

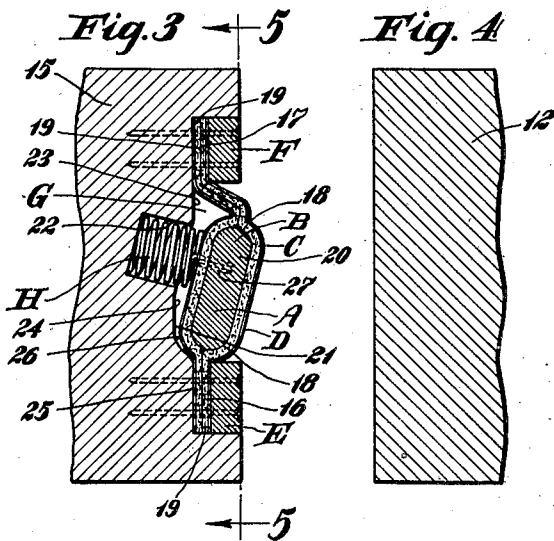
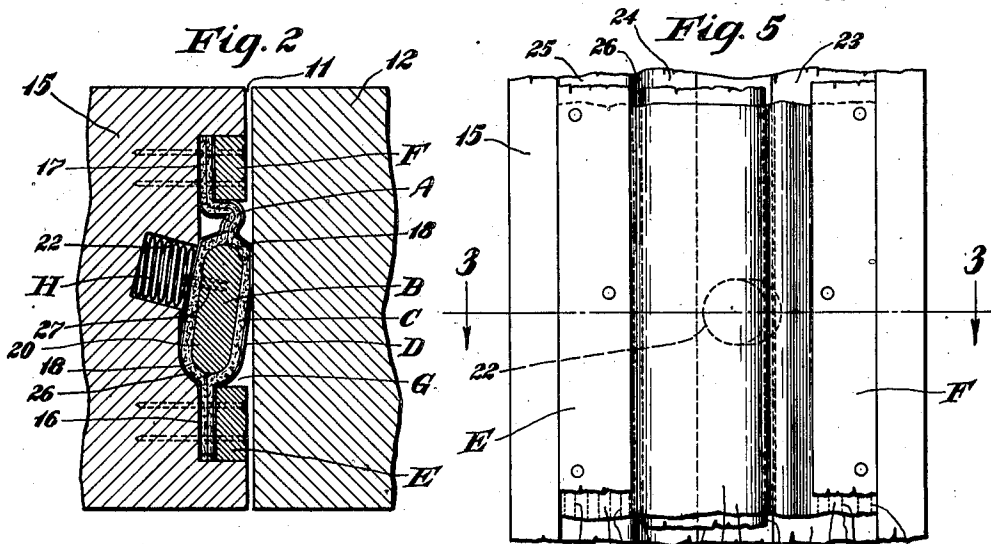
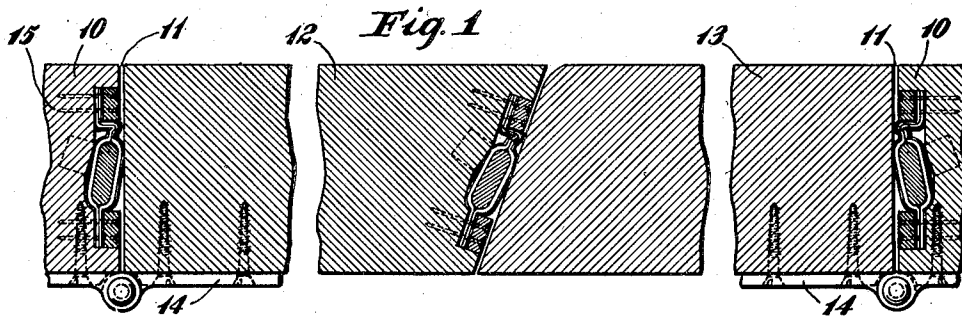
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INSULATING MEANS

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INSULATING MEANS

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4 Claims. (Cl. 20—69)

This invention relates to improvements in insulating means, and more particularly insulation for closures of cold storage containers, such as bodies of refrigerator and similar motor trucks, as well as refrigerator cars for railways.

