

April 14, 1942.

E. W. ZANE

2,279,545

FLOOR RACK

Filed April 23, 1941

2 Sheets-Sheet 1

Fig. 1.

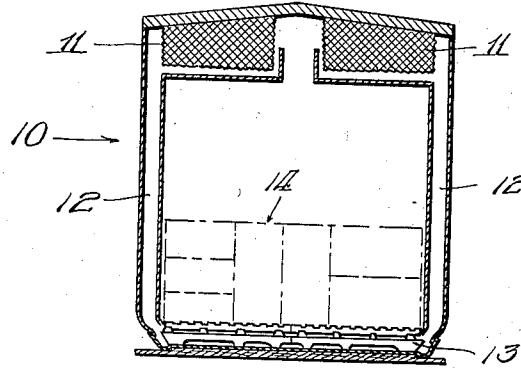


Fig. 2.

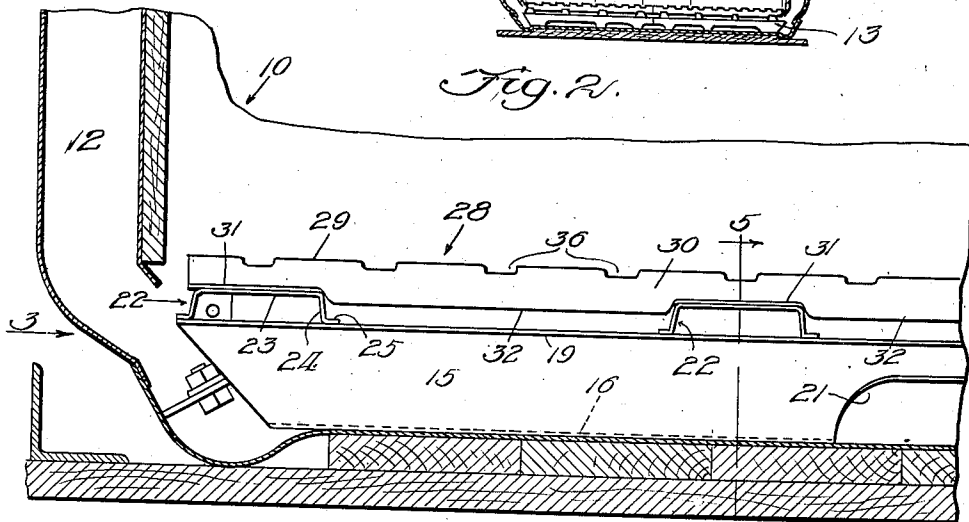
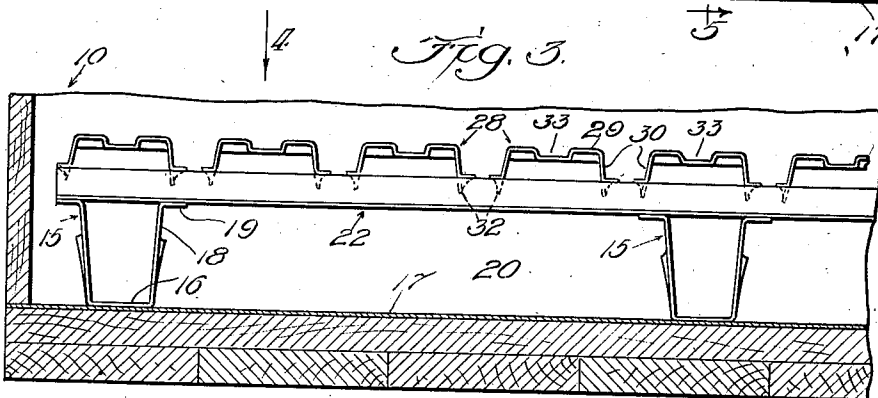


Fig. 3.



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Fig. 4.

