

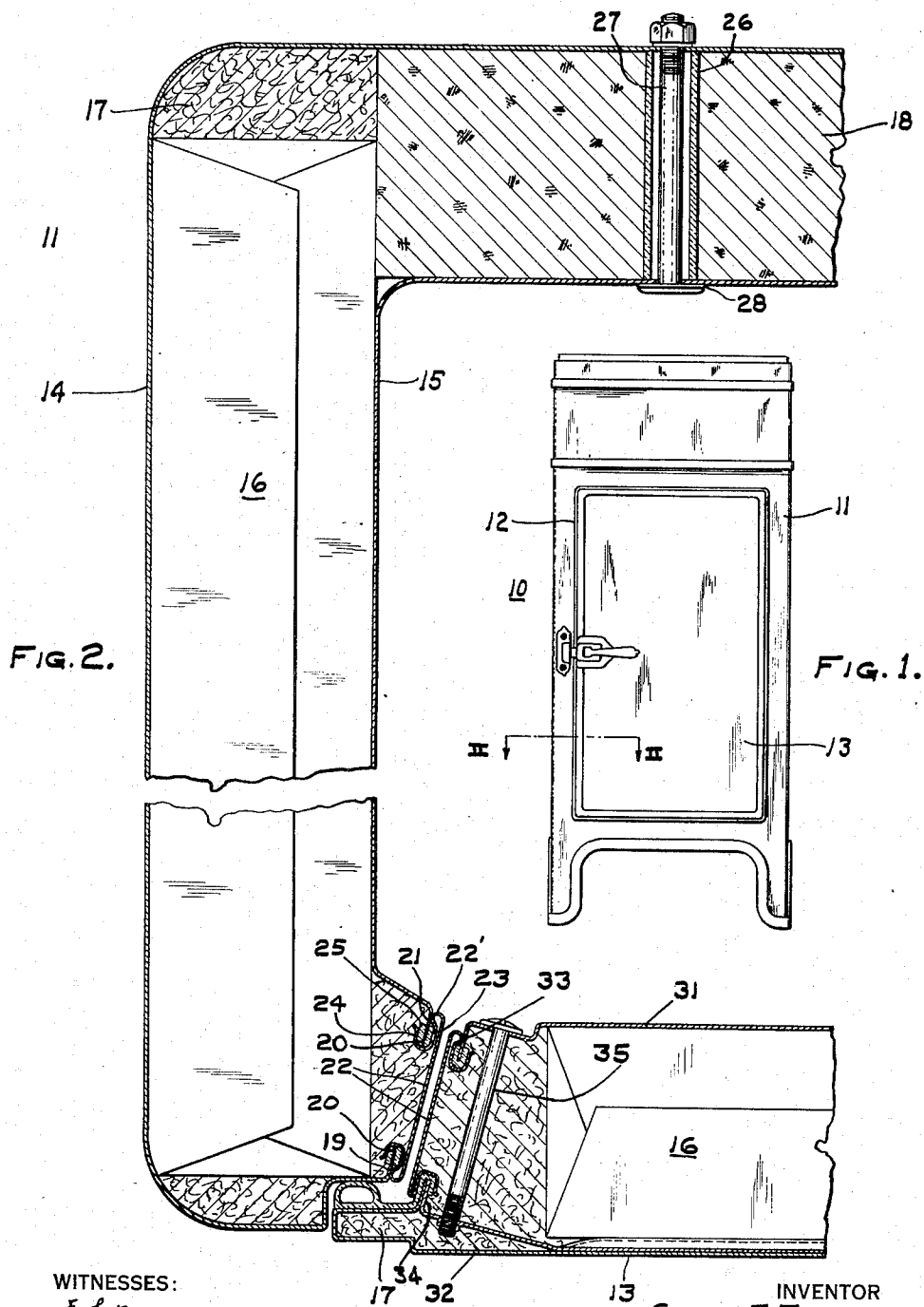
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REFRIGERATOR CABINET CONSTRUCTION

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WITNESSES:

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REFRIGERATOR CABINET CONSTRUCTION

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My invention relates to a cabinet for refrigerators and the like, and it has for an object to provide an improved construction.

