March 14, 1939. C. D. BONSALL 2,150,413

FLOOR RACK FOR REFRIGERATOR CARS

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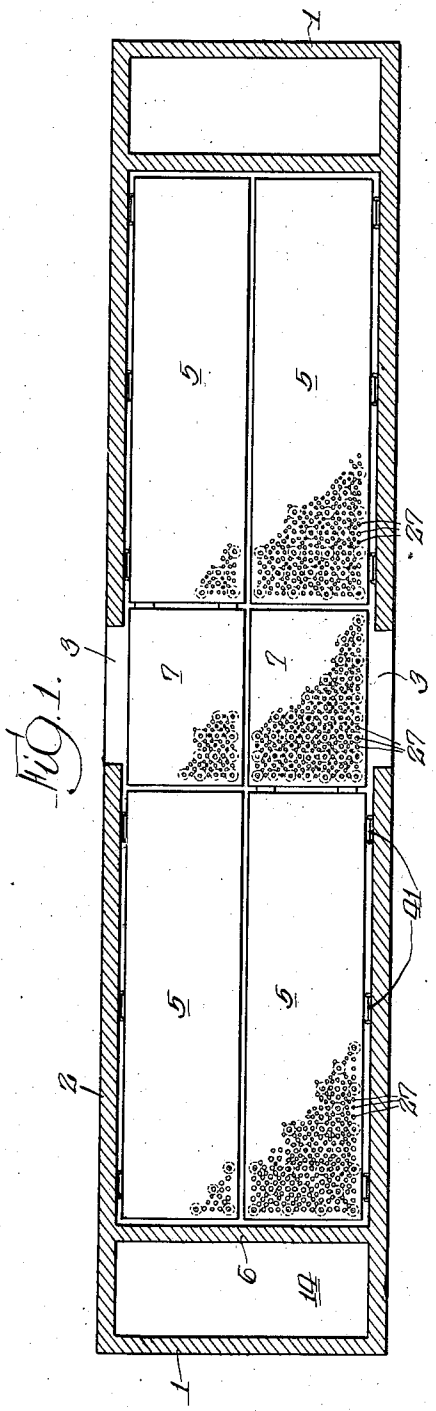


Fig. 1.

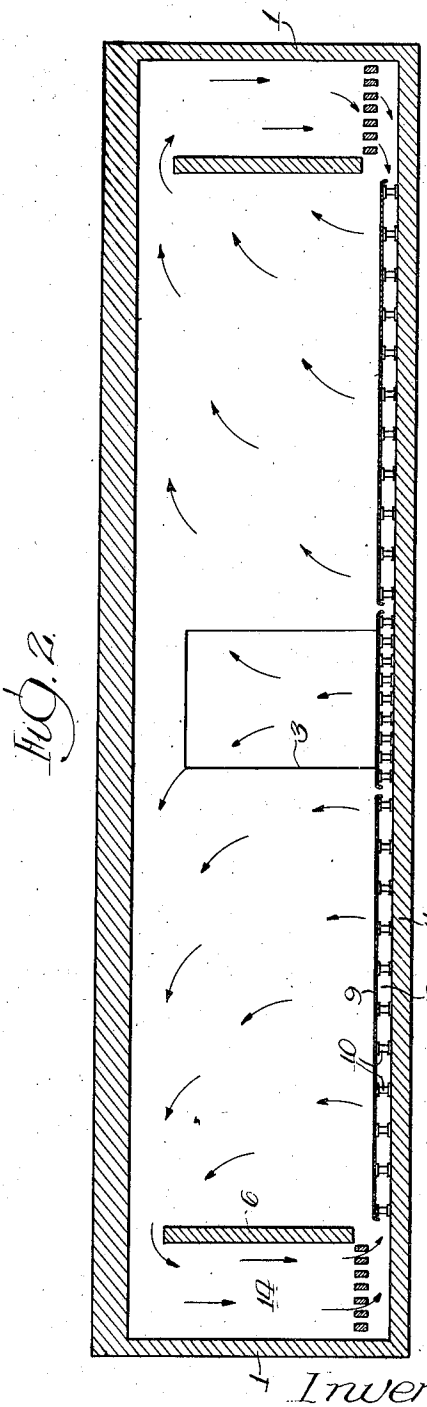


Fig. 2.

