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[54] **CLOSURE CONSTRUCTION**

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[52] **U.S. Cl.** ..... **312/138 R,** 312/214, 220/9 F

[51] **Int. Cl.** **A47f 3/00**

[58] **Field of Search** ..... 312/116, 138 R, 214; 220/9 F, 9 G; 5/353.2, 353.3; 160/399, 402

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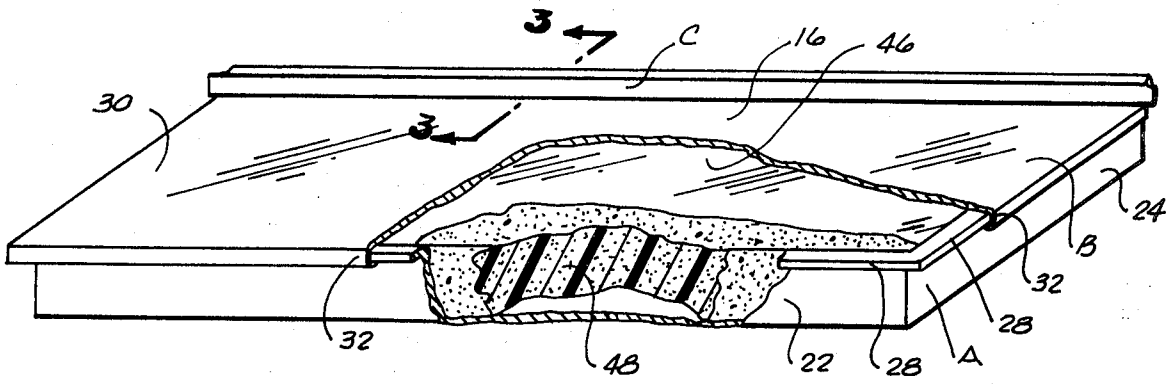
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[57] **ABSTRACT**

A slidable planar door for a refrigerated housing and the like having a rectangular opening in an upper wall thereof. The planar door includes a lower member and an upper member with insulation carried therebetween. The upper member is attached to the lower member adjacent the rear thereof by a U-shaped member so that the upper member can expand to a different degree from the lower member without the door buckling. A thin plastic sheet is carried between the upper member and insulation carried in the door so as to permit the upper member to substantially float when expanding relative to the lower member.

2 Claims, 3 Drawing Figures



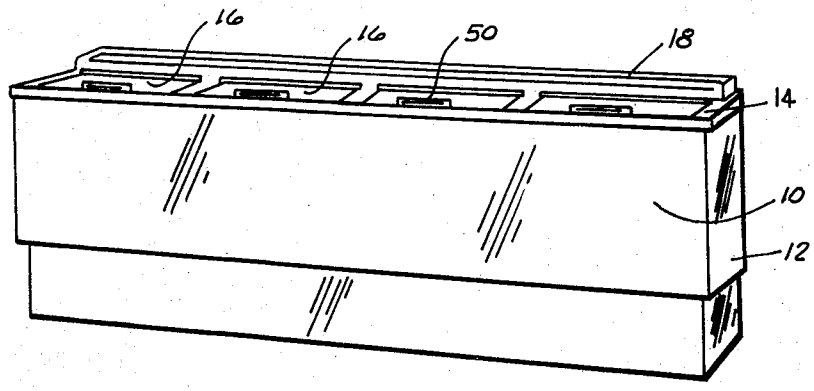


Fig. 1.

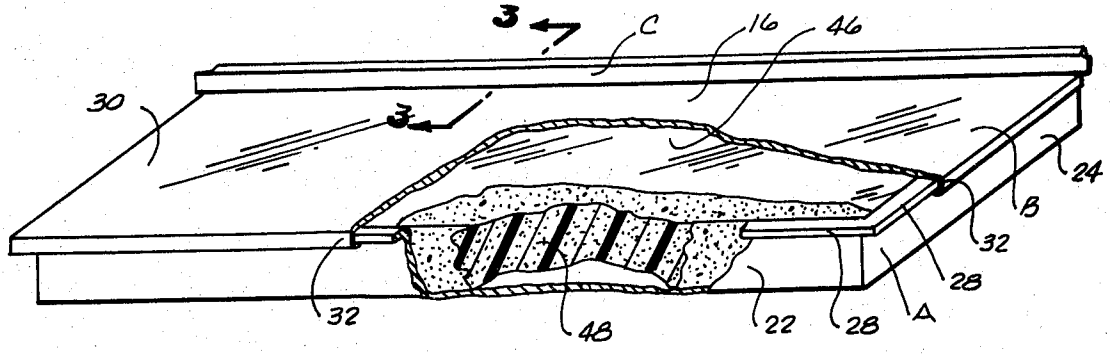


Fig. 2.

