

Dec. 6, 1938.

V. E. SISSON  
FLOOR RACK STRINGER  
Filed Dec. 1, 1936

2,139,043

2 Sheets-Sheet 1

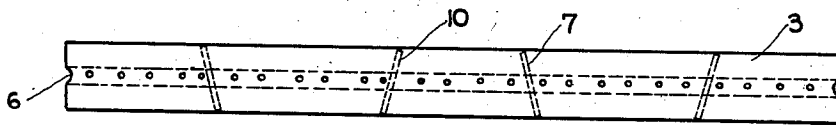
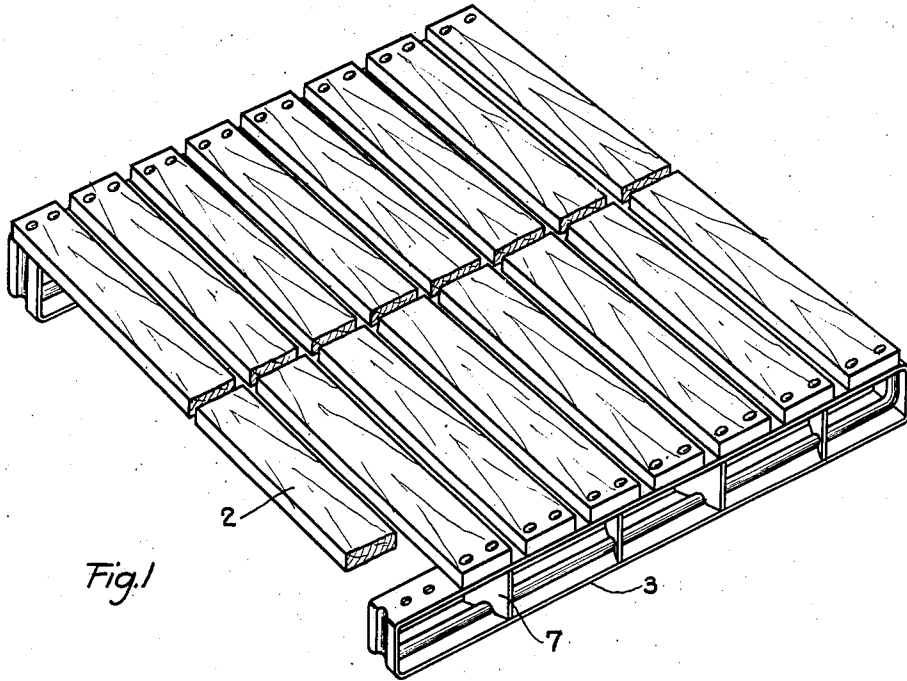


