June 21, 1938. V. E. SISSON 2,121,269

REFRIGERATOR CAR FLOOR RACK

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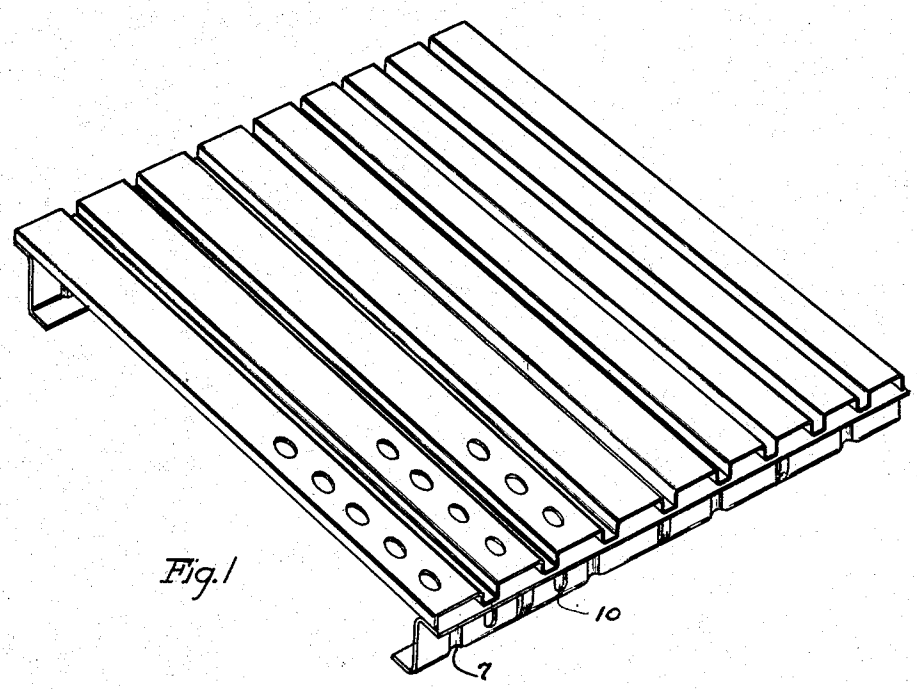


Fig. 1

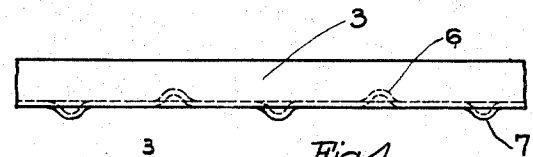


Fig. 4

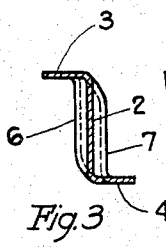


Fig. 3

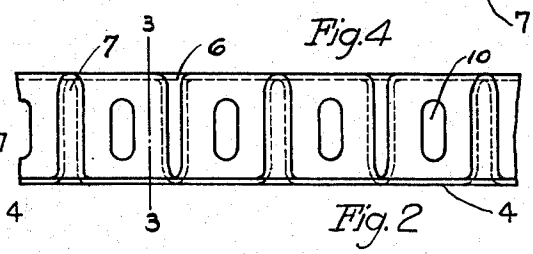


Fig. 2

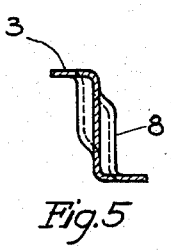


Fig. 5

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Fig. 6.

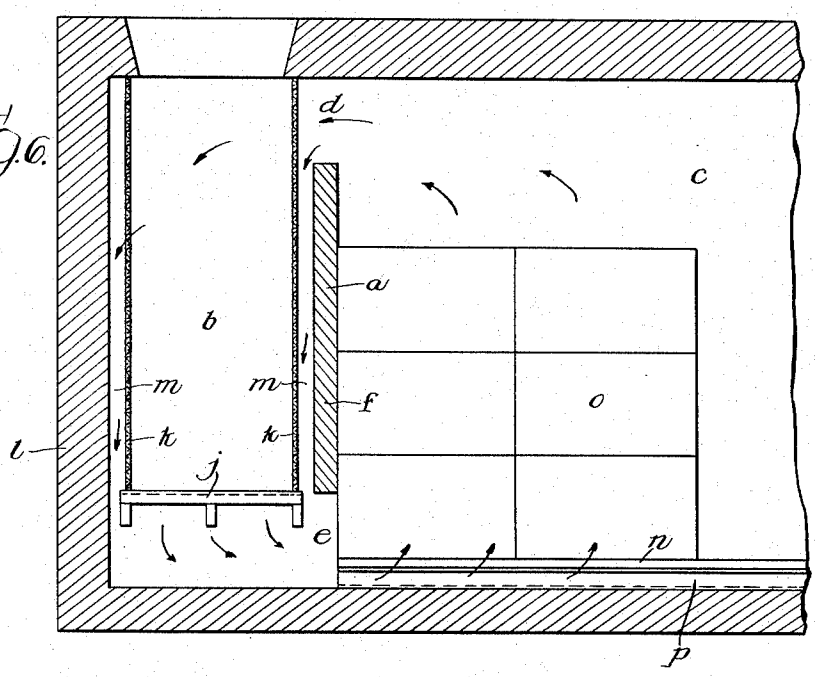
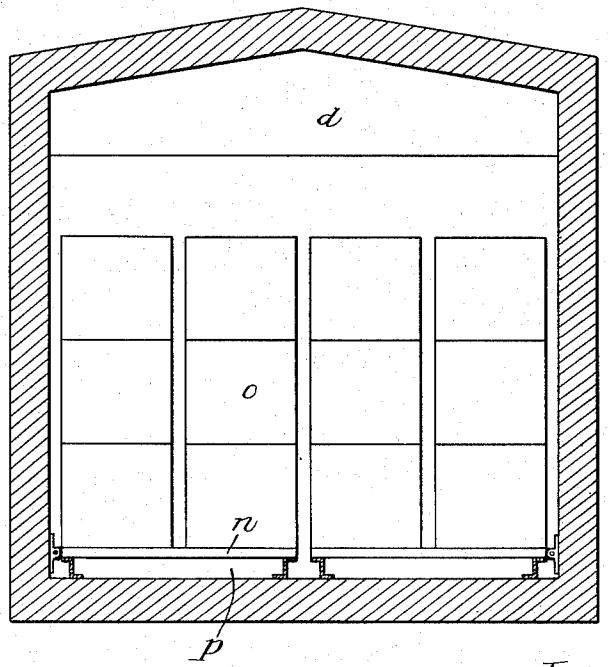


