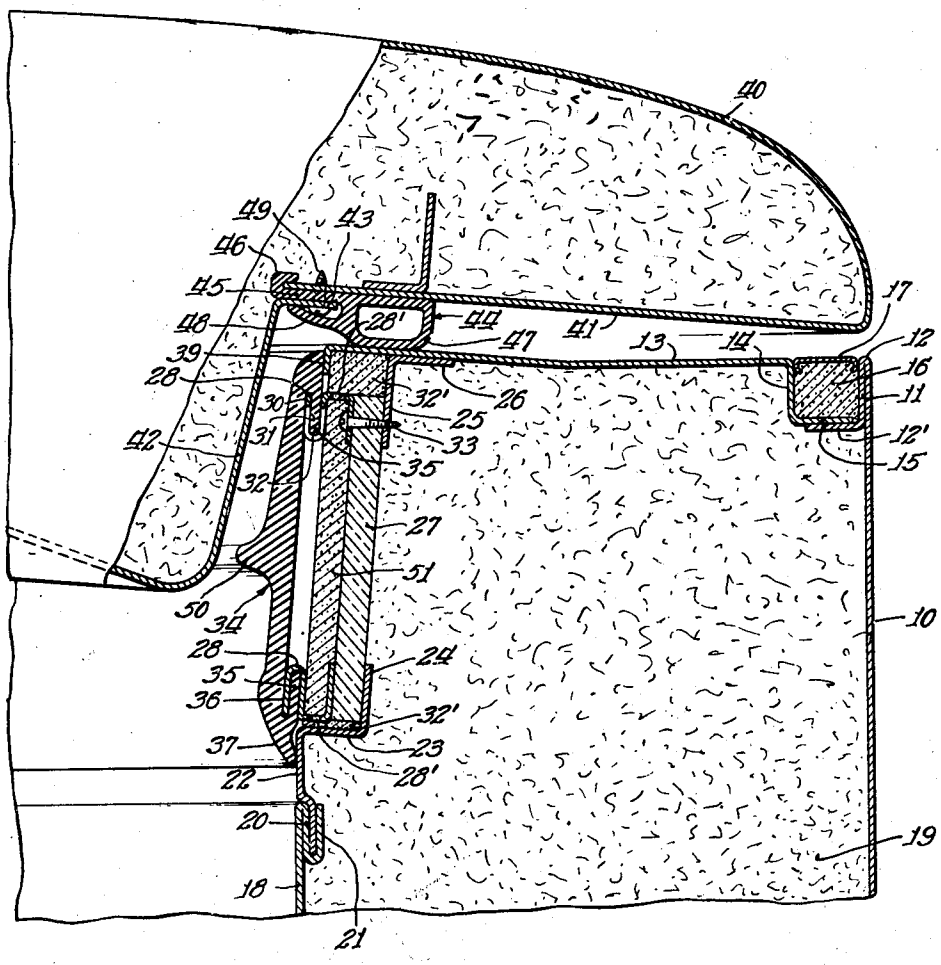
Aug. 30, 1949. J. S. PALMER ET AL 2,480,257

REFRIGERATOR CONSTRUCTION

Filed April 2, 1945



Inventors:
John S. Palmer and
Lester H. Hinkel
By: Paul O. Pippel
Atty.

Patented Aug. 30, 1949 2,480,257

UNITED STATES PATENT OFFICE

2,480,257

REFRIGERATOR CONSTRUCTION

John S. Palmer, Chicago, and Lester H. Hinkel, Cicero, Ill., assignors to International Harvester Company, a corporation of New Jersey

Application April 2, 1945, Serial No. 586,196

4 Claims. (Cl. 220—9)

1

This invention relates to a refrigerator wall construction. More specifically it relates to an improved heat insulating connection between the inner and outer walls of a metallic refrigerator cabinet.

In the construction of refrigerators in which wood is entirely eliminated, there is always the problem existing of providing insulating means between inner and outer metallic wall surfaces. It is the principal object of the present invention to provide an improved breaker strip construction for an all metal refrigeration cabinet.

The single figure of the drawings illustrates a top opening type of refrigeration cabinet or chest incorporating the breaker construction of the invention.

Although the construction illustrated could be used in a refrigerator cabinet having a front opening door, it is illustrated in a cabinet or chest having a top opening door. This type of construction is ordinarily used for milk can coolers, frozen foods, and also for beverages. It is desirable to have a substantial metallic top surface for the wall to prevent damage thereto during insertion and removal of the containers. An outer metal vertical wall 10 is provided with a reverse bent portion 11 at its upper end which provides a double thickness wall of reenforced strength. Spaced below the top edge 12, said reverse bent wall portion 11 is provided with a right-angle extension or ledge 12'. A top wall or edge filling member 13 arranged in a horizontal plane is provided with a right angle bent down portion 14 and a horizontal portion 15 extending therefrom, said portion resting on the ledge 12'.