Fig. 2

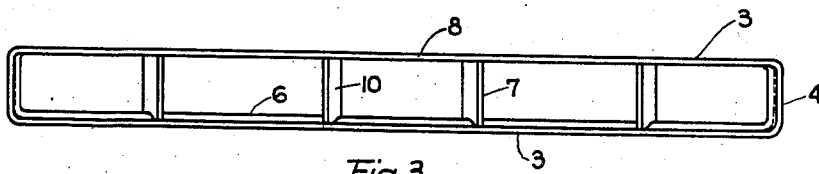


Fig. 3

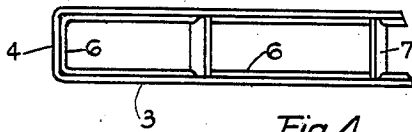


Fig. 4

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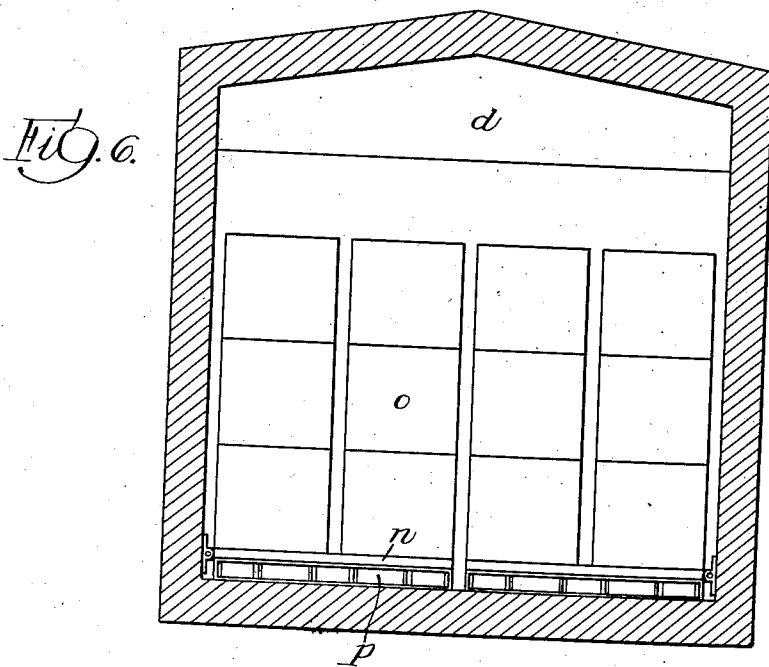
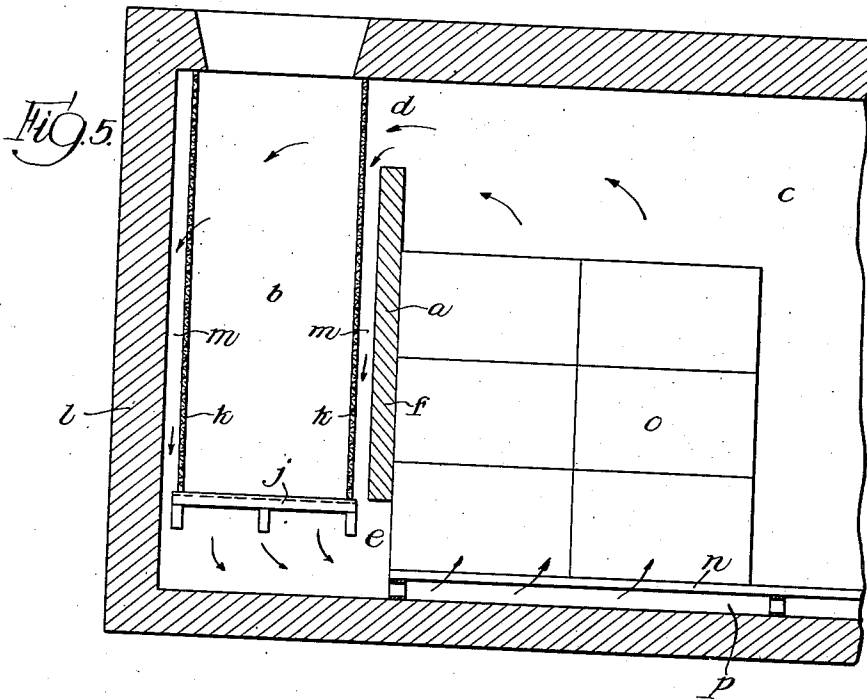
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# UNITED STATES PATENT OFFICE

2,139,043

## FLOOR RACK STRINGER

Vinton E. Sisson, Winnetka, Ill., assignor, by mesne assignments, to Standard Railway Equipment Manufacturing Company, a corporation of Delaware

Application December 1, 1936, Serial No. 113,678

3 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 higher 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.

An object of the invention is to provide a floor rack comprising a foraminous floor supported by stringers which is very light in weight for its strength; has a large total area of apertures in the foraminous floor for the passage of circulating air; offers the minimum resistance to the air moving in a horizontal direction under the foraminous floor; is economical to make and install or remove from the car; is cheap to maintain; is sanitary and will provide a substantially smooth surface for walking upon and rolling trucks thereupon.

In the drawings:

Fig. 1 shows a typical unit of my improved floor rack.

Fig. 2 is a plan view of the floor rack stringer.

Fig. 3 is an elevation of Fig. 2.

Fig. 4 shows a modified construction.

Fig. 5 shows a fragmentary longitudinal section through a refrigerator car provided with my floor rack.

