

Dec. 6, 1938.

K. E. ZEIDLER

2,139,056

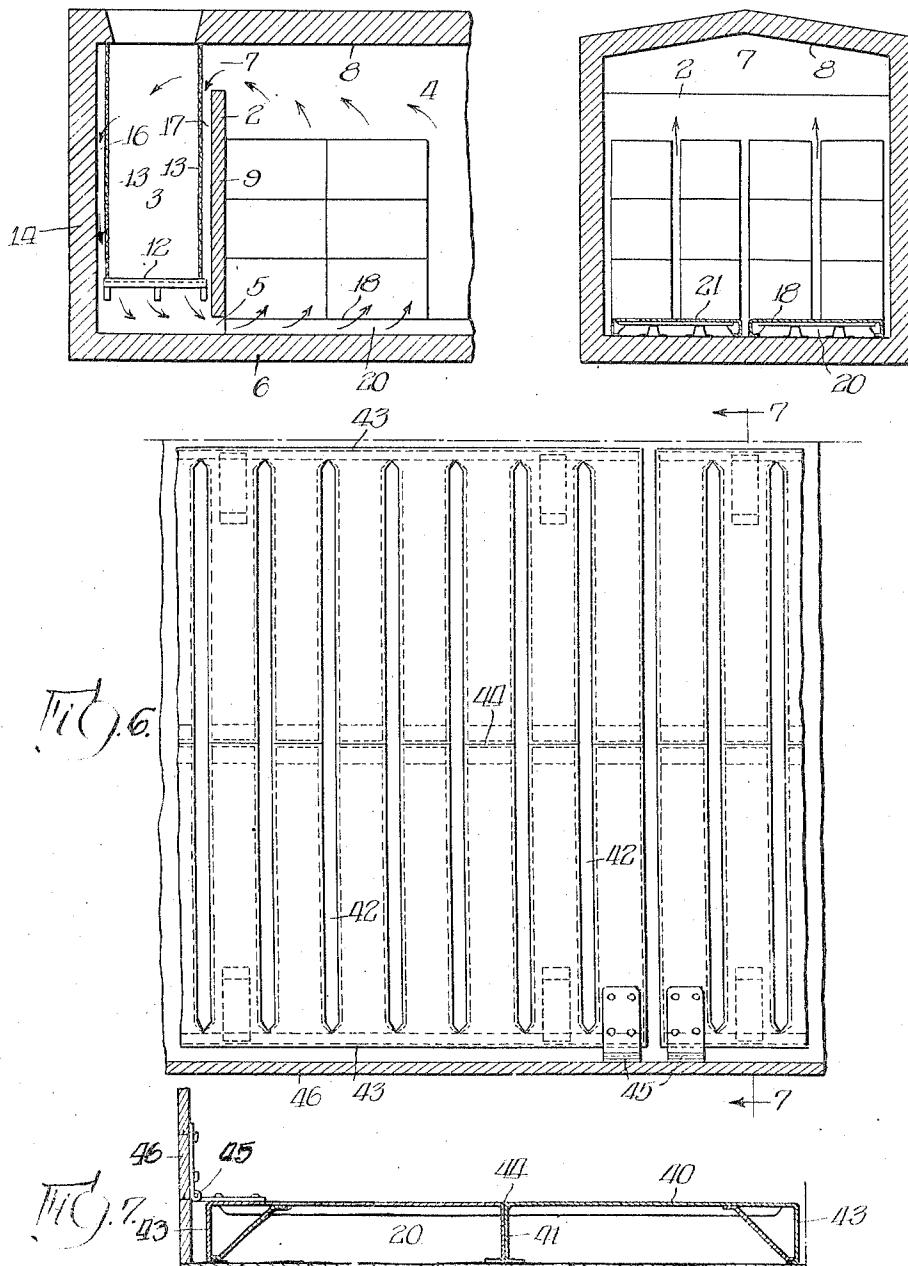
FLOOR RACK FOR REFRIGERATOR CARS

Filed Oct. 5, 1937

2 Sheets-Sheet 1

Fig. 1.

Fig. 2.



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2 Sheets-Sheet 2

Fig. 3.

