A. E. OSTRANDER.

CAR CONSTRUCTION.

APPLICATION FILED MAY 11, 1915.

1,256,157.

Patented Feb. 12, 1918.

2 SHEETS—SHEET 1.

Fig. 1.

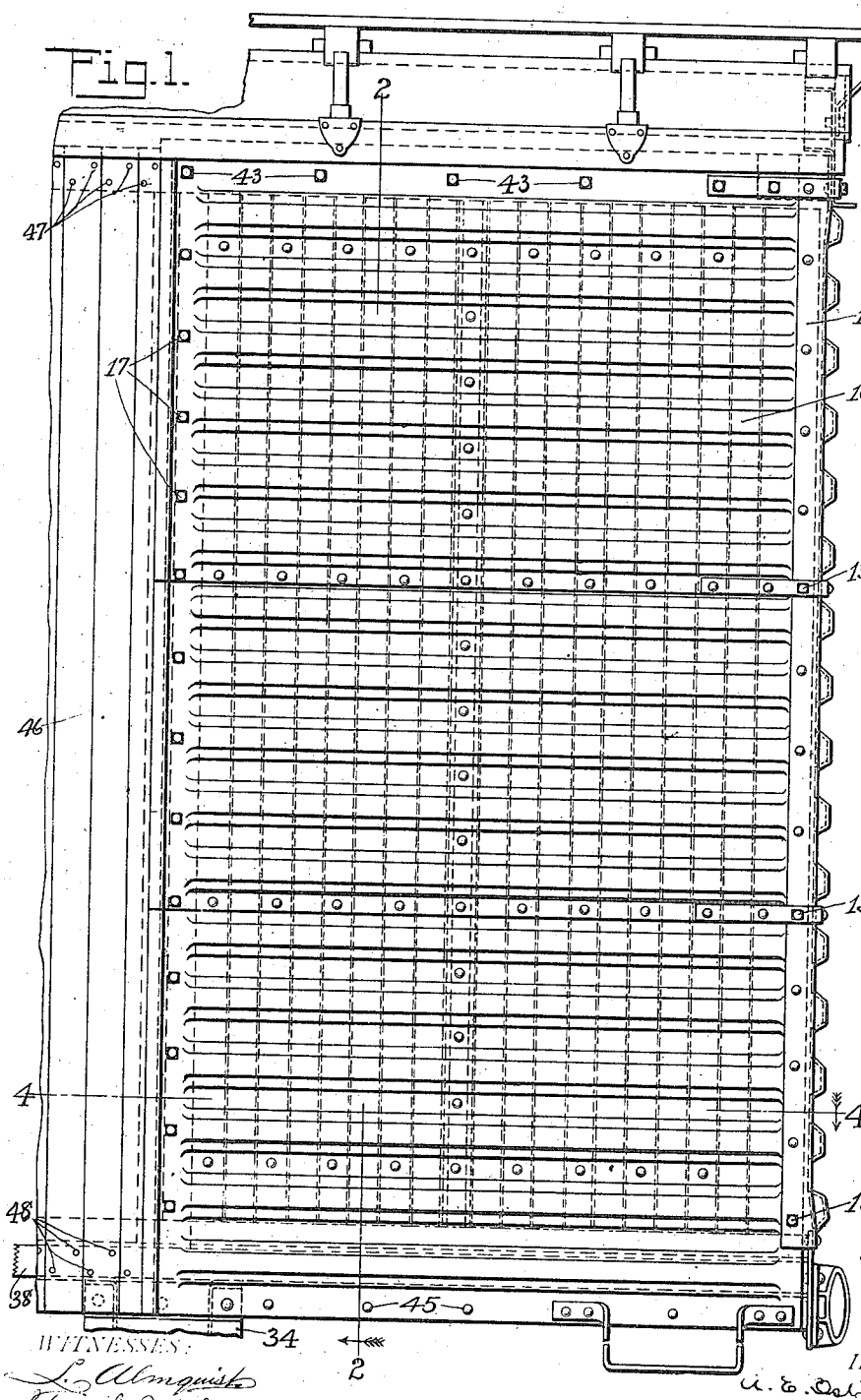
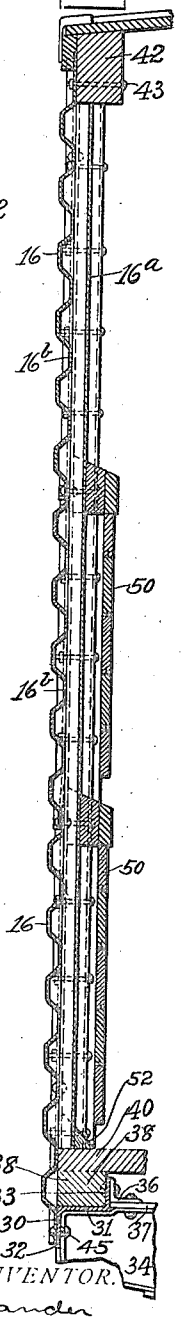


