July 28, 1964 W. C. JOHNSON 3,142,405

INSULATED CHEST CONSTRUCTION

Filed Jan. 21, 1963

FIG. 1

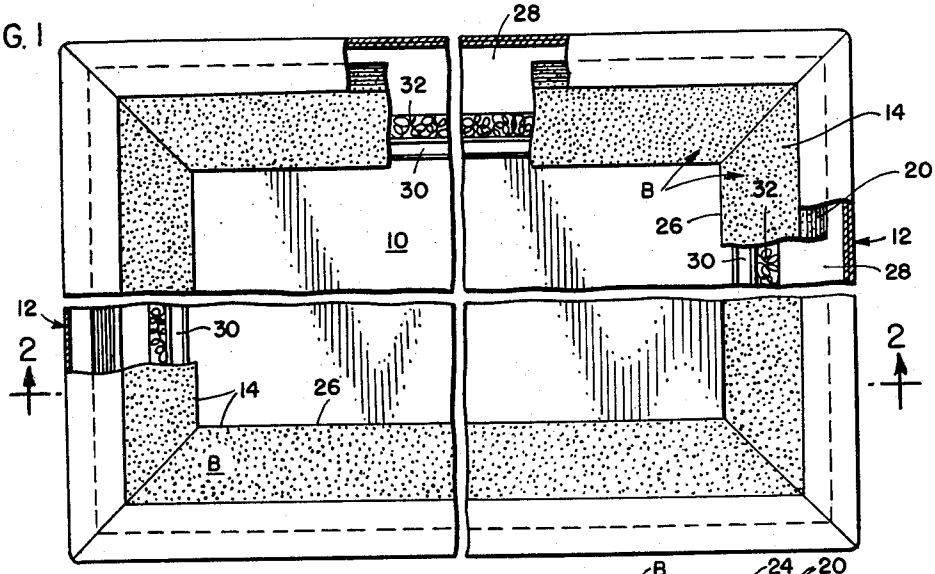


FIG. 2

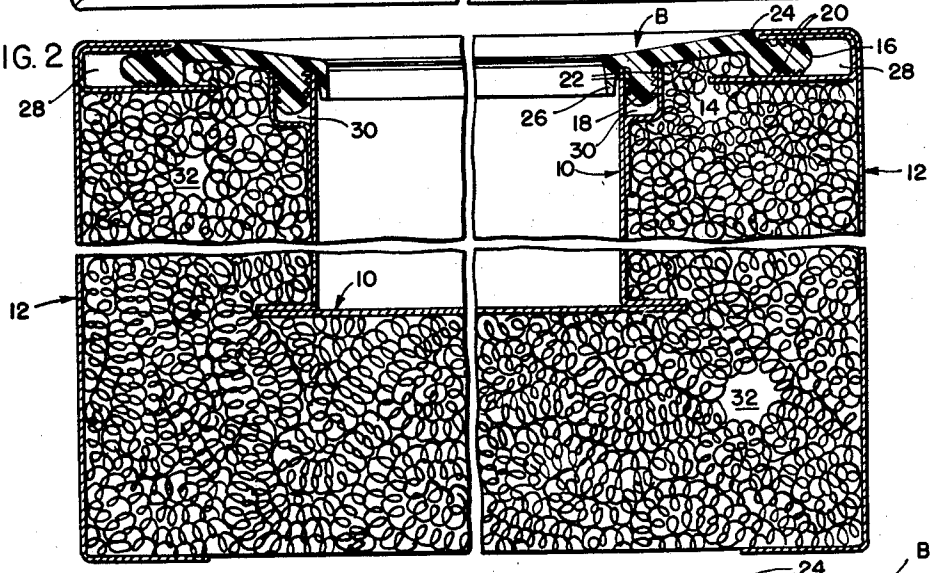
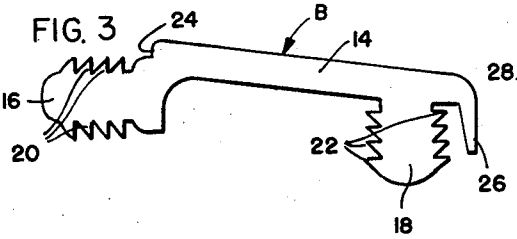


