July 9, 1940. G. G. GILPIN 2,207,679

REFRIGERATOR CAR FLOOR RACK

Filed July 28, 1938

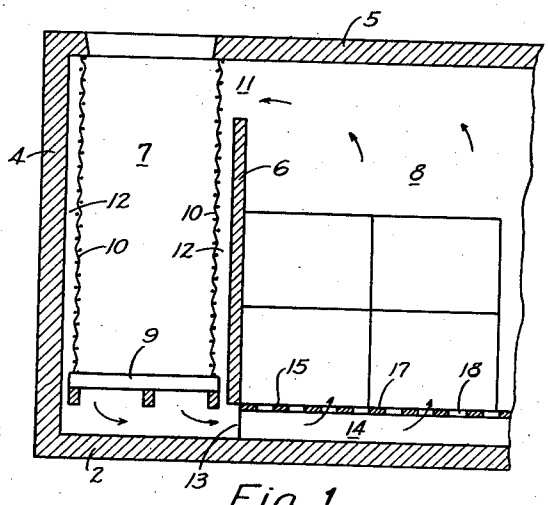


Fig. 1

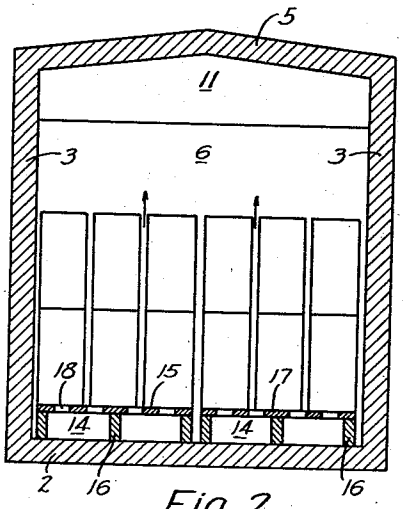


Fig. 2

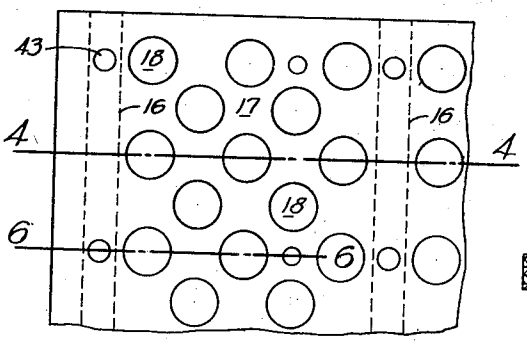


Fig. 3

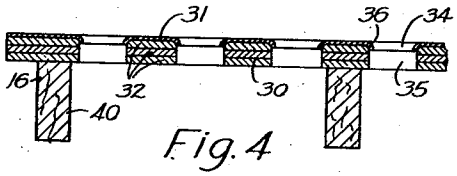


Fig. 4

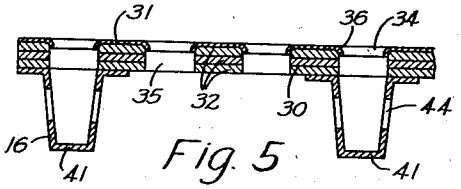


Fig. 5

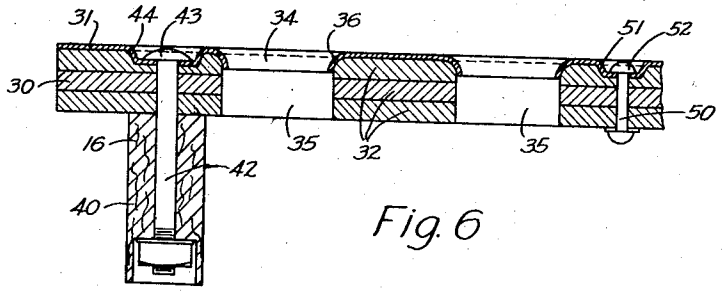


Fig. 6

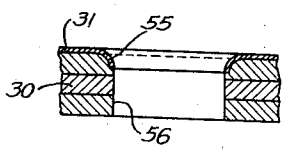


Fig. 7

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REFRIGERATOR CAR FLOOR RACK

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Application July 28, 1938, Serial No. 221,781

6 Claims. (Cl. 105—375)

This invention relates to refrigerator cars used to transport perishable commodities at a predetermined temperature. A refrigerator car comprises an insulated structure, i. e., insulated floor, walls and roof, and a cooling means when used in summer or a heating means when used in winter.

