



No. 830,922.

PATENTED SEPT. 11, 1906.

A. E. OSTRANDER.  
CAR CONSTRUCTION.  
APPLICATION FILED JAN. 10, 1906.

2 SHEETS—SHEET 2.

Fig. 2.

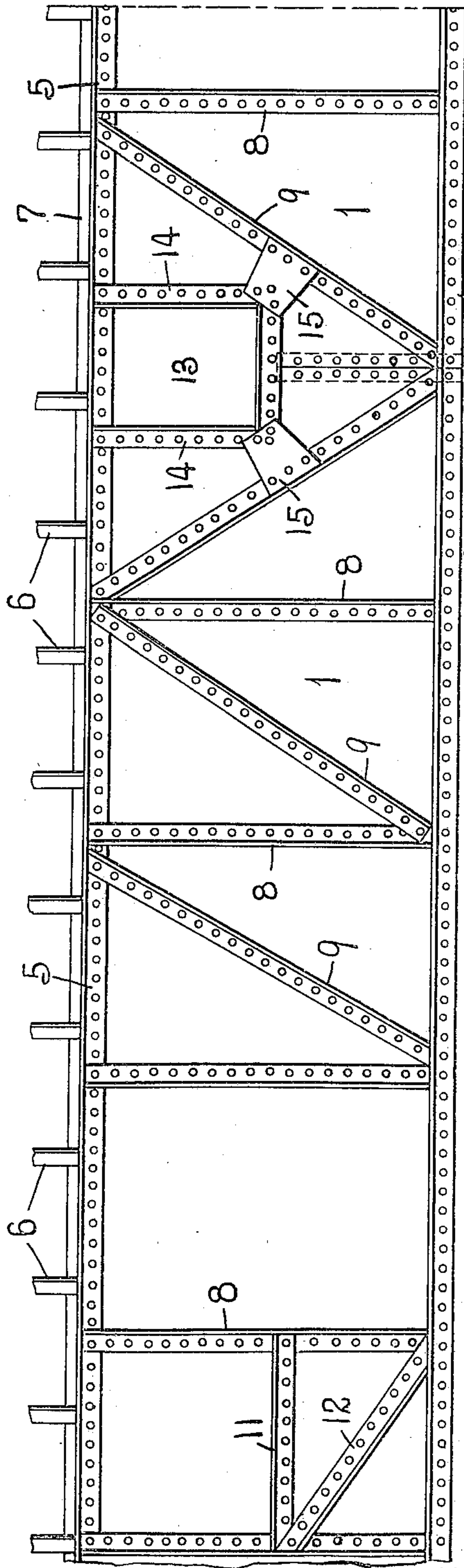
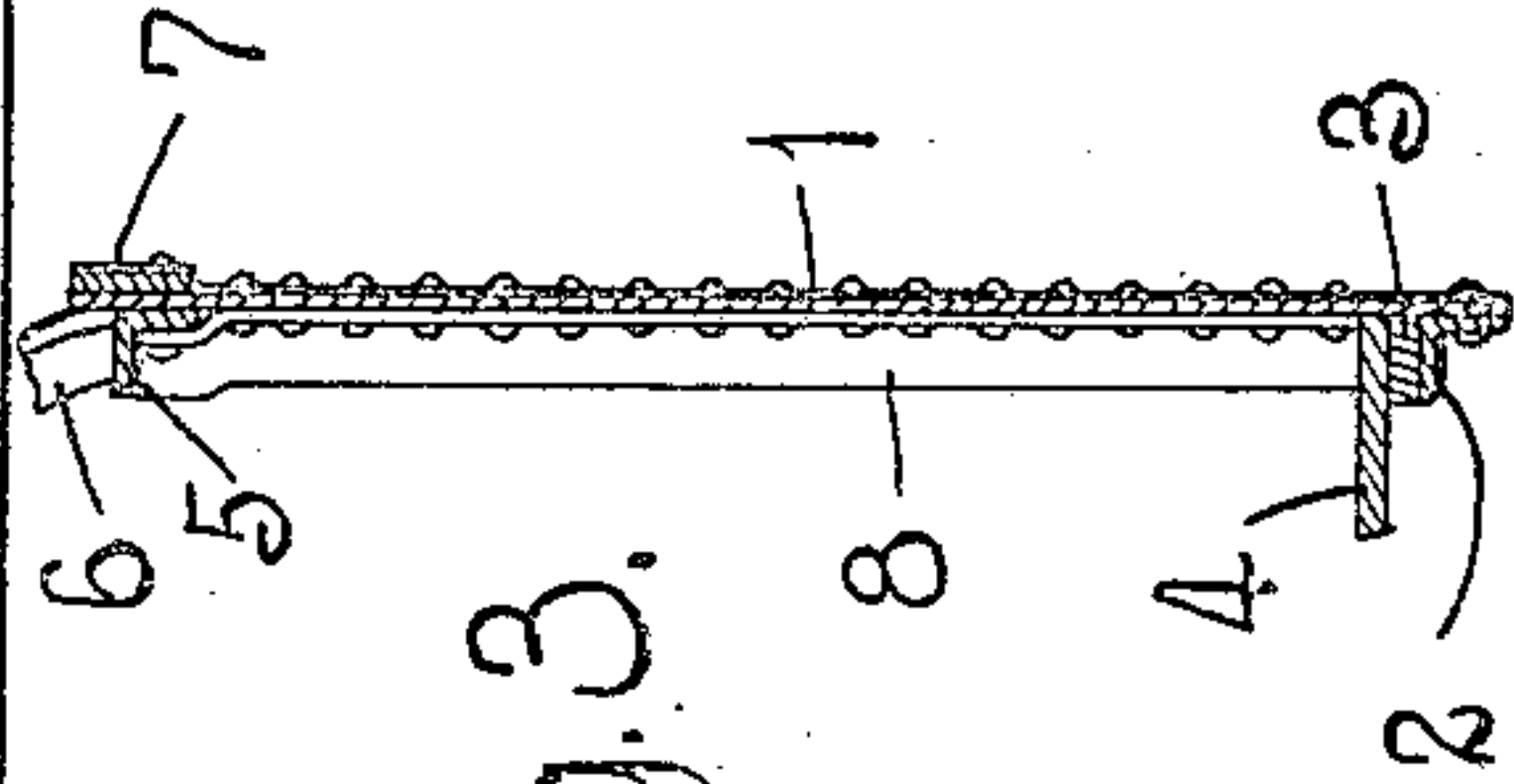


