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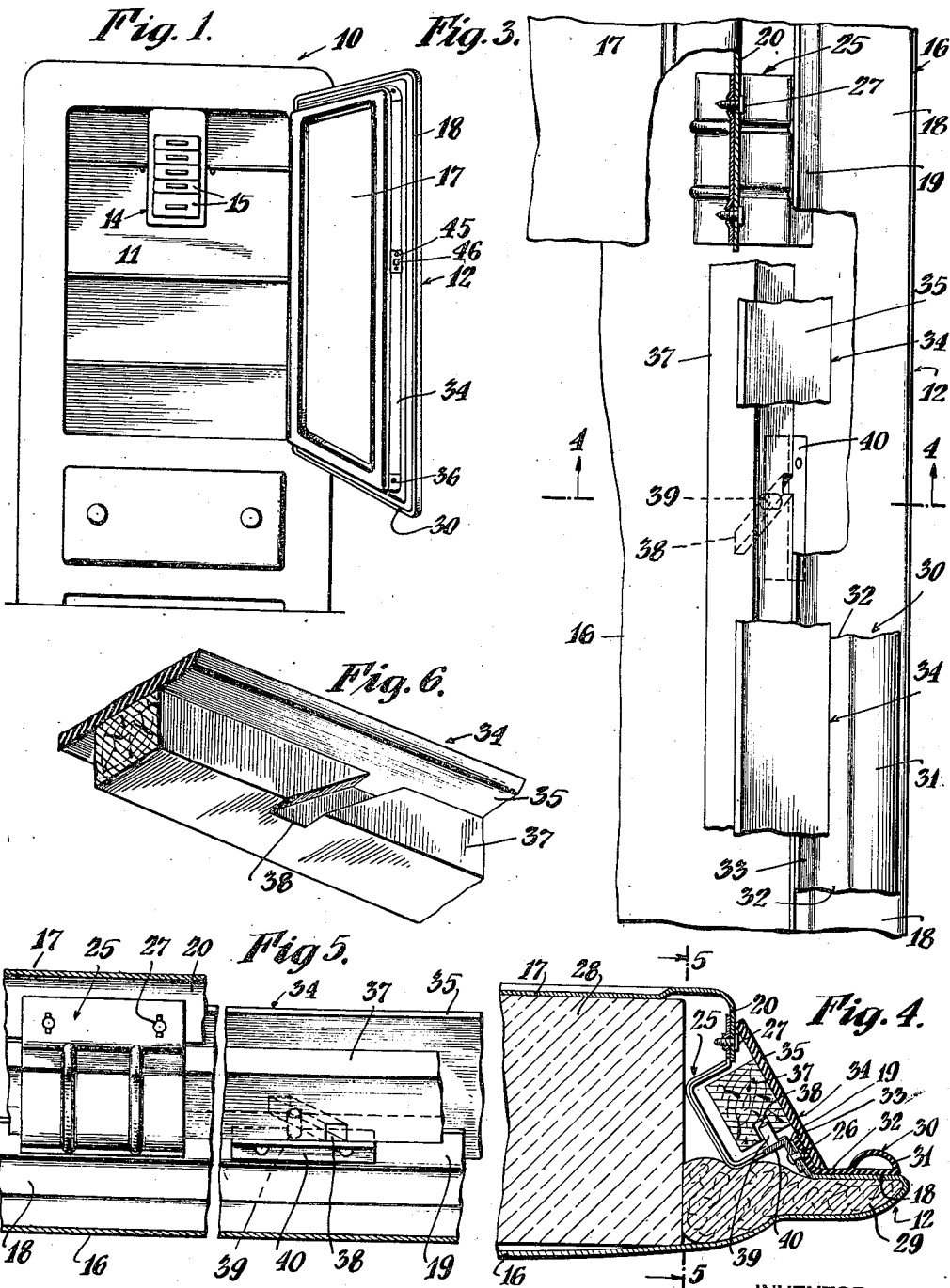
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2,270,544