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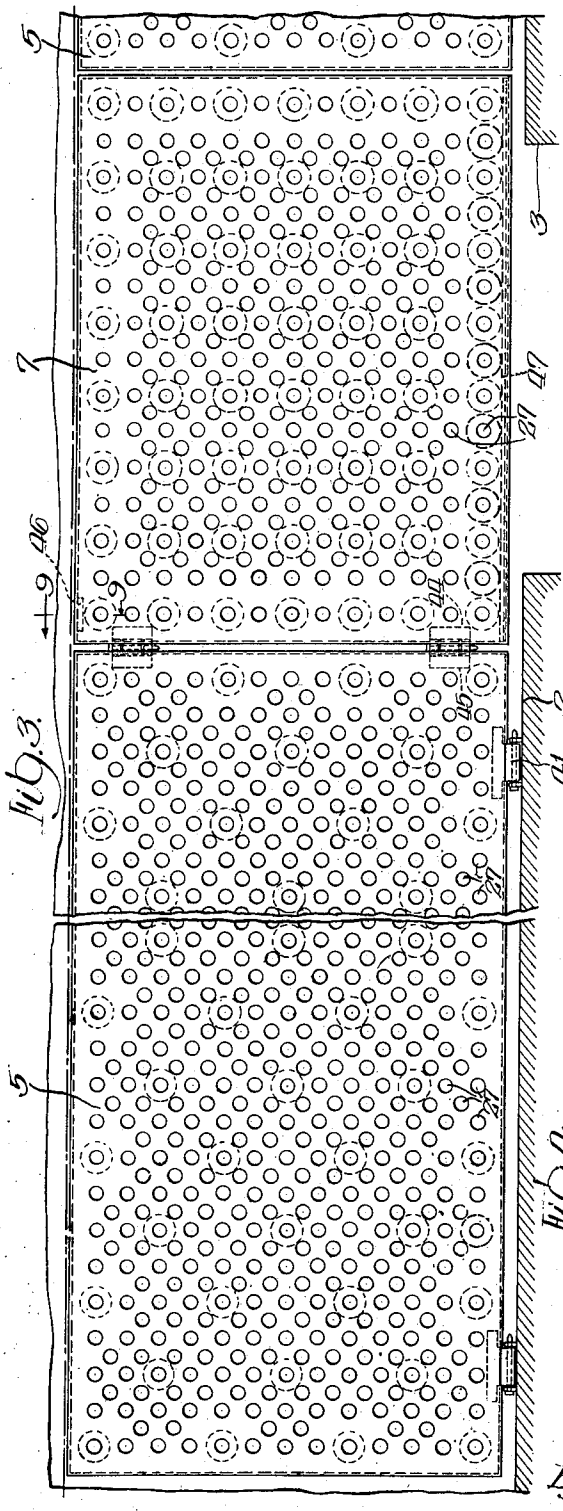


Fig. 3.

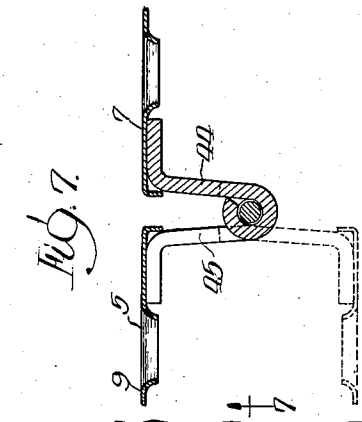


Fig. 7.

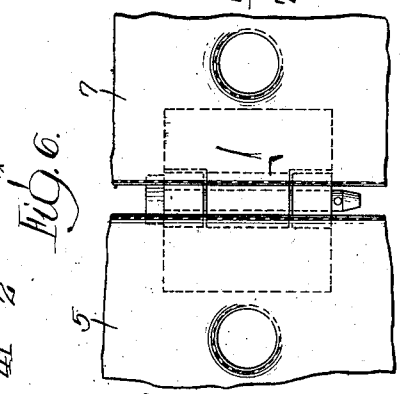


Fig. 6.

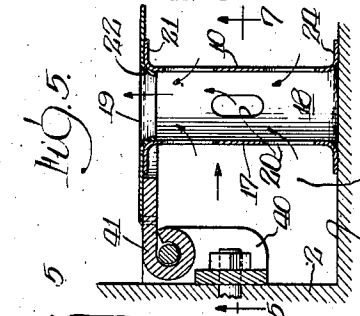


Fig. 5.