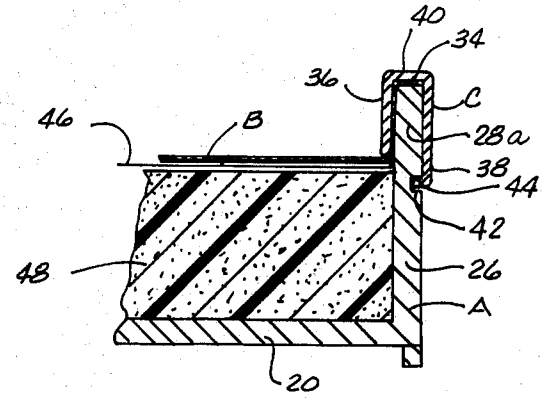


Fig. 3.

CLOSURE CONSTRUCTION

This invention relates to a closure, and more particularly to a planar door for use in a refrigerator housing and the like.

In recent years the demand for refrigerated food has increased rapidly, requiring many more refrigerated housings in stores and the like. In the past such refrigerated housings consumed large areas due to the bulky doors and walls of the unit.

One problem in utilizing thin lightweight doors is that due to thermal expansion the doors would tend to buckle, allowing the cool air enclosed in the housing to escape. In order to avoid these problems heavy reinforced doors have been utilized. However, such made it difficult to open the door and, in some instances the doors had to be mounted on rollers.

Accordingly, it is an important object of the present invention to provide a lightweight closure for a refrigerated housing that can be constructed of both plastic and metal with a minimum of reinforcement.

Another important object of the present invention is to provide a lightweight closure for a refrigerated housing which includes an upper portion and a lower portion which are attached together by an elongated plastic strip adjacent the rear thereof so as to allow free expansion outwardly therefrom between the upper and lower member.

Another important object of the present invention is to provide a closure for a refrigerated housing and the like, which can be readily assembled.

Other objects and advantages of this invention will become more apparent from a reading of the following detailed description and appended claims taken in conjunction with the accompanying drawing wherein:

FIG. 1 is a perspective view illustrating a refrigerated housing having doors mounted thereon constructed in accordance with the present invention,

FIG. 2 is an enlarged perspective view, with parts broken away, illustrating a door constructed in accordance with the present invention, and

FIG. 3 is a cross sectional view taken along line 3—3 illustrating the manner in which an upper portion of the door is attached to a lower portion.

Referring in more detail to the drawing, there is illustrated a door for a refrigerated housing and the like, comprising a lower member A having a bottom wall and vertical front, side and rear walls extending upwardly therefrom. The rear wall has a vertical extension extending vertically above the side walls. A planar upper member B extends over and spans the lower member A. A vertically extending flange is integral with a rear portion of the upper member B and abuts against the vertical extension of the lower member A. A U-shaped member C extends over the vertically extending flange and the vertical extension. Interlocking members are carried by the U-shaped member and the rear wall of the lower member for aiding in holding the rear portion of the upper and lower member together. Insulation is provided in the door between the lower member A and the upper member B.

The refrigerated housing is substantially rectangular in shape and has elongated vertical front and rear walls **10** which are joined by end walls **12.** The lower portion of the walls **10** and **12** are recessed. A top horizontal upper wall **14** spans the front and rear walls for providing a closure. Rectangular openings are provided in the upper wall **14** for accommodating doors **16.** A raised

overlapping member **18** is carried above and adjacent the rear of the upper wall **14** for covering a rear portion of the rectangular opening and for allowing the door **16** to be shifted thereunder to provide access to the refrigerated housing. When the door **16** is shifted forward into the position illustrated in FIG. **1** such cooperates with the overlapping member **18** to provide a closure for the rectangular opening. A flexible sealing strip (not shown) extends downwardly from a lower portion of the overlapping member **18** and engages the upper surface of the door **16** so as to seal the interior of the refrigerated housing from the outside.