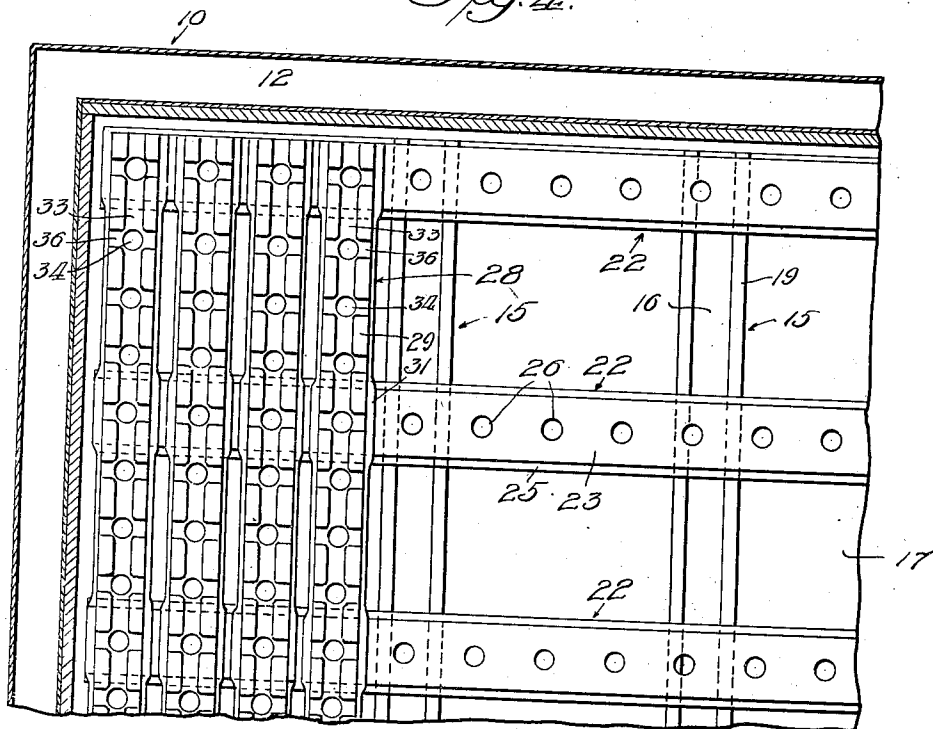


Fig. 5.

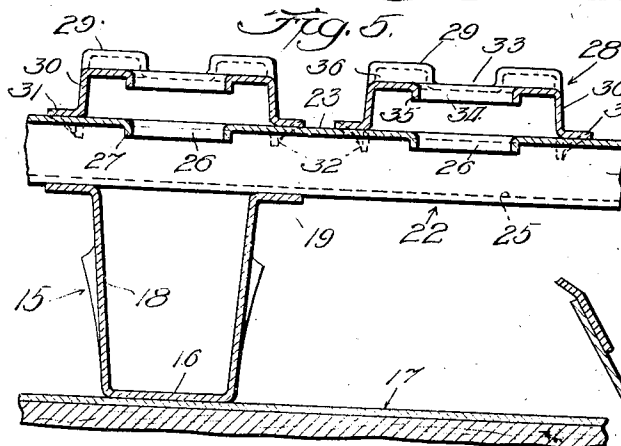


Fig. 6.

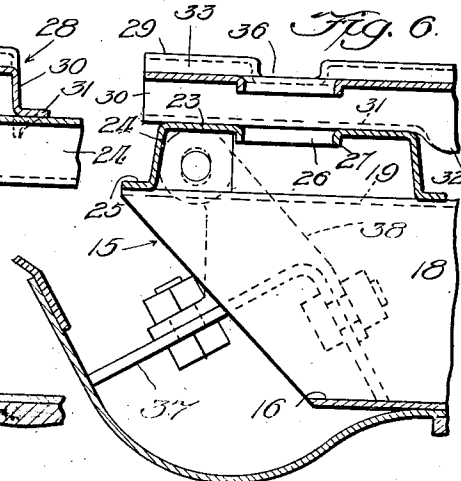
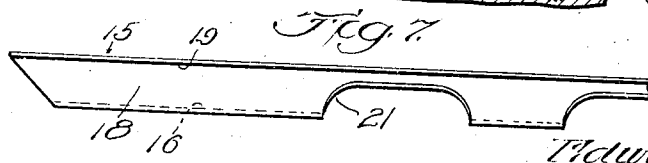


Fig. 7.



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UNITED STATES PATENT OFFICE

2,279,545

FLOOR RACK

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Application April 23, 1941, Serial No. 389,873

9 Claims. (Cl. 105—375)

My invention relates to floor racks for railway cars and more particularly to that type which is employed in refrigerator cars to sustain the lading for cooling or warming by the circulating medium of the car.

In shipping perishable freight by refrigerator car excepting those classes which are customarily suspended from the car ceiling, the goods are ordinarily spaced from the floor by wooden floor racks. By this means, it is possible to secure a free circulation of the cooling or warming air beneath, as well as along the sides and top of the goods while in transit. However, such racks are prone to odor absorption from the lading so that it is both difficult and expensive to maintain them in a sanitary condition. Further objections are their susceptibility to damage and the ease with which they may be surreptitiously removed by unauthorized persons.

It is, therefore, one object of my invention to provide an all-metallic floor rack which constitutes a permanent fixture in the car, which can be readily cleaned and which is preferably made in individual sections that are hinged to and foldable against the side of the car to facilitate cleaning of the latter.

A further object is to provide a rack composed of sheet metal stringers and slats having specially designed sections to obtain maximum strength with lightness of weight and which are appropriately perforated and spaced to obtain free circulation of the car atmosphere.