Fig. 2.



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2 SHEETS—SHEET 2.

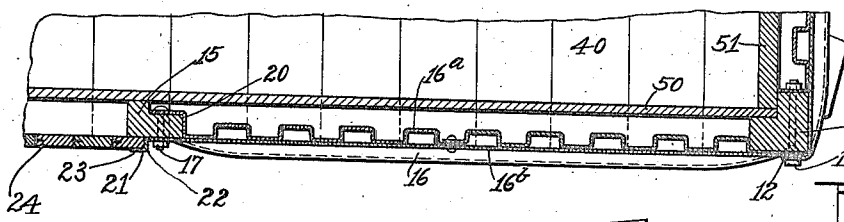


Fig. 4.

Fig. 6.

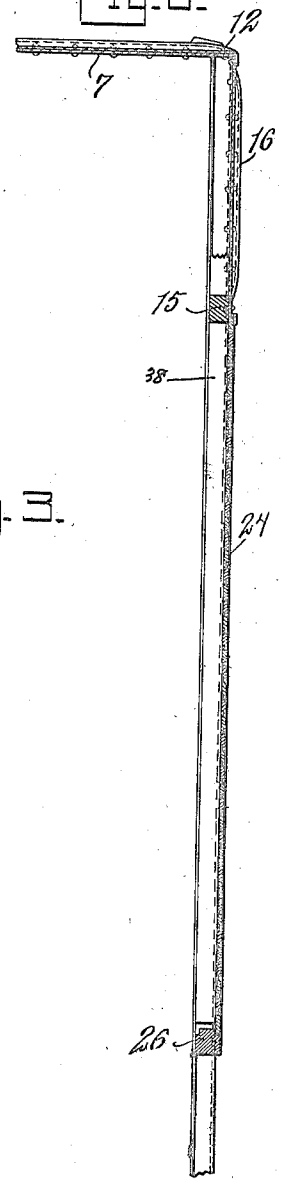


Fig. 5.

