

Oct. 25, 1927.

1,646,616

J. C. JANKUS

REFRIGERATOR BOX

Filed Nov. 4, 1924

2 Sheets-Sheet 1

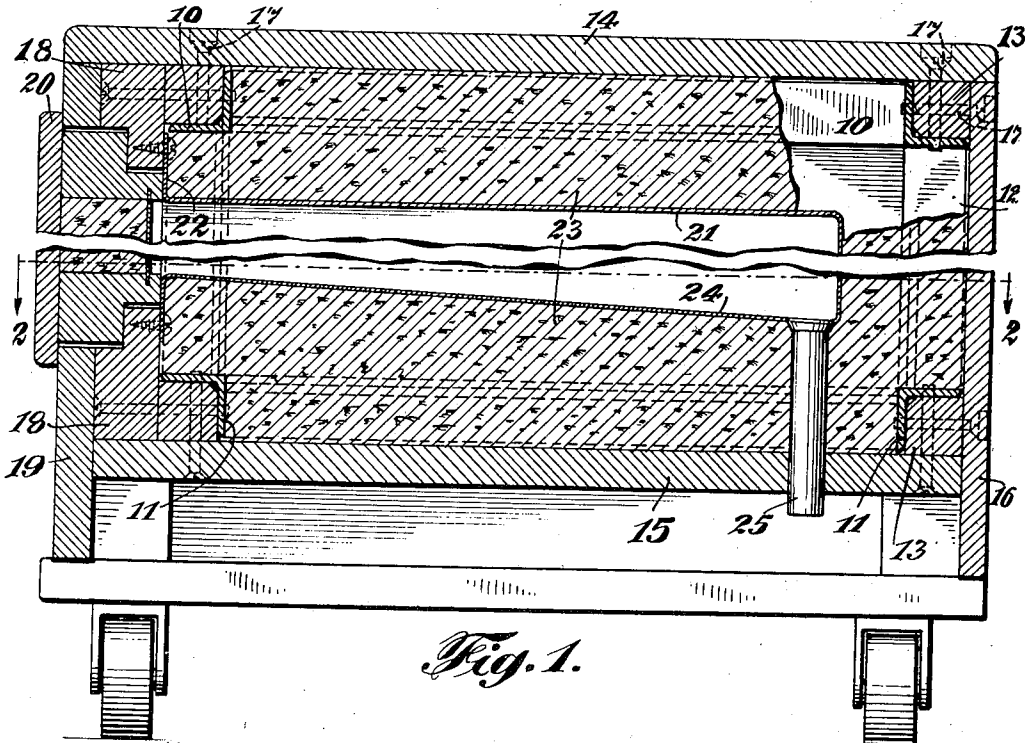


Fig. 1.

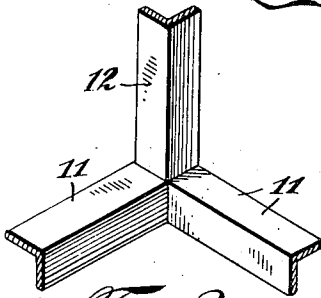
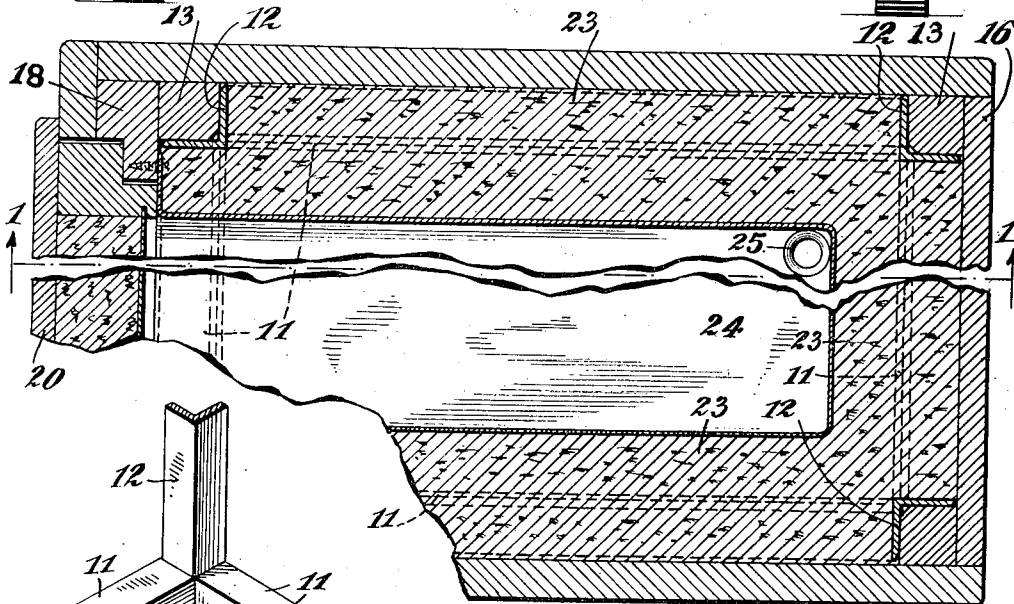


Fig. 3.