Said abutting members are secured together by suitable means such as self-threading screws. The space between the walls 11 and 14 is filled with a semi-plastic insulating material 16 which may be poured in a liquid condition into the channel as said channel lies in a horizontal plane. A filler strip 17 is indicated as finishing for the top of the channel provided for the sealing material. It is essential that an air-tight joint be formed to prevent the entrance of moisture between the inner and outer walls of the chest.

An inner vertical metal wall 18 is spaced from the outer wall 10 a sufficient distance to provide space for the required amount of insulating material, which is identified by the reference character 19. The walls 10 and 18 are actually the walls of outer and inner metal tanks which are spaced from each other to provide for the insulating material 19. The outer end of the wall 18, which terminates a substatial distance below the

2

horizontal wall 13, is formed with a reverse bent portion 20 and an adjoining upwardly bent portion 21 to form a channel for receiving a downwardly extending portion of a member 22. Said member has a right angled portion 23 and an upwardly extending portion 24 arranged in alinement with a downwardly extending portion 25 of an angle member 26, which is secured to the underneath surface of the horizontal wall 13. A breaker strip 27 of masonite or other similar rigid insulating material abuts the portions 24 and 25 overlapping said portions a sufficient distance to provide for attaching screws, as will hereinafter be described.

Generally Z-shaped channel members 28 are arranged along the top and bottom of the outer face of the breaker strip 27. One leg portion of each of said members abuts the strip 27 overlying the portions 24 and 25. Screws secure said portions and the legs of said Z-shaped members in abutting relation with respect to the strip 27.

The other legs 30 of the Z-shaped members extend outwardly in opposite directions with respect to each other to form channels 31 for a purpose to be hereinafter described. It will be noted, as illustrated, in the upper Z-shaped member 28 that a portion 32 not in section and shown in full lines is cut away to permit access to a screw 33 which represents the means for securing the Z-shaped members in position. Said Z-shaped members are also provided with openings 28' to permit asphalt filler and sealing material to flow into the end spaces 32'. A breaker strip member 34 of rubber-like material overlies the two Z-shaped members being provided with tongues 35 which fit into the channels 31 of the Z-shaped members to hold said breaker strip member in position. The outer legs 30 of the Z-shaped members fit into slots 36 formed between the tongues 35 and the main portion of the breaker strip member.

The lower end of the breaker strip member has a curved lip portion 37 adapted to engage the member 22. The upper edge portion of the breaker strip member 34 is adapted to abut a downwardly turned flange 39 formed on the inner edge of the horizontal wall 13.

An upwardly opening door 40 is illustrated, said door having a horizontal inside portion 41 corresponding to the horizontal wall 13 of the chest or cabinet construction. An inner wall member 42 completes the door, said member having a horizontal flange 43 overlying the terminating edge of the wall 41. A rubber gasket 44 has a portion 45 extending between said overlap-

ping walls to provide heat insulation and a seal therebetween in order to prevent heat flow from the inner door panel to the outer door panel. To hold said gasket in position, a reversibly directed lip 46 hooks over the edge of the wall 41. The gasket member 44 is also provided with a hollow, substantially semi-cylindrical bead portion 47 which abuts the wall 13 to form a seal. Said gasket 44 is also provided with a lip 48 adapted to overlie the flange 43 and to cover screws 49 which are used for securing the inner and outer door panels together.

The function of the structure as above set forth will be apparent from the following detailed description. The gasket 44 seals the door with respect to the main portion of the cabinet in a conventional manner. The breaker strip 27 and the breaker strip member 34 provide a wide gap to prevent the flow of heat from the inner tank to the outer tank. It will be noted that the breaker strip member 34 has a projection 50 which substantially seals the space between the inner door panel 42 and the adjoining portion of the tank or chest construction. This prevents any substantial amount of circulation in the space between the two structures.

To further seal the inner and outer tanks against the entrance of moisture and to provide a permanent structure, sealing material 51 of a bituminous nature or a material having similar properties is filled to a substantial depth between the rigid breaker strip 27 and the Z-shaped members.

It should be understood that applicants have shown and described only a preferred embodiment of their improved breaker strip construction for refrigerators, and that they claim as their invention all modifications falling within the scope of the appended claims.