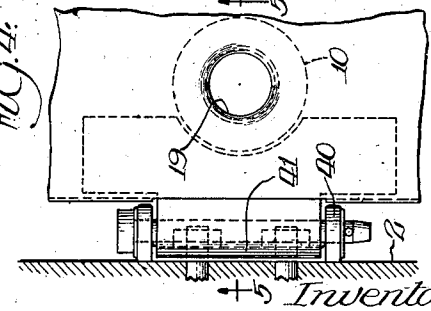


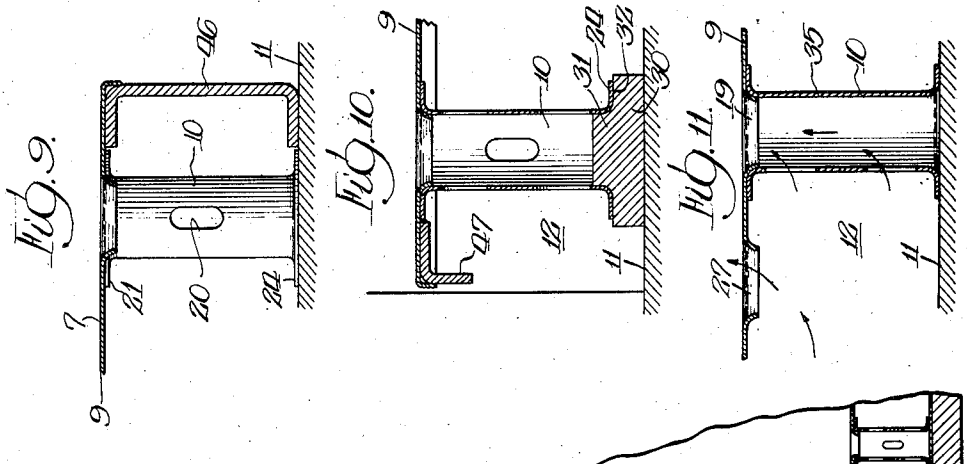
Fig. 4.

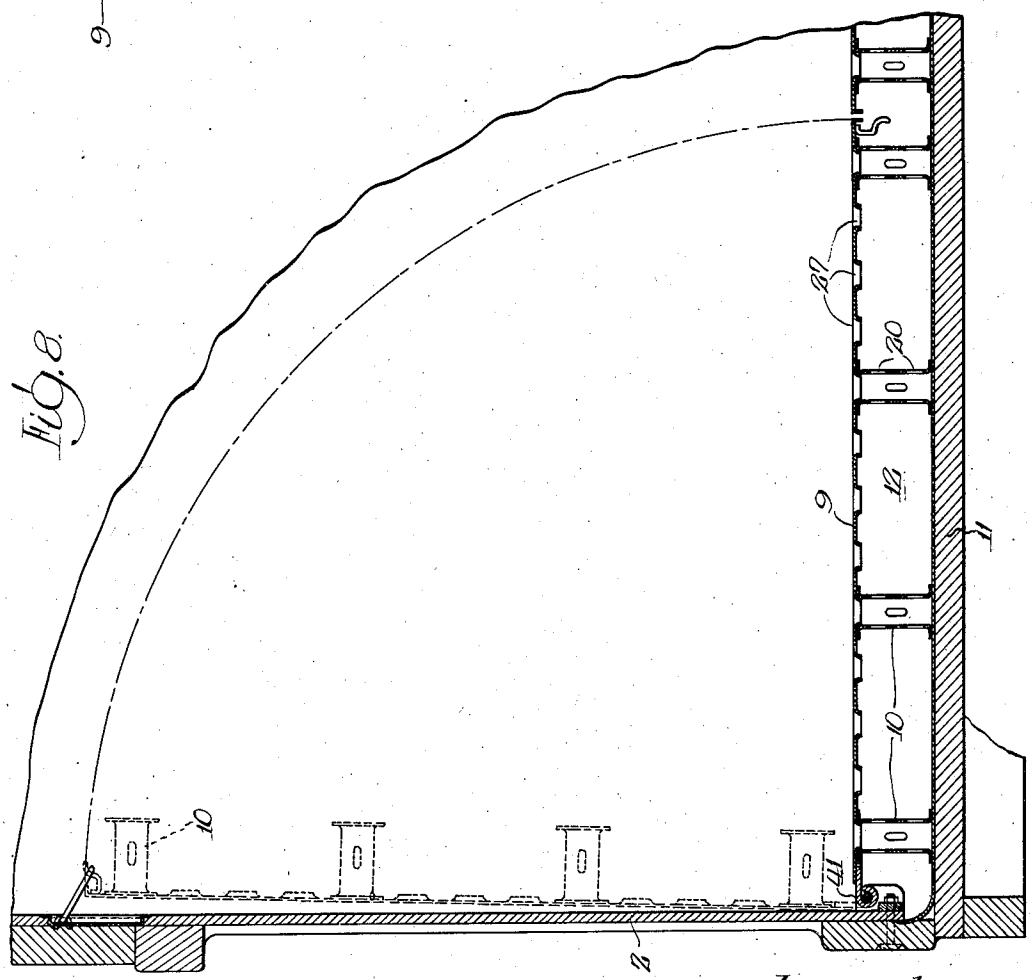
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FLOOR RACK FOR REFRIGERATOR CARS