Fig. 2. INVENTOR
J. C. Jankus
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Oct. 25, 1927.

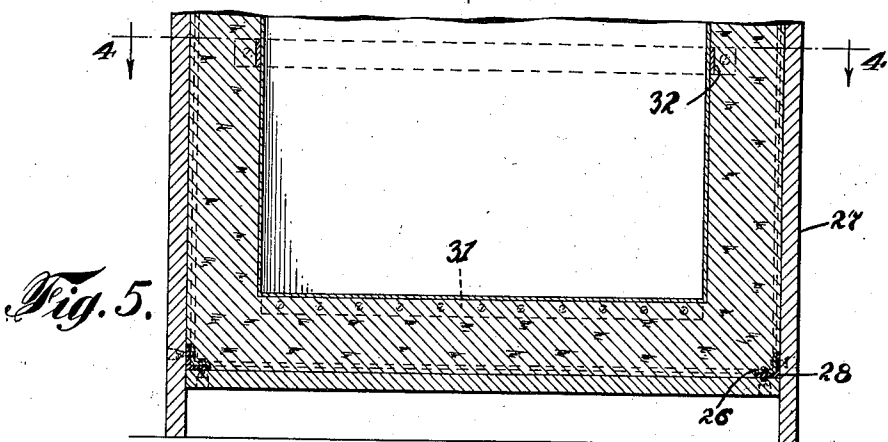
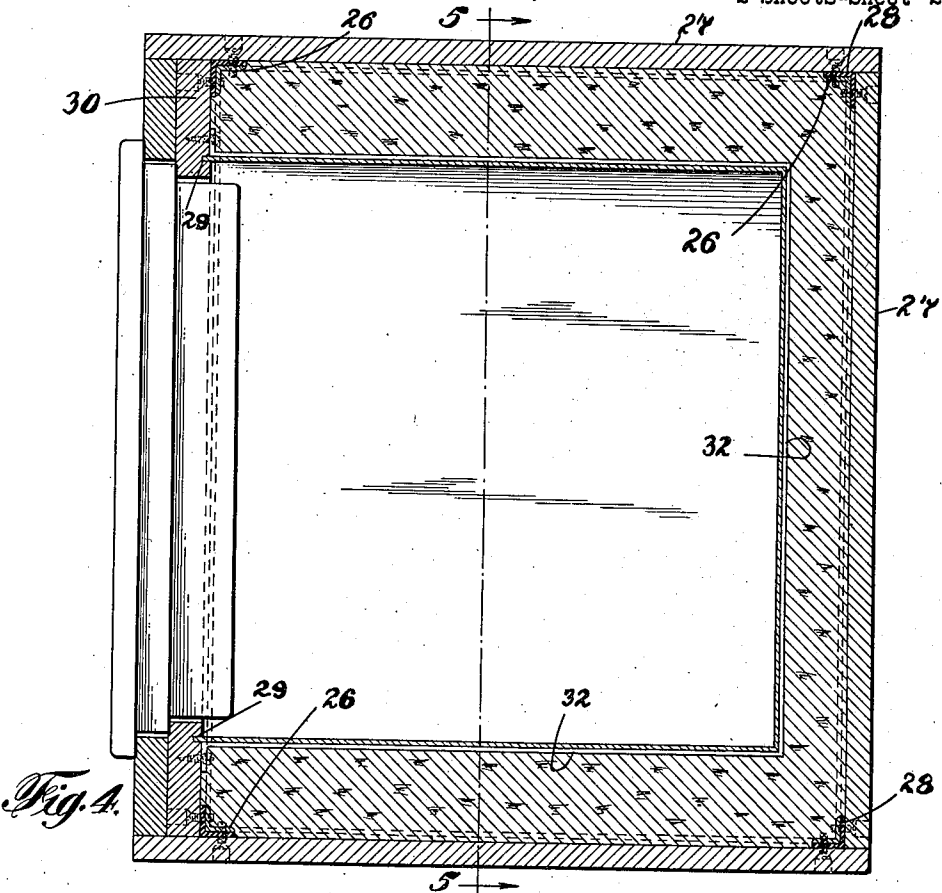
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REFRIGERATOR BOX

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2 Sheets-Sheet 2



INVENTOR
Jack Carl Jankus
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ATTORNEYS

UNITED STATES PATENT OFFICE.

