

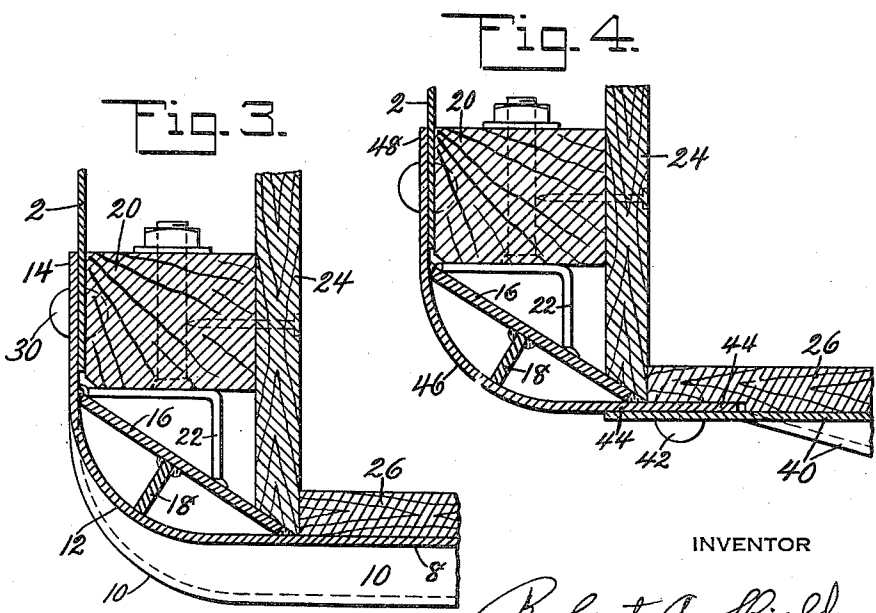
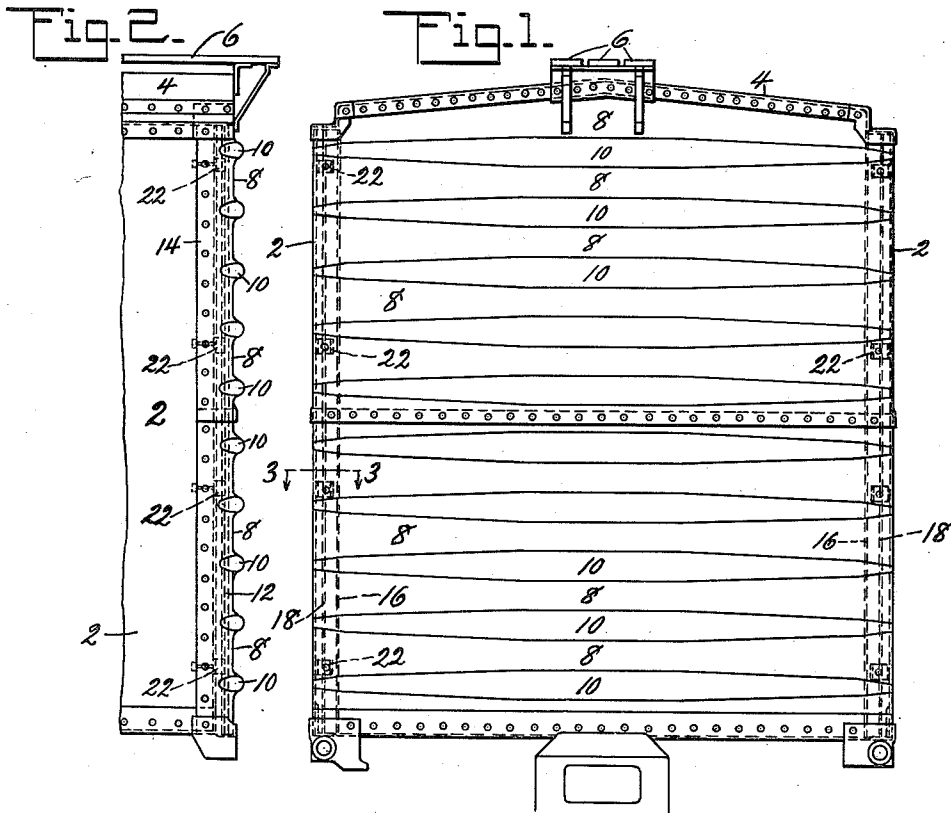
May 29, 1951

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2,555,296

RAILWAY CAR CORNER CONSTRUCTION

Filed Aug. 29, 1946



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UNITED STATES PATENT OFFICE

2,555,296

RAILWAY CAR CORNER CONSTRUCTION

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Application August 29, 1946, Serial No. 693,744

10 Claims. (Cl. 105-410)

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This invention relates to railway cars in general but in particular to the reinforcement of the corners appearing between the end and side walls.

