Aug. 8, 1950 A. F. O'CONNOR 2,517,699

LINER FOR CAR WALLS

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Fig. 1

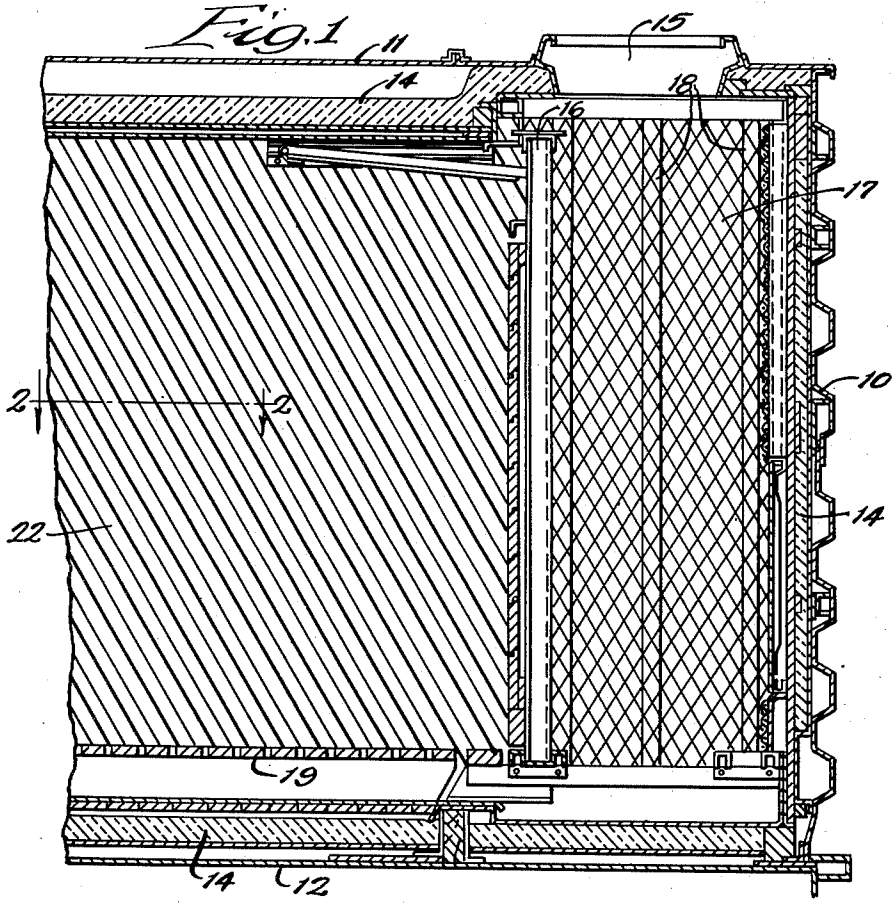


Fig. 2

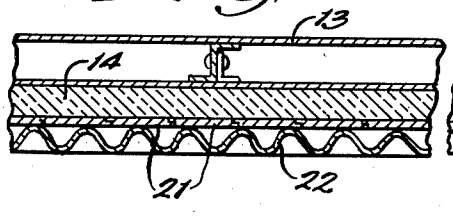
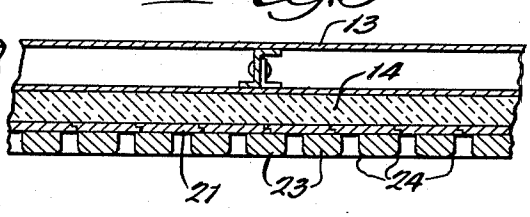