What is claimed:

1. A breaker strip construction for refrigerators comprising in combination with a refrigeration cabinet having an inner wall, an outer wall, and a spacing wall extending from the outer wall to a point spaced from the termination of the inner wall, said spacing wall having a downturned flange at its extremity substantially in vertical alinement with the inner wall, an angle-spaced breaker securing member fixed to said spacing wall spaced inwardly from said flange, said inner wall being provided with an inwardly bent portion and a terminating flange in alignment with the flange on the securing member, a strip of rigid insulating material fitted against said aligned flanges, a seal securing member mounted along the top and bottom of the outer face of said insulating strip, said insulating strip and seal securing members being spaced from the downturned flange on the spacing wall and from the inwardly bent portion on the inner wall, each of said members being provided at their outer sides with channels opening in opposite directions to each other, said channels lying generally in a plane spaced from and paralleling the insulating strip, and a flexible rubber-like sealing element having lip portions engaged in said channels and having portions extending beyond said lip portions adapted for bridging said spaces between said seal securing members and the spacing wall flange on one side and the inwardly bent portion on the inner wall on the opposite side, the upper extending portion engaging the downturned flange on said spacing wall, and the lower extending portion engaging said inner wall, and the intermediate portion of the sealing element and the strip of insulating material being in horizontally spaced relation to provide for increased flexing of the sealing element.

2. A breaker strip construction for refrigerators comprising in combination with a refrigeration cabinet having an inner vertical wall, an outer vertical wall, and a horizontal wall extending from the outer wall to a point spaced vertically above the termination of the inner wall, the space between the outer and inner walls being filled with an insulating material, said horizontal wall having a downturned flange at its extremity substantially in vertical alinement with the inner wall, an angle-shaped breaker-securing member fixed to said horizontal wall spaced inwardly from said horizontal wall flange and being provided with a downturned flange, said inner wall being provided with an inwardly and upwardly bent flange, the upwardly bent flange being in alinement with the downturned flange of said securing member, a strip of rigid insulating material fitted against said alined flanges, a seal securing member mounted along the top and bottom of the outer face of said insulating strip, each of said members having inner and outer flanges and being Z-shaped in cross-section thereby providing at their outer portions channels opening in opposite directions, that is, upwardly and downwardly, said outer portions being cut away at spaced intervals to provide access to the inner flanges which abut the insulating strip, securing elements extending through said inner flanges, through the insulating strip and through the alined flanges on the securing member and the inner wall, and a flexible rubber-like sealing element having lip portions fitted over the outer flanges of the seal securing members and extending into the outwardly opening channels and having portions extending beyond said lip portions, the lower extending portion engaging the inner wall and the upwardly extending portion engaging the downturned flange on the horizontal wall, and a layer-like quantity of semi-plastic insulating material extending between the seal securing members in the space between the sealing element and the insulating strip, said quantity of material being in spaced relation to the intermediate portion of the sealing element to provide for increased flexing of the sealing element.

3. A breaker construction for refrigerators to reduce the flow of heat between two metallic wall portions comprising in combination with said wall portions two aligned spaced flanges, a rigid insulating strip fitted against said flanges, a pair of parallel seal mounting members fitted on the insulating strip in spaced relation, each of said members having such configuration as to provide an internal channel or groove and an external channel or groove, a resilient seal member having lips fitted into the external channels of the seal mounting members and further extending lips fitted against the metallic wall portions, and a layer-like quantity of semi-plastic insulating material overlying the insulating strip and entering the internal channels of the seal mounting members, the intermediate portion of the seal member and the quantity of semi-plastic insulating material being spaced apart to provide for increased flexing of the seal member.

4. A breaker construction for refrigerators to reduce the flow of heat between two metallic wall portions comprising in combination with said wall portions two aligned spaced flanges, a rigid insulating strip fitted against said flanges, a pair

of parallel seal mounting members fitted on the insulating strip in spaced relation, each of said members having such configuration as to provide an internal channel or groove and an external channel or groove, a resilient seal member adapted to be engaged by a closure member having lips fitted into the external channels of the seal mounting members and further extending lips fitted against the metallic wall portions and additionally provided with an external longitudinally extending rib, and a layer-like quantity of semi-plastic insulating material overlying the insulating strip and entering the internal channels of the seal mounting members, the intermediate portion of the seal member and the quantity of semi-plastic insulating material being spaced apart to provide for increased flexing of the seal member, when said external rib of said seal member engages a closure member.

JOHN S. PALMER.
LESTER H. HINKEL.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,980,807	Lambert	Nov. 13, 1934
2,190,954	Stickel	Feb. 20, 1940
2,201,596	Teeter	May 21, 1940
2,259,185	Swedman	Oct. 14, 1941
2,309,001	Nave et al.	Jan. 19, 1943