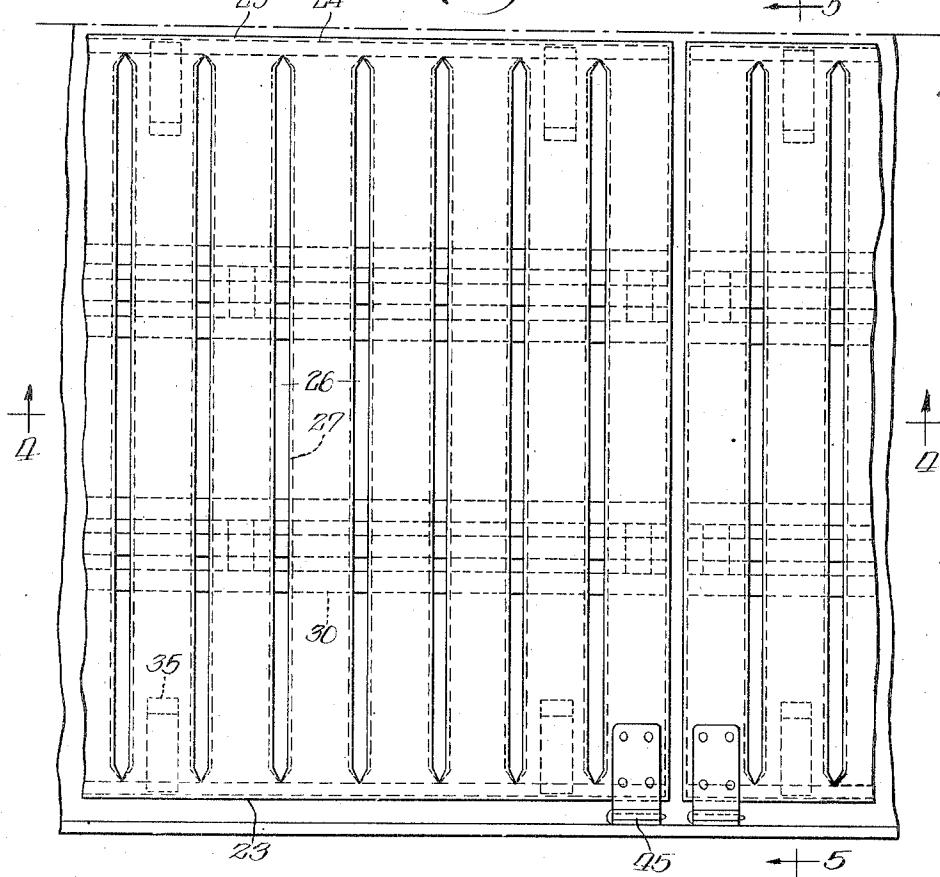


Fig. 4.

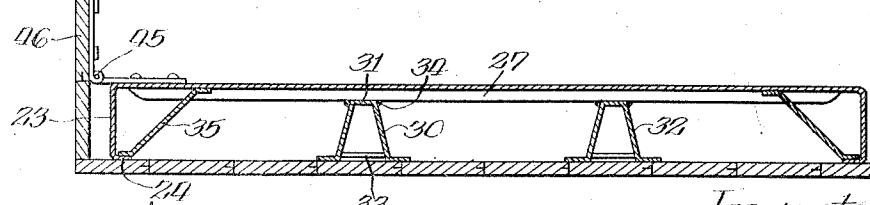
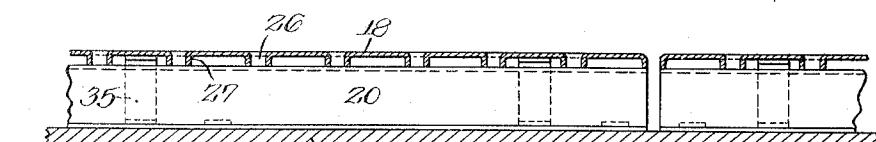


Fig. 5.

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## UNITED STATES PATENT OFFICE

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## FLOOR RACK FOR REFRIGERATOR CARS

Kurt E. Zeidler, Pittsburgh, Pa., assignor, by  
mesne assignments, to Standard Railway  
Equipment Manufacturing Company, a corpora-  
tion of Delaware

Application October 5, 1937, Serial No. 167,405

5 Claims. (Cl. 105—375)

The invention relates to insulated 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.

The object of the invention is to provide a floor rack for a refrigerator car which is very strong to support vertical loads and has great strength in a horizontal direction (to resist the tendency of a shifting load to move the floor rack sidewise) without materially retarding the flow of air below the floor rack or materially reducing the amount of air flow through the floor rack.

In the drawings:

Figs. 1 and 2 show the corelation of my device to the other elements of a refrigerator car.

Fig. 3 shows a plan view of one of my improved floor racks.

Fig. 4 is a section on line 4—4 of Fig. 3.

Fig. 5 is a section on line 5—5 of Fig. 3.

Fig. 6 shows a modified construction of floor rack.

Fig. 7 is a section on line 7—7 of Fig. 6.

In the form of my invention illustrated the refrigerator car is provided with a bulkhead 2 separating the refrigeration 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 grates 12 in the refrigeration 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 18 supports the lading so as to provide the space 20 which communicates with the flues 16—17. A refrigerant, such as ice, in the refrigeration chamber induces a convection circulation of air from the flues 16—17 through the flue space 20 and the apertures 21 in the floor rack 18, 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.

