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REFRIGERATOR DOOR CONSTRUCTION

Filed March 21, 1927

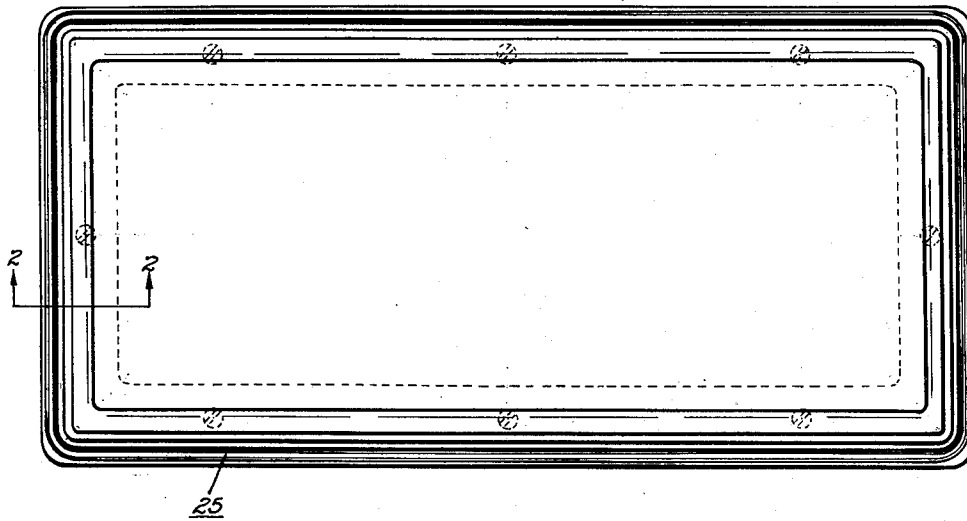


Fig. 1.

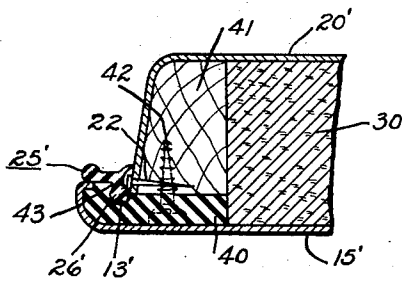


Fig. 3.

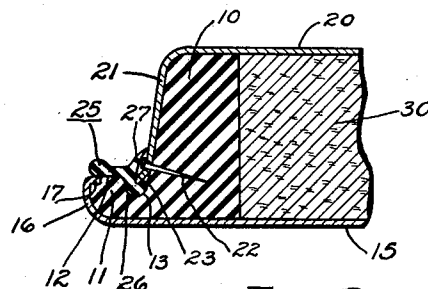


Fig. 2.

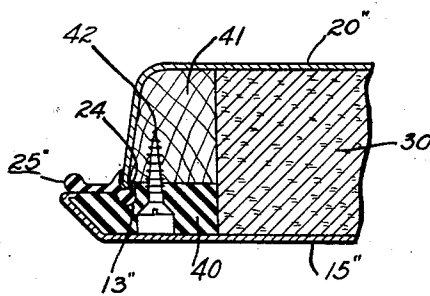


Fig. 4.

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REFRIGERATOR-DOOR CONSTRUCTION

Application filed March 21, 1927. Serial No. 176,871.

This invention relates to the construction of heat insulating closures, such as doors or panels for refrigerator cabinets.

5 An object of this invention is to provide an improved form of heat insulating door which will have improved appearance on both inner and outer sides, good insulating qualities, and which can be rapidly manufactured at small cost.

10 A more specific object is to provide such a door having a molded composition frame, inner and outer sheet metal covers for said frame, and simple and efficient means for securing said metal covers to said frame.

15 A further object is to provide a construction wherein the gasket of elastic material may be easily applied or removed from the door, and wherein the gasket conceals the edges of both the inner and outer metal covers, thus improving the appearance and also sealing the joints between the metal covers and the frame. This sealing of the joints is important in order to prevent possibility of moisture entering the heat insulating material within the door and thereby causing deterioration thereof and bad odors to escape therefrom.

20 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 embodiment of the present invention is clearly shown.

In the drawings:

35 Fig. 1 is a view of the inner side of a refrigerator door built according to this invention.

Fig. 2 is a section on line 2—2 of Fig. 1, on an enlarged scale.

40 Fig. 3 is a view similar to Fig. 2, showing a modified form.

Fig. 4 is a view similar to Fig. 2, showing another modified form.

45 Similar reference characters refer to similar parts throughout the drawings.

In the form shown in Figs. 1 and 2, 10 designates the molded composition main frame which is molded in one piece in the sectional shape clearly shown in Fig. 2. The peripheral flange 11 is provided forming a

shoulder 12 which is adapted to abut against the side of the door opening of the cabinet.

A gasket groove 13 extending entirely around the door is molded in the face of the shoulder

12. An outer sheet metal cover 15 is held firmly fixed to the frame 10 by having its marginal portions 16 extending around the flanges 11 and its edges 17 turned in upon the shoulder 12, as clearly shown in Fig. 2. The

metal cover 15 may be applied by being first pressed to shape as shown with the exception that the edges 17 are not crimped over, by setting the frame 10 thereupon, and then firmly crimping the edges 17 down upon the shoulder 12. Or if desired, the cover 15 may be

completely pressed to shape as shown in Fig. 2 and set within the molding die, and then the frame 10 molded in place thereupon in a manner which will be understood by those skilled in the art.