A further object is to provide a metal slat for floor racks which is constructed and arranged to insure free circulation and access of the cooling medium to the lading notwithstanding that the latter may extend across the apertures in the slat.

These and further objects of my invention will be set forth in the following specification, reference being had to the accompanying drawings, and the novel means by which said objects are effectuated will be definitely pointed out in the claims.

In the drawings:

Fig. 1 is a diagrammatic, transverse, sectional elevation of a typical refrigerator car equipped with overhead, icing bunkers showing the relation of my improved rack thereto and to the flues which extend downwardly along the side walls of the car.

Fig. 2 is an enlarged sectional elevation showing the lower left hand corner of the car and rack, as viewed in Fig. 1, and illustrating the relationship of the side wall flue to the transverse

ducts on the floor of the car which are defined by the floor stringers of the rack.

Fig. 3 is a view of the rack looking in the direction of the arrow 3 in Fig. 2.

Fig. 4 is a fragmentary, plan view of one of the racks looking in the direction of the arrow 4 in Fig. 3.

Fig. 5 is an enlarged, sectional elevation of the rack taken along the line 5—5 in Fig. 2.

Fig. 6 is an enlarged, sectional elevation of the left end of the rack, as viewed in Fig. 2, showing a suggested hinge construction for one side of the rack.

Fig. 7 is an elevation of one of the floor stringers, as viewed in Fig. 2, showing the openings provided in the side walls thereof to facilitate air circulation.

Referring to Fig. 1, the numeral 10 designates a transverse section of a refrigerator car equipped with overhead icing baskets 11 and side wall flues 12 which conduct the cool air downwardly beneath my improved floor rack 13 which sustains a lading 14.

As indicated in Figs. 2 and 3, the rack comprises a plurality of floor stringers 15 which extend transversely of the car and each of which is formed as an open top channel having a base web 16 which rests on the floor 17 of the car and upwardly and outwardly extending side walls 18 whose upper edges are outwardly flanged as at 19. The stringers are spaced lengthwise of the car to define air ducts 20 which communicate with the flues 12 and the side walls 18 may be provided with a plurality of openings 21 to provide for air circulation between the ducts 20.

Supported on and transversely disposed with reference to the floor stringers 15 is a plurality of spaced, channel, slat stringers 22, each of which comprises a supporting web 23 and downwardly and outwardly extending side walls 24 whose lower edges are laterally flanged as at 25 and the last named flanges rest on and are welded or otherwise secured to the flanges 19. A plurality of apertures 26 is spaced lengthwise of the web 23 and each of these apertures may be rimmed by a strengthening flange 27.

A plurality of spaced slats 28 extend transversely of the car and are supported on the webs 23 of the slat stringers. Each of the slats 28 is formed as a channel having a supporting web 29 on which the lading rests and downwardly and outwardly extending side walls 30 whose lower edges are outwardly flanged above the slat stringers as at 31, the flanges 31 bearing on and being welded to the slat stringer web 23. In order

to strengthen the slats and increase their vertical section between the slat stringers, the slat side walls 30 are continued below the web 23, as indicated by the numeral 32 in Figs. 2, 3 and 5.

Each slat is provided with a longitudinal, open top, duct 33 which is formed by depressing the central portion of the web 29 and at spaced intervals along this duct, the bottom thereof is apertured as at 34 and each of the apertures may be rimmed by a strengthening flange 35. Spaced along the length of each slat is a plurality of open top, transverse ducts 36 formed by depressing a portion of the slat web 29 and these transverse ducts provide avenues of communication between the apertures 34, respectively, and the sides of the slat, or in other words, these apertures occur at the junctions of the longitudinal and transverse ducts 33 and 36, respectively. The purpose of the foregoing ducts is to insure that free circulation and access of the cooling medium to the lading may be obtained notwithstanding the lading may mask all or a portion of the apertures 34. Under these conditions, it will be obvious that the cool air will pass upwardly through the apertures 34 and longitudinally and transversely of the slats by way of the ducts 33 and 36.

My improved rack, of which only a portion is illustrated in Fig. 4, is preferably built up in units of various sizes which may be laid side by side on the floor of the car in accordance with the general plan disclosed in my United States Letters Patent No. 2,226,042. To this end, an L-shaped support 37 may extend along the floor adjacent each side wall of the car and bolted thereto is a hinge bracket 38 which is pivotally connected to a convenient part of the rack unit so that the latter may be swung to lie against the side wall to facilitate cleaning or for other purposes. Two or more such brackets may be used for each rack unit.

