

Aug. 19, 1952

J. S. LUNDVALL

2,607,301

FLOOR RACK

Filed June 13, 1950

2 SHEETS—SHEET 1

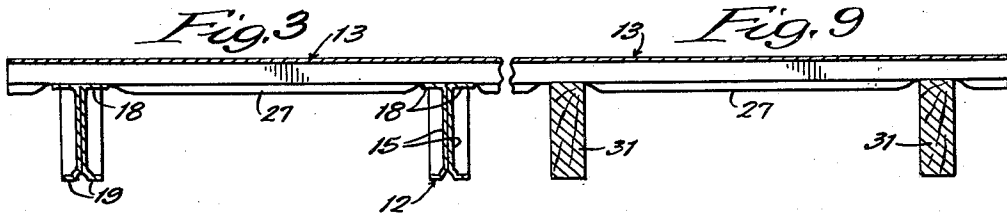
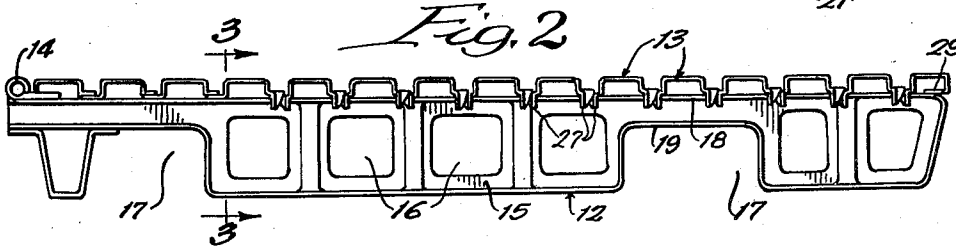
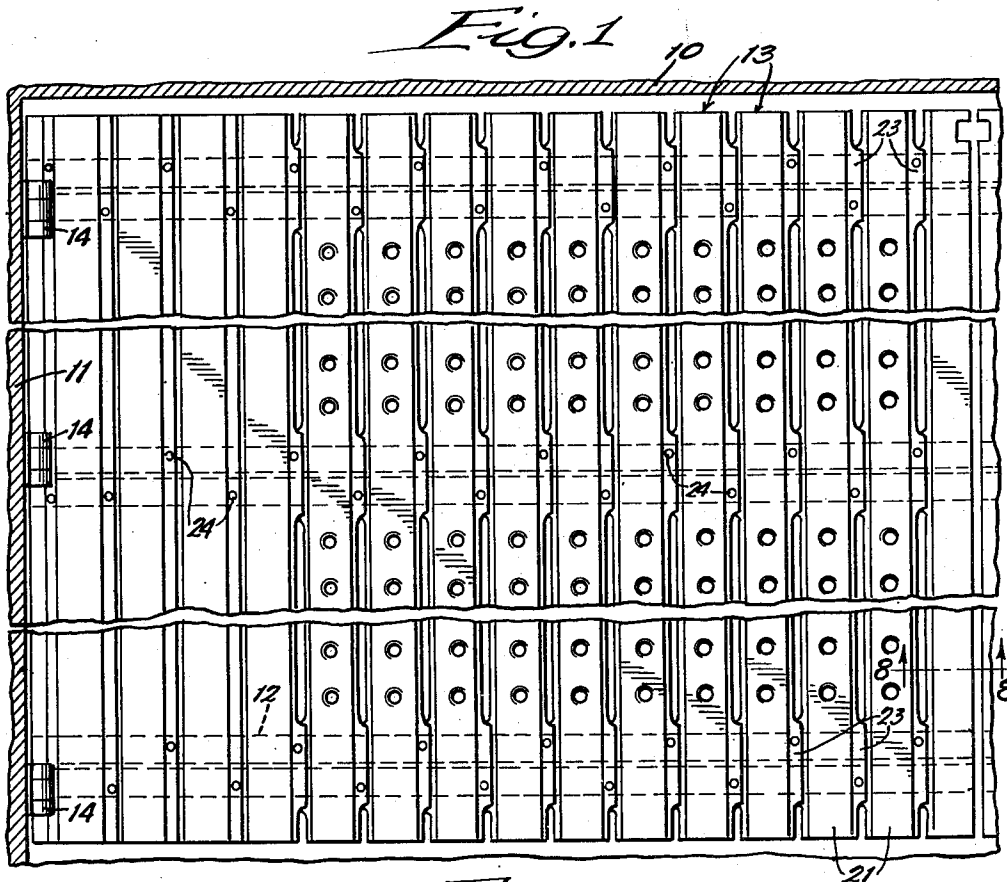


Fig. 9

INVENTOR:
John S. Lundvall,
BY
Edwin S. Borth
ATTORNEY.