The floor rack 18 comprises a metallic sheet formed with depending marginal flanges 23 which

rest upon the floor 6 of the car to support the metallic sheet in spaced relation to the floor to provide the flue 20. These marginal flanges may be bent to form the reflare 24. The metallic sheet is provided with a plurality of parallel slots 26 extending preferably continuously between the marginal flanges 23 through which the circulating air passes to contact the lading. Each of the slots 26 is formed with a preferably continuous peripheral depending flange 27 which stiffens the metallic plate. These peripheral flanges 27 constitute a series of beams between the supports or marginal flanges 23. If it were not for these peripheral flanges 27 the edges of the slots 26 would become bent and distorted and cause the surface of the rack to become very rough.

The stringer 30 supports the metallic plate between the marginal flanges 23 and is formed so that the bottom thereof rests upon the floor 6 of the car and the top thereof supports and is preferably secured to the peripheral flanges 27 around the slots 26. In other words, the beams (formed by the peripheral flanges) are supported between their ends. The form of stringer 30 shown comprises an upper wall 31 between diverging legs 32 which are prevented from spreading by a strap 33. The upper wall 31 is preferably welded (34) to the peripheral flanges 27.

The braces 35 prevent the depending flanges 30 from collapsing under load and comprise a strap secured to a marginal flange 23 adjacent the floor of the car with the other end thereof secured to the metallic plate between the slots 26 and preferably adjacent the peripheral flanges 27.

In the form shown in Figs. 6 and 7 the rack comprises a pair of metallic sheets 40 having their meeting portions joined together (preferably by welding) to form an integral unit, preferably by flanges 41. The slots 42 extend uninterruptedly between the marginal flanges 43 across the joint 44 between the sheets. The parts 41 of the meeting edges of the metallic sheets are preferably bent downwardly to form feet which rest upon the floor 6 of the car.

In the arrangement shown the racks are hinged (45) to a wall 46 of the car so as to be swung upwardly to clear the floor of the car. The stringers 30 and marginal flanges 23 are preferably positioned parallel to the direction of movement of the circulating air in the space 20.

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

5 I claim:

1. In a refrigerator car having a floor, a rack to support a lading in spaced relation to said floor to provide a flue therebetween, and means to induce an air current in said flue, said rack comprising a metallic sheet formed with depending marginal flanges resting upon said floor, said sheet provided with a plurality of parallel slots extending substantially between said flanges, each of said slots being provided with a peripherical flange which forms parts of a plurality of parallel inverted channel shaped members integral with said sheet, and a stringer extending normally to said slots with the bottom thereof resting upon said floor and the top thereof secured to a plurality of said peripherical flanges.
2. In a refrigerator car having a floor, a rack to support a lading in spaced relation to said floor to provide a flue therebetween, and means to induce an air current in said flue, said rack comprising a metallic sheet formed with depending marginal flanges resting upon said floor, said sheet provided with a plurality of parallel slots extending substantially between said flanges, each of said slots being provided with a peripherical flange which forms parts of a plurality of parallel inverted channel shaped members integral with said sheet, and a brace having one end thereof secured to one marginal flange adjacent said floor and the other end thereof secured to said metallic sheet between said parallel slots.
3. In a refrigerator car having a floor, a rack to support a lading in spaced relation to said floor to provide a flue therebetween, and means to induce an air current in said flue, said rack comprising a metallic sheet formed with depending marginal flanges resting upon said floor, said sheet provided with a plurality of parallel slots extending substantially between said flanges,

each of said slots being provided with a peripherical flange which forms parts of a plurality of parallel inverted channel shaped members integral with said sheet, a stringer extending normally to said slots with the bottom thereof resting upon said floor and the top thereof secured to a plurality of said peripherical flanges, and a brace having one end thereof secured to one marginal flange adjacent said floor and the other end thereof secured to said metallic sheet between said parallel slots.

4. In a refrigerator car having a floor, a rack to support a lading in spaced relation to said floor to provide a flue therebetween, and means to induce an air current in said flue, said rack comprising a pair of metallic sheets joined together to form an integral unit and formed with depending flanges at opposite margins thereof which rest upon said floor, said unit provided with a plurality of parallel slots extending uninterruptedly between said marginal flanges across the joint of the sheets, each of said slots being provided with a peripherical flange which forms parts of a plurality of parallel inverted channel shaped members integral with said sheet.

5. In a refrigerator car having a floor, a rack to support a lading in spaced relation to said floor to provide a flue therebetween, and means to induce an air current in said flue, said rack comprising a pair of metallic sheets joined together to form an integral unit and formed with depending flanges at opposite margins thereof which rest upon said floor, said unit provided with a plurality of parallel slots extending uninterruptedly between said marginal flanges across the joint of the sheets, each of said slots being provided with a peripherical flange which forms parts of a plurality of parallel inverted channel shaped members integral with said sheet, the parts of said meeting portions between said slots being bent downwardly to engage said floor.

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