrigerator cabinet without the use of nails, screws and the like.

It is another object of my invention to provide a practical structure for attaching a breaker strip to a food compartment liner of a refrigerator cabinet wherein the edge of the food liner is formed in a channel section to impart additional strength and rigidity thereto, and wherein the use of nails, screws and the like are dispensed with.

It is a further object of my invention to provide a breaker strip assembly which is easy to mount or remove from a refrigerator cabinet.

It is another object of my invention to provide a breaker strip assembly which allows for variation and warpage of the metal shells of the refrigerator cabinet, without affecting the appearance of the finished product.

These and other objects are effected by my invention as will be apparent from the following description and claims taken in connection with the accompanying drawings, forming a part of this application, in which:

Fig. 1 is a front view of a refrigerator cabinet to which my invention is applied;

Fig. 2 is a rear view of a breaker strip assembly illustrating one embodiment of my invention;

Fig. 3 is a sectional view taken on line III—III of Fig. 2;

Fig. 4 is a view of a portion of the metal trim strip shown in Figs. 2 and 3;

Fig. 5 is a sectional view taken on line V—V of Fig. 4;

Fig. 6 is a rear view of a breaker strip assembly illustrating a second embodiment of my invention; and,

Fig. 7 is a sectional view taken on line VII—VII of Fig. 6.

Referring specifically to the drawings for a detailed description of my invention, numeral 11 designates generally a refrigerator cabinet formed of an outer shell 12 and an inner shell 13 with heat insulation 14 therebetween. The inner shell 13 defines a food-storage compartment 15 having an evaporator 16 for refrigerating the contents thereof. A door 17 closes an access opening 18 to the food-storage compartment 15. The outer and inner shells are held in spaced relation by diagonal gussets or struts 19 at the corners of the shells, the struts 19 providing the major support of the inner shell 13 from the outer shell 12.

The inner and outer shells are also spaced apart at 21 peripherally of the access opening. The inner shell 13 is provided with a flange 22 lying parallel to the front of the cabinet 11, and with a second flange 23 at right angles to the flange 22, thus forming a channeled edge which is extremely strong and rigid. Such a construction is very desirable because the inner shell is preferably provided with a vitreous coating on its exposed surfaces, which coating may crack at the edges of the inner shell unless the edges are rigid.

The outer shell 12 is provided with a pocket 24 opening toward the inner shell 13. The pocket 24 is preferably formed by providing a double flange 25 lying substantially parallel to the front of the cabinet and to the flange 22 on the inner shell, flanging the metal at 26 at right angles to the doubled flange 25, and again flanging the metal at 27 parallel to the double flange 25.

In accordance with the first embodiment of my invention shown in Figs. 1 to 5, inclusive, a breaker strip, comprising four separate strips 28 meeting at the corners of the access opening, closes the space between the outer and inner shells 12 and 13 and is attached to said shells in the following manner: A plurality of spring clips 29, bent to hairpin shape, shown in Figs. 2 and 3, are placed on the flange 23 of the inner shell 13 peripherally of the access opening 18. The spring clips 29 are provided with a sharp tab 31 which bites into the metal of the flange 23 and prevents removal or displacement of the spring clips 29 without using considerable force. A plurality of springs 32 for biasing the breaker strips 28 toward the inner face of flange 25 and toward the inner shell 13 are disposed in the pocket 24 in the outer shell. Retaining strips 33, shown in detail in Figs. 4 and 5, and bent to form a pocket 34, and first and second flanged portions 35 and 36 are attached to one marginal edge 37 of the breaker strips 28, the pocket 34 receiving said marginal edge 37. A marginal edge 38 of each of the breaker strips 28 is then inserted in the pocket 24 on the outer shell and is forced against the springs 32 until the flanged portion 35 of the retaining strip 33 is in such position that it may be forced between the spring clips 29 and the flange 23 on the inner shell, the spring clips thereby frictionally retaining the breaker strips 28 in position with the flanges 35 and 36 of the retaining strips 33 lying in juxtaposition with flanges 22 and 23, respectively, of

the inner shell 13. The breaker strips 28 are preferably formed of a material impregnated with a resinous condensate product and, preferably, are somewhat flexible.

In order to remove the breaker strips from the cabinet 11, a knife blade or screw driver is inserted between the flange 22 of the inner shell and the retaining strips 33, thereby lifting the breaker strips 28 and retaining strips 33 free of the action of the spring clips 29. The breaker strips 28 and retaining strips 33 may then be moved in a direction away from the pocket 24 and removed from the cabinet.

As best shown in Figs. 4 and 5, the retaining strips 33 are provided with a slot or cut-out portion 39 at the bend between the flanges 35 and 36 thereof. The flange 36 is, therefore, easily deformable to allow for variations and warpage of flange 23 of the inner shell, and the spring clips 29 are sufficiently strong to tightly clamp the retaining strips 33 and flange 23 together. This is an important feature of my invention and does not detract from the appearance of the assembly.

