Jan. 24, 1956 L. J. MANN 2,732,272

REFRIGERATING APPARATUS

Filed July 23, 1952

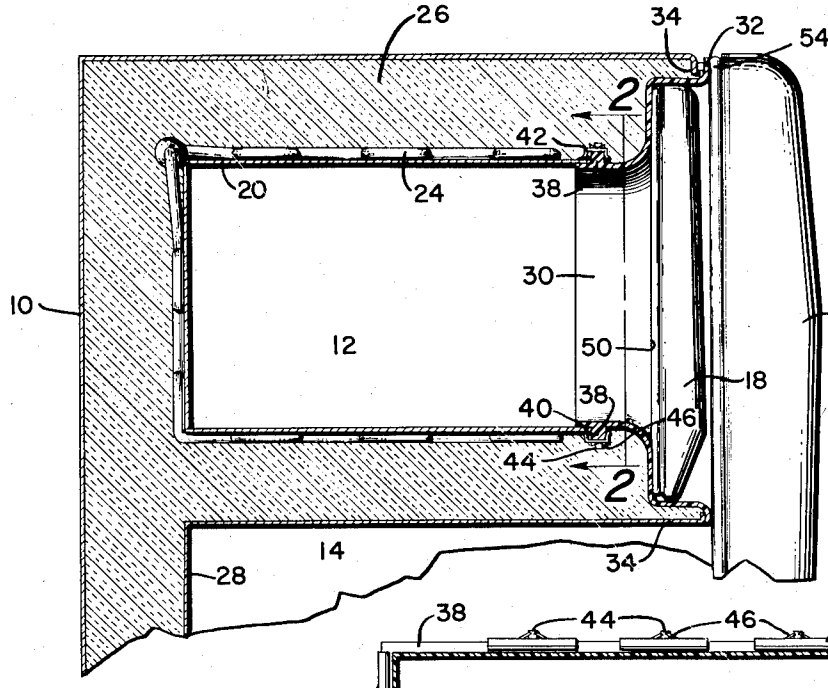


Fig. 1

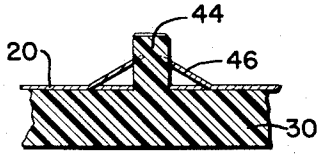


Fig. 5

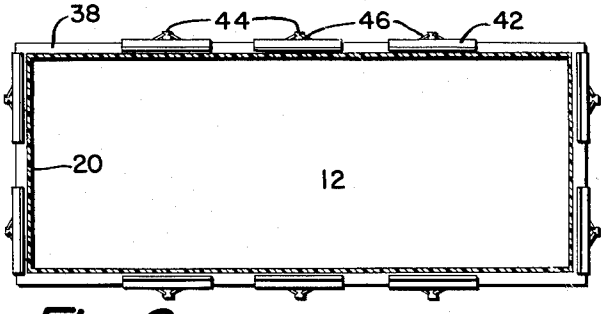


Fig. 2

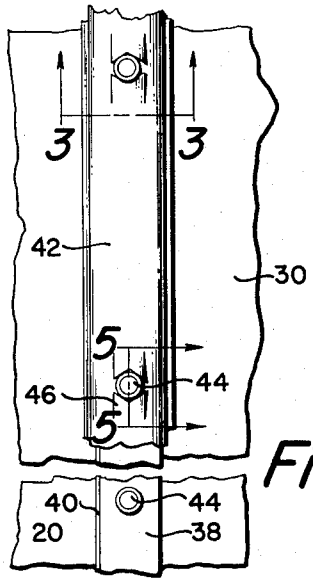


Fig. 4

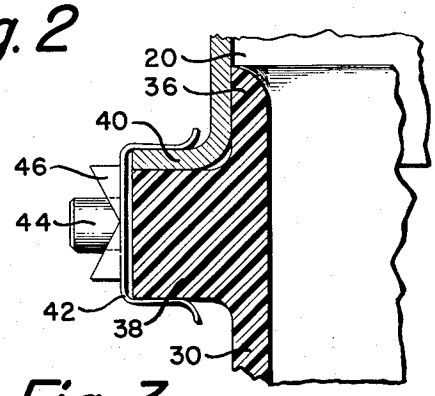


Fig. 3

INVENTOR.
Leonard J. Mann.
BY Willits, Hardman & Filer.

United States Patent Office 2,732,272
Patented Jan. 24, 1956

2,732,272

REFRIGERATING APPARATUS

Leonard J. Mann, Dayton, Ohio, assignor to General Motors Corporation, Dayton, Ohio, a corporation of Delaware

Application July 23, 1952, Serial No. 300,438

3 Claims. (Cl. 312—214)

This invention relates to refrigerating apparatus and more particularly to an improved cabinet construction.

It is an object of this invention to provide a low cost cabinet having an improved appearance.

Another object of this invention is to reduce the cost of the cabinet without reducing the efficiency or impairing the appearance of the cabinet.

More particularly it is an object of this invention to provide an improved fastening means for attaching the breaker strip of a refrigerator cabinet to the inner liner.

A further object of this invention is to provide an improved clip construction for holding two abutting elements in assembled relationship.

Further objects and advantages of the present invention will be apparent from the following description reference being had to the accompanying drawings, wherein a preferred form of the present invention is shown.

In the drawings:

Figure 1 is a fragmentary sectional view showing my invention as applied to a household refrigerator;

Figure 2 is a fragmentary sectional view taken substantially on line 2—2 of Figure 1;

Figur 3 is a fragmentary sectional view substantially on line 3—3 of Figure 4 showing the clip and flanges in cross section;

Figure 4 is a fragmentary elevational view showing the relationship between the clip and the elements held thereby; and

Figure 5 is a fragmentary sectional view taken substantially on the line 5—5 of Figure 4.

