

Jan. 21, 1941.

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2,229,547

FLOOR RACK FOR REFRIGERATOR CARS

Original Filed Nov. 19, 1937

2 Sheets-Sheet 1

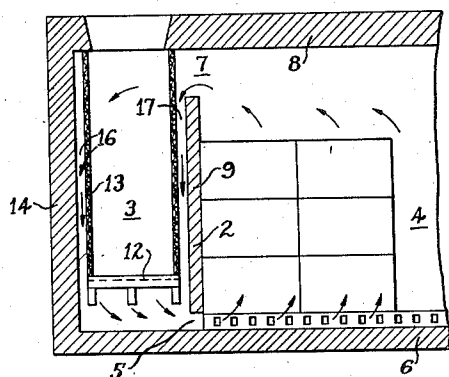


Fig. 1

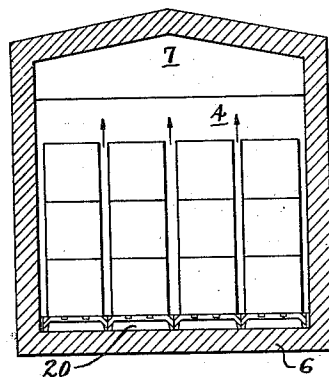


Fig. 2

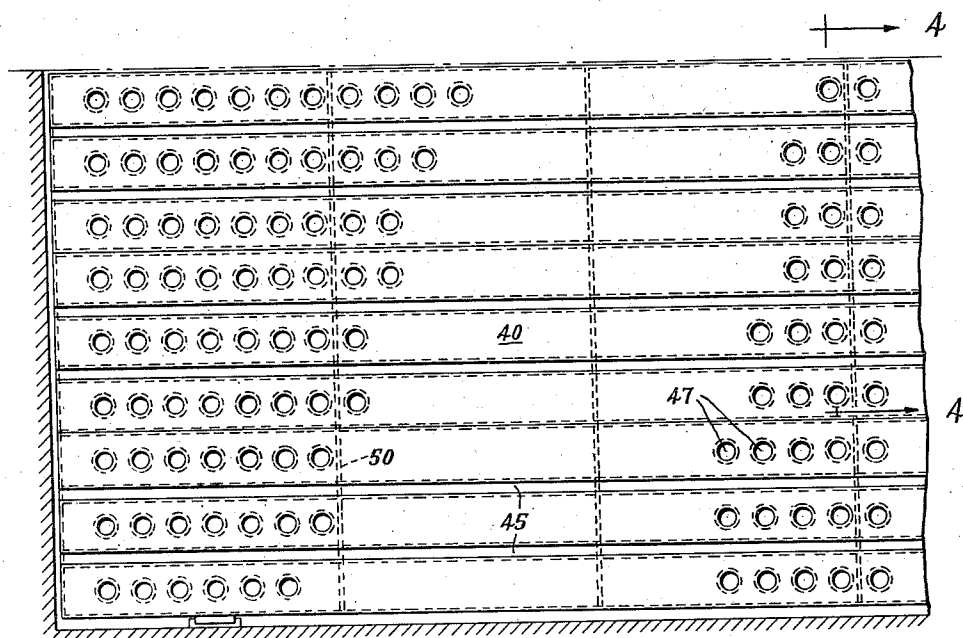


Fig. 3

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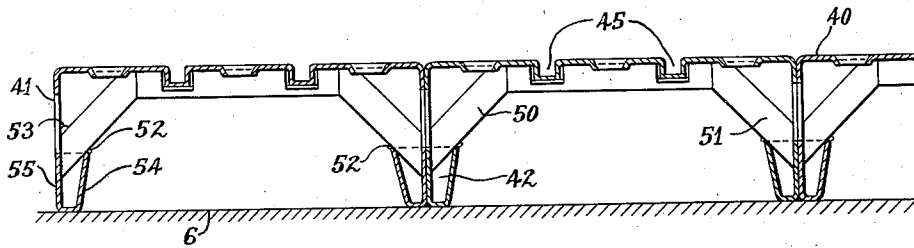