Fig. 3.



Witnesses  
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# UNITED STATES PATENT OFFICE.

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## CAR CONSTRUCTION.

No. 830,922.

Specification of Letters Patent.

Patented Sept. 11, 1906.

Application filed January 10, 1906. Serial No. 295,440.

*To all whom it may concern:*

Be it known that I, ALLEN E. OSTRANDER, a citizen of the United States, residing at Paterson, Passaic county, New Jersey, have  
5 invented a certain new and useful Improvement in Car Construction, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the  
10 same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevational view of one end of a car constructed in accordance with  
15 my present invention. Fig. 2 is an elevational view of the side wall embodying my invention, and Fig. 3 is a sectional view through the said side wall.

This invention relates to a new and useful  
20 improvement in car construction, and particularly to the side walls of a car, including the method of bracing said side wall, the same being designed for use in connection with passenger-cars, baggage-cars, &c.

25 With these objects in view the invention consists in the construction, arrangement, and combination of the several parts, all as will be hereinafter described and afterward pointed out in the claims.

30 In the drawings, 1 indicates plates which constitute the side walls of the car, said plates serving as the webs of a plate-girder structure. Along the lower edge of the plates 1 are angles 2, upon which may be arranged  
35 furring-strips 3 for supporting the floor 4. These angles 2 serve as a tension-flange of the plate-girder structure. Instead of being formed of an attached angle this tension-flange can be made by flanging the lower edges  
40 of the plates 2, as is obvious.

