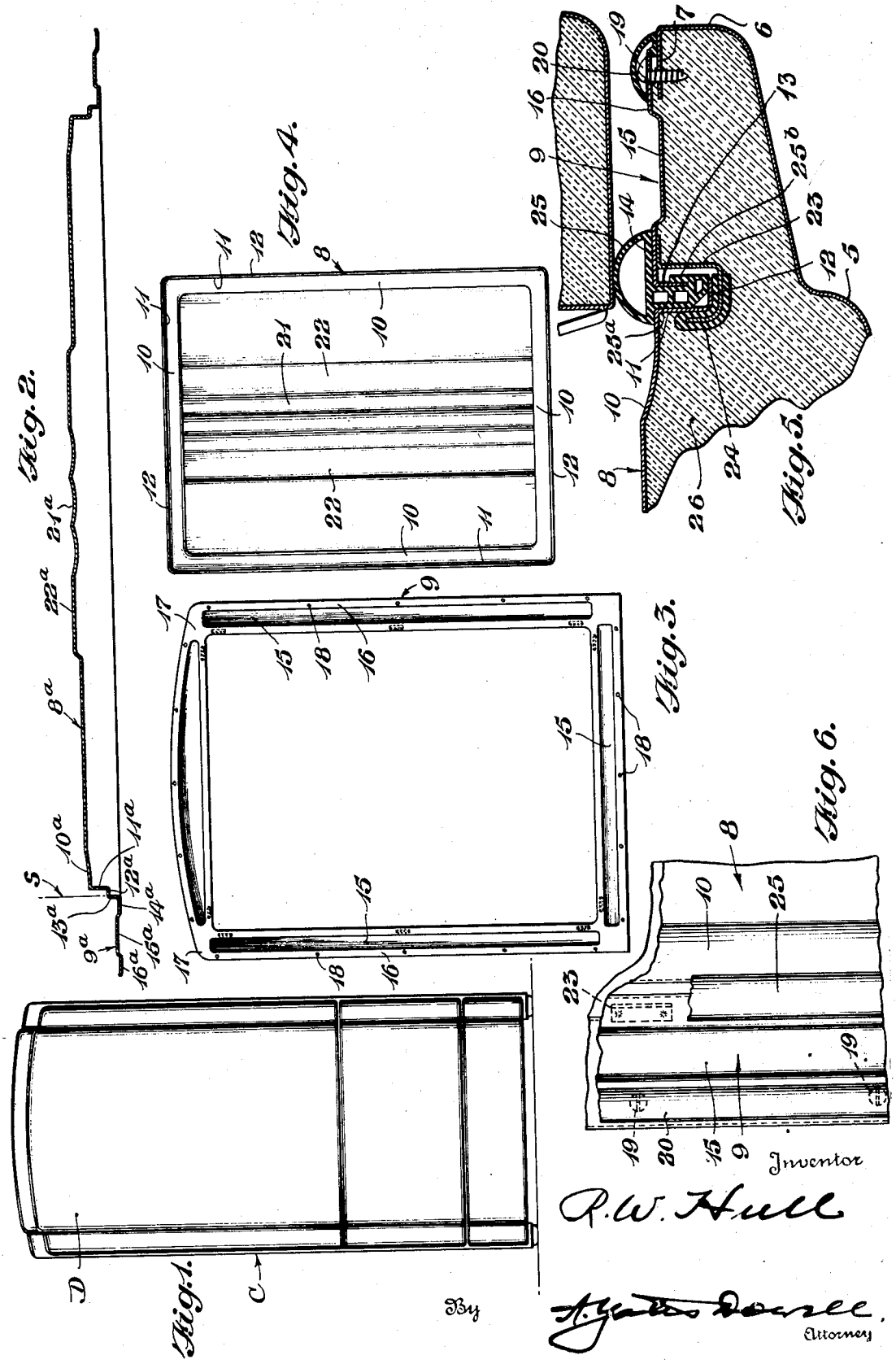
March 17, 1942. R. W. HULL 2,276,778

REFRIGERATOR CABINET CONSTRUCTION

Filed May 18, 1938



UNITED STATES PATENT OFFICE

2,276,778

REFRIGERATOR CABINET CONSTRUCTION

Robert Winter Hull, Connersville, Ind., assignor, by mesne assignments, to Philco Corporation, Philadelphia, Pa.