Referring to Figs. 6 and 7, a second embodiment of my invention is illustrated and like numbers are applied to the same parts as in Figs. 1 to 5, the parts being the same except for the spring clips and retaining strips. In this embodiment, a plurality of spring clips 41 are formed by bending a piece of steel in a hairpin and then flanging one of the legs of the hairpin at right angles as shown at 42. A sharp tab 40 is provided on the spring clips 41 which bites into the flange 23 and retains the spring clips thereon. Retaining strips 43 are attached to each marginal edge 37 of breaker strips 28 and comprise a pocket 44 receiving the marginal edge 37 and a leg portion 46. A tab or hook 45 is pressed out of the leg portion 46 facing toward the pocket end of the retaining strips 43.

To assemble the breaker strips on the cabinet, the spring clips 41 are disposed on flange 23, springs 32 are disposed in pocket 24 on the outer shell, and the retaining strips 43 are attached to the breaker strips 28. The breaker strips 28 and retaining strips 43 are forced into pocket 24 against the action of springs 32 until the hook 45 may be slid over the flange 42 of the spring clip 41, the springs 32 retaining the hook in the position shown in Fig. 7. In order to remove the breaker strips 28 and retaining strips 43, they are forced against the action of springs 32 until hook 45 may be released from flange 42 of the spring clips 41.

From the foregoing, it will be obvious that I have provided an improved breaker strip assembly for a refrigerator cabinet.

While I have shown my invention in several forms, it will be obvious to those skilled in the art that it is not so limited, but is susceptible of various other changes and modifications without departing from the spirit thereof, and I desire, therefore, that only such limitations shall be placed thereupon as are specifically set forth in the appended claims.

What I claim is:

1. In a refrigerator cabinet having walls comprising inner and outer spaced-apart shells, one of said walls having an access opening, said inner and outer shells terminating in spaced-apart edges at said access opening, the edge of one of said shells comprising a portion extending towards the edge of the other shell, a flange at the edge of said portion and extending rearwardly at an angle thereto, and a heat breaker strip extending between said shells at the access opening to close the space therebetween, the combination with said cabinet of a strip having a flat portion and a groove, said flat portion lying adjacent said flange, spring means secured to said cabinet and comprising a portion bearing against the flat portion to hold the same in frictional engagement between said spring portion and said flange, said flange and spring portion being so shaped that the flat portion of the strip may be inserted therebetween by moving said strip in the general direction in which said flange extends without moving said spring portion by means other than said flat portion of the strip, said groove of the strip engaging one side edge of the breaker strip, and resilient means associated with said other shell for biasing said breaker strip into said groove.

2. In a refrigerator cabinet according to claim 1 in which said spring portion is rounded to facilitate the insertion of the flat portion of said strip between said spring portion and said flange.

3. In a refrigerator cabinet according to claim 1 in which the spring means comprises a U-shaped clip which engages said flat portion of the strip and said flange.

4. In a refrigerator cabinet according to claim 1 in which the spring means comprises a U-shaped clip which engages said flat portion of said strip and said flange, said U-shaped clip having a barb which engages the surface of said flange to resist removal of said clip therefrom.

5. In a refrigerator cabinet having walls comprising inner and outer spaced-apart shells, one of said walls having an access opening, said inner and outer shells terminating in spaced-apart edges at said access opening, the edge of one of said shells comprising a portion extending towards the edge of the other shell, a flange at the edge of said portion and extending rearwardly at an angle thereto, and a heat breaker strip extending between said shells at the access opening to close the space therebetween, the combination with said cabinet of a strip having a flat portion and a groove, said flat portion lying adjacent said flange, said strip having a slit therein between its groove and at least a part of its flat portion to render said part more flexible, spring means secured to said cabinet and comprising a portion bearing against said more flexible part of the strip to hold the same in frictional engagement between said spring portion and said flange, said flange and spring portion being so shaped that the more flexible part of the strip may be withdrawn from between the same and inserted therebetween by moving said strip in a direction parallel to the general direction in which said flange extends, said groove of the strip engaging one side edge of the breaker strip, and resilient means associated with said other shell for biasing said breaker strip into said groove.

6. In a refrigerator cabinet having walls comprising inner and outer spaced-apart shells, one of said walls having an access opening therein, said inner and outer shells terminating in spaced-apart edges at said access opening, the edge of one of said shells comprising a first flange extending towards the edge of the other shell and a second flange at the edge of the first flange, said second flange extending rearwardly and at an angle to said first flange, and a heat breaker strip extending between said shells at the access opening to close the space therebetween, the combination with said cabinet of an angular strip

having a first leg lying adjacent said first flange and a second leg lying adjacent said second flange, spring means secured to said cabinet and comprising a portion bearing against the free lateral surface of said second leg to hold the same in frictional engagement between said spring portion and said second flange, said second leg being shaped for insertion between said spring portion and said second flange by moving said strip laterally in a direction parallel to said second flange, a groove on said first leg of the angular strip, said groove engaging one side edge of the breaker strip, and resilient means associated with said other shell for biasing said breaker strip into said groove.

ROYAL S. BUCHANAN.