Heat-insulated cabinets for refrigerators and the like generally comprise inner and outer walls, usually sheet metal, and heat-insulation in the space between the walls. A door opening is provided in said walls, and the edge portions of the walls at the opening are connected by members commonly called breaker strips, which close the space between the walls. The walls of the door may be similarly connected by breaker strips. Such breaker strips are commonly attached by means of a relatively large number of screws, which require considerable time to apply, and constitute an important item in the cost of the cabinet.

It is an object of my invention to provide an improved means for closing the space between the inner and outer walls at the door opening and at the periphery of the door.

A further object is to provide an improved breaker strip for closing said space.

A more particular object is to provide an improved means for attaching the breaker strip to the inner and outer walls, whereby said breaker strip may be applied quickly and in a simple manner, in order to reduce the cost of assembling the cabinet.

A further object is to provide a breaker strip which is durable, pleasing in appearance, a relatively poor conductor of heat, non-hygroscopic and completely odorless.

In accordance with my invention, the lateral marginal portions of the breaker strips and the edge portions of the wall members are formed to interleave, the breaker strips being thus retained in place. Preferably, said breaker strips comprise sheet metal strips having lateral marginal portions bent first inwardly and then outwardly to provide outwardly opening grooves, and the edge portions of the wall members are inserted in said grooves. Heat-insulating material is preferably interposed between the edge portions and the walls of the groove to reduce the heat leakage.

In accordance with a further feature of my invention, the breaker strip comprises stainless steel sheet metal containing at least 13 percent of chromium and not more than 20 one-thousandths of one inch in thickness.

The above and other objects are effected by my invention as will be apparent from the following description and claims taken in connection

with the accompanying drawing forming a part of this application, in which:

Fig. 1 is a front elevation of a refrigerator cabinet to which my invention is applied; and

Fig. 2 is a horizontal sectional view, taken on the line II-II of Fig. 1, showing the construction of my novel breaker strip.

Referring to the drawing more in detail, the refrigerator cabinet 10 comprises a body portion 11 having a door opening 12 in its front side, and a door 13 for closing said opening. The body portion 11 comprises an outer casing or shell 14 and an inner casing or liner 15, both preferably made of sheet metal and coated with any suitable finish such as lacquer or porcelain enamel. The outer and inner casings 14 and 15 are disposed with their respective walls in spaced relation, the intervening space being preferably filled with suitable heat-insulating material. In the embodiment shown on the drawing, package insulation is employed at 16, loose fibrous insulation at 17, and block insulation, such as cork or "Celotex", at 18.

The casings 14 and 15 are provided with registering openings on the front side to provide the door opening 12. At the edges around the door opening, the casings 14 and 15 are provided with flanges 19 and 21, respectively, which extend into the space between the flanges 19 and 21. To close the space between the flanges 19 and 21, I provide a connecting member 22, commonly called a breaker strip. According to the present invention, the breaker strip and the flanges 19 and 21 are arranged to interleave; preferably, the breaker strip is provided with outwardly opening grooves in which the flanges 19 and 21 are inserted, and by means of which the flanges retain the breaker strip in place without the aid of a large number of screws or other attaching means requiring a relatively great amount of time to apply.

In the present, preferred embodiment of my invention, the breaker strip 22 comprises a strip of sheet metal or other sheet material. The lateral marginal portions are bent to the U-shaped cross section shown in Fig. 2, being first bent inwardly as shown at 23 and then outwardly as shown at 24, thereby providing spring clamps or grooves 25 opening outwardly or away from the breaker strip at its lateral edges. The flanges 19 and 21 are disposed in the grooves 25 to retain the breaker strip in place. In order to minimize heat leakage from the outer casing 14 to the inner casing 15, I preferably provide a heat insulating gasket 25, of any suitable heat-

insulating material, such as rubber, between the walls of the grooves 20 and the flanges 19 and 21. While the beaded edges 22' of the breaker strip are in direct contact with the flanges 19 and 21, the finish coating on said flanges effectively interrupts the flow of heat therebetween.

Although my invention is not confined thereto, I preferably form the breaker strip 22 of a sheet of stainless steel not more than 20 one-thousandths of one inch in the thickness, the stainless steel being characterized, for example, as containing not less than 13 percent of chromium. Stainless steel is a relatively poor conductor of heat and, because of its great strength, can be made relatively thin so as to minimize the heat leakage therethrough. The metal breaker strip is durable, pleasing in appearance, and completely odorless.

