Jan. 9, 1945. W. A. ELLSWORTH 2,366,894

DOOR CONSTRUCTION

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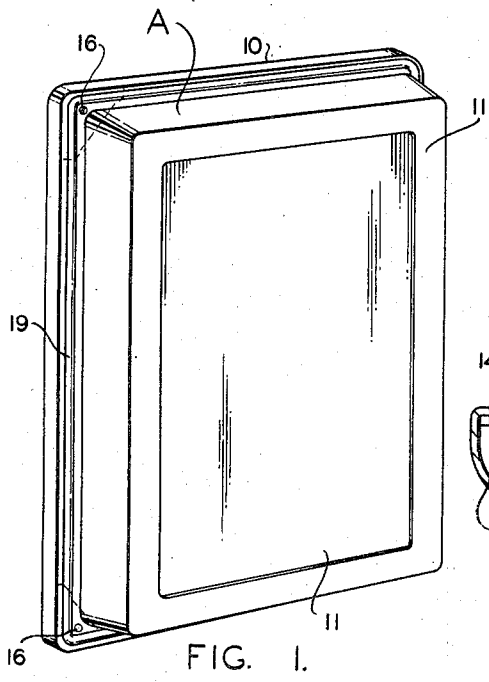


FIG. 1.

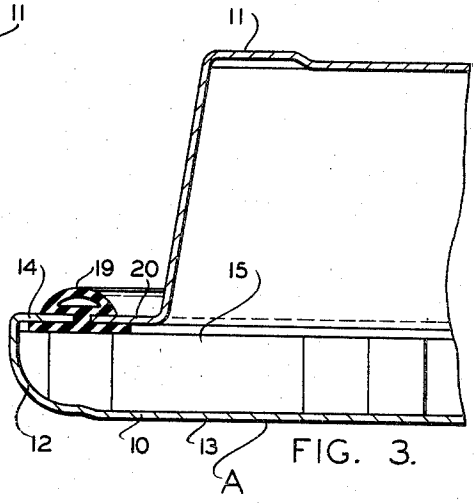


FIG. 3.

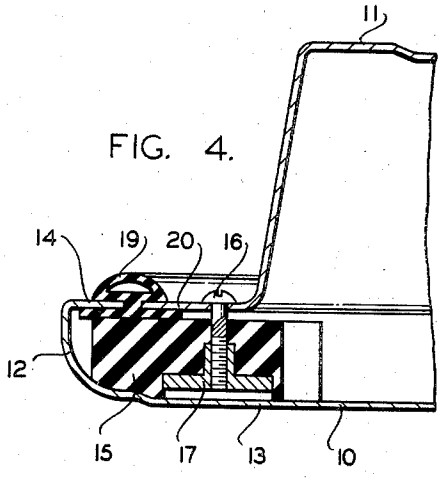


FIG. 4.

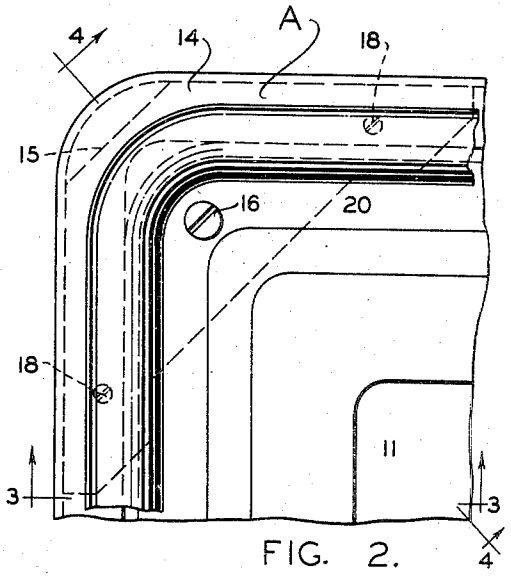


FIG. 2.

