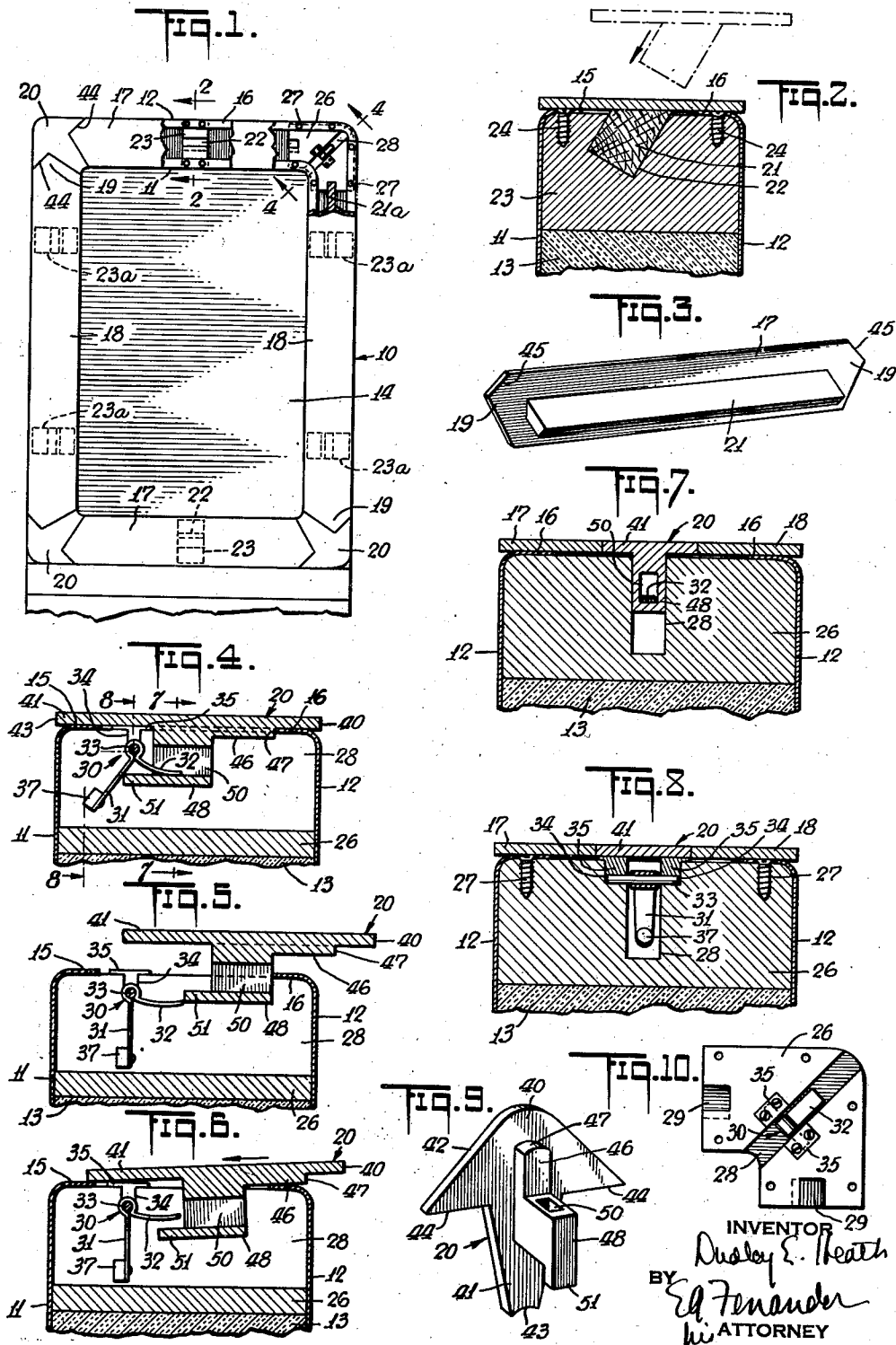


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REFRIGERATOR CABINET

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## REFRIGERATOR CABINET

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The present invention relates to refrigerators, and more particularly to trim strip constructions for refrigerator cabinets.