The refrigerated housing is provided with a conventional refrigerating unit and the walls **10** and **12** are provided with insulation.

The door **16** comprises a lower member A and an upper member B. The lower member A, in one particular embodiment, is constructed of molded polyvinyl chloride and has a planar bottom wall **20** and vertical front, side and rear walls **22, 24** and **26,** respectively, extending upwardly therefrom. Integral with the upper edge of the vertical side walls **24** and the front wall **22** is an outwardly extending flange **28.** The rear wall **26** has a vertical extension **28***a* integral with the upper portion thereof, which extends above the side walls **24.**

The upper member B, in one preferred embodiment, is constructed of stainless steel and has a flat planar main body portion **30** with downwardly and inwardly turned edges **32** integral with the front and side of the main body portion **30.** Integral with the rear of the main body portion **30** of the upper member B is an upwardly and outwardly turned vertical flange **34.** The flange **34** abuts against the vertical extension **28***a* of the lower member, such as illustrated in FIG. **3.** When assembled the downwardly and inwardly turned edges **32** of the upper member **30** extend around the outwardly extending flange **28** of the lower member A in a loosely fitting relationship.

The U-shaped member C is an extruded polymer strip, which in one particular embodiment, is polypropylene. The U-shaped member is defined by an inner leg **36** and a longer outer leg **38** which are joined by an intermediate portion **40.** The normal tendency of the U-shaped member is that the lower end of the inner leg **36** and the outer leg **38** are inclined inwardly.

Interlocking members are carried by the U-shaped member and the rear wall **26** of the lower member for holding the rear portion of the upper and lower members A and B, respectively, together. The interlocking members include an elongated horizontal groove **42** carried in the rear wall **26** of the lower member and an inwardly extending lip or protrusion **44** integral with the bottom leg **38** of the U-shaped member C which extends in the horizontal groove **42.** The normal tendency of the lower portion of the legs **36** and **38** of the U-shaped member is to incline inwardly, and as a result, when such are expanded so that such makes a right-angle with the intermediate portion **40** such as illustrated in FIG. **3,** such holds the flange **34** of the upper member B flush against the vertical extension **28** of the lower member A.

In order to insure that the upper member B is allowed to float on the lower member A a thin plastic sheet **46** is carried between the upper member B and insulation **48** carried in the lower member A. In one particular embodiment the thin planar sheet **46** is constructed of polyvinyl chloride. The insulation may be any suitable

insulation, such as expandable polyurethane. If the insulation **48** were allowed to adhere to the upper member B such would interfere with the floating effect created between the upper member B and the lower member A, possibly causing the door to buckle when thermal expansion takes place. A handle **50** is attached to the upper member B by gluing or by bolts.

The rigid connection between the upper member B and the lower member A through the U-shaped member C permits the upper member B to expand outwardly from the rear of the door freely since the edges are loosely secured to the bottom member A through the flanges **32.**

While a preferred embodiment of the invention has been described using specific terms, such description is for illustrative purposes only, and it is to be understood that changes and variations may be made without departing from the spirit or scope of the following claims.

I claim:

1. A door for a refrigerated housing and the like comprising: a lower member having a bottom wall and vertical front, side and rear walls extending upwardly therefrom, said rear wall having a vertical extension extending vertically above said side walls, a planar upper member extending over and spanning said lower member, a vertically extending flange integral with a rear portion of said upper member abutting against said vertical extension of said lower member, a U-shaped member extending over said vertically extending flange and said vertical extension, interlocking members carried by said U-shaped member and said rear wall of said lower member for aiding in holding a rear portion of said upper and lower members together, outwardly extending flanges integral with the top of said vertical side walls, said planar upper member having downwardly and inwardly turned edges which extend around said outwardly extending flanges in a loosely fitting relation so as to permit expansion between said upper member and said lower member without said door buckling.

2. The door as set forth in claim **1,** wherein said interlocking members comprise: an elongated horizontal groove carried in said rear wall of said lower member, and an inwardly extending protrusion carried adjacent a bottom leg of said U-shaped member extending in said horizontal groove.

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