One object of the invention is to provide means for insulating doors or similar closures of cold storage containers, so designed as to effectively seal the crevices between the closure and the walls of the opening which the closure fits and thereby prevent loss of refrigeration due to seepage.

A more specific object of the invention is to provide an insulating strip of rugged design adapted to be compressed between the edges of the closure and the opening closed thereby, to provide a tight seal between the same, wherein the strip is hinged along one edge and spring projected to assure proper sealing.

Another object of the invention is to provide an insulating strip comprising a solid core which may be in the form of a strip of wood or similar material, a strip of quilting or padding overlying and enclosing said core, and a strip of canvas overlying the strip of quilting, wherein the strips of quilting and canvas are of a width greater than the strip of material forming the core to extend beyond the opposite side edges of the core and provide flaps for securing the composite strips in place.

A still further object of the invention is to provide an insulating strip as specified in the preceding paragraph, adapted to be secured to either of the cooperating engaging edge portions of the closure or wall of the closure opening, by nailing strips for clamping the flaps of the strip, applied in such a manner that one of said flaps acts as a hinge on which the main body portion of the strip is swingable and the other flap acts as an anchoring means permitting an amount of freedom of movement of the strip to permit the required swinging movement on its hinged connection, the strip being yieldingly backed by a spring to project the same.

Yet another object of the invention is to provide an insulating strip for a closure of a refrigerator body adapted to be accommodated in a groove or pocket in the member to which it is attached, so designed and arranged as to avoid the formation of air pockets between the strip and the back wall of the groove within which it is accommodated.

Other objects of the invention will more clearly appear from the description and claims hereinafter following.

In the drawing forming a part of this specifica-

tion, Figure 1 is a horizontal sectional view through a hinged double door and door frame of a container such as the body of a refrigerator railway car, illustrating my improvements in connection therewith, the door being shown broken, and the frame partly broken away to accommodate the view to the sheet of the drawing. Figure 2 is a view similar to Figure 1, on an enlarged scale, showing one wall of the frame of the door opening and the edge of the cooperating door member with the improved insulation applied to the wall of the frame of the door opening, the door being illustrated in closed position. Figures 3 and 4 together show a view similar to Figure 2, with the door and door frame separated, that is, illustrating the conditions when the door is not in contact with the insulation, Figure 3 being a horizontal section on the line 3—3 of Figure 5. Figure 5 is an elevational view, looking toward the left in Figure 3, the outer section of said view being partly broken away to show the interior construction of the insulation.

In said drawing, one of the walls of the body of a container is indicated by 10. The wall 10 is provided with the usual door opening 11, closed by a pair of hinged doors 12 and 13. The doors 12 and 13 are suitably supported for swinging movement by the usual hinges 14—14. As shown in Figure 1, the vertical meeting edge faces of the doors 12 and 13 are beveled so that in closing the doors the same will properly overlap. The portions of the wall 10 surrounding the door opening form the frame of said opening, the side walls 15—15 of said frame only being shown in the drawing.

My improved insulation comprises a composite strip A, including a core B, layers of padding or quilting C, layers of canvas covering D; a pair of nailing strips E and F for holding the composite strip A seated in a groove or pocket G; and a spring H yieldingly backing the strip A.

The composite strip A is employed between the meeting edges of the two doors and between the meeting edges of the door frame and each door, the strip having flaps 16 and 17 at opposite sides thereof by which it is secured in place to the edge face of one member, being engageable by the cooperating edge face of the other member. The strip A, as shown, is clamped within a groove provided in the edge of the member to which it is secured. As shown in Figure 1, the members which are provided with grooves are the door 12 at the edge face thereof which is opposed to the edge face of the door 13, and the walls 15—15 of the door opening. In order to properly coop-

erate with the strip of insulating material A of my improvements, these grooves which are indicated by G—G, are made of the shape shown in the drawing and hereinafter more specifically described.

The strip A is clamped within the groove G by means of the nailing strips E and F which may be of wood or any other suitable material.