In certain types of refrigerator cabinets having inner and outer liners or panels, it is customary to frame a border trim or "breaker" strip over the gap between the opposed edges of said liners or panels, to trim said gap, and to heat insulate the inner liner or panel from the outer one.

One object of the present invention is to provide a new and improved trim strip construction, which lends itself to easy and expeditious assembly.

Another object is to provide a new and improved trim strip construction, in which the trim strips can be firmly secured in position without the use of any tools, and by a simple assembling manipulation.

Another object is to provide a new and improved trim strip construction, having trim strips securely held in assembled position by concealed fastening means.

Another object is to provide concealed latch means for securely fastening trim strips in assembled position.

Various other objects of the invention will be apparent from the following particular description, and from an inspection of the accompanying drawing, in which—

Fig. 1 is a fragmentary front elevation of a refrigerator box, shown with a trim strip assembly embodying the present invention, portions of the strips being broken away to reveal the construction behind said strips,

Fig. 2 is a section taken on line 2—2 of Fig. 1,

Fig. 3 is a perspective of one of the cross trim strips embodying the present invention,

Fig. 4 is a diagonal section taken on line 4—4 of Fig. 1, and showing the corner trim strip latched in assembled position,

Figs. 5 and 6 are sections similar to that of Fig. 4, but showing successive preliminary steps respectively in the assembling of the corner trim strip,

Figs. 7 and 8 are sections taken on lines 7—7 and 8—8 respectively of Fig. 4,

Fig. 9 is a perspective of a corner trim strip, and

Fig. 10 is a top plan view of a corner block, shown in conjunction with a latch device for supporting a corner trim strip.

The trim or "breaker" strip construction of the present invention is shown in Fig. 1 applied to a refrigerator box 10 of the household type, al-

though as far as certain aspects of the invention are concerned, it may be applied to any other type of refrigerator; and may be applied to the refrigerator door in a manner to be made apparent. This refrigerator box 10, which is shown without the usual door for the purpose of simplification, comprises an inner liner 11 and an outer liner 12, interspaced with suitable heat insulating material 13, and terminating at their front opposed edges around the doorway 14 with inwardly extending flanges 15 and 16 respectively. These flanges 15 and 16 are shown extending in the front plane of the box 10 for full or square front trim strip construction, although as far as certain aspects of the invention are concerned, these flanges may be inclined with respect to said plane for splay doorway construction.

The "breaker" or trim strip construction of the present invention is framed around the doorway 14 on the front face of the refrigerator box 10, and extends between and against the flanges 15 and 16 to cover the gap therebetween, and to heat insulate the inner liner 11 from the outer liner 12. This trim strip construction includes upper and lower cross strips or sections 17, upright side or jamb strips or sections 18, and corner strips or members 20 between said cross strips and said side strips. These strips are desirably made of heat insulating material such as plastic, and are wide enough to substantially cover the flanges 15 and 16. The ends of the strips 17 and 18 have triangular ends 19, and the sides of the corner strips 20 are correspondingly recessed on their sides for interfitting edgewise engagement with said triangular ends as will be more fully described.

For securing the upper or lintel cross strip 17 in position, said strip is provided on the rear side thereof with a tenon or tongue 21, shown in the form of a reinforcing rib, desirably extending substantially the full length of said strip. This rib 21 slants rearwardly and downwardly, and has its intermediate section snugly retained in a correspondingly slanting groove 22 formed in a block 23, and its end sections similarly retained in correspondingly slanting grooves 29 in corner blocks 26 respectively as will be hereinafter more fully described. This rib 21 may comprise a piece of wood or other suitable material, adhesively or otherwise secured to the rear side of the strip 17, and the block 23, which may be made of suitable plastic material, is firmly secured between the inner and outer liners 11 and 12 and against the flanges 15 and 16, desirably by means of screws 24 passing through said flanges.