Application May 18, 1938, Serial No. 208,683

5 Claims. (Cl. 20—35)

This invention relates to refrigerator cabinet construction, and the primary object of the same is to provide an improved door for cabinets of this type and a method of constructing the same whereby economy in manufacture results while at the same time obtaining durability, thermal insulating efficiency, strength with lightness in weight and other standards which must be upheld in a highly competitive market.

The improved door has spaced outer and inner walls of sheet metal or other material susceptible to the required shaping operations, with the conventional insulation material therebetween. The outer wall is preferably, although not necessarily, of one-piece construction, while the inner wall consists essentially of two parts, namely, a door liner proper forming the inner face of the door and a surrounding frame which is also a one-piece unit and is connected to the liner with a thermal break or sealing gasket anchored therebetween and overlying the joint between the frame and liner. In constructing an inner wall of this type, the liner and frame may be first blanked and drawn in one piece, at which time the marginal edge of the blank is given a shape such that, when reversed, it will constitute the desired door frame member. The blank is then severed on a line extending between the liner and frame portion of the blank; and then in the assembling operation, the frame member is reversed with respect to the liner. The resultant construction is a door which will live up to the required specifications having an inner wall made up essentially of two parts co-related to facilitate the assembling operation including the mounting and anchoring of the thermal break or gasket, while at the same time there is no waste of metal in the drawing and blanking process.

The objects and advantages of the improved door structure and method of making the same will become more apparent in view of the following description taken in conjunction with the drawing, wherein:

Figure 1 is a view in front elevation of a refrigerator cabinet having a door thereon constructed in accordance with the features of the present invention;

Figure 2 is a section taken substantially through the central portion of a blanked and drawn sheet metal piece shaped to constitute the door liner and frame member;

Figure 3 is a view in outer side elevation of the frame member after it has been severed from the door liner;

Figure 4 is a view similar to Figure 3 of the liner after severance from the frame;

Figure 5 is a horizontal sectional view taken through the door on the line **5—5**, Figure 1;

Figure 6 is enlarged inner side elevation of a portion of the door frame and adjacent door liner.

Referring to the drawing in detail, a refrigerator cabinet is generally indicated at C having a door D. The outer wall **5** of the door (note Figure 5) comprises a sheet metal member having a door jamb portion **6** terminating in an inturned frame-attaching flange **7**. The particular design of the outer wall of the door may be varied at will in accordance with the exterior design of the cabinet.

The inner wall of the door consists essentially of a liner, generally indicated at **8**, and a frame member, generally indicated at **9**, note particularly Figure 5 where these parts are joined or connected in the finished door. Figure 2 shows the sheet metal piece or blank from which the liner and frame are made, the respective parts in Figure 2 being designated with the same reference characters as in the remaining figures except that in Figure 2 the exponent "*a*" is added. The liner **8**, in the particular design shown is formed with a slight depression **10**, as it approaches its outer edge and is then turned inwardly providing a frame locking or connecting edge wall or shoulder **11** terminating in an out-turned edge flange **12**.

The line of severance is indicated at S in Figure 2, and at this point the inner edge of the frame member **9** is formed with an in-turned flange **13** which coacts with the shoulder **11** and flange **12** to provide a recess for the web of a sealing gasket. The inner exposed face of the frame member is shown formed with a gasket-supporting rib or shoulder **14**, a central wall **15** and an outer raised portion or rib **16** which overlies and is secured to the flange **7**.

If the connected liner and frame members of Figure 5 are compared with the sheet metal blank of Figure 2, it will be noted that the shapes are identical except that the frame member **9** in Figure 5 is reversed with respect to the liner.