Fig. 7.



Inventor:
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UNITED STATES PATENT OFFICE

2,121,269

REFRIGERATOR CAR FLOOR RACK

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Application December 1, 1936, Serial No. 113,679

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 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 is a typical floor rack having a foraminous floor supported by my improved floor stringer.

Figs. 2, 3 and 4 show the floor stringer by itself.

Fig. 5 shows a modified construction, wherein Fig. 3, is a section on line 3—3 of Fig. 2.

Fig. 6 shows a fragmentary longitudinal section through a refrigerator car provided with my floor rack.

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

Figs. 6 and 7 show a refrigerator car provided with a 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 supported by a plurality of stringers to provide an air space below the foraminous floor. Any foraminous floor, such as spaced apart slats, expanded metal or wire netting may be used with my improved stringer.

The stringer is formed of a metallic plate having a web 2 provided with an upper flange 3 for attachment to and support of the foraminous floor and a lower flange 4 for engagement with the floor of the car.

The plate is formed with corrugations 6 which spring from one flange (3) and merge into the web and also provided with other corrugations 7 preferably alternately disposed to the first mentioned corrugations 6 which spring from the other flange (4) and merge into the plate in overlapping relation with the first mentioned corrugations.

The corrugations preferably spring from one flange and merge into the plate adjacent the other flange, but in the modification shown in Fig. 5 the corrugations 8 simply merge into the web in overlapped relation with each other.

Such a construction forms a very strong and light weight stringer to support the foraminous floor and the lading of the car which rests thereon. The corrugations prevent the plate from buckling or collapsing.

This stringer may be formed by one operation of a reciprocating press. The stringers are preferably provided with apertures 10 to permit movement of air below the foraminous floor.

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 modifica-

tions 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, comprising spaced apart stringers supporting a foraminous floor and means to induce an air current from said flue through said space and said foraminous floor, each of said stringers comprising a metallic plate provided with an upper flange for attachment to the foraminous floor and a lower flange for engagement with the floor of the car, said plate formed with corrugations which spring from one flange and merge into the plate adjacent the other flange, said plate also formed with other corrugations which spring from said other flange and merge into the plate adjacent the first mentioned flange, said first and last mentioned corrugations being substantially uniformly distributed over the length of the stringer.

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, comprising spaced apart stringers supporting a foraminous floor and means to induce an air current from said flue through said space and said foraminous floor, each of said stringers comprising a metallic plate provided with an upper flange for attachment to the foraminous floor and a lower flange for engagement with the floor of the car, said plate formed with corrugations which spring from one flange and merge into the plate, said plate also formed with other corrugations which spring from said other flange and merge into the plate in overlapping relation with the first mentioned corrugations said first and last mentioned corrugations being substantially uniformly distributed over the length 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, comprising spaced apart stringers supporting a foraminous floor and means to induce an air current from said flue through said space and said foraminous floor, each of said stringers comprising a metallic plate provided with an upper flange for attachment to the foraminous floor and a lower flange for engagement with the floor of the car, said plate formed with corrugations which spring from one flange and merge into the plate, said plate also formed with other corrugations alternating with the first mentioned corrugations which spring from said other flange and merge into the plate in overlapping relation with the first mentioned corrugations.

4. 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, comprising spaced apart stringers supporting a foraminous floor and means to induce an air current from said flue through said space and said foraminous floor, each of said stringers comprising a metallic plate provided with an upper flange for attachment to the foraminous floor and a lower flange for engagement with the floor of the car, said plate formed with corrugations which spring from one flange and merge into the plate, said plate also formed with other corrugations which spring from said other flange and merge into the plate in overlapping relation with the first mentioned corrugations said first and last mentioned corrugations being substantially uniformly distributed over the length of the stringer, said plate provided with apertures between the corrugations.

5. 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, comprising spaced apart stringers supporting a foraminous floor and means to induce an air current from said flue through said space and said foraminous floor, each of said stringers comprising a metallic plate provided with an upper flange for attachment to the foraminous floor and a lower flange for engagement with the floor of the car, said plate formed with corrugations which spring from one flange and merge into the plate, said plate also formed with other corrugations which spring from said other flange and merge into the plate in overlapping relation with the first mentioned corrugations said first and last mentioned corrugations being substantially uniformly distributed over the length of the stringer, said plate provided with apertures between the corrugations and other apertures in the corrugations.

VINTON E. SISSON.