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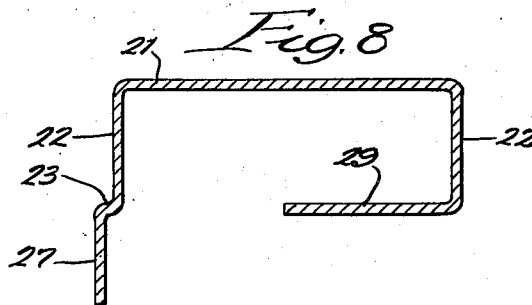
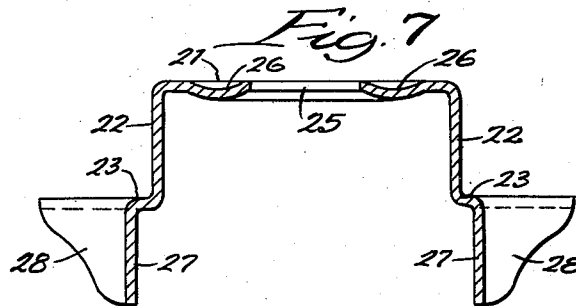
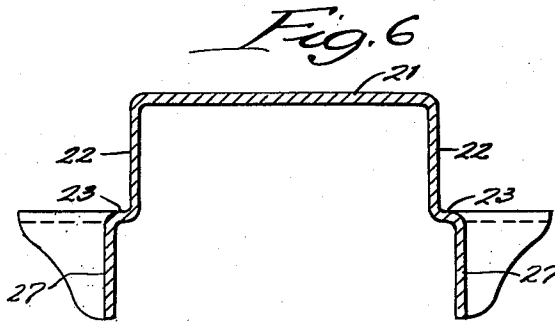
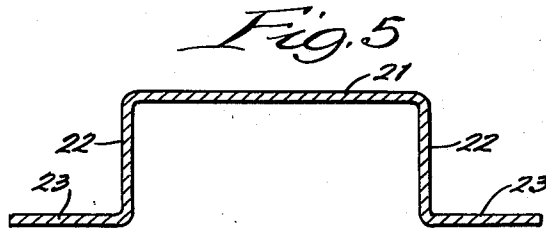
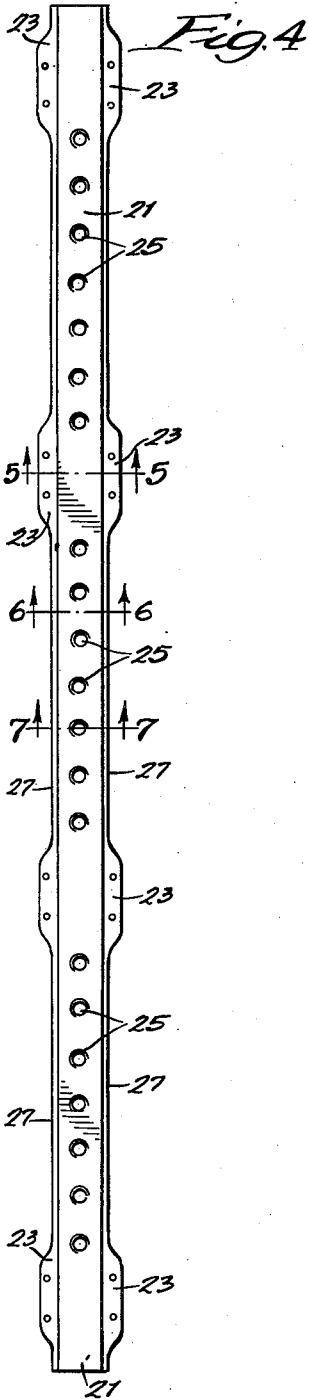
J. S. LUNDVALL

2,607,301

FLOOR RACK

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2 SHEETS—SHEET 2



INVENTOR:
John S. Lundvall
BY
Edwin S. Barth
ATTORNEY.

UNITED STATES PATENT OFFICE

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FLOOR RACK

John S. Lundvall, Park Ridge, Ill., assignor to
Union Asbestos & Rubber Company, Chicago,
Ill., a corporation of Illinois

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3 Claims. (Cl. 105—375)

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This invention relates to floor racks and more particularly to racks for use in refrigerator cars and the like to support the lading in spaced relationship to the floor of the car.

It has been proposed to use racks formed of metal to eliminate the several objections to the older types of wooden racks. It is necessary, however, to provide substantial strength and metal racks of the requisite strength tend to become extremely heavy. It is also desirable to provide a rack which can easily be repaired by replacement of damaged slats as required.