REFRIGERATOR

Filed March 16, 1938

2 Sheets-Sheet 1



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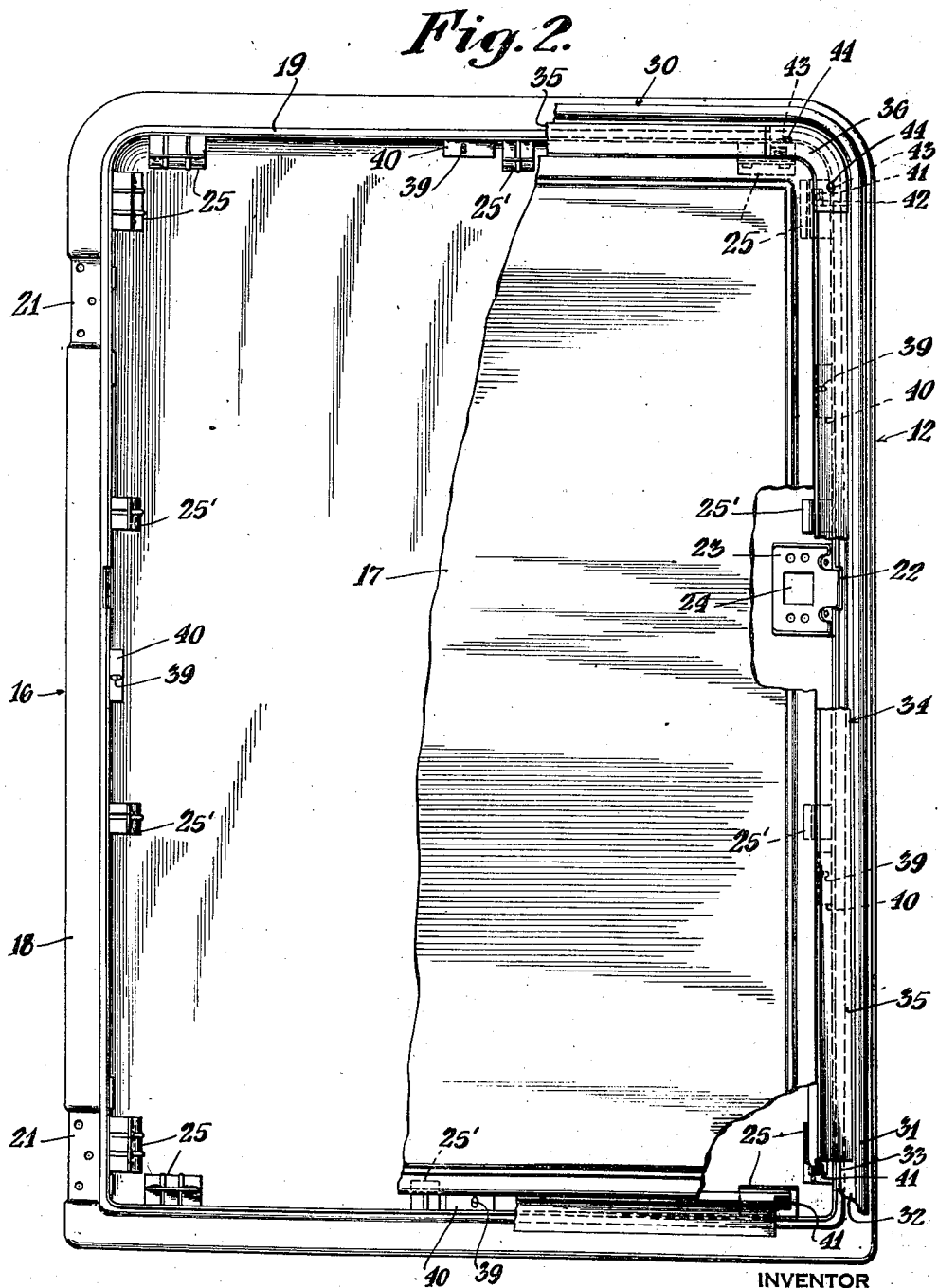
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REFRIGERATOR

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2 Sheets-Sheet 2



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2,270,544

REFRIGERATOR

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Application March 16, 1938, Serial No. 196,135

1 Claim. (Cl. 220-15)

This invention relates to refrigerators, and it is an object of the invention to provide an improved refrigerator cabinet structure, as will appear from the following description taken in conjunction with the accompanying drawings forming a part of this specification, and of which:

Fig. 1 is a front elevation of a household refrigerator embodying the invention;

Fig. 2 is a rear view of the door shown in Fig. 1 with the insulation removed and parts of the inner wall member broken away to illustrate details of the structure more clearly;

Fig. 3 is an enlarged fragmentary view, partly broken away and in section, of the door shown in Figs. 1 and 2;

Fig. 4 is a sectional view taken on line 4-4 of Fig. 3;

Fig. 5 is a sectional view taken on line 5-5 of Fig. 4; and

Fig. 6 is a fragmentary perspective view of a trim strip having a backing member secured thereto.