5 is an angle secured to the upper edges of the side walls of the car, which angle serves as the compression-flange for the plate-girder structure and also as the side angle of the car,  
45 to which the carlines 6 may be secured.

7 is the facia-plate, preferably riveted along the upper edge of the side wall, the rivets extending through to the depending leg of angle 5, the facia-plate thus acting as a  
50 reinforcing-strip for the compression-flange.

8 represents the posts, arranged at intervals along the side wall of the car and riveted thereto to resist bulging tendencies.

9 represents diagonals, preferably in the form of angles, which are riveted to the side  
55 walls of the car. At the point where it is desired to have a door the diagonal post is omitted and the plate constituting the side wall is interrupted at this point or cut away to provide the door-opening. Window-open-  
60 ings are also provided, and one of these window-openings is shown at the end of the car, the same having a reinforcing sill-angle 11 and a short diagonal angle 12 arranged thereunder, as shown at the left in Fig. 2. 65  
Where a window-opening is provided in the length of the car between the bolster-points, it is obvious that any interruption of the vertical posts or diagonals must be compensated for in some manner, so as to strengthen the  
70 car at the window-point.

Referring now to Fig. 2 and to the window-opening 13 at the right hand of said figure, it will be seen that the window-opening occurs at a point which normally should be occupied by a vertical post. By a change in the  
75 method of trussing at this point the strains in the vertical member are eliminated, and in the absence of the post this point is utilized to splice the plates forming the side wall, and  
80 in addition marginal angles 14 are riveted to the side walls around the window-opening. At the junction of these marginal angles connection-plates 15 are secured in position, the same extending over and being riveted to the  
85 adjacent diagonals 9.

From the foregoing it will be observed that the belt-rail usually employed in the construction of cars of this character is eliminated, and consequently the structure is  
90 made considerably lighter. By combining the plate-girder structure with the trussing angles great rigidity in the side walls is secured, and in addition to which the side wall is exceedingly strong and well able to resist  
95 bulging strains. The presence of the marginal angles around the windows and the connection between said marginal angles and the diagonals does not weaken the structure. If desired, a vertical post could be arranged  
100 under the window-opening; but I deem this unnecessary, as the splice-plate will serve every purpose of a vertical post at this point.

It is obvious that the trussed side wall herein shown is useful in connection with  
105 types of cars other than passenger-cars where



it is desirable to carry the entire load on the sides of the car.

By referring to Fig. 1 it will be observed that one side of the door-opening is medial with respect to the truck, thus locating the terminal members of the side trussing in such relation to the truck center as will best transmit the load to the bolster.

I am aware that minor changes in the construction, arrangement, and combination of the several parts of my device can be made and substituted for those herein shown and described without departing from the nature and principle of my invention.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. In a car construction, the combination with a plate-girder side wall whose tension-flange serves as a support for the floor and whose compression-flange acts as a side angle to which the carlines may be connected, and a facia-plate riveted to the upper edge of the side wall and acting as a reinforcing element for the compression member; substantially as described.

2. In a car construction, the combination with a plate-girder side wall, vertical posts and diagonals riveted thereto, and a window-

opening occurring at a post-point, said window-opening having marginal angles connected to adjacent diagonals; substantially as described.

3. In a car construction, the combination with a side wall constructed without a belt-rail and having vertical posts and diagonals, a window-opening having marginal angles riveted to the side wall around the edges of said opening, said marginal angles being connected to adjacent diagonals; substantially as described.

4. In a car construction, the combination with a side wall constituting plates spliced together, reinforcing members riveted to the side wall, a window-opening which occurs at the splicing-point between the plates, said window-opening having marginal angles around the edges thereof, and strengthening members riveted to the reinforcing members of the side wall and connected to said marginal angles; substantially as described.

In testimony whereof I hereunto affix my signature, in the presence of two witnesses, this 3d day of January, 1906.

ALLEN E. OSTRANDER.

Witnesses:

ROBT. G. JEFFERY,  
WM. L. FAGAN.