Railway cars ends are frequently subjected to extremely high shock loads due to sudden stoppage of the car resulting in shifting of the lading against the end wall. Such shifting of the lading frequently distorts the ends and particularly the corner post construction. It is an object, therefore, of the present invention to provide a railway car end having rounded corners which are reinforced by plate members extending as chords across the rounded corners.

A further object of the invention is the provision of a railway car end having corners formed on a relatively large radius of curvature and braced by means of T-shaped members having the arms welded to the end and with the leg of the T serving as a strut between the rounded corner and the arms which extend as a chord across the rounded corner.

A further object of the invention is the provision of a railway car end having rounded corners reinforced by plate like means defining with the corner two closed substantially triangular shaped spaces.

A still further object of the invention is the provision of a corner post having a rounded central portion terminating in tangent edges and having a T-shaped reinforcement with the leg jammed against the curved portion and the arms welded preferably to the curved portion at the point of tangency with the edges.

These and other objects of the invention will be apparent to persons skilled in the art from a study of the following description and accompanying drawings, in which

Fig. 1 is an end view of a railway car having the improved end attached thereto;

Fig. 2 is a side view of the end of the railway car;

Fig. 3 is a sectional view taken substantially on line 3-3 of Fig. 1, and

Fig. 4 is a sectional view similar to Fig. 3 but showing a slight modification.

Referring now to the drawings in detail, it will be seen that the improved end has been applied to a railway car having sides 2, roof 4 and running board 6. The end which joins the roof and side walls is provided with a main panel portion 8 into which are preferably pressed corrugations 10. These corrugations 10 extend around the rounded corner 12 and merge into the laterally directed edges 14 as most clearly shown in Figs. 2 and 3. With such an arrangement

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alone it will be seen that the bulk of the bulging strains to which the end is subjected would have to be resisted solely by the ends of the corrugations 10. In order to reinforce the rounded corners 12 a flat plate 16 is jammed into the corner and welded to the main panel 8 and side edge 14. This plate, of course, can be either welded to the straight portions or even to the rounded portions and since it is jammed into the corner accuracy in shearing and shaping is not of great importance. This plate 16, of course, will serve as a chord of the rounded corner which is formed with a relatively large radius of curvature and this chord will act in tension to prevent any increase in the radius of curvature of the corner. In order to additionally brace the corner a strut 18 is provided and is preferably welded to the chord plate 16 and bears against the inner surface of the rounded corner 12. As shown this strut is placed normally to the rounded corner, that is, it extends in a radial direction inwardly from the corner to its connection with plate 16. It is obvious that the strut 18 can be welded to the inner surface of the rounded corner prior to insertion and welding in place of plate 16. However, as shown the plates 16 and 18 are welded together to form a T-shaped member and this member is then jammed into the rounded corner and welded into place. In cases where the construction is used in lined cars the nailing strips 20 may be fastened to the structure by means of a few angular shaped clips 22 welded to the plate 16 in any desired number of locations. The nailing strips will afford surfaces to which the side liner 24 may be nailed and additionally held in place by application of the end lining 26. It is, of course, obvious that the end construction may be attached by rivets 30 to the side walls 2 either before or after application of the reinforcing T-shaped member. It is preferable, however, that the corner be reinforced prior to application to the car. In cases of existing structure, however, the T-shaped member may be readily applied without disturbing the connection between the end wall and side sheets.

Under certain circumstances if it becomes desirable to widen an existing car structure or to build a new car utilizing an existing car end, in such cases the car end 40 (Fig. 4) can be welded or riveted as at 42 to the tangent edge 44 of a plate having a relatively large curved central portion 46 formed therein and merging into a second tangential edge 48. This second tangential edge may be welded, riveted or otherwise secured to the side sheets 2. Since this corner

is reinforced exactly in the same manner as described in Fig. 3 and since the nailing strips and liner will be applied in exactly the same manner, the same reference numerals have been applied as was used in connection with Fig. 3. In this construction it will be seen that the rounded or curved plate together with its T-shaped reinforcement may be fabricated as a separate member and applied either to new or existing car structures.

