

[54] **PLASTIC BREAKER STRIP**

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[63] Continuation of Ser. No. 17,116, March 6, 1970, abandoned.

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[51] Int. Cl. **B65d 25/18**

[58] Field of Search **220/9 R, 9 F, 9 G, 220/10, 14**

[56] **References Cited**

UNITED STATES PATENTS

2,708,529	5/1955	Lander et al.	220/9 R
3,142,405	7/1964	Johnson	220/9 R
3,380,615	4/1968	Kessler	220/9 G
3,633,783	1/1972	Aue	220/14 X

FOREIGN PATENTS OR APPLICATIONS

1,026,829	4/1966	Great Britain	220/9 G
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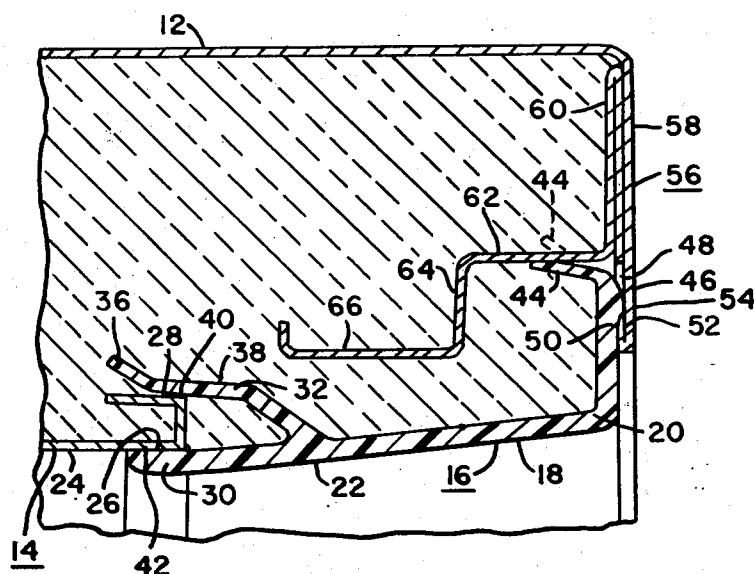
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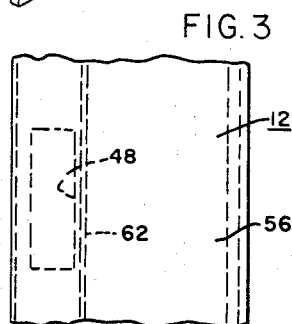
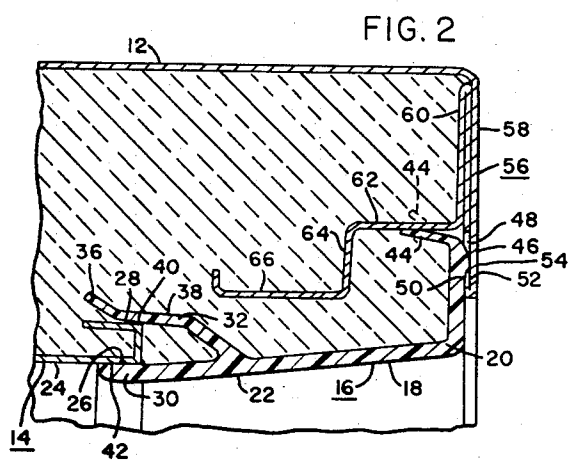
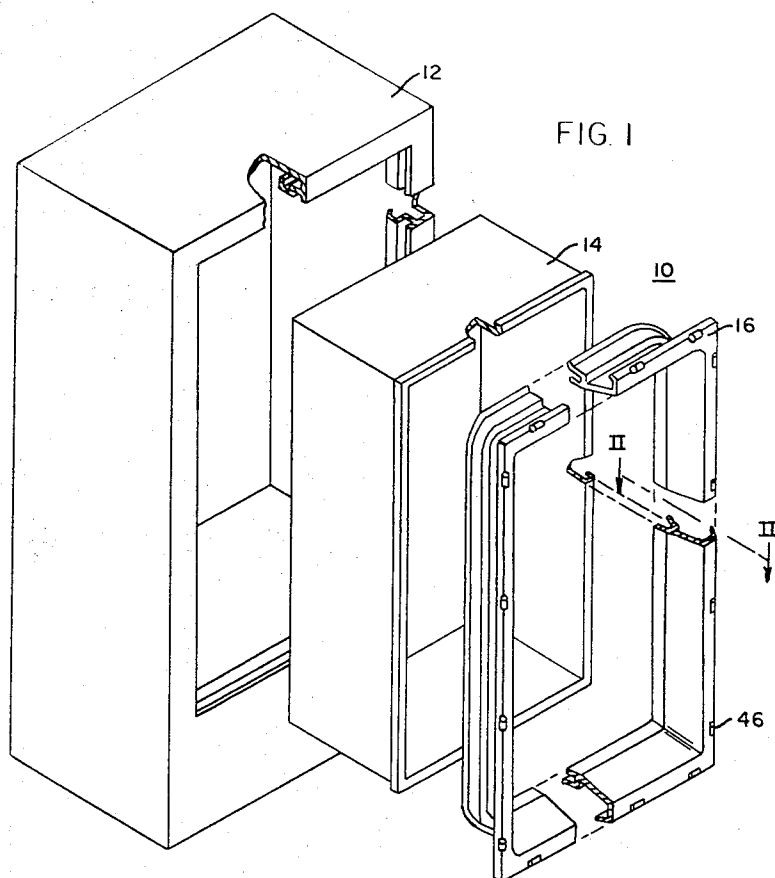
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ABSTRACT