The thin sheet stainless steel breaker strip is sufficiently flexible that it may be snapped into place after the inner and outer casings and the insulation are assembled. By pressing the edges of the breaker strip toward each other, the marginal portions 24 may be engaged under the flanges 19 and 21, whereupon the breaker strip may be released and allowed to assume its position as shown on the drawing.

It will readily be understood that the right hand side of the cabinet is symmetrically similar to the left hand side shown in Fig. 2. It will also be apparent that the breaker strip shown in Fig. 2 may be extended around all four sides of the door opening 12, or that a separate similar breaker strip may be provided for each of said sides.

The liner 15 is held against forward movement relative to the outer casing 14 to maintain the flanges 19 and 21 engaged in the grooves 20. When the breaker strips are flexible, as in the present embodiment, the liner is also held against backward movement relative to the outer casing. This may be done by the wedging action of the heat-insulation between the side walls of the casings, but I may provide tubular fiber spacers 26 and bolts 27 extending through the spacers for tying the rear walls of the casings together in predetermined spaced relation. Fiber washers 28 are preferably inserted under the heads of the bolts 27. The casings are thus held together as a unitary structure for taking the door thrust, which is imposed on the outer casing adjacent the flange 19 and is partly transmitted through the breaker strip 22 to the inner liner and the remainder taken directly by the outer casing.

While I prefer to apply the breaker strip after the casings and insulation are positioned, as is possible when the breaker strip is sufficiently flexible, I may apply the breaker strip first to one of the casings, by engaging the adjacent groove and flange, and then moving the other casing forward or back to engage the breaker strip with the latter casing. The insulation, the spacers 26, and the bolts 27 would then be applied.

The door 13 includes inner and outer walls or casings 31 and 32 each having an intumed marginal flange 33 and 34, respectively, peripherally of the door opening 12. It is obvious that the breaker strip 22 is applied to the flanges 33 and 34 in the same manner as it is applied to flanges 19 and 21. A bolt 35 which may be of low heat conducting material, such as stainless steel, is preferably utilized to maintain the proper spacing between the walls 31 and 32.

The term "wall members" and the like in the claims are intended to broadly define the wall

members of either the cabinet proper, the door, or both, except when obviously limited to one or the other.

From the above description it will be seen that I have provided a breaker strip which may be quickly and inexpensively attached, which presents a neat appearance which is durable and which is a good heat insulator.

While I have shown my invention in but one form, it will be obvious to those skilled in the art that it is not so limited, but is susceptible of various changes and modifications, without departing from the spirit thereof, and I desire, therefore, that only such limitations shall be placed thereupon as are imposed by the prior art or as are specifically set forth in the appended claims.

What I claim is:

1. In a double-wall heat-insulated cabinet for refrigerators and the like, the combination of inner and outer wall members arranged in spaced relation and having edge portions, a sheet metal connecting strip having its lateral marginal portions bent to form grooves, said sheet metal connecting strip being formed of a material of lower heat conductivity than the inner and outer wall members, the edge portions of said wall members extending into said grooves and retaining said connecting strip in place.

2. In a double-wall heat-insulated cabinet for refrigerators and the like, the combination of inner and outer wall members arranged in spaced relation and having edge portions, a sheet metal connecting strip having its lateral marginal portions bent to form grooves, said sheet metal connecting strip being formed of a material of lower heat conductivity than the inner and outer wall members, the edge portions of said wall members extending into said grooves and retaining said connecting strip in place, and heat insulating material between said edge portions and the walls of the grooves to break the path of heat flow through the connecting strip.

3. In a double-wall heat-insulated cabinet for refrigerators and the like, the combination of inner and outer wall members of sheet material arranged in spaced relation and having edge portions extending toward each other, a sheet metal connecting strip having its lateral marginal portions bent to form outwardly opening grooves, the edge portions of said wall members extending into said grooves and retaining said connecting strip in place, heat insulating material between said edge portions and the walls of said grooves, and means for retaining said wall members and edge portions against separation to retain said connecting strip in place.

4. In a cabinet for refrigerators and the like, inner and outer casings of sheet material disposed in spaced relation, registering openings being formed in said casings to provide a door opening, the edges of said casings at the door opening having flanges extending toward each other, and a thin flexible sheet metal breaker strip extending between said flanges, said breaker strip having grooves at its opposite edges in which said flanges are received, and means for maintaining said casings in predetermined spaced relation to maintain said breaker strips engaged with said flanges, said breaker strips being sufficiently flexible to be snapped into engagement with said flanges when the latter are in said predetermined spaced relation.