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DOOR CONSTRUCTION

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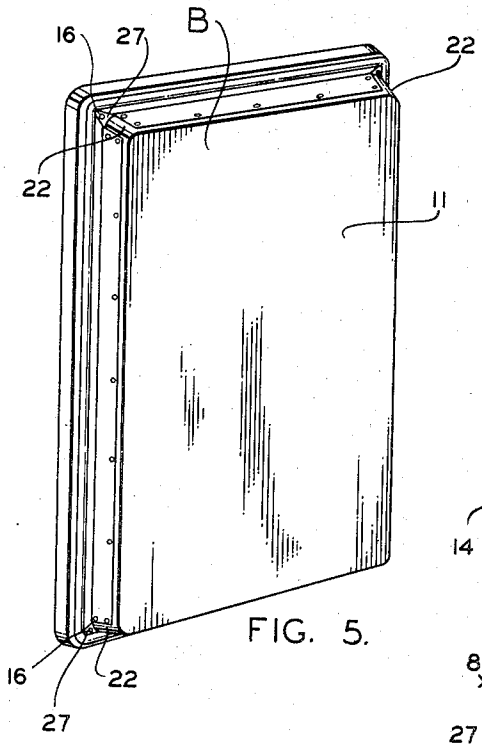


FIG. 5.

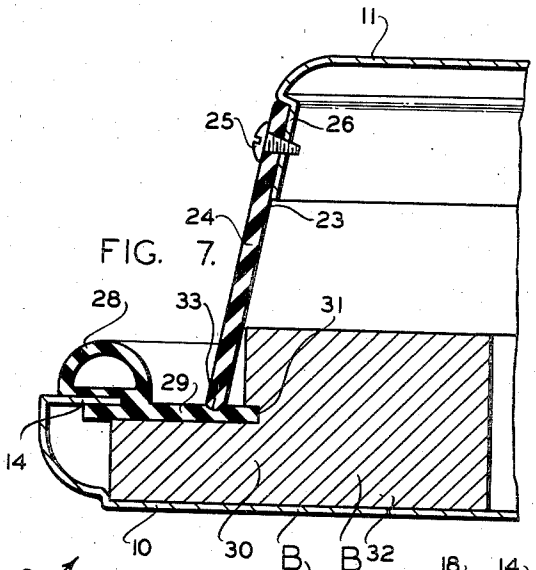


FIG. 7.

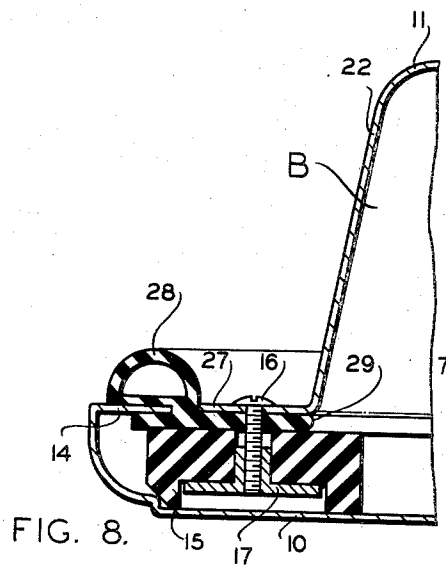


FIG. 8.

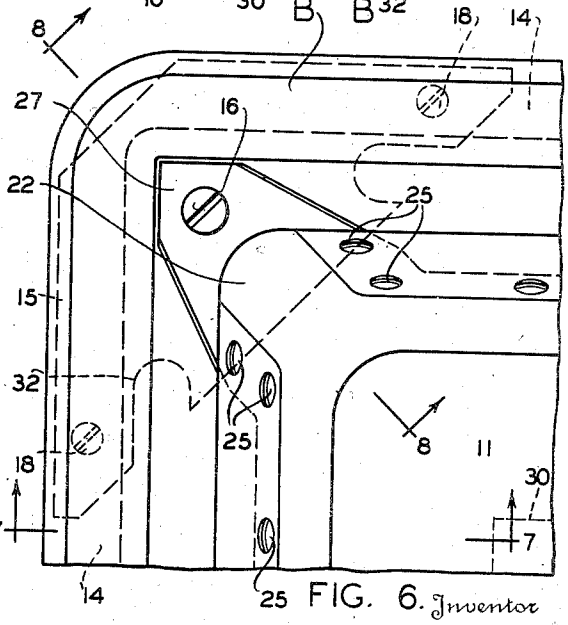


FIG. 6.

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2,366,894

UNITED STATES PATENT OFFICE

2,366,894

DOOR CONSTRUCTION

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Application February 23, 1942, Serial No. 432,050

2 Claims. (Cl. 20—35)

This invention relates to an improvement in refrigerator door construction, and has as a primary feature thereof, a simplified construction designed to form the door economically and adapted to provide the insulated closure means for a refrigerator door opening.