It is one of the objects of the present invention to provide a floor rack formed of sheetmetal in which the requisite strength is provided while maintaining a rack of relatively light weight.

It is another object of the invention to provide a floor rack in which the slats are formed of sheetmetal of inverted channel shape with horizontal reflanges to overlap on the stringers and with vertical offset extensions of the side flanges of the channels bent downward from the reflanges. The offset extensions on adjacent slats are preferably spaced apart to provide passages for air circulation and in conjunction with the reflanges provide slats of maximum strength and rigidity with a minimum weight of material.

Another object is to provide a floor rack in which the stringers are formed by a pair of plates connected back to back and with openings therethrough outlined by outwardly extending flanges and with outwardly extending flanges at their top and bottom edges. This construction also provides maximum strength with a minimum weight of material and in addition provides passages for free air circulation and spaces in which heating pipes or the like can be mounted adjacent the floor of the car.

A further object is to provide a floor rack in which the slats have overlapping continuous edge portions adjacent the sides of the car to block air flow therethrough and perforated inwardly from the sides of the car for free flow of air therethrough.

The above and other objects and advantages of the invention will be more readily apparent when read in connection with the accompanying drawings, in which—

Figure 1 is a partial plan view illustrating a floor rack embodying the invention mounted in a refrigerator car;

Figure 2 is an end view of a rack section;

Figure 3 is a partial section on the line 3—3 of Figure 2;

Figure 4 is a plan view of one of the slats;

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Figures 5, 6, and 7 are enlarged sections on the lines 5—5, 6—6, and 7—7, respectively, of Figure 4;

Figure 8 is an enlarged section of an end slat on the line 8—8 of Figure 1; and

Figure 9 is a view similar to Figure 3 of a modified construction.

The rack is adapted to be mounted in a refrigerator car whose end wall is indicated generally at 10 and whose side wall is indicated at 11. Preferably the entire floor of the car is covered by rack sections, each of which extends inwardly from the side wall of the car to substantially the car center line. Several such rack sections are required to cover the car floor, and when arranged in the car provide a lading supporting surface spaced above the car floor so that air for cooling the lading can circulate freely around it. The racks may also extend under ice compartments at the ends of the car, or any other desired type of refrigerating means not shown may be provided.

As shown, each rack is provided with a plurality of stringers indicated generally at 12 extending transversely of the car from its side wall substantially to its center line. A series of slats indicated generally at 13 extend across and are secured to the stringers to form a complete rack section. Each rack section is pivoted adjacent the car side wall by hinges indicated at 14 so that it can be pivoted from its normal horizontal position to a vertical position adjacent the car side wall for cleaning the car.

As best seen in Figures 2 and 3, each stringer is formed of a pair of metal plates 15 connected back to back and formed with openings 16 therethrough for free air circulation and with cut out openings 17. The cut out openings 17 provide spaces through which heating pipes or other desired equipment may extend adjacent to the floor of the car without interference from the racks. The plates 15 are formed at their upper edges with continuous horizontal flanges 18 extending outwardly to provide a relatively wide bearing surface for the slats 13. At their bottom edges the plates have similar outwardly extending flanges 19 to provide bearing surfaces against the floor. The flanges 19 extend around the cut out openings 17 to reinforce the stringers, and if desired similar flanges may be formed around a group of the openings 16. With this construction the stringers are extremely light and at the same time provide maximum strength and rigidity for supporting the slats.

Each of the slats is formed of sheet-metal of

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inverted channel shape. The first several slats adjacent the side wall of the car are of uniform section throughout and correspond in section to the stringer engaging portions of the remaining slats, as shown in Figure 5. Each of these slats has an imperforate horizontal web portion 21 with vertical side flanges 22 and with horizontal re-flanges 23. The slats are assembled on the stringers with the horizontal re-flanges overlapping and secured to the stringers by detachable fastenings such as bolts 24. The outermost slat fits closely adjacent to the car side wall substantially to prevent the flow of air therebetween. Thus the surface of the rack adjacent the side wall of the car is imperforate so that air cannot circulate therethrough.

The majority of the slats toward the center part of the car are formed, as shown more particularly in Figures 4 to 7, to provide for air circulation. These slats have the horizontal web portion 21, the vertical side flanges 22, and the horizontal re-flanges 23 which rest on the stringers and are secured thereto by detachable fastenings such as bolts 24. Between the stringers the web portions are preferably perforated, as indicated at 25. As best seen in Figure 7, the perforations 25 are surrounded by annular depressions 26 for stiffness. Additionally, the re-flanges 23 are bent downward between the stringers, as indicated at 27 and are connected into the horizontal re-flanges 23 above the stringers by smoothly curved skirt portions 28. The bent down portions 27 provide offset continuations of the side flanges 22, and as seen in Figure 1 are spaced from each other to form air passages between the slats.