Fig. 4

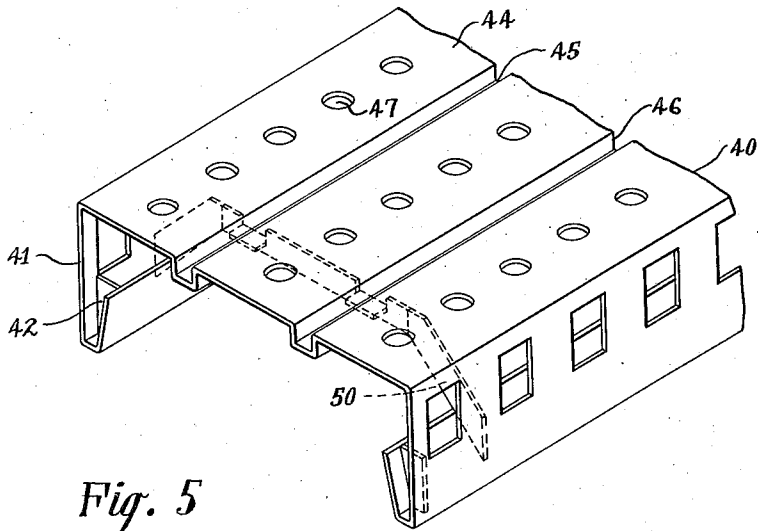


Fig. 5

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UNITED STATES PATENT OFFICE

2,229,547

FLOOR RACK FOR REFRIGERATOR CARS

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Original application November 19, 1937, Serial No. 175,487. Divided and this application September 18, 1939, Serial No. 295,371

8 Claims. (Cl. 105—375)

The invention relates to insulated railway refrigerator cars used to transport perishable commodities, such as vegetables, fruits, berries, meats, eggs, frozen fish, etc., and to maintain such commodities while in transit within a predetermined range of temperature, thus necessitating the use of a cooling means in the summer and a heating means in the winter. It has been found that perishable commodities which have not been allowed to get too cold (freeze) or too hot (bake) have a high market value because they have a longer storage life.

In a refrigerator car water ice is associated with certain elements of the car to establish a convection circulation of air between the refrigerant chamber and the lading compartment to cool the lading in the car (as hereinafter described). A foraminous floor supports the lading in spaced relation to the insulated floor of the car.

Lump ice is frequently placed on top of a perishable lading to cool it and sometimes pulverized ice is blown above and between the lading to cool it. Such ice upon melting drains to the floor of the car.

It is desirable to allow at least some of the melted ice to remain on the insulated floor of the car below the foraminous floor to produce further insulation between the outside of the car and the air flues below the foraminous floor and also to further cool the circulating air. The melted ice (water) has a temperature about 32° Fahrenheit when no salt is used and as low as 14° Fahrenheit when 25% salt is mixed with the lump ice, therefore, it can effectively perform the two above mentioned functions. Sometimes this melted ice freezes again and adheres to the foraminous floor supports, making it difficult to remove them.

An object of the invention is to provide a floor rack comprising a foraminous floor supported in spaced relation to the insulated floor of the car by a plurality of channel stringers which are so formed as to facilitate their removal from ice formed on the insulated floor.

A further object is to form the foraminous floor supports so as to minimize their resistance to the flow of circulating air by providing means for air to circulate through them.

In the drawings:

Figs. 1 and 2 show the relation of my improved floor rack to the other elements of a refrigerator car.

Fig. 3 shows a plan view of the floor rack.

Fig. 4 shows a section view of the floor rack.

Fig. 5 shows a perspective view of the floor rack.

In the form of my invention illustrated the refrigerator car is provided with a bulkhead 2 separating the refrigerant chamber 3 from the lading compartment 4. The bulkhead 2 is provided with an aperture 5 adjacent the floor 6 of the car and an aperture 7 adjacent the ceiling 8 of the car with a solid wall 9 therebetween.

A refrigerant is supported by the ice supporting means 12 in the refrigerant chamber 3 in spaced relation to the floor 6 of the car and the basket (or netting) 13 spaces the refrigerant from the end wall 14 and bulkhead 2 to provide the flues 16—17. The apertured floor rack, or foraminous floor, supports the lading so as to provide the space 20 which communicates with the flues 16—17. A refrigerant, such as ice in the refrigerant chamber, induces a convection circulation of air from the flues 16—17, through the flue space 20 and the apertures 47 in the floor rack, and as the air is warmed by the lading, it rises and passes through the bulkhead upper opening 7 and thence through the flues 16—17, and being cooled by the refrigerant, repeats the convection cycle.

When a stove or other heater is placed in the refrigerant chamber a convection circulation of air is induced in the opposite direction because the air warmed by the heater rises and falls when cooled by the lading.

