

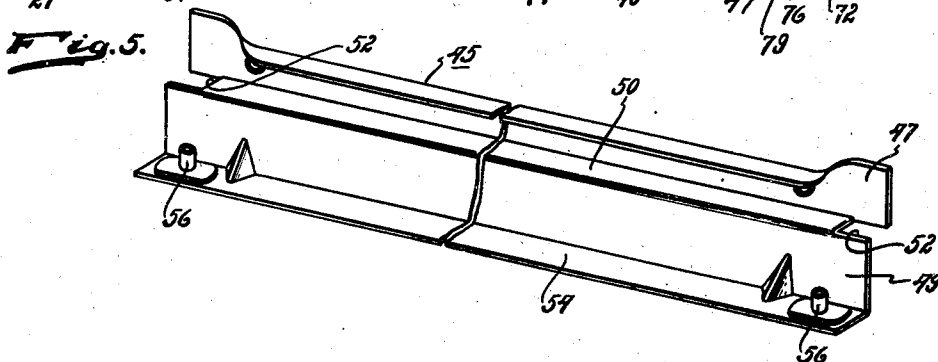
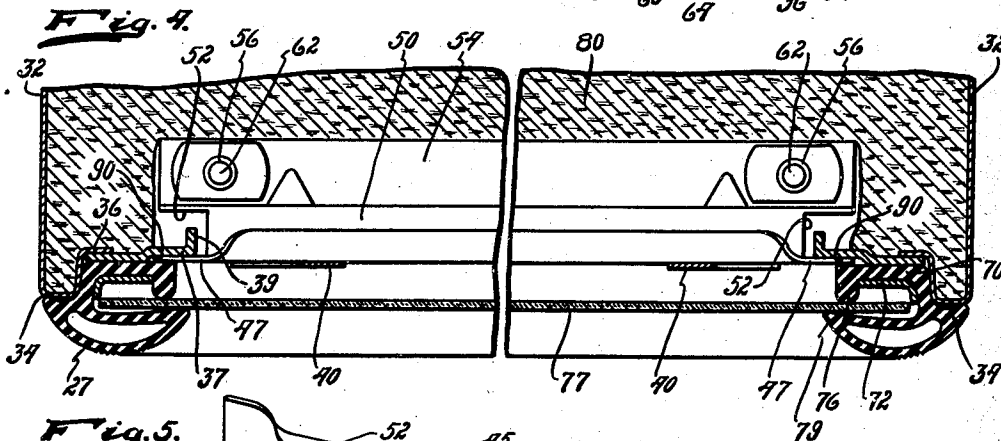
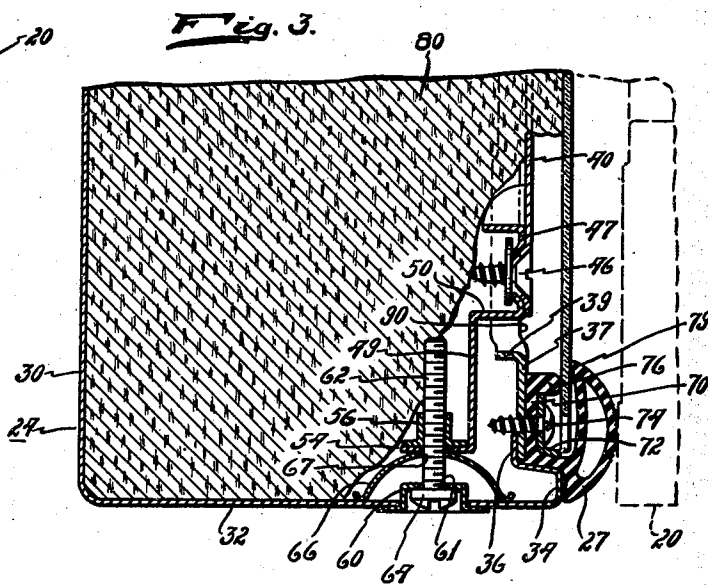
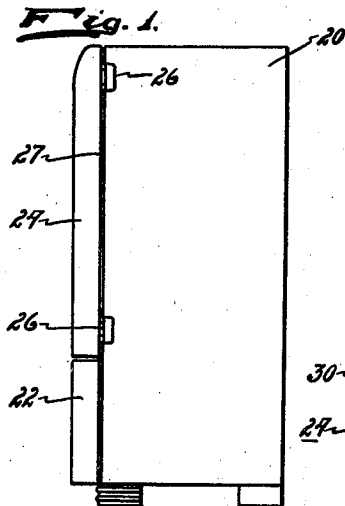
Feb. 16, 1943.