With this construction, the upper cross strip 17 can be mounted in position by the mere operation of moving said strip obliquely inwardly towards the doorway 14 as indicated in Fig. 2, to slip the rib 21 into the groove 22 of the block 23 and into the grooves 29 in the corner blocks 26 to be described, and can only be removed from assembled position by a reverse oblique movement away from said doorway.

The lower cross or sill strip 17 is similar in construction to the upper one, except that its rib 21 slants obliquely rearwardly and upwardly, and its corresponding blocks 23 and 26 have their grooves 22 and 29 extending in a similar direction.

The side or jamb strips 18 are provided with inclined rear tongues or ribs 21a, extending in corresponding grooves respectively of blocks 23a and 26 in a manner similar to that already described with reference to the construction of the cross strips 17, and are similarly assembled by a mere inclined movement of said side strips inwardly towards the doorway 14. Two or more of these blocks 23a may be provided for each side strip 18 according to the length of this strip.

With this construction comprising the tongues 21 on each of the trim strip sections 17 and 18 and the grooves 29 in the refrigerator cabinet, constituting interlocking detents inclined at an angle to the plane of the sections, the sections are supported at three spaced points so that these strip sections will be effectively held against warping.

The corner strips 20 are latched into mounted position, and lock the cross strips 17 and the side strips 18 against removal in a manner to be described. For securing each of these corner trim strips 20 in position, there is provided the corner block 26, which is made of angular form as shown in Figs. 1 and 10 to conform with the angular construction of the corners between the inner and outer liners 11 and 12, and which is firmly retained in position between these liners and against the flanges 15 and 16 by any suitable means as for instance by screws 27 passing through said flanges. This block 26 may be made of plastic or other suitable material, and is provided with a miter groove 28 for the reception of a latch 30 therein, and with the slanting grooves 29 at the ends thereof to receive the ribs 21 and 21a as already described.

The latch 30 comprises a bell crank lever having an arm 31, which is shown weighted for gravitational suspension, and an arm 32, which is desirably in the form of a leaf spring, and which serves as a latch bolt in a manner to be described. This bell crank lever is supported on a pivot pin 33, journaled in aligned slots 34, formed in the block 26 on opposite sides of the miter groove 28. In order to retain the pivot pin 33 against displacement in the bearing slots 34, T members 35 may be provided, with their stems extending in said slots 34 respectively, and their flanges seated against the front face of the block 26, and secured thereto by screws or the like.

The bell crank 30 may be formed from a single strip of spring metal, with the intermediate portion bent to form a hub for the reception of the pivot pin 33. If the lever arm 31 is not long enough to overbalance the lever arm 32, it may be weighted by spot welding or otherwise securing a weight 37 thereto.

The corner trim strip 20 is formed as shown in Figs. 1 and 9 with a substantially triangular crown or wing section 40, and a shank section

41 of reduced width, extending therefrom and tapering towards its inner end. The outer angular edge 42 of the wing section 40 conforms with the outer angular contour of the front face of the box 10 for continuity with the outer longitudinal edges of the adjoining trim strips 17 and 18, and the shank section 41 extends diagonally to form the miter piece between said strips. The inner edge 43 of this shank section 41 is curved to effect cornering continuity with the inner longitudinal edges of the adjoining strips 17 and 18.

The base edges 44 of the wing section of the corner strip 20 on opposite sides of the shank 41 extend transversely at about right angles with respect to the miter axis of said strip, and the outer corners 45 of the trim strips 17 and 18 are correspondingly bevelled for edgewise conforming engagement of said strips 17 and 18 with said corner strip as shown in Fig. 1. With this construction, when the corner strip 20 is locked in position, the wing edges 44 thereof will form stops or abutment shoulders preventing oblique removal of the strips 17 and 18 from assembled position shown.

Formed on the inner face of the wing section 40 of the corner strip 20 is a projection 46, presenting a shoulder 47 for conforming engagement with the inner angular edge of the liner flange 16. Also on the inner face of the trim strip 20 along a section of its shank 41 is a latch keeper 48, shown in the form of a tubular projection of rectangular configuration, and having a width slightly smaller than that of the miter groove 28 of the block 26, so that said keeper will extend freely in said groove. This latch keeper 48 is provided with a socket or hole 50, desirably of rectangular cross-section for receiving the latch bolt 32. The latch bolt 32 is pressed against the bottom wall of the keeper 48 by means of a tail piece extension 51 on said wall, acting against the lever arm 31, as will be described.