Preferably, the stringers and slats are made of sheet metal of appropriate gage which is galvanized to prevent corrosion of the parts. Rigidity of the rack as a whole is insured by the method of securing the stringers and slats together, as by welding. Moreover, tapering the side walls of the slats and stringers and increasing the depth of the slat side walls between the slat stringers provides for the required strength of these elements, while at the same time permitting the use of a relatively light gage metal.

It will be understood that the use of my improved rack is not restricted to overhead iced, refrigerator cars and that the advantages thereof can be readily incorporated in a rack for refrigerator cars equipped with end icing bunkers. Under these conditions, the slats 28 may or may not extend transversely of the car and the floor stringers would extend lengthwise of the car to provide air ducts that communicate with the end icing spaces.

I claim:

1. A channel slat for a refrigerator car floor rack having a lading supporting web and depending side walls, the web being depressed at spaced intervals along its length to form transverse, open top, air ducts, and including an aperture wholly contained in each depressed web portion.

2. A channel slat for a refrigerator car floor rack having a lading supporting web and depending side walls, portions of the web being depressed to form a longitudinal, open top, air duct and spaced, transverse, open top air ducts, respectively, the longitudinal and transverse ducts intersecting, and an aperture wholly contained in

the depressed web portion at the junction of each transverse duct with the longitudinal duct.

3. A floor rack for an overhead iced, refrigerator car having side wall flues comprising a plurality of floor stringers for extending transversely of the car, the stringers being spaced to provide air ducts communicating with the flues, a plurality of spaced, slat stringers transverse to and supported by the floor stringers, and a plurality of spaced slats transverse to and supported by the slat stringers, each slat being shaped as a channel having a web and depending side walls, a portion of the web being depressed to form a longitudinal, open top, air duct and including a plurality of apertures in spaced relation along the depressed web portion.

4. A floor rack for an overhead iced, refrigerator car having side wall flues comprising a plurality of floor stringers for extending transversely of the car, the stringers being spaced to provide air ducts communicating with the flues, a plurality of spaced, slat stringers transverse to and supported by the floor stringers, and a plurality of spaced slats transverse to and supported by the slat stringers, each slat being shaped as a channel having a web and depending side walls, the web being depressed at spaced intervals along its length to form transverse, open top, air ducts and including an aperture wholly contained in each depressed portion.

5. A floor rack for an overhead iced, refrigerator car having side wall flues comprising a plurality of floor stringers for extending transversely of the car, the stringers being spaced to provide air ducts communicating with the flues, a plurality of spaced, slat stringers transverse to and supported by the floor stringers, and a plurality of spaced slats transverse to and supported by the slat stringers, each slat being shaped as a channel having a web and depending side walls, portions of the web being depressed to form a longitudinal, open top, air duct and spaced transverse, open top, air ducts, respectively, the longitudinal and transverse ducts intersecting, and an aperture wholly contained in the depressed web portion at the junction of each transverse duct with the longitudinal duct.

6. A floor rack for an overhead iced, refrigerator car having side wall flues comprising a plurality of floor stringers for extending transversely of the car, the stringers being spaced to provide air ducts communicating with the flues, a plurality of spaced, channel, slat stringers, transverse to and supported by the floor stringers, the web of each slat stringer including a plurality of apertures spaced along the length thereof, and a plurality of spaced slats transverse to and supported by the slat stringers, each slat being shaped as a channel having a web and depending side walls, a portion of the slat web being depressed to form a longitudinal, open top, air duct and including a plurality of apertures spaced along the depressed web portion, each slat stringer aperture substantially registering with an aperture in a slat.

7. A channel slat for a refrigerator car floor rack having a lading supporting web and depending side walls, portions of the web being depressed to form a longitudinal, open top, air duct and spaced, transverse, open top, air ducts, respectively, the longitudinal and transverse ducts intersecting, and an aperture in the depressed web portion at the junction of each transverse duct with the longitudinal duct, the diameter of each aperture being less than the distance between

the opposite corners of the associated intersecting ducts.

8. A channel slat for a refrigerator car floor rack having a lading supporting web and depending side walls, portions of the web being depressed to form a longitudinal, open top, air duct and spaced, transverse, open top, air ducts, respectively, the longitudinal and transverse ducts intersecting, and an aperture in the depressed web portion at the junction of each transverse duct with the longitudinal duct, the diameter of each aperture being less than the distance between the opposite corners of the associated intersecting ducts, and a downwardly extending flange surrounding each aperture.

9. A floor rack for a refrigerator car comprising a plurality of spaced, channel, slat stringers, the web of each stringer including a plurality of apertures spaced along the length thereof, and a plurality of spaced slats transverse to and supported by the slat stringers, each slat being shaped as a channel having a web and depending side walls, the slat web including a plurality of apertures spaced lengthwise thereof and each slat stringer aperture substantially registering with an aperture in a slat.

EDWARD W. ZANE.