It is a feature to provide rubber corner blocks anchored in the corners of the sheathing which forms the outer covering for the door, which are adapted to provide cushioning and insulating means for supporting the corners of the inner sheathing. The inner sheathing is provided with a suitable depth to form a chamber for insulating material. The outer sheathing has a relatively smaller depth than the inner sheathing into which the insulating material extends. Then by means of rubber corner blocks, which are anchored in the corners of the outer sheathing under an inturned marginal flange, the inner and outer sheathings are spaced apart with insulating means between the same, thereby providing an insulating door for a refrigerator.

It is a feature to provide a door construction for refrigerators and the like where the outer sheathing is formed of metal or suitable material, which may be painted or enamelled, and which has an integrally formed horizontal inturned marginal flange about the periphery of the same. The rubber blocks are anchored to this inturned flange and project under the same at the corners. Then by means of the inner sheathing which is provided with a suitable depth and with corner portions adapted to rest against and to be secured to the rubber corner blocks, I provide an economical door construction wherein the inner and outer sheathings are cushioned in relation to each other and between which insulating material may be packed.

This application is a continuation in part of my application Serial No. 308,805, filed December 12, 1939, now Patent No. 2,277,483, patented March 24, 1942.

It is also a feature to provide a nonmetallic insulating finishing strip means between the edges of the inner metallic lining and the outer metallic lining, and to interpose a rubber or composition gasket means between the edge of the finishing strip and the inturned flange edge of the outer sheathing. By this finishing strip and the gasket means, the edges of the inner and outer sheathings are spaced apart by nonmetallic means, which is a poor conductor of heat, and considerable metal may be saved around the edge of the inner sheathing, as this metal may be cut away excepting at the corners where it contacts with the rubber blocks to support the inner sheathing in place.

These features, together with other details and objects of the invention, will be more fully and clearly hereinafter set forth.

In the drawings forming a part of this specification:

Figure 1 is a perspective view of my door construction embodying my corner blocks.

Figure 2 is a detail of a corner of the door illustrated in Figure 1, showing the corner block in dotted outline.

Figure 3 is a cross-section on the line 3—3 of Figure 2.

Figure 4 is a cross-section on the line 4—4 of Figure 2.

Figure 5 is a perspective view of an alternative form of my door construction.

Figure 6 is a corner detail of the door shown in Figure 5.

Figure 7 is a section on the line 7—7 of Figure 6.

Figure 8 is a section on the line 8—8 of Figure 6.

The drawings illustrate my refrigerator door A in Figure 1 which is formed with an outer sheathing 10 and an inner sheathing 11. Each of these sheathing members may be formed of metal or other suitable material, and when formed of metal may be enamelled or finished in a suitable manner to coat and decorate the surface thereof in the color desired.

The sheathings 10 and 11 are pressed into the desired shape when formed out of metal, and the outer sheathing is formed with a curved edge 12 which extends inwardly from the outer face 13 and projects virtually at right angles to the same, whereupon the inner marginal edge is formed with an inwardly extending marginal flange 14 which extends approximately parallel to the outer face 13.

At each corner of the door A, I provide a rubber or composition block 15 made of nonmetallic material and adapted to act as a cushioning means, and to which the corners of the inner sheathing 11 are anchored by means of the bolt 16. The bolts 16 at each corner engage the washer nuts 17 which are supported in recesses formed in the corner rubber blocks 15. The nuts 17 have a wide washer-like head so as to form a broad bearing surface, and thus permit the bolts 16 to engage the same with sufficient force to securely anchor the corners of the inner sheathing 11 to the cushioning corner blocks 15. This provides a resilient means at each of the corners of the sheathing 11 and between the sheathing 11 and the outer sheathing 10. In this manner I provide a door

construction of a desirable nature, as the metal sheathings are cushionally held together and silenced by the rubber corner blocks, as well as insulated from each other.

The corner blocks 15 are held anchored to the flange 14 by the screws 18. A gasket member 19 provides the sealing means between the door and the surface of the refrigerator to seal the door A in place when it is closed. The gasket 19 has a hollow head portion and flange members extending below the same which engage under the marginal flange 14 and the marginal flange 20 extending about the inner edge of the inner casing 11. When the gasket 19 is in place, it covers the heads of the screws 18, as illustrated in Figure 2. The gasket 19 also acts to provide a sealing means between the inner edge of the marginal flanges 14 and 20 of the outer and inner sheathings, respectively.

The space between the outer and inner sheathings 10 and 11 may be filled with any suitable insulating material not shown. Thus it will be apparent that the door A is formed in an economical manner with the outer sheathing 10 spaced from the inner sheathing 11, and with the marginal edges of the flanges 14 and 20 spaced apart by the gasket 19 and with the corners of the members anchored together through the insulating rubber cushioning blocks 15 so as to securely attach the members together and resiliently support them in a manner so that the door A will stand the shock of opening and shutting and yet the sheathing portions will be silently anchored together and resiliently connected.