FIG. 3



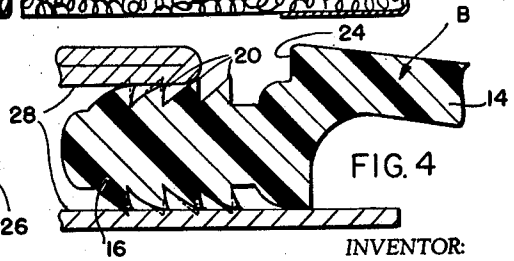


FIG. 4

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INSULATED CHEST CONSTRUCTION

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This invention relates to an insulated chest construction wherein an open top sheet metal shell and an open top sheet metal liner within the shell and spaced from it provide a space for the reception of foamed plastic material as an insulating medium between the shell and the liner.

One object of the invention is to provide an insulated chest construction wherein a novel type of breaker strip serves both as a connecting means between the shell and the liner and a trim strip, the breaker strip being made of heat insulating material to thereby act as a barrier against heat transmission from the shell to the liner.

Another object is to provide a breaker strip which has connecting flanges along its inner and outer edges adapted to be received in channels of the shell and liner, such flanges being formed of flexible resilient material and having serrated faces engaging the facing surfaces of the channels, requiring only the insertion of the flanges into the channels for connecting the shell and liner together mechanically without the necessity of providing other fastening means.

Still another object is to provide a breaker strip wherein the serrations on the faces of the flanges are inclined in such a way as to permit ready insertion of the flanges into the channels but resist removal therefrom.

More particularly, it is an object of the invention to provide ratchet-like serrations extending along the faces of the flanges of the breaker strip and insertable under pressure between the sides of the channels whereby ready insertion is possible during assembly and thereafter dislocation of the breaker strip from the channels is resisted because of the ratchet-like character of the serrations.

Still a further object is to provide an insulated chest construction wherein the shell and liner have channels which are arranged at right angles to each other, one channel being substantially horizontal and the other substantially vertical so that the breaker strip may be formed into sections mitred at the corners and inserted into the horizontal channels, and the vertical channels then associated with the breaker strip to facilitate assembly of the shell, liner and breaker strip relative to each other.

Still a further object is to provide an assembly of this character in which the space between the shell and liner may be filled with liquid foam polyurethane while the assembly is inverted, the construction of the breaker strip being such as to resist the pressure exerted by the material as it proceeds to foam.

With these and other objects in view, my invention consists in the construction, arrangement and combination of the various parts of my insulated chest construction, whereby the objects above contemplated are attained, as hereinafter more fully set forth, pointed out in my claims and illustrated in detail on the accompanying drawing, wherein:

FIG. 1 is a plan view of an insulated chest construction embodying my invention;

FIG. 2 is a vertical sectional view thereof on the line 2—2 of FIG. 1;

FIG. 3 is an end view of a breaker strip used in the construction of the chest, and

FIG. 4 is a somewhat similar view showing the breaker strip being inserted into one of the channels of the chest construction.

On the accompanying drawing I have used the reference numeral **10** to indicate a sheet metal liner and **12** a sheet metal shell of a chest construction. The cross section of the liner and shell are illustrated in FIG. 2 and FIG. 1 shows how this cross section extends completely around the chest and is fabricated by mitering the corners in the usual manner.

Both the liner **10** and the shell **12** present an open-top cross section and the liner is smaller in dimensions than the shell to provide a space between the two to receive insulating material **32** which will be hereinafter more specifically referred to.

A breaker strip is shown at B, the cross section of which is such as to provide a central portion **14** having a pair of connecting flanges **16** and **18**. The flanges **16** and **18** are at substantially right angles to each other and are provided with ratchet-like serrations **20** and **22** extending along their faces. The breaker strip B also has a shoulder at **24** and a lip at **26**, the purpose of which will hereinafter appear. In FIG. 1 the breaker strip B is stippled to distinguish it from the metal shell **12** and liner **10**.

The breaker strip B is formed into a rectangular frame-like member by mitering the corners thereof as shown in FIG. 1 and is formed of heat insulating material such as vinyl or similar plastic material. The material should be somewhat flexible and resilient in view of the necessity that the ratchet-like serrations **20** and **22** be somewhat bendable during installation, and operable thereafter to prevent disassembly.