For mounting the corner strips 20 in position, the box 10 will be supported horizontally on its back, so that the bell crank lever 30 will be in the position shown in Fig. 6, with its weighted arm 31 extending vertically downwardly. After the trim strips 17 and 18 are mounted in position by oblique movement thereof as already described, each corner strip 20 is lowered to slide its latch keeper projection 48 into the miter groove 28 of the corresponding corner block 26, as shown in Fig. 5. If the bolt lever arm 32 is so long that the tail piece 51 of the keeper 48 will not clear it, then the pivotal mounting of said arm will permit it to be tripped out of the way against the gravity action of the other level arm 31 as said keeper is lowered into its respective groove 28, and when said tail piece passes below said bolt arm 32, the bell crank 30 will angularly gravitate into the position shown in Fig. 6. In this position of the bell crank 30, the bolt arm 32 will be opposite the hole 50. The corner trim strip 20 is then moved from the position shown in Fig. 6 diagonally inwardly towards the doorway 14, to extend the bolt arm 32 into the keeper hole 50, and to bear the tail piece 51 against the lever arm 31. As this diagonal movement of the corner trim strip 20 is continued, the pressure of the tail piece 51 against the lever arm 31 will swing the bell crank 30 clockwise to bring the bolt arm 32 into bearing engagement against the bottom wall of the keeper 48. Upon further diagonal movement of the corner strip 20, the shoulder 47 will clear the edge of the liner flange 16, and said strip will

snap downwardly into locked position shown in Fig. 4 by the spring action of the bolt arm 32. In this locked position, the tail piece 51 bears against the lever arm 31, and the reaction of said arm urges the corner trim strip 20 towards the right (Fig. 4), so that the shoulder 47 presses against the edge of the liner flange 16. At the same time, the bell crank 30 is urged clockwise by the bearing action of the tail piece 51 to press the bolt arm 32 downwardly against the bottom wall of the keeper 48, so that the corner strip 20 is firmly held in position against the liner flanges 15 and 16.

In locked position of the corner trim strip 20, its wing edges 44 butt against the corresponding bevel edges 45 of the adjoining strips 17 and 18, and since the contacting planes of these edges are at right angles to the face plane of the strips, these adjoining strips are effectively locked against removal.

Although the bell crank levers 30 are shown weighted for assembly of the trim strips while the box 10 is supported horizontally on its back, this is not necessary as far as certain aspects of the invention are concerned. For instance, the refrigerator box 10 can be supported vertically as shown in Fig. 1 during assembling of the trim strips, and the lever arm 32 may be held outwardly, while the latch keeper section 48 of the trim strip 20 is slipped over said lever arm.

It should be noted that the present invention can also be applied to the door of the refrigerator cabinet. The usual refrigerator door is formed with an outer panel or liner and an inner panel or liner. The trim strip construction of the present invention can be framed over the inner side of the door to cover the gap between the panels, and to heat insulate the inner panel from the outer one. It must therefore be understood that in the following claims reference to "refrigerator cabinet" is intended to include either the refrigerator box or the door thereof.

As many changes could be made in the above construction, and many apparently widely different embodiments of this invention could be made without departing from the scope of the claims, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a refrigerator cabinet comprising inner and outer liners with a gap therebetween, a breaker strip having a section overlying the gap between the inner and outer liners and members abutting the ends of the section, said section and cabinet having interlocking detents inclined at an angle to the plane of said section and engaged by relative sliding movement therebetween in a predetermined path of movement in one direction, the abutting edges of the section and end members being provided with interlocking portions having surfaces extending transversely across said path of movement to prevent sliding of the section out of operative position, and means for positively connecting the end members to the cabinet in position to abut the ends of the section whereby to positively lock the section in place on the cabinet.