A simple plastic breaker strip, formed by molding, is provided by the invention and has a forked end including two substantially parallel, extending fingers which are attached to the inner liner of the refrigeration cabinet and a bent tanged end which is compressingly inserted in an open channel configuration in the outer shell. A series of locking bars are located at the junction of the tang member with the main portion of the plastic breaker strip and these locking bars are adapted to be insertingly nested and lockingly held in a series of rectangular holes extending through a single thickness of the outer shell so that they are not visible from the exterior of the refrigerant cabinet.

1 Claim, 3 Drawing Figures





PLASTIC BREAKER STRIP

This is a continuation, of application Ser. No. 17116 filed Mar. 6, 1970, now abandoned.

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to refrigerator cabinets and, more specifically, relates to a breaker strip construction for such a refrigerator cabinet.

2. Description of the Prior Art

One standard technique for making foam insulated cabinets calls for expanding polyurethane foam between the inner liner and outer shell members and into direct contact with a thermal breaker strip which seals the gap between these two members. In employing this technique, it is highly desirable that the seal between the breaker strip and the edge of the liner and shell be maintained in a constant and parallel relationship. Further, in order to provide such a constant and parallel relationship, it is important that the stresses on the breaker strip be evenly distributed therealong so as to eliminate any concentrated pressure points which would tend to leak during the foaming operation. Such a breaker strip should also be designed to take into account the dimensional variations of the involved edges of the outer shell and inner liner and be easily assembled with them. Although plastic breaker strips (such as shown in U.S. Pat. Nos. 3,380,615 and 3,270,907, for example) satisfy one or more of the foregoing requirements, the arrangement according to my invention is considered to provide its own distinct advantages.

SUMMARY OF THE INVENTION

In conformance with the desirable attributes of a plastic breaker strip, the instant invention provides a breaker strip having a right angle formed therein to establish the corner between an outer shell or wrapper and inner liner of a refrigerator cabinet. One leg of the right angle includes a forked end at its termination, with this forked end providing two substantially parallel fingers which engaged over a closed channel section formed at the termination of the inner liner to attach the plastic breaker strip to it and provide a substantially liquid tight seal between the plastic breaker strip and the inner liner. At the termination of the opposite leg of the right angle of the breaker strip, a tang end is formed on the plastic breaker strip and extends into an open channel section formed in the outer wrapper, with the tang compressingly engaging a portion of the channel section to provide the force necessary to place the plastic breaker strip in sealing engagement with the outer wrapper and with the deformed tang urging the plastic breaker strip away from the outer wrapper. To oppose this action, the plastic breaker strip includes a series of locking barbs which extend forwardly away from the main section of the right angle leg including the tang, with these locking barbs shaped with a sharp corner so as to be lockingly held when nestingly inserted in a series of rectangular holes formed in one layer of a bent back section of the outer shell that forms the open channel arrangement.

DRAWING DESCRIPTION

FIG. 1 is a partly broken away perspective view of a refrigerator cabinet in which the inner liner, outer wrapper and breaker strip are shown in exploded relationship to each other;

FIG. 2 is a horizontal sectional view of the inner liner, outer wrapper and plastic breaker strip taken substantially on line II—II of FIG. 1; and

FIG. 3 is an elevational view of the front side of the outer wrapper of the refrigerator cabinet.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

The invention will now be described in connection with the accompanying drawings which illustrate one mode of carrying out the principles of the invention; and wherein a refrigerator cabinet 10 is shown in FIG. 1 and includes a box-shaped outer cabinet or wrapper 12, an inner liner 14 and a plastic breaker strip 16. The plastic breaker strip 16 is generally of a right angle configuration to form the corner of the refrigerator cabinet 10. It includes two integrally joined portions 18, 20 which form the major body of the breaker strip and adjoin at right angles to form the corner thereof. The portion 18 includes a forked portion 22 at its termination which is capable of engaging over a closed channel 24 formed in inner liner 14.

The closed channel 24 is formed by bending the outer termination of the inner liner 14 backwardly over itself and outwardly relative to the refrigerator proper to form a pair of spaced, opposed faces 26 and 28 that are substantially parallel to each other and form the abutting surfaces against which the fork portion 22 of the plastic breaker 16 abuts.