The floor rack comprises a perforated metallic plate 40 with depending marginal flanges 41, which flanges are rebent to form channel feet engaging the floor 6. The stiffening element 42 closes the ends of the channels to prevent melted ice from entering the channel for the purpose hereinbefore set forth. The metallic plate 40 is formed with upper (44) and lower (45) portions in substantially parallel planes connected by webs 46 with one or both of said portions being provided with apertures 47. The cross member 50 which supports the metallic plate between the marginal flanges 41 comprises a flat plate cut out for the webs 46 and lower portions 45 and extending downwardly and outwardly (51) at each end thereof and welded to one or both (52—53) side walls 54—55 of both of the marginal flanges. Such a construction offers very little resistance to movement of circulating air.

The accompanying drawings illustrate the preferred form of the invention, though it is to be understood that the invention is not limited to the exact details of construction shown and described, as it is obvious that various modifica-

tions thereof, within the scope of the claims, will occur to persons skilled in the art.

This is a division of my co-pending application Serial No. 175,487, filed November 19, 1937, issued as Patent No. 2,187,219, Jan. 16, 1940.

I claim:

1. In a refrigerator car having an insulated floor, a foraminous floor above the insulated floor, a space between said floors and ice associated with elements of the car to induce an air current in said space upon melting thereof, said ice being positioned so that the melted ice will drain upon the insulated floor, said foraminous floor formed of a perforated metallic plate with depending marginal flanges, said flanges being rebent to form channel feet engaging the insulated floor, and means to close the ends of said channels to prevent melted ice from entering the channel.

2. In a refrigerator car having an insulated floor, a foraminous floor above the insulated floor, a space between said floors and ice associated with elements of the car to induce an air current in said space upon melting thereof, said ice being positioned so that the melted ice will drain upon the insulated floor, said foraminous floor formed of a perforated metallic plate with depending marginal flanges, said flanges being rebent to form channel feet engaging the insulated floor, the part of said plate between said flanges being formed with upper and lower portions connected by webs parallel to said flanges, and means to close the ends of said channels to prevent melted ice from entering the channel.

3. In a refrigerator car having an insulated floor, a foraminous floor above the insulated floor, a space between said floors and ice associated with elements of the car to induce an air current in said space upon melting thereof, said ice being positioned so that the melted ice will drain upon the insulated floor, said foraminous floor formed of a perforated metallic plate with depending marginal flanges, said flanges being rebent to form channel feet engaging the insulated floor, the part of said plate between said flanges being formed with upper and lower portions connected by webs parallel to said flanges, and a cross member extending between and secured to the opposite marginal flanges, said member being formed to support both said upper and lower portions of the metallic plate.

4. In a refrigerator car having an insulated floor, a foraminous floor above the insulated floor, a space between said floors and ice associated with elements of the car to induce an air

current in said space upon melting thereof, said ice being positioned so that the melted ice will drain upon the insulated floor, said foraminous floor formed of a perforated metallic plate with depending marginal flanges, said flanges being rebent to form channel feet engaging the insulated floor, the part of said plate between said flanges being formed with upper and lower portions connected by webs parallel to said flanges, and a cross member extending between and secured to the opposite marginal flanges, said member being secured to both sides of both of said feet.

5. In a refrigerator car having an insulated floor, a foraminous floor above the insulated floor, a space between said floors and ice associated with elements of the car to induce an air current in said space upon melting thereof, said ice being positioned so that the melted ice will drain upon the insulated floor, said foraminous floor formed of a perforated metallic plate with depending marginal flanges, said flanges being rebent to form channel feet engaging the insulated floor, the part of said plate between said flanges being formed with upper and lower portions connected by webs parallel to said flanges, and a cross member extending between and secured to the opposite marginal flanges, said member being formed to support both said upper and lower portions, said member being secured to both sides of both of said feet.

6. A floor rack for a refrigerator car comprising a foraminous floor, supporting means therefor disposed therebelow comprising spaced apart channel shaped stringers, and a cross member extending between said channel shaped stringers and secured to both sides thereof.

7. A floor rack for a refrigerator car comprising a foraminous floor, supporting means therefor disposed therebelow comprising spaced apart channel shaped stringers, and a cross member arranged to support said foraminous floor, said member extending between said channel shaped stringers and secured to both sides thereof.

8. A floor rack for a refrigerator car comprising a perforated metallic plate, supporting means therefor disposed therebelow comprising spaced apart channel shaped stringers comprised of depending marginal plate flanges and upstanding reflanges in spaced relation to said flanges, and a cross member arranged to support said metallic plate, said member extending between said channel shaped stringers and secured to both sides thereof.

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