Fig. 3



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Fig. 4

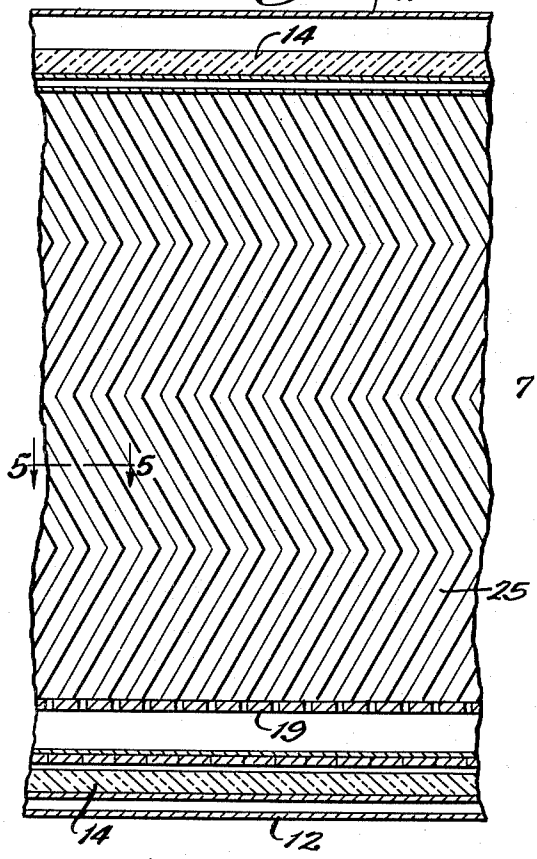


Fig. 6

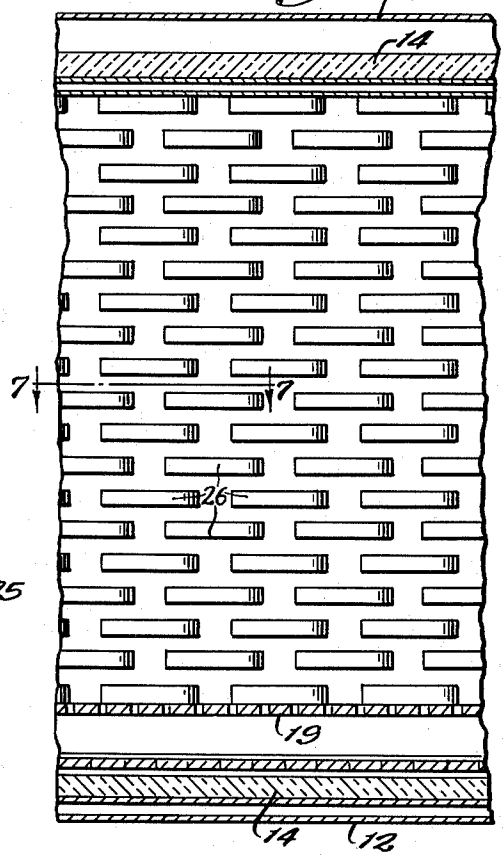


Fig. 5

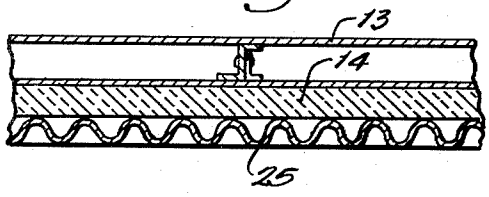
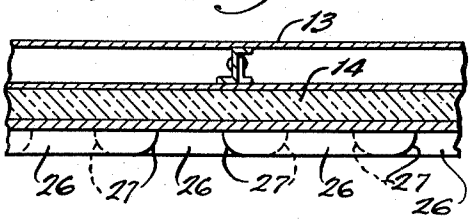


Fig. 7



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LINER FOR CAR WALLS

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8 Claims. (Cl. 105—423)

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This invention relates to liners for car walls and more particularly to liners for the side walls of railroad refrigerator cars.

It has, heretofore, been the usual practice to line the side walls of railroad refrigerator cars with vertically extending slats or with corrugated metal sheets having the corrugations extending vertically as shown, for example, in the patent to King, No. 2,372,961. This construction is particularly important in connection with the lading carried in rectangular boxes or similar rectangular packages to provide channels for circulation of cold air around the lading. It has been found in use, however, that the lading tends to shift longitudinally of the car during starting and stopping and that with the vertically extending slats or corrugations, the lading is apt to catch on the liner thereby damaging either the lading or the liner.

It is one of the objects of the present invention to provide a liner for car walls which will support the lading for free sliding longitudinally of the car and which, at the same time, provides generally vertical air channels for circulation of cold air around the lading.

Another object is to provide a liner formed of spaced parts projecting inwardly from the car wall with adjacent parts overlapping each other horizontally so that several of such parts will simultaneously engage the same piece of lading.