Fork portion 22 includes a tang 30 that is a general extension of the right angle portion 18 and is generally aligned therewith and a tang 32 which extends outwardly from the right angle portion 18 intermediate its end. Tang 32 includes an outwardly angularly directed portion 36 which permits ease of assembly of the tang portion 22 to the inner liner 14. Immediately forwardly of the angular directed portion 36 of tang 32 is another outwardly angularly directed portion 38 which is integral therewith and which forms the portion of tang 32 which engages against the face 28 of web 24. By this arrangement an extremely tight seal is obtained between the plastic breaker strip 16 and the inner liner 14 so as to provide two sealing surfaces 40 and 42 to prevent the outward flow of the foam plastic as it is inserted between the inner liner and outer shell, with the angularly directed portion 38 being under deformation outwardly to insure the effectiveness of the sealing surface 40 and 42.

The right angle portion 20 of breaker strip 16 includes adjacent its outward termination an angularly directed tang 44, which, in its uncompressed condition (dotted line), extends substantially at a 45° angle to the right angle portion 20. In its assembled position, the angularly directed tang 44 is bent inwardly relative to the refrigerator cabinet 10 so as to compress and provide a force tending to rotate the plastic breaker strip inwardly away from the outer shell 12.

The inward turning motion imposed on the plastic breakers strip 16 by the compressed tang 44 is opposed by a series of locking barbs 46 (only one shown) that engage in a series of openings 48 (FIG. 3) formed in the

outer shell 12. Each of the barbs 46 includes a knife edge 50 formed by a face 52 which extends substantially parallel to the major extent of the inner liner 14 and perpendicular to its openings 48 when the plastic breakers strip 16 is in assembled position. The face 52 is, of course, always in abutting and confronting relationship with a parallel face 54 formed by one side of the opening 48 due to the compressive force exerted by the compressed tang 44. A right angled corner is thereby provided by the plastic breaker strip 16 parallel to the outer shell 12 merely by insuring the face 54 of each aperture 48 is parallel to each other face 54 and that the faces 52 of the breaker strip are parallel and the dimension from these faces to the right angle of the breaker strip is constant.

In order to strengthen the adjoining termination of the outer shell 12, it is formed at its front end with a doubled over section 56 with an inner leaf 58 of the doubled over portion 56 having integrally attached to its outer end a portion 60 which also extends backwardly over the leaf 58 for about two thirds of its width. The portion 60, in turn, forms a right angle with a portion 62 made integral therewith and extending at a right angle relative to the transverse extent of the portion 60. A portion 64 is attached to the termination of the portion 62 and extends parallel to the doubled over portion 56, extending inwardly relative to the refrigerator cabinet a sufficient amount to terminate proximately parallel to the termination of the doubled over portion 56. Also included in this general configuration is an inwardly extending portion 66 having a right angle bend close to its termination and attached to the portion 64 to form a right angle therewith. Thereby, a substantially tortuous path exists between the plastic breaker strip 16 and the inwardly extending portions 62, 64 and 66 of the outer shell 12 so as to limit the pressure imposed by the foamed plastic on the right angle portion 18 of the plastic breaker strip 16.

It should be clear from the foregoing description that a combination outer wrapper, inner liner and plastic breaker strip disposed therebetween has been provided which substantially overcomes the aforementioned disadvantages of prior art constructions and that the barbs 46, in conjunction with the series of holes 48, tend to distribute the pressure stress of foaming longitudinally along the entire length of the plastic breaker strip 16 as

the foam plastic is dispensed against it and between the outer shell 12 and the inner liner 14. At the same time, the barbs 46 insure sufficient compression to the angularly deflected tang 44 so as to provide a substantially tight seal between it and the outer shell 12. A positive seal is also obtained between the fork portion 22 and the inner liner 14, because this portion of the breaker strip 16 has been positively located relative to the outer shell 12 and inner liner 14 by the engagement of the barbs 46 in the apertures 48.

Although a single embodiment of the invention has been shown and described, it should be clear to one skilled in the art that many modifications may be made therein without the exercise of the inventive faculty.

What is claimed is:

1. A refrigeration apparatus cabinet construction comprising:

an outer shell and a nested inner liner, said shell and said liner having open fronts generally concentrically arranged;

said shell open front having a channel which opens in a direction transversely inwardly across said open front said shell channel including at least a web portion and a forward leg;

said liner having a forward edge including a channel opening rearwardly thereof;

breaker strip means covering the space between said open fronts of said shell and liner, said breaker strip means including two transversely spaced flanges along its rear edge for engaging over the exterior of said liner channel, and an angularly directed flange along its other edge, the distal portion of said flange compressingly engaging said web of said shell channel and urging said angularly directed flange transversely inwardly in a direction across the shell open front, the forward face of said angularly directed flange including a series of forwardly projecting protuberances therealong;

said shell channel including a series of recesses, corresponding to said series of protuberances, formed in the rear face of said forward leg, said transverse urging of said angularly directed flange creating a locking relationship between said recesses and protuberances.

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