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Patented Mar. 14, 1939 2,150,413

UNITED STATES PATENT OFFICE

2,150,413

FLOOR RACK FOR REFRIGERATOR CARS

Charles David Bonsall, Pittsburgh, Pa., assignor, by mesne assignments, to Standard Railway Equipment Manufacturing Company, a corporation of Delaware

Application March 15, 1937, Serial No. 130,855

8 Claims. (Cl. 105—375)

The invention relates to insulated railway refrigeratior cars used to transport perishable commodities, such as vegetables, fruits, berries, meats, eggs, frozen fish, etc., and to maintain such commodities while intransit 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 invention relates specifically to "floor racks" for such refrigerator cars which comprise a foraminous or perforated floor, arranged to support the lading in the car in spaced relation to the insulated floor of the car so that air, after it has been cooled by a refrigerant, or heated by a heater, may pass under the lading and through the foraminous floor and up through or between the lading.

Spaced apart wooden slats supported by wooden stringers have been used for this purpose, but such construction is objectionable because it becomes insanitary, retains odors, becomes water sogged and heavy, and is expensive to maintain.

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.

Another object is to provide a floor rack made entirely of metal; is sanitary; cheap to maintain and provides a smooth surface for walking upon and rolling trucks thereupon.

Another object is to provide a foraminous floor supported entirely by perforated spools so that air may circulate through the foraminous floor, through and between the spools, and another object is to provide means to adjust the height of such foraminous floor from the floor of the car.

Another object is to support such foraminous floor by a plurality of duplicate spools which can be stored in anticipation of repairs.

In the drawings:

Fig. 1 shows a typical plan of a railway car provided with my improved floor rack.

Fig. 2 shows a vertical section of the car of Fig. 1.

Fig. 3 shows an enlarged view of the end and doorway floor racks.

Figs. 4 and 5 show the hinge construction between an end floor rack and the side wall, wherein Fig. 5 is a section on line 5—5 of Fig. 4.

Figs 6 and 7 show the hinge construction between an end and doorway floor rack, wherein Fig. 7 is a section on line 7—7 of Fig. 6.

Fig. 8 shows an end floor rack (in solid lines) in its normal position on the floor of the car and in dotted lines adjacent the side wall of the car.

Fig. 9 shows a section through 9—9 in Fig. 3.

Fig. 10 shows a section through 10—10 in Fig. 3.

Fig. 11 shows a modified construction.

Railway cars, particularly railway refrigerator cars, comprise end walls 1 and side walls 2 with a doorway 3 in each side wall which is usually midway between the end walls. The floor rack for the entire car usually comprises several units, such as end floor racks 5 which extend from the doorways 3 to the bulkheads 6 and middle floor racks 7 which extend between the doorways. The end 5 and middle 7 floor racks may also each comprise several units.

The floor rack comprises a perforated or otherwise apertured metallic plate 9 and a plurality of spacers 10 secured to the plate (preferably by welding) which engage the floor 11 of the refrigerator car to provide a space 12 for movement of air under the load from the refrigerant chamber or heater chamber 14. A wire netting, expanded metal or other foraminous metallic sheet may come within the scope of this invention.

Each spacer 10 (see Fig. 5) comprises a perforated wall 17 surrounding a hollow portion 18, which hollow portion registers with an aperture 19 in the metallic plate 9 so that horizontally moving air under the floor racks may enter the hollow portion 18 of the spacer 10 through the perforations 20 and thence upwardly through the aperture 19. The spacers 10 in the doorway floor racks 7 are preferably closer together than the spacers in the end floor racks 5 (see Fig. 3) on account of the greater abuse these particular floor racks are subjected to, and preferably the spacers in the doorway floor racks 7 are preferably closer together adjacent the doorways (see Fig. 3). The perforations 20 are preferably positioned on the side of the spacer wall 17 from which the air is coming which is, generally speaking, that side which is nearest the refrigerant chamber 14. The opposite side wall 35 of the spacer may remain imperforate. (See Fig. 11.)