Referring now to the drawing wherein there is shown a preferred embodiment of the invention, reference numeral 10 designates the outer housing or shell of a conventional household refrigerator. For purposes of illustrating the invention there is shown a refrigerator having a frozen food storage compartment 12 and an unfrozen food storage compartment 14. A main door 16 is provided at the front of the cabinet and an inner door 18 is provided for sealing the frozen food compartment 12 from the compartment 14.

The frozen food compartment consists of an inner liner 20 having refrigerant lines 24 secured to the outside thereof for refrigerating the contents of the compartment 12. Insulation 26 is provided between the outer shell 10 and the inner liner 20 as shown. A second inner liner 28 is provided for the compartment 14 as shown. A breaker element or strip 30 serves to close the opening between the inner liner 20, the outer shell 10 and the top wall of the inner liner 28. The breaker strip 30 is preferably made in the form of one piece of molded plastic. However, if desired, the breaker strip could be made in sections and fitted together so as to conceal the insulation 26 and so as to bridge the space between the inner liner 20 and the adjacent walls which surround the liner. As best indicated in Figures 1 and 3 of the drawing, the breaker strip is provided with an outer flange 32 which is arranged in abutting relationship with flange means 34

formed on the outer shell 10 and the top wall of the liner 28. The extreme inner edge of the breaker strip 30 is arranged to overlap the inner wall of the liner 20 as best indicated at 36, so as to provide a neat appearance and so as to close any gap between the abutting edges of the inner liner 20 and the breaker strip 30.

An integrally formed flange 38 is provided on the breaker strip 30 and is arranged to abut a flange 40 formed on the front edge of the inner liner 20. A plurality of mounting clips or straps 42 are arranged as shown and serve to straddle the flanges 38 and 40 so as to hold them in abutting relationship. As best indicated in Figure 3 of the drawing, each clip 42 is substantially U-shaped in cross section throughout its length with the arms of the U yieldably engaging the opposite sides of the flanges.

The flange 38 is provided with a plurality of spaced integral projections 44 which pass through speed nut type of openings provided in the mounting clips 42. As best shown in Figure 4 of the drawing, the clips 42 are provided with integrally formed locking lugs 46 adjacent the openings for holding the clips securely in place once they are assembled on the projections 44. A plurality of these mounting clips extend all the way around the outer periphery of the flanges 38 and 40 as shown in Figure 2. Insofar as certain aspects of the invention are concerned, the breaker strip 30 could be made in sections and one or more long U-shaped clips could be substituted for the many clips shown.

The breaker strip 30 is provided with an offset which forms an intermediate vertically disposed surface 50 against which the inner door 18 abuts. A plastic material having a low coefficient of heat transfer is preferably used, for the strip 30, so as to reduce the heat leakage through the breaker strip itself.

The breaker strip or element 30 is preferably attached to the inner liner 20 prior to the insertion of the inner liner into the outer housing 10. Suitable fastening means, such as bolts or the like (not shown) may be used for fastening the flange 32 of the breaker strip to the flange means 34. The outer door 16 is provided with a conventional sealing gasket 54 which is adapted to engage portions of the flange 32 when the door 16 is closed.

While the form of embodiment of the invention as herein disclosed constitutes a preferred form, it is to be understood that other forms might be adopted, as may come within the scope of the claims which follow.

What is claimed is as follows:

1. In a refrigerator, an outer shell having an opening at its front side, an outer door for closing said opening, an inner liner forming a food storage compartment, said inner liner having a flange adjacent its front edge spaced inwardly from said front opening and arranged perpendicular to the side walls of said inner liner, insulation between said outer shell and said inner liner, breaker strip means between said outer shell and said inner liner, said breaker strip means comprising a one-piece molded element having an offset intermediate portion forming an inner door jamb and door seat, a flange provided on said breaker strip means abutting said first named flange, clamp means straddling said flanges, said clamp means and said molded element having interlocking portions for holding said clamp means in clamping engagement with said flanges, and an inner door cooperating with said door seat to close said food storage compartment.

2. In a refrigerator, an outer shell having an opening at its front side, an inner liner forming a food storage compartment, said inner liner having a flange adjacent its front edge, said flange being disposed in a plane parallel to said front opening, insulation between said outer shell and said inner liner, breaker strip means between said outer shell and said inner liner, said breaker strip

means comprising a molded element having a flange abutting said first named flange, and clamp means straddling said flanges, said clamp means and one of said flanges having interlocking portions for holding said clamp means in clamping engagement with said flanges, an outer door for closing the front opening of said outer shell and having a portion arranged to seal against a first portion of said breaker strip means, and an inner door arranged in sealing engagement with another portion of said breaker strip means for independently sealing said food storage compartment.

3. In a refrigerator; an outer shell having a front opening; an outer door for said opening; an inner liner having a flange adjacent its front edge arranged perpendicular to the side walls of said inner line; insulation between said outer shell and said inner liner; collar means forming an inner door seat and closing the space between the front edge of said inner liner and the front edge of one portion

of said outer shell; said last named means comprising a one-piece molded element having a first portion adjacent said outer shell, a second portion overlapping the inside front edge of said inner liner, and a flange abutting the flange on said inner liner; an inner door cooperating with said inner door seat; and clamping means straddling said abutting flanges for holding the same in abutting relationship; said clamping means comprising elongated strip means substantially U-shaped in cross section with the arms of the U arranged to resiliently engage opposite sides of said flange means.

References Cited in the file of this patent

UNITED STATES PATENTS

2,118,746	Tinneman	May 24, 1938
2,301,020	Dailey	Nov. 3, 1942
2,368,542	Hall	Jan. 30, 1945
2,563,975	Tobey	Aug. 14, 1951