JACK CARL JANKUS, OF SCRANTON, PENNSYLVANIA, ASSIGNOR, BY MESNE ASSIGNMENTS, TO ICELESS AUTOMATIC REFRIGERATOR COMPANY, OF DOVER, DELAWARE, A CORPORATION OF DELAWARE.

REFRIGERATOR BOX.

Application filed November 4, 1924. Serial No. 747,768.

This invention is an improvement in wall construction for refrigerators, provision safes, or other analogous cabinets or containers so constructed as to prevent the ready transfer of heat through the wall.

In my improved construction there is employed as one important feature, a metal frame to which the outer wall is secured, and which is spaced from the inner wall or lining. Preferably this metal frame extends along the angles of intersection of the sides, top and bottom of the casing, the several sections being welded or otherwise rigidly secured together at the corners. The outer walls are preferably each in the form of a single panel and all the panels are sealed to the frame to make an air-tight construction.

By means of my improved construction I avoid the usual wood frame members which are used at the corners for connecting the inner and outer walls, and which have poor insulating properties.

As a further object of my invention I eliminate all direct connection between the inner lining and the main frame, and support this lining solely from the outer wall around the door opening and by the packing or insulating material.

In the accompanying drawing I have illustrated one embodiment of my invention. In this drawing:

Fig. 1 is a vertical section through the upper and lower portions of a refrigerator box, said section being taken on the line 1—1 of Fig. 2, and the intermediate portion of the box being broken away.

Fig. 2 is a horizontal section on the line 2—2 of Fig. 1, the center portion of the box being broken away.

Fig. 3 is a perspective view of a portion of the metal frame incorporated in the box wall.

Fig. 4 is a horizontal section on the line 4—4 of Fig. 5, and showing another form, and

Fig. 5 is a vertical section on the line 5—5 of Fig. 4.

In my improved construction I employ a metal frame which is preferably formed of angle iron sections which are welded or otherwise rigidly secured together at the corners of the box. The frame shown in Figs. 1, 2 and 3, includes four members 10 con-

nected together to form an upper rectangular frame, four members 11 connected together to make a lower rectangular frame, and four vertical members 12 rigidly connecting the four corners of the upper rectangular frame to the four corners of the lower frame. By the use of angle irons the desired rigidity and strength is secured, while at the same time the frame is comparatively light. The angle irons face outwardly, and in each angle iron is a wooden strip or bar 13 substantially square in cross-section, and of a transverse dimension slightly greater than the inside width of the flanges of the angle irons.

To the frame constructed of these angle irons and wooden bars there is secured the outer wall of the casing. This may be made of panels forming the top 14, bottom 15 and side walls 16. To prevent warping, each of these panels is preferably made up of a plurality of separate layers with the grain running in different directions in the successive layers. Such a multiple-ply construction is not illustrated as it is not essential to the invention. The panels forming the outer casing wall are secured in place by bolts or screws 17 which extend through the bars 13 and through the flanges of the angle irons. Thus the outer casing is rigidly secured to and supported by the metal frame. As the wooden strips 13 extend out beyond the angle irons, the panels do not directly engage the angle irons. Thus they may be forced into firm engagement with the wooden strips and are preferably glued to the latter to form an air-tight joint.

Around the one or more door openings there is provided a wooden frame 18 which is secured to the angle irons and is disposed inside of the front casing wall 19. The door 20 may be of any suitable construction and may be hinged to the frame 18 or to the front casing wall 19.

The casing is provided with an inner wall or lining 21 which is preferably of sheet metal and welded along the seams so as to form what is in effect integral top, bottom, side and back walls. At the front the top, bottom and side walls are provided with outwardly extending flanges 22 which are secured to the inner surface of the frame 18. Thus the front frame serves as the main or

direct support for the inner wall or lining. An opening through the door frame 18 may be made somewhat larger than the inside dimensions of the inner lining, so that the door 20 abuts against the flanges 22, as well as against the frame, and the outer surface of the wall 19, to form a tight seal.

The space between the inner and outer walls is filled with some solid insulating material, such for instance as cork 23, and this is packed in sufficiently tight and is of such construction as to materially aid in supporting the inner lining, particularly at the rear portion.

If the casing is to be used for a refrigerator, either with an ice box or with the evaporator of a refrigerating machine, the bottom 24 of the inner lining is preferably inclined rearwardly and laterally to a low point from which a drain pipe 25 may extend to the exterior of the casing.

In the construction above described, it will be noted that the panels forming the outer casing are spaced a slight distance from the angle iron frame by the wooden strips 13, and with these present faces against which the panels may be sealed. The same general result may be secured by so forming the frame that the angle irons face inwardly instead of outwardly. In Figs. 4 and 5 I have shown such a construction in which the angle irons 26 face inwardly and are spaced from the panels 27 forming the outer casing, by strips 28. These strips may be of thin, soft wood or of rubber, or other packing material, which may be forced against the surface of the strip by the screws which connect the panels to the metal frame. If the strips be of wood they may be glued to the panels, but if of rubber, they may be pressed to form an air-tight joint.