I have shown my invention applied to an end bunker car in which refrigerant containers are placed adjacent each end wall of the car and separated from the lading compartment by bulkheads. The air is cooled by the refrigerant in said container and flows, by reason of having its density increased, through the opening under the bulkhead. The lading must be spaced from the main floor of the car to allow the cooled air to flow under the lading and means must be provided to allow said cooled air to come in contact with the lading. It is an object of this invention then to provide a rack having sufficient strength to resist the horizontal shifting tendency as well as the vertical thrust of the lading and having a foraminous load-supporting member to allow the cooled air to circulate upwardly to the lading. My invention should not be construed as being limited to the application shown in the drawing, but may be applied to other types of cars: for example, those in which the refrigerant containers are suspended immediately below the roof.

Another object of the invention is to provide a floor rack having great strength with a minimum weight. It is a disadvantage to unnecessarily increase the weight of a car because more weight must be hauled with no increase in revenue.

It is a further object of the invention to provide a floor rack having a smooth upper surface. Loads are usually hauled into refrigerator cars on small trucks so that any obstructions on the floor rack would be a distinct disadvantage. Loads consisting of crates or boxes are often squeezed toward the bulkheads, making it essential that the upper surface of the floor rack be smooth so that the lading may slide upon it easily.

Another object of the invention is to provide a metallic protecting piece on the upper surface of a wood member. Refrigerator car floor racks are continually subjected to moisture which has a tendency to rot the wood, thus rendering it unfit to resist the abrasion to which the top surface of a rack is subjected.

In the drawing:

Figs. 1 and 2 are longitudinal and transverse sections, respectively, of a refrigerator car embodying my invention.

Fig. 3 is a fragmentary plan view of my invention.

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

Fig. 5 shows a modified construction.

Fig. 6 is a section on line 6—6 of Fig. 3, drawn to a larger scale.

Fig. 7 shows a modified construction.

In the refrigerator car of Figs. 1 and 2 are shown the main floor 2; side walls 3; end wall 4; roof 5 and bulkhead 6 separating the refrigerant chamber 7 from the lading compartment 8. The refrigerant container comprises ice grates 9 and foraminous walls 10. Air circulates from the lading compartment 8 through the opening 11 above the bulkhead, downwardly through the flues 12 adjacent the container walls 10, through the opening 13 under the bulkhead 6 and through the flues 14 under the floor rack 15. The floor rack 15 comprises stringers 16 and an upper member 17 having apertures 18 for entrance of the cooled air to the lading compartment 8, as shown by the arrows.

As shown in Figs. 3 and 4, the upper member 17 of the floor rack is made of plywood 30 covered with a metallic sheet 31. Plywood consists of a plurality of relatively thin wood members 32 in flatwise relation to each other and arranged with the grain of each member extending transversely to the grain of each adjoining member. For example, plywood consisting of three layers would have the grain of the upper and lower members substantially parallel, while the central member would have its grain transverse to both upper and lower members. The members 32 are preferably glued or cemented together throughout their entire area, thus providing a very strong construction. Apertures 35 are provided in the plywood 30 and the metallic protecting sheet 31 has apertures 34 aligned with the apertures 35. The apertures 34 in the sheet 31 are provided with depending peripherical flanges 36 projecting inside the apertures 35 to protect the plywood from damage. For example, the flanges 36 prevent the wheels of trucks from chipping off small pieces of wood as the trucks are run over the floor rack. It is preferable to impregnate the wood against moisture by coating with shellac, varnish, or other waterproof coating.