Fig. 6 shows a cross section through Fig. 7.

Figs. 5 and 6 show a refrigerator car provided with the usual bulkhead A separating the refrigerant chamber B from the lading compartment C. The bulkhead is provided with openings D and E adjacent the ceiling and floor of the car with a solid wall F therebetween.

A refrigerant is supported by the grates J in the refrigerant chamber B in spaced relation to the floor of the car and the basket (or netting) K spaces the refrigerant from the end wall L and bulkhead A to provide the flues M. The apertured floor rack N supports the lading O so as to provide the space P which communicates with the flues M. A refrigerant, such as ice, induces a convection air current from the flues M, through the space P and the apertures in the floor rack N, and as the air is warmed by the lading O it rises and passes through the bulkhead upper opening D and thence through the flues M, and being cooled by the refrigerant, repeats the convection cycle.

The floor rack comprises a foraminous floor 2, such as spaced apart wooden or steel slats, expanded metal, wire netting or a mattress such as used to reinforce concrete. This foraminous floor is supported by a plurality of stringers 3 in spaced relation to the main floor of the car.

Each stringer comprises a metallic strap formed into an open rectangular structure so that air may circulate in all directions below the foraminous floor 2 and rise up through the foraminous floor to cool the lading when the car is under refrigeration or to warm the lading when the car is under heat.

The lower (3) and side (4) portions of the strap forming the stringer are formed with a continuous corrugation 6 to strengthen it so that a light weight strap may be used. The columns 7 extend between the upper (8) and lower (3) portions of the rectangular structure and preferably straddle the corrugation 6 to hold it in place, and if desired, the columns may be lightly welded or otherwise secured to the strap. I prefer to leave the upper portion 8 of the structure flat to provide a bearing surface for the foraminous floor, but it may be desirable to extend the corrugation entirely around the four sides of the rectangular structure (as shown in Fig. 4) which may be desirable in certain kinds of foraminous floors.

The columns 7 are preferably made of a flat steel plate diagonally disposed relative to the longitudinal axis of the stringer to prevent the stringer from collapsing like a parallelogram. If more than one column is used they are preferably positioned so as not to be parallel with each other, such as shown in 7 and 10. Such columns offer very little resistance to the 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 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 wall with a flue adjacent thereto, a floor rack for supporting the car lading so as to provide a space between the lading and the floor of the car communicating with said flue, and means to induce an air current through said flue and said space, said floor rack comprising spaced apart stringers supporting a foraminous floor, each of said stringers comprising a metallic strap formed into an open rectangular structure so that air may circulate in all directions below the foraminous floor, the lower and side portions of said structure being formed with a continuous corrugation, and spaced apart columns extending between the upper and lower portions of the structure which columns straddle the corrugation, each of said columns comprising a flat plate diagonally disposed relative to the longitudinal axis of the stringer to prevent the stringer from collapsing like a parallelogram.
2. In a refrigerator car having a wall with a flue adjacent thereto, a floor rack for supporting the car lading so as to provide a space between the lading and the floor of the car communicating with said flue, and means to induce an air

current through said flue and said space, said floor rack comprising spaced apart stringers supporting a foraminous floor, each of said stringers comprising a metallic strap formed into an open rectangular structure so that air may circulate in all directions below the foraminous floor, and spaced apart columns extending between the upper and lower portions of the structure, each of said columns comprising a flat plate diagonally disposed relative to the longitudinal axis of the stringer.

3. In a refrigerator car having a wall with a flue adjacent thereto, a floor rack for supporting the car lading so as to provide a space between the lading and the floor of the car communicating with said flue, and means to induce an air current through said flue and said space, said floor rack comprising spaced apart stringers supporting a foraminous floor, each of said stringers comprising a metallic strap formed into an open rectangular structure so that air may circulate in all directions below the foraminous floor, said strap being formed with a continuous corrugation, and spaced apart columns extending between the upper and lower portions of the structure which columns straddle the corrugation, each of said columns comprising a flat plate diagonally disposed relative to the longitudinal axis of the stringer to prevent the stringer from collapsing like a parallelogram.

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