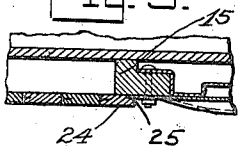
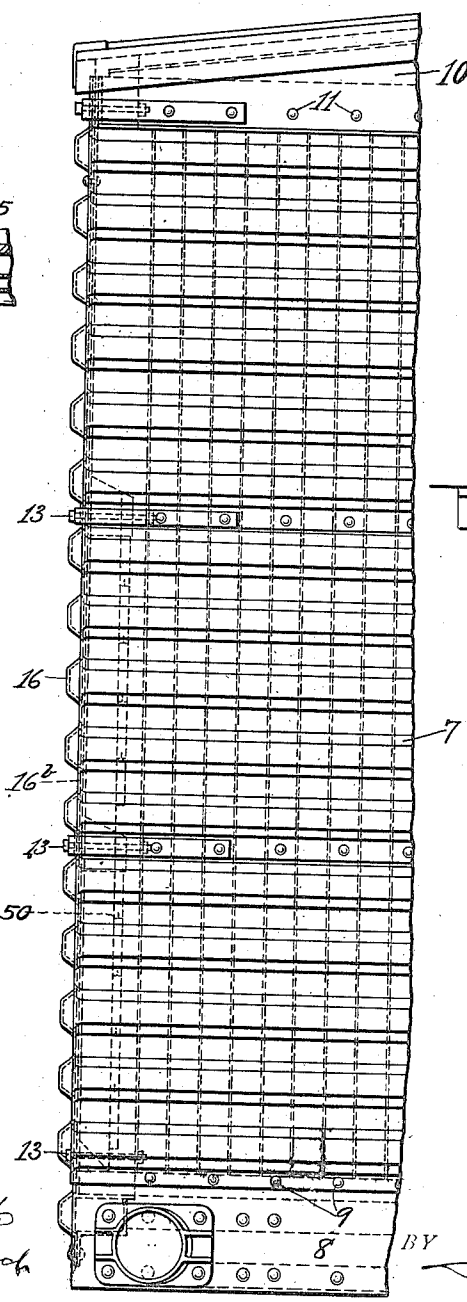


Fig. 3.



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CAR CONSTRUCTION.

1,256,157. Specification of Letters Patent. Patented Feb. 12, 1918.

Application filed May 11, 1915. Serial No. 27,365.

To all whom it may concern:

Be it known that I, ALLEN E. OSTRANDER, residing at Ridgewood, Bergen county, New Jersey, and being a citizen of the United States, have invented certain new and useful Improvements 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 to use the same, reference being had to the accompanying drawings, which 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 will occur to persons skilled in the art.

In said drawings:

Figure 1 is a side elevational view of the end portion of a box car equipped with the present invention.

Fig. 2 is a transverse vertical sectional view taken through the side wall of the car of Fig. 1, the section being taken on line 2—2 of that figure.

Fig. 3 is a front elevational view of a fragment of a box car end to which the invention is applied.

Fig. 4 is a sectional view, the section being taken on line 4—4 of Fig. 1 looking downwardly or in the direction indicated by the arrow.

Fig. 5 is a modification hereinafter explained.

Fig. 6 is a horizontal sectional view through the side wall and end wall of a car equipped with the present invention.

The object of the invention is to provide a metallic reinforcing means for the end portion of old wood box cars which, due to modern service conditions, require reinforcement at their end portions and the invention contemplates the use of a metal end wall and a side wall of metal which preferably extends from the corner post of the car to the first side post back of said corner post and which is commonly known as the bolster post, the intention being to utilize as far as practicable the wood members of the old car and combine with them metallic reinforcements for the end portions thereof.

While I have shown the end side wall as formed of corrugations right angularly disposed and pressed into sheets of metal connected together, it is to be understood that the invention includes the application of other metallic wall formations, as hereinafter defined in the claims.

Referring specifically to the parts, 7 indicates the end wall; 8 an end sill to which the end wall is secured by rivets 9; 10 indicates a metal end plate which is connected by rivets 11 with the upper portion of the end wall which it laps, as shown in Fig. 1, and by the dotted lines of Fig. 3.

The end wall 7 is provided with rearwardly extending flanges 12 which are connected by bolts 13 with the corner posts 14, and while only one corner post is shown, it is to be understood that the car body is symmetrical, and one of said posts 14 appears at each corner of the car.