The composite strip A is formed by the layers of canvas D—D and padding C—C which enclose the core B. The core B is in the form of an elongated wooden strip or bar of oblong cross section, having the opposite side edges rounded off, as indicated at 18—18. The core B is embraced by the layers of padding or quilting C—C which overlie the front and rear sides of the core and extend laterally outwardly beyond the rounded side end edges 18—18 thereof. These extended portions provide flaps of two ply thickness, as clearly shown in the drawing. The layers of canvas D—D are of the same width as the layers of quilting C—C and overlie and enclose the latter therebetween. The portions of the layers D—D which overlie the projecting flap portions of the layers C—C form, together with the latter, flaps 16 and 17 of the composite strip A. These flaps of the strip A are thus of four ply thickness. The plies of material of the flaps 16 and 17 are stitched together, as indicated at 19—19 and shown by dash lines to hold the parts assembled, the stitches preferably running in rows lengthwise of said flaps. As shown clearly in the drawing, the flap 17 of the strip A is of considerably greater width than the flap 16. The portion of the strip between the flaps 16 and 17, which contains the core B, forms a thickened section or bulged portion 20, which is the main body of the strip.

As shown most clearly in Figures 2 and 3, the groove G is relatively wide and has the inner or back wall thereof, which is indicated by 21, provided with a plurality of pockets, only one of which is shown in the drawing. The pockets 22 are preferably arranged in a row lengthwise of the groove, being spaced apart any suitable distance found expedient. Each pocket 22 is slightly inclined, as shown most clearly in Figures 2 and 3, and forms a seat for one of the backing springs H. The back wall 21 of the groove G is substantially straight to one side of the pocket 22, said straight wall portion being indicated by 23, and is located above the pocket 22, as seen in Figures 2 and 3. To the other side of the pocket, adjacent thereto and inwardly of the corresponding side wall of the groove G, the back wall 21 is cut back, as indicated at 24. Laterally outwardly beyond the cut back portion or section 24, the portion of the back wall adjacent the corresponding side wall of the groove is substantially flat, as indicated at 25, said flat portion being in the same plane as the flat portion 23. The back wall 21 between the cut back portion 24 and the flat portion 25 is curved or concavely rounded, as indicated at 26, for a purpose hereinafter pointed out.

The composite strip of insulation A is disposed within the groove G and has the flaps 16 and 17 thereof clamped in place by the nailing strips E and F, which are of rectangular cross section and hold the flaps firmly against the back wall portions 23 and 25 of the groove. As shown in the drawing, the strips E and F are secured at intervals by nails extending through said strips, the flaps 16 and 17 of the insulating strip A, and into the material of the wall to which the strip

A is secured. As shown most clearly in Figures 3 and 4, the flap 16 of the strip A is clamped in such a manner that there is but slight clearance between the outer side face of the nailing strip E and the enlarged main body portion 20 of the insulating strip, while the flap 17 is clamped in such a manner that considerable clearance is provided between the nailing strip F and the enlargement 20 of the strip A, and a certain amount of slack is present in the unclamped portion of said flap.

The spring H forms means for yieldingly resisting movement of the strip toward the back wall of the groove G. This spring is seated in the pocket 22 and bears on the rear side of the strip A to normally hold and maintain the latter yieldingly projected from the groove G, as shown in Figure 3. As will be understood, any desired number of springs, found necessary, may be employed to yieldingly back the strip A. These springs are preferably secured to the strip by staples 27 or other similar suitable securing elements.