The upper edge of the shell **12** is provided with a channel **28** formed of sheet metal as shown in FIG. 2 and the upper edge of the liner **10** has a channel **30**. These channels are adapted for the reception of the connecting flanges **16** and **18** respectively.

In the assembly of the insulated chest construction disclosed, the breaker strips B are first associated with the shell **12** by inserting their horizontal connecting flanges **16** into the channels **28**. FIG. 3 illustrates the original shape of the ratchet-like serrations **20** and FIG. 4 illustrates them being inserted into the channel **28**. It will be noted that the serrations are being bent as shown by solid lines from their original positions shown by dotted lines. This action permits relatively easy insertion of the flange into the channel, but removal of the flange from the channel is resisted by the action of the ratchet-like serrations tending to grip the inner faces of the channel. Thus a means for ready assembly without the necessity of using fastening elements of any kind is provided.

The next step in the assembly is to insert the liner inside the shell. The shell is first inverted so that the liner can be let down through it until the channels **30** of the liner begin to receive the vertical connecting flanges **18** of the breaker strip B. Thereupon the channels **30** are forced over the flanges **18** and the assembly is ready to receive the insulating material **32**. The arrangement of the channels **28** and **30** at substantially right angles to each other permit assembly of the parts in the manner set forth.

When polyurethane foam insulation is poured as a liquid into the insulating cavity of the chest construction, it proceeds to foam, thereby exerting pressure against the walls of the liner and shell. A troublesome problem heretofore has been the sealing of all openings tight enough to prevent the foam from forcing its way out. This has been accomplished with tape and sealers but with my construction the single breaker strip B, assembled as disclosed, serves as an effective means against escape of the polyurethane and at the same time serves as a trim for the insulated chest construction when completed. Again the arrangement of the channels **28** and

30 at right angles to each other locks all parts in assembled relation after the insulation 32 is installed.

After all space between the liner and shell has been completely filled with the insulating material 32, a suitable base plate (not shown) can be mounted on the bottom of the shell to complete the assembly.

From the foregoing specification it will be obvious that I have provided an insulated chest construction wherein a breaker strip of simple cross section serves both as a breaker strip and as a trim, as well as a self-connecting means in relation to the channels 28 and 30 during the assembly of the chest. Thereafter the breaker strip serves as a means to seal against the escape of the expanding insulating material 32 due to the foaming action thereof.

Some changes may be made in the construction and arrangement of the parts of my insulated chest construction without departing from the real spirit and purpose of my invention, and it is my intention to cover by my claims any modified forms of structure or use of mechanical equivalents which may reasonably be included within their scope.

I claim as my invention:

1. In an insulated chest construction, an open-top sheet metal shell, an open-top sheet metal liner within and spaced from said shell for the reception of foamed plastic insulating material in the space between the two, the open terminal ends of said shell and said liner being spaced from each other and thereby defining an open space surrounding the open upper end of said liner within the open upper end of said shell, a breaker strip of heat insulating material spanning said open space, said breaker strip being L-shaped in cross section and having connecting flanges along its inner and outer edges, said shell having a horizontal channel to receive the connecting flange along the outer edge of said breaker strip, said liner having a vertical channel to receive the connecting flange along the inner edge of said breaker strip, said channels having the sides thereof substantially parallel to each other connecting flanges being formed of flexible resilient material and having serrated faces engaging the facing surfaces of said channels.

2. In an insulated chest construction, an open-top sheet metal shell, an open-top sheet metal liner within said shell and spaced therefrom to provide space for the reception of foamed plastic insulating material, the open terminal ends of said shell and said liner being spaced from each other and thereby defining an open space surrounding the open end of said liner and within the open end of said shell, an L-shaped breaker strip of heat insulating material spanning said open space, said breaker strip having connecting flanges along its inner and outer edges, said shell having a channel to receive the connecting flange along the outer edge of said breaker strip, said liner having a channel at right angles to said first channel to receive the connecting flange along the inner edge of said breaker strip, said connecting flanges being formed of flexible resilient material and having ratchet-like serrations extending longitudinally of the faces thereof and insertable under pressure between the sides of said channels.

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