In the drawings the invention is shown embodied in a household refrigerator comprising a cabinet 10 having a thermally insulated space 11 into which access is afforded by a door 12. Within space 11 is arranged a cooling element 14 of suitable refrigeration apparatus to produce a refrigerating effect for freezing water and other matter and keeping space 11 at a desired low temperature. The cooling element 14 is provided with a plurality of compartments adapted to receive trays 15 containing water or other matter to be frozen.

The principles of the invention have been incorporated in the construction of door 12. As shown most clearly in Fig. 4, the door 12 includes an outer wall member 16 and an inner wall member 17. The outer wall member 16 extends beyond the inner wall member 17 and is bent back upon itself to form a ledge 18. The ledge 18 is provided with a flange 19 which is inclined toward inner wall member 17. The inner wall member 17 is formed with a right angle flange 20 which extends toward the outer wall member 16.

As shown in Fig. 2 the ledge 18 at the left-hand or hinge side of outer wall member 16 is formed with depressed portions 21 to which the door hinges (not shown) are secured. When the door hinges are secured to outer wall member 16, reinforcing plates (not shown) are preferably provided at the underside of ledge 18 at the depressed portions 21. The flange 19 is

notched at 22 at the right hand or latch side of the outer wall member 16. At the region of notch 22 a reinforcing and supporting plate 23 for the latch mechanism (not shown) is secured in place in any suitable manner. The plate 23 and outer wall member 16 are provided with an opening 24, whereby the latch operating handle may be operatively connected to the latch mechanism which is located within the outer wall member.

The inner and outer wall members 16 and 17 are held in spaced relation by a plurality of metallic clips 25. The clips 25, which will hereafter be referred to as spacing clips, are of the shape shown in Fig. 4 and more or less resilient in character.

The outer edge portions of spacing clips 25 are secured by rivets 26 to flange 19 of outer wall member 16. The inner edge portions of spacing clips 25 are formed with openings which serve as speed nuts, whereby the spacing clips may be secured by screws 27 to flange 20 of inner wall member 17.

The spacing clips 25 are arranged in spaced relation about the periphery of the door, as shown most clearly in Fig. 2. The vertical sides of the door in Fig. 2 are provided with two spacing clips 25 adjacent the corners of the door, and two smaller spacing clips 25' intermediate the end clips. Likewise, the top and bottom sides of the door are provided with spacing clips 25 adjacent the corners of the door and a smaller spacing clip 25' between the end clips.

In the space between the outer and inner wall members 16 and 17 is disposed a slab 28 of suitable insulating material. The space formed inside ledge 18 which is not filled by the insulating slab 28 may be filled with soft insulating material 29.

A gasket 30 formed of suitable resilient material, such as rubber, for example, is fixed against the ledge 18. The gasket 30 includes a hollow striking bead 31 and a flange 32 having an inclined edge portion 33 which is adapted to bear against flange 19 of outer wall member 16.

The gasket 30 bears against the front of cabinet 10 when door 12 is closed, thereby effectively sealing space 11 and preventing the escape of cold air therefrom. The gasket 30 is held in position by a trim or breaker strip 34 which bears against the inclined portion 33 of the gasket. The trim strip 34 overlies the flanges 19 and 20 of the outer and inner wall members 16 and 17 and is formed of heat insulating material, such

as the resinous material commercially known as Bakelite.

The trim strip 34 provides a transverse wall about the periphery of the door and includes a number of relatively thin flat strips 35 and connecting corner or angle members 36. The top, bottom, and left-hand or hinge side of the door, referring to Fig. 2, are provided with trim strips 35 which are coextensive with these sides. At the right-hand or latch side of the door two shorter trim strips 35 are provided above and below the region occupied by the latch operating mechanism.

Each of the trim strips 35 is provided with a backing member or narrow rib 37 on the underside thereof. The narrow ribs 37 may be formed of wood or other suitable material and are preferably glued to the trim strips 35. Each of the ribs 37 is provided with a diagonal slot 38 at one side thereof. The slot 38 of each rib 37 is wedged or locked in a pin 39, whereby the trim strips are effectively held in place with the outer edges thereof bearing against the flanges 19 and 20 of the inner and outer wall members, as shown most clearly in Fig. 4.