When the door is swung to closed position, as illustrated in Figures 1 and 2, the insulating strip A is forced or pressed inwardly of the groove G against the resistance of the spring H, the required hinging movement of the strip being permitted by the flexibility of the flap 16, which functions as a hinge. When the door has been fully closed the strip A is forced against the surface of the cut-out section 24 and the curved portion 26 of the back wall 21 of the groove G and, compressed between said back wall and the edge face of the door to tightly seal the crevice between the edge of the door and the wall of the door opening. As will be seen in Figure 2, the parts are so proportioned that in the tightly closed position of the door, the enlarged main body portion 20 of the sealing strip still protrudes outwardly of the groove G beyond the edge face of the wall 15 of the door opening, thus assuring compression of the insulating strip against the back wall of the groove G to close the space between the back of the insulating strip adjacent the hinge flap 16. In this connection it is pointed out that, due to the hinging movement of the strip A in swinging on the hinge flap 16 and due to the flexibility of said flap, seating of the hinged end of the strip A on the concave wall portion 26 of the groove G is assured at an early stage in the application of pressure to said insulating strip. This positive contact of the strip with the back wall of the groove G is assured even if the door is slightly over or undersize with respect to the door opening, because in assuming various angular positions of its hinging movement to accommodate itself to variations in size with respect to the door opening, the sealing strip A has continuous contact with the back wall of the groove G, inasmuch as it is forced to rock on the concavely curved portion 26 of the back wall of the groove G. Thus, air pockets are avoided in back of the insulating strip which would impair its insulating efficiency.

I have herein shown and described what I now consider the preferred manner of carrying out my invention, but the same is merely illustrative and I contemplate all changes and modifications that come within the scope of the claims appended hereto.

I claim:

1. In means for insulating closures of containers, the combination with a closure member having an edge face; of a member having an

edge face opposed to the edge face of the closure member when the container is closed, the edge face of one of said members having a longitudinal groove; a composite strip of insulation having an enlarged central main body portion and flexible flaps extending from opposite sides of said body portion, said strip being seated in said groove; means for securing said strip to said grooved member by said flaps, one of said flaps being secured relatively close to said main body portion to provide hinging on said flap, the other flap having a predetermined amount of slack between said main body portion and the point at which it is secured to permit limited swinging movement on said hinge flap; and spring means backing said main body portion to partly project the latter from said groove.

2. In means for insulating closures of containers, the combination with a closure member having an edge face; of a member having an edge face opposed to the edge face of the closure member when the container is closed, the edge face of one of said members having a longitudinal groove; a composite strip of insulation comprising an elongated core of solid material; flexible strip material enclosing said core and having flaps extending from opposite side end edges of the core, said flaps having the strip portions thereof in overlying face to face contact, said composite strip being seated in said groove; nailing strips secured to the member having the groove and clamping said flaps to said last named member, one of said nailing strips clamping the corresponding flap close to said core to provide hinge means, and the other nailing strip clamping the other flap remote from said core to provide a predetermined amount of slack in said flap to permit inward and outward movement of the core portion of the composite strip about its hinged flap; and spring means normally partly projecting said core portion of the composite strip outwardly of said groove.

3. In means for insulating closures of containers, the combination with a closure member having an edge face; of a member having an edge face opposed to the edge face of the closure member when the container is closed, the edge face of one of said members having a longitudinal

5 groove, said groove having a back wall; a composite strip of insulation seated in said groove, said strip including an enlarged central main body portion containing a solid core of material and flexible strips of flexible sheet material overlying the front and rear sides of said core and enclosing the same, said strips of flexible material extending beyond the side end edges of said core in face to face contact with each other and forming securing flaps; means for securing one of said flaps to the member having the groove, closely to said core, to provide hinging action, said back wall of the groove having a concavely rounded surface with which said enlarged central portion of the strip has rocking engagement at the hinged edge thereof; means for securing the other flap of said strip to the member having the groove, at a point remote from the core, to provide a certain amount of slack in said last named flap to permit swinging movement of said strip on the hinged connection thereof; and means for yieldingly projecting said enlarged portion of the strip outwardly of the groove away from the member having the groove toward the other of said members.

4. In means for insulating closures of containers, the combination with a closure member having an edge face; of a member having an edge face opposed to the edge face of the closure member when the container is closed, the edge face of one of said members having a longitudinal groove; a composite sealing strip of insulation including an enlarged central portion of oblong transverse cross section having one of the side end edges rounded, said strip including flexible securing flaps extending from opposite side ends of said enlarged portion, said strip being accommodated in said groove, said groove having a back wall provided with a concavely curved bearing surface on which said rounded edge of the enlarged portion of the strip rocks; means for anchoring the flaps of said strip to the member having the groove; and spring means in said groove in back of the enlarged portion of the strip yieldingly holding said enlarged portion of the strip partly projected from the groove.

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