The inner sheet metal cover 20 is first pressed to shape as shown in Fig. 2 so that the flanges 21 will snugly fit upon the slightly beveled outer surface of frame 10. The heat

insulating material 30, which preferably is loose ground cork or cork board, is properly packed in place in the interior space provided therefor and then the inner cover 20 is pressed in place and nailed by the small nails 22

which are suitably spaced apart around the periphery of the door. The edges 23 of the flanges 21 are preferably bent out slightly, as clearly shown in Fig. 2, to provide a narrowing neck for the groove 13 so that the

rubber gasket 25 will be more positively retained in place. A narrowing neck cannot be economically molded in the molded material itself, as will be well understood by those skilled in the art.

This gasket 25 is preferably molded in one endless piece of elastic rubber in the form of the door and of such dimensions that it will lie snugly in place by a slight tension on the rubber. Gasket 25 has a projecting bead

portion 26 which is joined to the main portion of the gasket by a neck corresponding in width to the narrowing neck of the groove 13 caused by the metal lip 23. Gasket 25 is applied to the door by slipping it down around the inner cover 20 and then stretching a cer-

tain length of it at a time in order to reduce the cross section of the bead portion 26 and permit its easy insertion into groove 13 past the narrowing neck thereof. Gasket 25 preferably has a flexible lip portion 27 which is deflected upwardly and lies snugly against the flange 21 when the gasket is applied to the door. This lip 27 conceals the heads of the nails 22 and prevents a crevice which would obviously be present if lip 27 were omitted. By this construction the gasket 25 seals and conceals the joints between the two metal covers and the frame 10. So far as can be observed when gasket 25 is in place, the entire door is covered with metal with no seams therein, thus greatly improving the general appearance and ease of keeping the door thoroughly clean.

Figs. 3 and 4 illustrate modifications wherein the portion of the main frame having the gasket groove therein is a one-piece molded frame 40, and a built-up wood frame 41 is fixed thereto by wood screws 42 suitably spaced around the door.

In the form shown in Fig. 3, the gasket groove 13' has a slightly overhanging lip 43 which aids in retaining the projecting portion 13' of gasket 25' in place, as will be obvious. However, since the right side (as viewed in Fig. 3) of groove 13' is considerably lower than the left side, there is no narrowing neck for the groove and hence there will be no difficulty in removing the molded part 40 from the molding die, as will be well understood by those skilled in the art. The inner metal cover 20' abuts the molded frame 40 adjacent the groove 13' and is held securely in place by the nails 22 driven into the wood frame 41.

In Fig. 4, the inner metal cover 20'' is secured in place by having its edges 24 crimped around the lower edge of the wood frame 41, thus eliminating all use of nails. The gasket groove 13'' is so located relative to the crimped edges 24 as to cause the corner of the metal cover to give a slightly narrowing neck to groove 13'', as clearly illustrated in Fig. 4. The gasket 25'' is inserted in place as described above in connection with Fig. 2.

The composition from which the molded members 10 and 40 are molded may be a hard rubber composition but preferably I use a cold molding composition of gilsonite, petroleum residue, disintegrated asbestos fiber, and a finely divided filler. This composition and process for mixing and molding the same is described and claimed in my copending application, Serial No. 169,669, filed February 19, 1927.

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

What is claimed is as follows:

1. A heat insulating door comprising: a one-piece molded bituminous composition frame having a peripheral main flange integral therewith and forming a shoulder adapted to abut against the door opening, a peripherally extending gasket groove molded in the face of said shoulder, and an endless gasket of elastic material stretched around said frame and lying upon said shoulder and having a projecting portion seated in said groove, whereby said gasket is retained in place.

2. A heat insulating door comprising: a one-piece door frame of molded bituminous composition having a peripheral flange integrally molded therewith and forming a shoulder adapted to abut the door opening, an outer metal cover for said frame having its marginal portions extending around said peripheral flange and having its edges turned in upon said shoulder, an inner metal cover for said frame having its marginal portions extending around the inner portion of said frame and terminating adjacent said shoulder, an elastic gasket lying upon said shoulder and concealing and sealing the edges of both of said metal covers, and heat insulating material in the interior space between said covers.

3. A heat insulating door comprising: a one-piece main door frame of molded bituminous composition having a peripheral flange integrally molded therewith and forming a shoulder adapted to abut the door opening, an outer sheet metal cover attached directly to said main frame and having its marginal edge bent around said peripheral flange, an inner sheet metal cover attached directly to said main frame having its marginal portion bent to telescope upon said frame and forming an interior chamber between said frame and metal covers, and heat insulating material filling said interior chamber.

4. A heat insulating door comprising: a one-piece main door frame of molded bituminous composition having a peripheral flange integrally molded therewith and forming a shoulder adapted to abut the door opening, an outer sheet metal cover secured directly to said main frame having its marginal edge bent around said peripheral flange and terminating at said shoulder, an inner sheet metal cover for said main frame having its marginal portion bent around said frame and terminating adjacent said shoulder, and a gasket of elastic material lying upon said shoulder and sealing the edges of both inner and outer metal covers.

5. A heat insulating door comprising: a one-piece main door frame of molded bituminous composition having a peripheral flange integrally molded therewith and forming a shoulder adapted to abut the door opening, an outer sheet metal cover for said main frame, an inner sheet metal cover for said

main frame having its marginal portion bent
around said frame and terminating adjacent
said shoulder, and a gasket of elastic material
lying upon said shoulder and having a pro-
5 jecting portion retained in place by the edge
of said inner cover.

In testimony whereof I hereto affix my sig-
nature.

HARVEY D. GEYER.

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