Still another object is to provide a liner formed by elongated strips or corrugations lying at an acute angle to the vertical to support the lading and to form generally vertical channels around the lading.

The above and other objects and avantages of the invention will be more readily apparent from the following description when read in connection with the accompanying drawing, in which—

Figure 1 is a partial longitudinal section through a railroad car having a side wall lining embodying the invention;

Figure 2 is a partial horizontal section on the line 2—2 of Figure 1;

Figure 3 is a partial section similar to Figure 2 illustrating an alternative construction;

Figure 4 is a partial longitudinal section through a railroad car illustrating an alternative form of lining;

Figure 5 is a section on the line 5—5 of Figure 4;

Figure 6 is a view similar to Figure 4 of still another form of lining; and

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

The railroad car, as illustrated, may be of

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standard construction having an end wall 10, a roof 11, a floor 12, and side walls 13. The walls may all be insulated with any conventional heat insulating material indicated at 14. The usual hatch opening may be provided in the top of the car adjacent one end and the car may be equipped with a movable bulkhead 16 which is movable from an extended position, as shown in Figure 1, to a retracted position adjacent the end of the car. The bulkhead, as illustrated, is substantially similar to that more particularly described and claimed in the patent to Lundvall, No. 2,328,820, although bulkheads of other types could be provided. When extended, the bulkhead divides the car into an ice bunker compartment adjacent the car end which may contain suitable grates, not shown, to support ice in the ice compartment above the floor level. The ice compartment walls may be lined with a screen or the like, shown at 17, which is supported outwardly from the walls by vertically extending beams 18 to provide for air circulation around the ice.

The lading compartment is provided with a floor 19 supported on longitudinally extending beams and formed by transversely extending slats which are spaced apart to permit circulation of air between them. In normal use, air circulates around the ice in the ice compartment and around the lading in the lading compartment either by gravity circulation or under the influence of circulating fans to maintain the lading cool.

According to the present invention, the side walls of the lading compartment are provided with a liner which will permit longitudinal movement of the lading without damage and, at the same time, will provide for circulation of air around the lading at the sides of the car. As best seen in Figure 2, the inner side wall of the car is formed by planks or the like as shown at 21 which lie inside of the insulation 14 to form a relatively smooth inner surface. The liner is carried by this inner side wall surface and in the form shown in Figures 1 and 2 comprises a relatively thin metal sheet 22 formed with a series of parallel corrugations having the apices of the inwardly extending corrugations lying in a common plane. The corrugations extend from a point adjacent the ceiling of the car at least to the level of the floor racks 19 and lie at an acute angle to the vertical so that adjacent corrugations overlap each other horizontally as seen in Figure 1. Preferably, the liner is open at the top so that air can circulate through the channels formed by

both the inwardly and outwardly extending corrugations.

With this construction, lading in the car, particularly when the lading is in the form of rectangular boxes or packages, will simultaneously engage a plurality of adjacent corrugations so that it will be held a fixed minimum distance from the inner car wall 21. If the lading should tend to slide longitudinally of the car during starting or stopping, there will be no vertical edges against which the lading could catch so that the boxes or packages of lading can slide relatively freely across the liner without damaging either the liner or the lading. At the same time, the spaces between the corrugations provide open channels extending generally vertically of the car through which air can circulate around the lading to cool it. While no exact angle for the corrugations is required, they preferably extend at an angle of about 20° to 30° to the vertical. This angle provides adequate support for the lading by several adjacent corrugations and, at the same time, leaves the channels near enough to the true vertical so that air can circulate freely through them.

Instead of forming the liner of a corrugated metal sheet, it may be formed by a plurality of spaced parallel slats or strips as shown, for example in Figure 3. In this construction, the inner side wall 21 of the car has secured thereto as by nailing or the like a series of parallel wooden strips or slats 23 which extend at an acute angle to the vertical from substantially the top to the bottom of the side wall and which are spaced horizontally to provide open channels between them. Preferably, the corners of the slats or strips are slightly rounded or beveled as indicated at 24 to permit sliding of the lading across them. This construction will function in substantially the same manner as the corrugated sheet to hold boxes or packages of the lading for relatively free movement longitudinally of the car while, at the same time, providing generally vertical channels for circulation of air around the lading.