2. In a refrigerator cabinet comprising inner and outer liners with a gap therebetween, a breaker strip having a plurality of side sections and corner members between and abutting the ends of

the side sections to provide a continuous strip overlying the gap between the inner and outer liners, each of said side sections and the cabinet having interlocking detents inclined at an angle to the plane of the section and engaged by relative sliding movement therebetween in a predetermined path of movement in one direction, the abutting edges of said side sections and corner members being provided with interlocking portions having surfaces extending transversely across said paths of movement to prevent sliding of the sections out of operative position, and means for connecting the corner members to the cabinet in position to abut the ends of the sections whereby to positively lock the side sections in place on the cabinet.

3. In a refrigerator cabinet comprising inner and outer liners with a gap therebetween, spacing members extending across the gap between the liners, a breaker strip having lintel, sill and side sections and corner members between and abutting the ends of the sections to provide a continuous strip overlying the gap between the inner and outer liners, rails on said sections extending rearwardly at an acute angle to the plane of the sections, said spacing members in the cabinet having grooves into which the rails on said sections extend, said grooves in the spacing members being of substantially the same width and extending at the same angle as the rails to snugly engage the sides of the rails inserted therein, when the sections are in operative position, by sliding of the sections obliquely in one direction with respect to the cabinet along a predetermined path, the abutting edges of the sections and corner members being provided with interlocking portions having surfaces extending transversely across said oblique path of movement of the sections in the opposite direction to prevent sliding of the sections out of operative position, and means for positively connecting the corner members to the spacing members in the cabinet in position to abut the ends of the sections whereby to positively lock the sections in place on the cabinet.

4. In a refrigerator cabinet comprising inner and outer liners with a gap therebetween, a breaker strip having a section overlying the gap between the inner and outer liners and end members abutting the ends of the section, detents on the cabinet and section engaged by relative sliding movement of the cabinet and section in a predetermined path of movement in one direction, the abutting edges of the section and end members being provided with interlocking portions having surfaces extending transversely across said path of movement to prevent sliding of the section out of operative position, and interlocking means on the end members and cabinet engageable by relative sliding movement therebetween to position the end members in abutting engagement with the ends of the section whereby to lock the section and end members in position on the cabinet.

5. In a refrigerator cabinet comprising inner and outer liners with a gap therebetween, a breaker strip having a plurality of sections and corner members between and abutting the ends of the sections to provide a continuous strip overlying the gap between the inner and outer liners, each of said sections and the cabinet having interlocking detents inclined at an angle to the plane of the section and engaged by relative sliding movement therebetween in a predetermined path of movement in one direction, the abutting edges of the sections and corner members being provided with interlocking portions having surfaces extending transversely across the paths of move-

ment to prevent sliding of the sections out of operative position, interlocking shoulders on the corner members and cabinet to hold the corner members from lateral movement, and resilient interlocking means on the corner members and cabinet for yieldingly holding the corner members against vertical movement whereby the corner members are held in position on the cabinet by the interlocking shoulders and the sections are locked in position on the cabinet by the interlocking detents and corner members.

6. In a refrigerator cabinet comprising inner and outer liners with a gap therebetween, spacing members extending across the gap between the liners, a breaker strip having a plurality of sections and corner members between and abutting the ends of the sections to provide a continuous strip overlying the gap between the inner and outer liners, said sections and spacing members having interlocking detents inclined at an acute angle to the plane of the sections and engaged by relative sliding movement therebetween in a pre-

determined path of movement in one direction, the abutting ends of each of the sections and corner members being provided with interlocking portions having surfaces extending transversely across the path of movement of the section in the opposite direction to prevent movement of the section out of operative position, interlocking shoulders on the corner members and cabinet engageable upon movement normal to the plane of the members, a latch keeper extending rearwardly from each corner member, and resilient latches on the cabinet engaged with the keepers on the end members to yieldingly hold the interlocking shoulders on the members and cabinet in engagement, said latches being engaged with the keepers by a combined lateral and vertical sliding movement of the corner members into abutting engagement with the ends of adjacent sections whereby the corner members and sections are locked in position on the cabinet by sliding the corner members into position between the ends of the sections.

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