The frame member and liner are shown as they appear after severance and prior to assembly in Figures 3 and 4 respectively. It will be noted from Figure 3 that the frame has integral corner portions **17** formed substantially plain or flat while the outer edge portion **16** is formed with a plurality of screw holes **18**, for accommodating screws **19** for attaching the outer edge of the

frame to the adjacent flange 7 of the outer wall 5 and also for mounting a garnish or edge gasket 20, note Figure 5. The door liner in the design illustrated has a plurality of central flutes 21 and a surrounding flat or plain area 22.

In the assembling operation a plurality of clips 23 may be used for supporting the liner with respect to the door frame, a suitable thermal break or gasket 24 being provided between the parts at this point, the clips being formed or bent over after positioning the liner. A suitable compression gasket 25 is provided and has an inwardly projecting web 25a fitting in the recess defined by the wall 11 of the liner and in-turned flange 13 of the frame, said web including an overlap or strip 25b for receiving the flange 13. The outer edge 16 of the frame is joined to the in-turned flange of the door panel through the medium of screws 19, which also serve to hold the garnish gasket 20 in place. The door is provided with the usual insulation material 26.

From the foregoing it will be seen that the parts constituting the door consist essentially of the outer panel 5, the inner liner 8 and the frame 9, fabricated for assembly with the gasket and insulating strips in a simple and expeditious manner, the resultant door being relatively light, yet strong and rugged and capable of efficient service throughout the life of the cabinet. A frame member formed in this manner constitutes an integral one-piece unit, simplifying the assembling operation and rendering the door more sturdy.

While the blank of Figure 2 is preferably given a shape such that reversal of the frame with respect to the liner is required after severance it is conceivable that a shape could be given the blank such that reversal in relative positions would not be necessary; and that other changes in construction and design may be adapted as well as materials other than sheet metal used without departing from the spirit and scope of the invention, as defined by the appended claims:

I claim:

1. In refrigerator cabinet construction, a door having spaced inner and outer metal walls formed of sheet metal, said inner wall including a door liner and a frame member surrounding said liner and connected at its outer edge to said outer wall, the contiguous edge portions of said liner and frame member being formed with inturned confronting flanges spaced from one another providing a recess therebetween, and a gasket member having a web portion interlocked with one of said flanges and anchored in said recess.

2. In combination, a pair of sheet-like members having relatively spaced margins, a flange on one of said margins, a flange on the other margin provided with a shoulder, and a resilient gasket comprising a portion interposed between said flanges and engaging said shoulder, and a portion forming a hollow, resilient bead overlapping the faces of said margins and projecting therebeyond.

3. In a door structure of the type described, an outer metallic panel, inner metallic panels spaced from said outer panel, means connecting said outer panel to one of said inner panels, the opposed margins of said inner panels being relatively spaced and each provided with a flange, and means connecting said inner panels, said means including a resilient gasket comprising a portion interposed between said flanges and embracing one thereof, and a portion forming a resilient, hollow bead overlapping the opposed margins of said inner panels.

4. In refrigerator cabinet construction, a door having spaced inner and outer walls formed of sheet metal or analogous material with insulation therebetween, said inner wall comprising a door liner and a frame member surrounding said liner and constituting an extension of the latter, means connecting the outer edge of the frame member to the outer wall of the door, the contiguous edge portions of the liner and frame member being formed with inturned flanges spaced from one another and defining a recess therebetween open towards the inner face of the door, and a gasket member having a web portion anchored in said recess and a hollow resilient bead overlying the recess.

5. In combination, a pair of sheet-like members having relatively spaced margins disposed substantially in a common plane, a flange on one of said margins, a flange on the other margin provided with a shoulder, and a resilient gasket comprising a portion interposed between said flanges and engaging said shoulder, said portion also embracing one of said flanges, and a portion forming a resilient, hollow bead overlapping the faces of said margins and projecting therebeyond.

ROBERT WINTER HULL.