As shown in Figures 4 and 5, the lining may be formed by a metal sheet 25 provided with zigzag corrugations extending generally vertically of the car and lying at an acute angle to the vertical. This construction will provide the same lading support as that of Figure 1 and will provide similar generally vertical channels for air circulation around the lading. It will be noted, however, that with the zigzag or herringbone corrugations, the lower end of each channel lies vertically beneath its upper end so that a more uniform circulation of air throughout the car and around the lading may be obtained.

Figures 6 and 7 illustrate still another construction in which the lining is formed by a plurality of blocks 26 which may be of wood or metal. The vertically adjacent blocks are staggered horizontally with respect to each other in much the manner of brickwork and the blocks are spaced apart to provide both horizontal and vertical openings or channels between them. Preferably, the blocks are rounded at their ends as indicated at 27 so that they will not tend to catch on the lading as it slides longitudinally of the car. With this construction, a box or package of lading will be engaged by a plurality of the blocks at horizontally spaced points so that the lading can slide without encountering any vertical edges which would tend to damage it. At the same time, spacing of the blocks provides channels which extend generally vertical along the car side wall through which air can circulate freely around the lading.

While several embodiments of the invention have been shown and described in detail, it will be understood that they are illustrative only and are not intended to be a definition of the scope of the invention, reference being had for this purpose to the appended claims.

I claim for my invention:

1. In a refrigerator car having a side wall, a floor, a ceiling, and lading supporting racks in overlying spaced relation with the floor, a liner for the side wall comprising a plurality of parts carried by and extending inwardly from the side wall and terminating in a common plane, each of said parts having a sufficient horizontal extent longitudinally of the car to overlap adjacent parts horizontally and adjacent parts being spaced from each other horizontally so that a flat piece of lading will simultaneously engage a plurality of parts at horizontally spaced points and generally vertically extending channels will be provided for air circulation between the lading and the car side wall.

2. In a refrigerator car having a side wall, a floor, a ceiling, and lading supporting racks in overlying spaced relation with the floor, a liner for the side wall comprising a plurality of elongated strips carried by and extending inwardly from the side wall and terminating in a common plane, each of said strips lying at such an angle that it will overlap adjacent strips horizontally and the adjacent strips being spaced horizontally to form generally vertical air channels between them.

3. In a refrigerator car having a side wall, a floor, a ceiling, and lading supporting racks in overlying spaced relation with the floor, a liner for the side wall comprising a corrugated metal sheet carried by the side wall with the apices of the inwardly extending corrugations lying in a common plane, the corrugations being of such a length and lying at such an angle that adjacent corrugations overlap each other horizontally and being spaced to define between them generally vertical air channels.

4. In a refrigerator car having a side wall, a floor, a ceiling, and lading supporting racks in overlying spaced relation with the floor, a liner for the side wall comprising adjacent parallel elongated strips carried by and extending inwardly from the side wall at an acute angle to the vertical with their innermost surfaces lying in a common plane.

5. In a refrigerator car having a side wall, a floor, a ceiling, and lading supporting racks in overlying spaced relation with the floor, a liner for the side wall comprising a corrugated metal sheet carried by the side wall with the apices of the inwardly extending corrugations lying in a common plane, being substantially continuous from the top to the bottom of the sheet and lying at an acute angle to the vertical.

6. In a refrigerator car having a side wall, a floor, a ceiling, and lading supporting racks in overlying spaced relation with the floor, a liner for the side wall comprising a corrugated metal sheet carried by the side wall with the apices of the inwardly extending corrugations lying in a common plane extending in a zigzag path from the top to the bottom of the sheet with each leg of said path lying at an acute angle to the vertical.

7. In a refrigerator car having a side wall, a floor, a ceiling, and lading supporting racks in overlying spaced relation with the floor, a liner for the side wall comprising adjacent parallel elongated strips carried by and extending inwardly from the side wall at an acute angle to the vertical with their innermost surfaces lying in a common plane, said strips extending in a zigzag path from the top part of the side wall to the level of the lading racks.

8. In a refrigerator car having a side wall, a floor, a ceiling, and lading supporting racks in overlying spaced relation with the floor, a liner for the side wall comprising a plurality of spaced blocks carried by and extending inwardly from the side wall, vertically adjacent blocks being

horizontally staggered and of such a length that they overlap each other.

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