The perforated wall 17 of each spacer is preferably cylindrical and provided with an upper

lateral peripherical flange 21 secured to the apertured plate and fitting the depending flange 22 surrounding the aperture 19. The spacer is also provided with a lateral peripherical flange 24 providing a base which rests upon the floor 11 of the car. The upper lateral flange 21 stiffens the metallic plate around the aperture 19 both in vertical and horizontal directions. The lower lateral flange 24 stiffens the lower portion of the spacer 10 against horizontal forces and also increases the bearing area of the spacers upon the floor of the car. Other apertures 27 may be provided in the metallic plate between the apertures 19 registering with the respective hollows 18 of the spacers to increase the permissible air movement through the metallic plate.

In order to increase or decrease the height of the metallic plate 9 from the floor 11 of the car I provide preferably wooden shims 30 (see Fig. 10) each having a part 31 which penetrates the hollow portion 18 of a spacer and preferably has a driving fit therewith to hold it in place when the rack is swung up adjacent the side wall of the car. Each shim preferably also has a shoulder 32 which engages the flange 24 of the spacer.

Figs. 4 and 5 show the method of hinging the end floor rack to the side wall of the car, wherein the hinge butt 40 is attached to the side wall 2 of the car and the hinge strap 41 is preferably welded to the floor rack 9. To obtain greater bearing area and more welding the strap 41 preferably extends lengthwise of the car and is cut out, as shown in Fig. 4, for the flange 21 of the spacer 10.

Figs. 6 and 7 show the hinge construction between an end floor rack and a doorway rack, wherein the strap 44 is secured to the doorway rack 7 and the hinge 45 is secured to the end rack 5.

Fig. 9 shows the extra foot 46 which may be applied to additionally support the margin of the doorway floor rack. This foot 46 may extend all the way along the doorway floor rack.

Fig. 10 shows an extra stiffener 47 along the threshold of the doorway. This figure also shows the shim 30.

Fig. 11 shows a spacer 10 with perforations 20 on one side only, with the opposite side thereof imperforate.

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.

I claim:

1. A floor rack for a refrigerator car comprising an apertured metallic plate and a plurality of spacers secured thereto which engage the floor of the car, each of said spacers comprising a perforated wall surrounding a hollow portion registering with an aperture in said plate.

2. A floor rack for a refrigerator car comprising an apertured metallic plate and a plurality of spacers secured thereto which engage the floor of the car, each of said spacers comprising a perforated wall surrounding a hollow portion registering with an aperture in said plate and other apertures in said plate between the aforesaid apertures.

3. A floor rack for a refrigerator car comprising an apertured metallic plate and a plurality of spacers, each of said spacers comprising a cylindrical perforated wall surrounding a hollow portion registering with an aperture in said plate, each of said spacers having an upper lateral peripherical flange secured to said plate and a lower lateral peripherical flange resting upon the floor of the car.

4. A floor rack for a refrigerator car comprising an apertured metallic plate and a plurality of spacers secured thereto which engage the floor of the car, each of said spacers comprising a perforated wall surrounding a hollow portion registering with an aperture in said plate, and removable shims for varying the height of the plate above the floor of the car, each of said shims having a part penetrating the hollow portion of a spacer and a shoulder engaging the wall thereof.

5. A floor rack for a refrigerator car comprising an apertured metallic plate and a plurality of spacers secured thereto which engage the floor of the car, each of said spacers comprising a perforated wall surrounding a hollow portion registering with an aperture in said plate, one side of each of said walls being imperforate.

6. A refrigerator car having end walls, side walls and a doorway in each side wall, the combination of end floor racks between the doorways and the end walls respectively, and middle floor racks between the doorways, each of said floor racks comprising an apertured metallic plate and a plurality of spacers secured thereto which engage the floor of the car, each spacer comprising a perforated wall surrounding a hollow portion registering with an aperture in the plate, the spacers in said doorway racks being closer together than the spacers in the end floor racks.

7. A refrigerator car having end walls, side walls and a doorway in each side wall, the combination of end floor racks between the doorways and the end walls respectively, and middle floor racks between the doorways, each of said floor racks comprising an apertured metallic plate and a plurality of spacers secured thereto which engage the floor of the car, each spacer comprising a perforated wall surrounding a hollow portion registering with an aperture in the plate, the spacers adjacent the thresholds of the doorways being closer together than elsewhere.

8. In a refrigerator car having a doorway, the combination of a floor rack comprising an apertured metallic plate and a plurality of spacers secured thereto which engage the floor of the car, each spacer comprising a perforated wall surrounding a hollow portion registering with an aperture in the plate, the spacers adjacent the thresholds of the doorways being closer together than elsewhere.

CHARLES DAVID BONSALL.