Figure 5 illustrates an alternative form of the door B of the refrigerator which is similar in structure to the door A, having the corners anchored to the rubber corner blocks held within the corners of the outer sheathing.

In this construction, the rubber corner blocks 15 are virtually identical to those just described in the corners of the door A and are anchored by the screws 18 to the marginal flange 14 of the outer sheathing 10. The inner sheathing 11 is formed with the integral corner portions 22, while the inwardly extending portion of the sheathing 11 is cut away at 23 between the corner portions 22. Then by means of the nonmetallic plastic or other suitable nonmetallic strips 24, which are attached by the screws 25 to the depressed flange 26, the cut away space 23 between the corner members 22 is closed. The depressed flange portions 26 are offset from the outer surface of the sheathing 11 so as to conform to the thickness of the nonmetallic strips 24 to provide a smooth joint between the strips 24 and the sheathing 11 along the supporting flanges 26 and at the corner portions 22.

The corner portions 22 are formed integral with the inner sheathing 11 and have foot-like integral flanges 27 which are adapted to be secured by the bolts 16 to the rubber corner blocks 15. This provides the corner anchoring means for the inner sheathing 11 of the door B and cushions the inner sheathing in relation to the outer sheathing 10 at the corners and securely attaches the inner and outer sheathings together.

A sealing gasket 28 which is similar to the gasket 19 is positioned between the flanges 14 and the foot flanges 27, to provide the proper seal for the door B. The gasket 28 has a long inner flange 29 which projects under the foot portions 27 and which extends around and projects inwardly from the marginal flange 14. This inner flange 29 is adapted to rest on the stringer members 30 which extend between the corner blocks 15 and which are provided with a longitudinal recess 31 for receiving the inner edge of the flange 29. These stringer members are wedged in the inner portion of the sheathing 10 between the corner blocks 15, and have end projecting lug portions which engage in the recesses 32 formed in the rubber blocks 15. Thus the stringers 30 are held in place projecting between each of the corner blocks and forming a frame-like portion against which the flange 29 engages and rests. When the strips 24 are anchored in place by the screws 25 to the inner sheathing 11, the inner edge 33 of the same presses into the soft gasket flange 29 to provide a sealing joint between the edge of the strips 24 and the gasket 29, also acting to hold the inside flange 29 bearing tightly against the stringer blocks 30.

Therefore it will be apparent that the door B is primarily of the same construction as that of the door A in that the inner sheathing 11 is anchored at the corners by the bolts 16 to the rubber corner blocks 15, and when the sheathings 10 and 11 are formed of metal, it is important that they be insulated from each other so as not to act as conduits from the inside of the refrigerator to the outside around the door edges, and that these sheathing portions be cushionally secured together, making a solid door construction where the parts are cushioned and resiliently supported together in a desirable manner.

In accordance with the patent statutes, I have have described the principles of construction of my door construction; and while I have endeavored to set forth the best embodiments thereof, I desire to have it understood that these are only illustrative of a means of carrying out my invention, and that abvious changes may be made within the scope of the following claims without departing from the spirit of my invention.

I claim:

1. A refrigerator door including inner and outer sheathings each provided with a flange, said flanges lying in a common plane on the inside of the door, parallel with the outside of the door and adjacent the edges thereof, and being spaced at their adjacent edges, a resilient corner block disposed between the outer sheathing and said flanges engaging the inside of the outer sheathing and spaced from the flange, a marginal gasket overlying said flanges and having a portion extending into the space between the block and the flanges, and means extending through one of the flanges and supported by the block for securing the entire assemblage in resiliently united position.

2. A refrigerator door including inner and outer sheathings each provided with a flange, said flanges lying in a common plane on the inside of the door, parallel with the outside of the door and adjacent the edges thereof, and being spaced at their adjacent edges, a resilient corner block disposed between the outer sheathing and said flanges engaging the inside of the outer sheathing and spaced from the flanges, a marginal gasket overlying said flanges and having a portion extending into the space between the block and the flanges, a headed nut counter-sunk in the under side of the block and a screw extending through the flange of the inner sheathing and the portion of the marginal gasket between the sheathing and the block, and threaded into said nut for securing the entire assemblage in resiliently united position.

WALTER A. ELLSWORTH.