While the construction has been described more or less in detail with specific reference to the drawings, it will be seen that slight modifications may be made without departing from the scope of the invention as defined by the following claims.

What is claimed is:

1. In a railway car, side and end walls joined together by a rounded corner having a relatively large radius of curvature, a flat metal plate welded at its side edges to the rounded corner and extending thereacross as a chord fastened at its ends to the corner and acting in tension to resist any increase in radius of curvature of the corner, and a strut member extending substantially normal to said flat plate and into contact with said rounded corner to additionally resist any change in curvature of said rounded corner.

2. In a railway car, side walls, an end wall having a main panel portion and laterally directed side edges joined to the panel portion by rounded corners having a relatively large radius of curvature, means securing said side edges and side walls together, corrugations formed in said main panel and extending around said rounded corners to merge into said side edges, and flat plates welded to said main panel portion and to said side edges and extending as chords across said rounded corners to brace the same and assist said corrugations in transferring strains between said end and side walls, and additional flat plates welded to said first named flat plates and extending normal thereto into contact with said rounded corners to prevent collapse thereof.

3. In a railway car, side walls, an end wall having a main panel portion and laterally directed side edges joined to the panel portion by rounded corners having a relatively large radius of curvature, means securing said side edges and side walls together, and T-shaped means extending across said rounded corners with the arms of the T welded to said main panel and side edges and the leg of the T bearing against the inner surface of the round corner.

4. In a railway car, side walls, an end wall having a main panel portion and laterally directed side edges joined to the panel portion by rounded corners having a relatively large radius of curvature, means securing said side edges and side walls together, and means extending across said rounded corners and defining therewith two substantially triangular shaped spaces extending substantially throughout the height of said end wall.

5. In a railway car, side walls, an end wall having a main panel portion and laterally directed side edges joined to the panel portion by rounded corners having a relatively large radius of curvature, means securing said side edges and side walls together, T-shaped means extending across

said rounded corners with the arms of the T welded to said main panel and side edges and the leg of the T bearing against the inner surface of the round corner, and angular shaped clips welded to the arms of said T-shaped means and providing means to which liner nailing strips may be fastened.

6. In a railway car, side and end walls, fabricated metal corner posts connected to said side and end walls and each comprising a metal plate having a curved central portion with tangent edges extending outwardly from the curved portion for attachment to the side and end walls, a flat metal plate welded to said metal plate and extending as a chord across the curved portion whereby bulging strains of the sides and ends tending to decrease the curvature of the metal plate will be resisted by said flat plate acting in tension, and a radially extending strut spanning the space between said curved portion of the metal plate and said flat plate and secured to one of said metal plates.

7. As an article of manufacture, a railway car end having a main panel portion joined to laterally directed side edges by relatively large radius rounded corners, and T-shaped means jammed into the corners with the arms of the T welded to the end and with the leg of the T bearing against the inner surface of the rounded corners.

8. As an article of manufacture, a railway car end having a main panel portion joined to laterally directed side edges by relatively large radius rounded corners, corrugations formed in said main panel portion and extending around the rounded corners to merge into said side edges, and substantially T-shaped means jammed into the rounded corners and having the legs thereof bearing against the inner surface of the rounded corner and the arms thereof welded to said end to thereby reinforce the ends and prevent distortion of said rounded corners.

9. As an article of manufacture, a corner post formed by a curved plate terminating in tangent side edges to which are welded the arms of a T-shaped member and the leg of which bears against the inner surface of the curved plate.

10. As an article of manufacture, a corner post formed by a curved plate terminating in tangent side edges to which are secured means extending across the curved portion of the plate and defining therewith two substantially triangular shaped spaces extending substantially throughout the height of said post.

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REFERENCES CITED

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

UNITED STATES PATENTS

Number	Name	Date
1,259,844	Fulda	Mar. 19, 1918
1,874,901	Christiansen	Aug. 30, 1932
2,250,523	Christiansen et al.	July 29, 1941
2,260,512	Crede	Oct. 28, 1941
2,265,178	Lohse et al.	Dec. 9, 1941
2,379,640	Johnsen	July 3, 1945