5. In a cabinet for refrigerators and the like, inner and outer wall members of sheet material disposed in spaced relation and formed with a

door opening, and a breaker strip for said door opening, said breaker strip comprising spring sheet material formed to provide spring clamps at both of its lateral edges for engaging, respectively, the adjacent edges of said wall members.

6. In a cabinet for refrigerators and the like, inner and outer sheet material casings disposed in spaced relation and formed with a door opening, and a breaker strip formed of sheet material connecting said casings at the door opening, said breaker strip having marginal portions at both of its edges bent to form spring clamps opening outwardly and engaging, respectively, the adjacent edges of said casings.

7. In a cabinet for refrigerators and the like, inner and outer sheet material casings formed to provide a door opening for the cabinet and having flanges around the door opening turned into the door opening, and a connecting strip of spring sheet material having marginal portions at both of its edges bent to form spring clamps opening outwardly and engaging said flanges.

8. In a cabinet for refrigerators and the like, inner and outer sheet material casings formed to provide a door opening for the cabinet and having flanges around the door opening turned into the door opening, a connecting strip of spring sheet material having marginal portions bent to form spring clamps opening outwardly and engaging said flanges, and means for tying said casings together to prevent separation thereof around the door opening in order to retain said connecting strip in place.

9. In a refrigerator cabinet having spaced inner and outer walls provided with adjacent edge portions, a breaker strip for connecting said edge portions comprising a thin sheet metal strip having its lateral marginal portions bent to a U-shape cross-section providing outwardly opening grooves for receiving said edge portions.

10. In a double wall cabinet for refrigerators and the like, the combination of inner and outer wall members arranged in spaced relation and having adjacent edge portions, and a breaker strip extending between said edge portions, said breaker strip comprising a thin flexible strip of sheet metal having two longitudinal edge portions interleaving, respectively, with adjacent edge portions of the cabinet wall members, said breaker strip being sufficiently flexible to be snapped in position after the wall members and their edge portions are in place.

11. In a double wall heat-insulated cabinet for refrigerators, the combination of inner and outer wall members arranged in spaced relation and having edge portions extending toward each other, and a connecting wall resistant to heat flow and having marginal portions forming outwardly opening grooves at its lateral edges, the

respective edge portions of said inner and outer wall members extending into said grooves and being flexibly engaged on opposite sides thereof by the marginal portions of said connecting wall and means for tying said inner and outer wall members together to prevent separation of said edge portions to retain said connecting wall in place.

12. The method of manufacturing a refrigerator cabinet which comprises forming an outer casing having edge portions defining an access opening therein; forming an inner casing having edge portions defining a second access opening therein, inserting the inner casing within the outer casing with the access openings registering with each other and with the respective edge portions spaced from each other, engaging a breaker strip having gripping means at both of its lateral edges on the edge portion of one of said casings peripherally thereof, and moving the other of said casings toward the breaker strip to engage the edge portions of said latter casing with the gripping means at the other side of said breaker strip.

13. In a refrigerator cabinet, an outer casing having a door opening in the front face thereof and having a substantially continuous rearwardly extending flange defining said door opening, an inner casing within said outer casing having a substantially continuous inwardly offset flange at its forward portion substantially in alignment with said first mentioned flange, the edges of said flanges being spaced from each other, and a sealing member extending between the edges of said flanges and having portions resiliently gripping opposite sides of each flange.

14. A refrigerating cabinet construction comprising an inner wall member, an outer wall member, and a third connecting wall member extending between the inner and outer wall members formed of a material of low heat conductivity with respect to said inner and outer wall members and embodying metallic edge means of thin sheet material bent to form grooves in which the opposed surfaces of the inner and outer wall members are received to retain the third wall member in position therebetween.

15. A refrigerating cabinet construction comprising an inner wall member, an outer wall member, and a third connecting wall member extending between the inner and outer wall members formed of a material of low heat conductivity with respect to said inner and outer wall members and embodying metallic edge means of thin sheet material bent to form a groove in which the opposed surfaces of one of said wall members is received to retain said third connecting wall member in position.

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