In the construction shown in Figs. 1 and 2, the lining is connected by outwardly extending flanges along all four edges around the door opening. This is not essential as other connecting means may be employed. As shown in Figs. 4 and 5, I extend the edge portions 29 of the side walls and the lining into grooves in the front frame member 30. The upper and lower edges may have vertical integral flanges 31 as indicated in dotted lines in Fig. 5. For holding the lining firmly against the front frame 30 and aiding in directly supporting the lining, there are provided a plurality of straps 32 extending along the opposite sides and back of the lining, and terminating in outwardly extending flanges secured to the rear surface of the frame 30. Thus the lining is sealed to the front frame with an air-tight joint.

It will be noted that in my improved construction the inner lining which is preferably of metal coated with enamel or other surface-protecting compound, is not directly connected to the main metal frame nor to the

outer walls except along the narrow space surrounding the door opening. The insulation is as effective at the corners as at other parts, which is not the case with other refrigerator constructions with which I am familiar.

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

1. A refrigerator box including an outer wall having a door frame, an inner lining formed of sheet metal and provided with outwardly extending flanges secured to the inner surface of said door frame, insulation between said outer wall and said lining, and a skeleton metal frame within the space between said outer wall and said lining and secured to said outer wall.

2. A casing of the class described, including a skeleton frame formed of angle irons with outwardly directed flanges, bars disposed within the angle of said angle irons, and an outer wall secured to said angle irons and engaging with said bars.

3. A casing of the class described, including a metal frame having an upper rectangular frame portion formed of outwardly and upwardly facing angle irons, a lower rectangular frame portion formed of outwardly and downwardly facing angle irons, vertical outwardly facing angle irons connecting said upper and lower frame portions at the corners thereof, an outer wall secured to said frame members, and a lining spaced inwardly from said frame members.

4. A casing of the class described, including a metal frame having an upper rectangular frame portion formed of outwardly and upwardly facing angle irons, a lower rectangular frame portion formed of outwardly and downwardly facing angle irons, vertical outwardly facing angle irons connecting said upper and lower frame portions at the corners thereof, an outer wall secured to said frame members, a lining spaced inwardly from said frame members, and insulating packing between said lining and said outer wall.

5. A casing of the class described including a metal frame having an upper rectangular frame portion formed of angle irons, a lower rectangular frame portion formed of angle irons, vertical angle irons connecting said upper and lower frame portions at the corners thereof, an outer wall made up of a plurality of panels secured to said frame members, and strips engaging between said frame members and said panels for forming a seal.

6. A refrigerator box including a metal frame having an upper rectangular frame portion, a lower rectangular frame portion, vertically extending members connecting said frame portions at the corners thereof, an outer wall formed of panels secured to

but spaced from said frame, and an inner lining spaced inwardly from said frame and unattached to the latter.

7. A refrigerator box having a metallic skeleton frame including an upper rectangular frame, a lower rectangular frame, and vertical corner members between said upper and lower frames, outer walls secured to said skeleton frame, a door frame, a lining having marginal flanges secured to said door frame, and an insulating packing spacing said lining from said outer walls and said skeleton frame.

8. A refrigerator box including frame members formed of angle irons with the flanges thereof projecting outwardly, a wooden bar extending along the angle of each angle iron between the flanges thereof, and projecting beyond the edges of said flanges, securing means connecting said outer walls and said angle irons, an inner lining spaced from and unattached to said angle irons, and insulating packing between said lining and said angle irons and outer walls.

9. A refrigerator box including a door frame, a lining supported by said door frame and having marginal flanges attached thereto, a skeleton metal frame having frame parts attached to said door frame, outer walls secured to said skeleton frame

but insulated therefrom, and an insulating packing spacing said outer walls and skeleton frame from said lining.

10. A refrigerator box having side, back and top walls, a front door frame, a lining for said side, back and top walls and secured to said door frame, angle irons secured to the inner side of said door frame, but insulated therefrom, and insulation between said lining and said panels.

11. A refrigerator box including a skeleton metal frame, outer wooden wall panels secured to said frame but insulated therefrom, an inner metal lining unattached to said skeleton frame, and insulating packing between said frame and said lining.

12. A refrigerator box having a skeleton metal frame formed of a rectangular upper frame portion, a rectangular lower frame portion, and vertically disposed corner members connecting said frame portions, outer walls directly supported by said skeleton frame, a door casing directly supported by said skeleton frame, a lining supported by said door casing, and insulation between said outer walls and said lining.

Signed at Scranton in the county of Lackawanna and State of Pennsylvania this 15th day of October, A. D. 1924.

JACK CARL JANKUS.