M. J. GOULOOZE
REFRIGERATING APPARATUS

2,311,045

Filed Aug. 1, 1941

2 Sheets-Sheet 1



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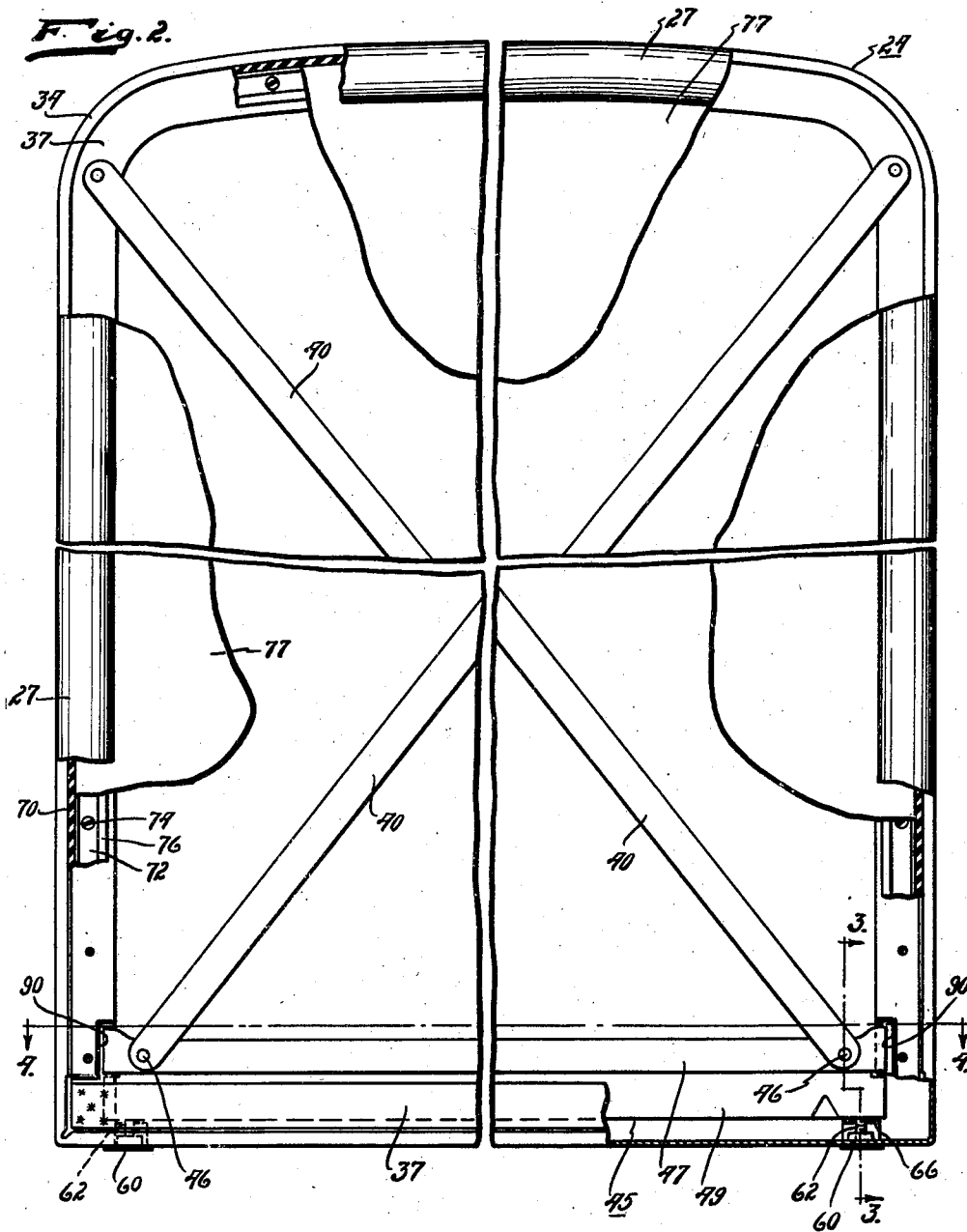
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UNITED STATES PATENT OFFICE

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REFRIGERATING APPARATUS

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Application August 1, 1941, Serial No. 405,069

1 Claim. (Cl. 20—35)

The present invention pertains to refrigerator cabinets and more particularly to a door construction for such cabinets.

It is an object of the present invention to construct a door which may be easily and quickly adjusted in co-planar alignment with a wall of a cabinet to form an air tight seal about an opening to a compartment formed in the cabinet.

It is another object of the present invention to provide an improved door construction in which the desired rigidity is obtained by use of cross straps or braces.

It is a further object of the present invention to provide a door construction having adjustment means for aligning the door in sealing arrangement with a cabinet.

It is a still further object of the present invention to provide a rigid door construction, the thermal conductivity of which is relatively low.

The invention itself, however, both as to its organization, and its method of operation together with additional objects and advantages thereof, will best be understood from the following description when read in conjunction with the accompanying drawings, in which:

Fig. 1 is a side elevational view of a refrigerator cabinet embodying the present invention;

Fig. 2 is a plan view of a door of a refrigerator cabinet embodying the present invention with parts broken away and parts shown in section;

Fig. 3 is a greatly enlarged cross-sectional view taken along line 3—3 of Fig. 2;

Fig. 4 is an enlarged fragmentary cross-sectional view taken along line 4—4 of Fig. 2; and

Fig. 5 is a perspective view of the horizontal adjustment bar used in the present invention.