The pins 39 are fixed to small plates 40 which are secured, as by riveting, for example, to flange 19 of outer wall member 16. As shown in Fig. 2, plates 40 are provided at the top, bottom, and left-hand or hinge side of outer wall member 16. At the right-hand or latch side of outer wall member 16 two plates 40 are provided above and below plate 23 at which region the latch mechanism is positioned. In order to provide space to accommodate ribs 37 when the trim strips 35 are secured in place, the spacing clips 25 are made U-shaped.

The ribs 37 are longer in length than the trim strips 35 to which they are fixed. The projecting ends of the ribs 37 may be undercut or notched at the surface adjacent the trim strips 35 and provided with open ended slots 41, as shown in the lower right-hand corner of Fig. 2. The slots 41 are adapted to receive cap screws 42 which threadedly engage openings in the corner spacing clips 25.

The connecting corner or angle members 36 are preferably formed of the same material as trim strips 35 and the ends thereof overlie the ends of adjacent trim strips. The angle members 36 are provided with openings to receive cap screws 43 which threadedly engage openings in the corner spacing clips 25 at regions near the cap screws 42. The openings in the corner members 36 in which the heads of cap screws 43 are embedded are covered with plugs 44 formed of the same material as the trim strips 35, such plugs being frictionally held in place.

The door 12 described above is assembled substantially in the following manner: The outer and inner wall members 16 and 17 are blanked and formed from flat metal sheets with openings provided in the flanges 19 and 20. During such blanking operation outer wall member 16 is provided with the depressed portions 21 in ledge 18, notch 22 in flange 19, and opening 24 for the latch operating mechanism. The latch reinforcing plate 23 may then be secured in position and the latch mechanism and operating handle (not shown) then fixed to outer wall member 16.

With the latch mechanism in place an outer wall member 16, the spring clips 25 and 25' and metal plates 40 may be riveted to openings in

flange 19 in the manner shown in Fig. 2. With the inside of outer wall member 16 face upward on a supporting table, the soft insulating material 29 may be wedged in the space formed inside ledge 18. Insulating slab 28 is now ready to be inserted in outer wall member 16.

With the insulating material in place, the inner wall member 17 is pressed down against the insulating slab 28 and secured in place by screws 27. Since the resilient spacing clips 25 and 25' are provided with openings and serve as speed nuts, the assembly of the outer and inner wall members 16 and 17 is facilitated considerably.

The gasket 30 is now positioned about ledge 18. The gasket is preferably formed in one-piece with notched regions for the corners of the door, whereby the gasket will extend about the entire periphery of ledge 18. The trim strips 35 with ribs 37 secured thereto are then positioned along the sides of the door so that the lower open ends of the diagonal slots 38 will be engaged by the pins 39. Each trim strip and attached rib is moved lengthwise of a door side, and, in so doing, the diagonal slot 38 moves downwardly past the pin whereby the rib 37 and trim strip are wedged or locked in place. By imparting a sharp blow to the end of each rib or backing member 37 with a wooden mallet or the like, the trim strip 35 and rib 37 secured thereto are quickly wedged into position by the pin and slot securing means.

The projecting ends of ribs 37 are next secured to the corner spacing clips by cap screws 42, and then the corner angle members 36 are secured in place by cap screws 43, the heads of these screws being covered with the small plugs 44 which are frictionally held in place, as described above. The ends of the trim strips 35 at the right hand or latch side of the door terminate at the region of notch 22. The ends of these trim strips are connected by a latch plate 45, as shown in Fig. 1, which is secured to reinforcing plate 23 and provided with an opening through which a latch bolt 46 extends.

While a single embodiment of the invention has been shown and described, such variations and modifications are contemplated which fall within the true spirit and scope of the invention, as pointed out in the following claim.

What is claimed is:

Refrigerator cabinet structure including inner and outer sheet metal wall members spaced apart with edge portions turned toward each other and spaced to provide a relatively long and wide gap therebetween and forming hollow insulation receiving wall structure, clips arranged in spaced relation along said gap and bridging the space between said edge portions and secured thereto and independently maintaining said wall members apart in connected relation, said clips having intermediate portions inwardly bent to collectively provide a longitudinally disposed channel, a trim strip of heat insulating material spanning said gap and overlying the edges of said wall members, a backing strip of relatively rigid material on the underside of said trim strip secured thereto and extending into the space between said wall members, said relatively rigid backing strip being shaped to fit the longitudinally disposed channel formed by said clips, and means locking said backing strip and said clips together.

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