With this construction each of the slats is extremely strong and rigid due to the reinforcing effect of the re-flanges 23 between the side flanges 22 and the offset extensions 27. Thus these re-flanges increase the horizontal strength of the slats and also increase the resistance of the vertical slat flanges to buckling, thereby increasing the vertical beam strength of the slats. Therefore the slats can be made of relatively light sheetmetal and will still provide the requisite strength and rigidity.

It will be noted that the re-flanges 23 overlap above the stringers and are formed with registering openings through which the bolts 24 extend. In this way the slats are held properly spaced so that a uniform rack surface is provided and at the same time any slat which becomes damaged can easily be removed and replaced without disturbing the remainder of the rack.

The end slats toward the center of the car are formed, as best seen in Figure 8. At one side these slats have the same outward re-flanges 23 and offset extensions 27 as the remainder of the slats. At the other side these slats have an inwardly turned re-flange 29 which rests on the end portions of the stringers to provide a smooth edge. Preferably the end flanges are imperforate, as indicated in Figure 1.

With this construction an extremely lightweight rack can be formed which is exceedingly strong and rigid during use. As air circulates around the lading any tendency of the air to flow adjacent the side walls of the car is substantially prevented by the imperforate rack portion and by the close fit of the outermost slat against the car side wall, and the air is deflected inwardly of the car so that it is compelled to circulate uniformly over the lading. In this way

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the lading is maintained at a uniform temperature throughout the entire car.

The construction of Figure 9 is similar to that of Figures 1 to 8 except that wooden instead of sheetmetal stringers are employed. As shown, wooden stringers 31 are provided lying on edge and parallel to each other. The slats 13, identical with the slats of Figures 1 to 8 extend across the stringers and may be secured thereto by wood screws or like fastenings extending through registering openings in the flanges 23 and into the stringers. This construction provides the same rigid metal slat surfaces as Figures 1 to 8 with the same ease of slat replacement.

While two embodiments of the invention have been shown and described in detail herein, with the stringers transverse of the car and the slats longitudinal, it will be understood that this arrangement might be reversed or that other changes might be made therein. It will, therefore, be understood that the forms shown are illustrative only and are not to be taken as a definition of the scope of the invention, reference being had for this purpose to the appended claims.

What is claimed is:

1. A floor rack for refrigerator cars and the like comprising a plurality of spaced parallel stringers and a series of individual sheet metal slats laid side by side across the stringers, each slat being of inverted channel shape with downwardly extending side flanges rebent horizontally to define horizontal re-flanges substantially in the top plane of the stringers, the re-flanges overlapping above the stringers and being secured to each other and to the stringers and being rebent downward between the stringers to define offset continuations of the side flanges, the offset continuations on adjacent slats being spaced apart to provide for air circulation between the slats.

2. A floor rack for refrigerator cars and the like comprising a plurality of spaced parallel stringers and a series of individual sheet metal slats laid side by side across the stringers, each slat being of inverted channel shape with downwardly extending side flanges rebent horizontally to define horizontal re-flanges substantially in the top plane of the stringers, the re-flanges overlapping above the stringers to hold the stringers uniformly spaced and having openings therein registering with each other and with the stringers, removable fastenings extending through the openings securing the slats to each other and to the stringers, the re-flanges being bent downward between the stringers to define offset continuations of the side flanges which are spaced apart on adjacent slats to provide for air circulation between the slats.

3. A floor rack for refrigerator cars and the like comprising a plurality of spaced parallel stringers extending transversely of the car and a series of slats laid side by side across the stringers and extending longitudinally of the car, the slats adjacent the side wall of the car having imperforate center portions and being formed with continuous overlapping edge flanges throughout their lengths to block air flow therebetween and the slats adjacent the center part of the car being spaced between the stringers to provide passages for air flow through the rack.

JOHN S. LUNDVALL

(References on following page)

2,607,301

5

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
2,007,273	Hindahl -----	July 9, 1935
2,107,853	Coffey -----	Feb. 8, 1938

Number
2,147,130
2,226,042
2,256,309

6

6

Name	Date
Sisson -----	Feb. 14, 1939
Zane -----	Dec. 24, 1940
Bonsall -----	Sept. 16, 1941

FOREIGN PATENTS

Number	Country	Date
525,708	Great Britain -----	Sept. 3, 1940