Shown in the drawings is a refrigerator cabinet 20. The cabinet has a food storage compartment refrigerated by a suitable refrigerating apparatus of which the condensing unit is mounted in a machine compartment insulated from the food storage compartment, and to which access is had through door or panel 22.

Access to the food storage compartment is had through door 24 pivotally mounted on hinges 26 secured to a side wall of the cabinet. The door is provided with a rubber gasket 27 adapted to seal against the front wall of the cabinet immediately adjacent to and about the opening to the food storage compartment to prevent air entering the compartment.

The door comprises an outer metal panel or shell 30 of pan-like conformation having side, top and bottom walls 32. The side, top and bottom walls are bent inwardly to form a peripheral

ledge 34 about the door. The metal is extended from the ledge 34 to form a second ledge 36 in parallel relation below the ledge 34. Secured by weld, or the like, to the ledge 36 is a frame 37 extending about the door and serves as a box-like reinforcement frame structure. The inner marginal edge of the frame is bent at right angles, as at 39. Secured to each of the upper corners of the door on the frame member 37 by their ends are straps 40. The straps are crossed to extend diagonally across the door and are secured at their opposite ends to a bar or member 45 by screws 46.

The member 45 extends horizontally across the width of the door adjacent the bottom thereof, and is movable in a vertical direction. The member is formed of parallel sections 47 and 49 interconnected by section 50 which is recessed at each end, as at 52 to accommodate frame 37. The bottom marginal edge of the section 49 is bent, as at 54, to which is secured by weld, or the like, internally threaded sleeves 56.

Openings are formed in the bottom wall 32 in which are pressed cup shaped members 60 having an opening 61 in the bottom thereof. Extending through opening 61 and threading into the sleeve 56 are screws 62 having enlarged heads 64 adapted to lie in the cup 60. An arcuate leaf spring 66 is adapted to be tensioned between the bottom wall 32 and member 45 having opening 67 for passage of screw 62.

In the drawings, screws 62 are shown positioned at opposite ends of the member 45 but it will be obvious that the number required may be varied dependent upon the size and weight of the outer panel and the door. The rotation of the screws 62 will, by threading in the sleeves 56, move the member 45 in a vertical up or down direction of the door, dependent upon the direction of rotation, for increasing or decreasing the tension upon the cross straps 40 for correcting any warping or buckling tendency of the outer panel.

The door gasket 27 is secured to the door by means of a tongue 70 formed integral with the gasket and is adapted to lie upon the frame 37 being secured thereto by strip 72 attached by screws 74 to frame 37. The end of the tongue is enlarged, as at 76, against which is held the inner door panel 77 by the overlapping portion 79 of the gasket 27. The gasket 27 also seats upon the ledge 34. By this arrangement the inner door panel is mounted in floating relation.

Suitable heat insulation material 80 is placed between the inner and outer panels of the door.

In the mounting of the door to the cabinet the

gasket 27 should seal tightly against the face of the cabinet about the opening to the food storage compartment. In the present construction should, for example, it be found that the upper left hand corner of the door be away from the cabinet to prevent a tight seal, then the threading of the screw 62 at the right corner of the door and drawing the horizontal bar 45 downwardly, the cross strap 40 will be so drawn as to flex inwardly the corner of the outer panel sufficiently to move the gasket against the face of the door. The tension of the springs 66 against the member 45 tends to lock the screw against undue rotation and at the same time prevent rattles or vibrational movement of the member 45. It will be noted that the ends of section 47 of member 45 engage in depressed portions 90 of the frame 37 so as to lie flush, or slightly below the top surface of the frame. This permits free adjustable movement of the member 45 after the door is assembled to the cabinet without interference from the gasket which extends thereover.

In the present construction, there is thus provided an arrangement whereby the outer door panel, which is made of thin metal, is cross-braced and reinforced against buckling, twisting or warping, and also means whereby the door gasket is planarly alignable with the face surface of the cabinet after the door is completely

assembled and attached to the cabinet. The adjustment screws are so located in the bottom of the door to permit easy access thereto, while at the same time are so hidden from view as not to interfere or detract from the external appearance of the cabinet.

While I have shown and described the preferred forms of my invention, I do not wish to limit myself to the precise details as shown, but wish to avail myself of such variations and modifications as may come within the scope of the appended claim.

I claim:

A door of the class described comprising inner and outer panels with heat insulation therebetween, said outer panel formed of relatively flexible sheet metal having sides, a frame member secured to said sides to stiffen said panel, a member having its ends guided by said frame member in longitudinal movement therewith, straps extending diagonally across said outer panel each having an end affixed to said frame member and their opposite ends to said member, means extending through a side of said outer panel for adjusting movement of said member in tightening said straps and further stiffening said outer panel against flexure, and means for holding said member in fixed position.

MARTIN J. GOULOZE.