The stringers 16 may be wood 40, as shown in Fig. 4, or channel-shaped sheet metal members 41 having openings 44, as shown in Fig. 5. In either case, they are preferably secured to the upper member 17 by bolts 42 having their heads 43 nesting in depressions 44 formed in the metallic

sheet 31 and plywood 30. This attachment is shown in Fig. 6.

The metallic sheet 31 may be cemented or glued to the plywood 30 but it may be preferable to use a more positive means of attachment, such as the rivets 50 shown in Fig. 6. If rivets are used, it is necessary that the metallic sheet 31 be depressed 51 so that the heads 52 of the rivets 50 are below the upper surface of the sheet 31.

Fig. 7 shows a modified design in which the depending flange 55 on the sheet 31 is flush with the inside surface of the aperture 56 in the plywood 30. This minimizes the danger of the metallic sheet 31 being pulled off the plywood 30 by an object bearing against the flange 55.

The drawing shows the main load supporting member of the rack to be plywood and the claims specify a wood member. It is not intended that the invention be limited to a wooden structure but should also include a structure built of Masonite Presdwood, Weatherwood Hardboard, or any other such material which is capable of supporting a load.

The accompanying drawing illustrates 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. In a refrigerator car having a main floor, a rack for supporting a lading in spaced relation to said main floor to provide a flue therebetween, and means to induce an air current in said flue, said rack comprising a plurality of stringers supporting a foraminous floor, said foraminous floor comprising a substantially flat wood member, a metallic sheet in flatwise relation upon the upper surface of said wood member, means to secure said metallic sheet thereto, and a plurality of aligned apertures in said metallic sheet and said wood member.

2. In a refrigerator car having a main floor, a rack for supporting a lading in spaced relation to said main floor to provide a flue therebetween, and means to induce an air current in said flue, said rack comprising a plurality of stringers supporting a foraminous floor, said foraminous floor comprising a plurality of relatively thin wood members secured together flatwise with the grain of each member extending transversely to the grain of an adjacent member, a metallic sheet in flatwise relation upon the upper surface of said wood members, means to secure said metallic sheet thereto, and a plurality of aligned apertures in said metallic sheet and said wood members.

3. In a refrigerator car having a main floor, a rack for supporting a lading in spaced relation to said main floor to provide a flue therebetween, and means to induce an air current in said flue, said rack comprising a plurality of stringers supporting a foraminous floor, said foraminous floor comprising a substantially flat wood member, a metallic sheet in flatwise relation upon the upper surface of said wood member, means to secure said metallic sheet thereto, and a plurality of aligned apertures in said metallic sheet and said wood member, the apertures in said metallic sheet having depending peripherical flanges to protect said wood member.

4. In a refrigerator car having a main floor, a rack for supporting a lading in spaced relation to said main floor to provide a flue therebetween, and means to induce an air current in said flue, said rack comprising a plurality of stringers supporting a foraminous floor, said foraminous floor comprising a substantially flat wood member, a metallic sheet in flatwise relation upon the upper surface of said wood member, means to secure said metallic sheet thereto, said last mentioned means comprising glue, and a plurality of aligned apertures in said metallic sheet and said wood member.

5. In a refrigerator car having a main floor, a rack for supporting a lading in spaced relation to said main floor to provide a flue therebetween, and means to induce an air current in said flue, said rack comprising a plurality of stringers supporting a foraminous floor, said foraminous floor comprising a substantially flat wood member, a metallic sheet in flatwise relation upon the upper surface of said wood member, means to secure said metallic sheet thereto, said last mentioned means comprising rivets having their heads nesting in depressions to provide a smooth upper surface, and a plurality of aligned apertures in said metallic sheet and said wood member.

6. In a refrigerator car having a main floor, a rack for supporting a lading in spaced relation to said main floor to provide a flue therebetween, and means to induce an air current in said flue, said rack comprising a plurality of stringers supporting a foraminous floor, said foraminous floor comprising a laminated wood member, a metallic sheet in flatwise relation upon the upper surface of said wood member, means to secure said metallic sheet thereto, and a plurality of aligned apertures in said metallic sheet and said wood member.

GARTH G. GILPIN.