Lapping the flange 12 and corner post 14 and extending rearwardly to and lapping the side post 15 or bolster post, is a metallic side wall portion 16, which is connected by means of the bolts 17 with side post or bolster post 15 and by means of the bolts 13, before referred to, with the corner post. The side wall 16 is preferably formed of corrugated metal comprising one sheet 16^a having vertical outstanding corrugations with interposed valley portions throughout the major portion of its area and is provided at its rear end with the flange 20 by means of which it is connected with the side post 15. The outer sheets of said metallic side wall portion are formed from sheet metal 16^b which is provided with horizontal corrugations, preferably at right angles to the vertical corrugations of the inner sheet and said outer sheet laps the corner post 14 at one end and said side post 15 at its opposite end. At the side post 15 said outer sheet may be formed with the flange 21 which serves as a stop 22 and protection flange 23 for the wood side wall 24, or, if desired, said outer sheet may be continued in a straight line, as indicated at 25 in Fig. 5, and rest between one of the boards of the wooden wall portion 24 and the side post 15, which is indicated in Fig. 5.

Referring to Fig. 2, it will be noted that the side sill 30 of the car is of Z-shape in cross section, having a horizontal web portion 31, an outer vertical flange 32 and an inner vertical flange 33, the outer flange 32 being connected to the end of a bolster 34

and the inner vertical flange 33 being connected by the angle 36 with the top cover plate 37 of said bolster. Resting on the web 31 of the side sill is a wood nailing strip 38, which extends longitudinally of the car and is supported by said Z-shaped side sill. Resting upon and secured to the wood nailing strip 38 is a wood flooring 40 which may be secured to said nailing strip by nails, screws or any convenient means.

The metallic side wall 16 extends downwardly parallel with and laps and is secured to the side sill and preferably, though not necessarily, to the vertical flange 32 thereof, said side wall extending thence upwardly toward the top of the car where it laps and is secured directly to the wood side plate 42 and preferably by means of the bolts 43, as shown in Figs. 1 and 2. As will be noted in Fig. 1, there are a number of bolts 13 connecting the side wall to the corner post and a number of bolts 17 connecting said side wall to the side post or bolster post, and likewise a number of bolts 43 connecting the upper portion of said side wall with the wood side plate 42, as well as a number of rivets 45 connecting the lower part of said side wall portion 16 with the side sill.

A car body necessarily comprises two ends and two side walls and the present invention contemplates the use of metallic ends and composite side walls, the outer or end portions of which are formed of metal, as for example, the portion 16, there being one of said portions 16 at each end of the side wall of the car and intermediate the metal side wall portions the side wall of the car 24 is of wood which comprises parallel vertically extending boards, as indicated in the drawings, which boards are secured by means of the nails or other suitable fastening means 47 with said wood side plate 42 and extend downwardly and preferably lap the side sill of the car, but unlike the metallic side wall plates, the wood portion of the side wall is secured by means of the nails or other fastening means 48 directly to the wood nailing strip 38, so that the side wall of the car practically comprises a metallic side sill with a wood nailing strip supported thereby and a composite side wall comprising metal portions secured to said side sill and a wood portion secured to said nailing strip and preferably the upper edge portion of said side wall, both metal and wood, is secured to the wood side plate, the rear edge of the wall being bifurcated as shown in Figs. 4 and 5.

Secured to the inner face of the side post 15 and extending to and lapping the corner post 14 is a wood lining 50 which is spaced from both the metal and the wood outer walls of the car, there being also a wood lining 51 at the end of the car.

In assembling the parts, it is to be understood that the floor nailing strip 38 with the floor 40 resting thereon are left in position or in new cars are first applied and the inner sheet of the side wall end portions is placed in position preferably resting on the outer ends of the boards comprising said floor, after which the outer sheets 16 are placed in position and riveted to said inner sheets, being also secured to the side post and corner post, as before indicated. Thus, with the edge strip 52 at the bottom of the wall and resting on the floor, the connection of the metal wall to the said end portions of the car forms a grain tight closure.

As best shown in Fig. 4, the end wall, the spaced rearwardly extending flanges thereof, the edge of the side wall that is lapped by the outer of the end wall flanges and the vertical side wall corrugation adjacent the corner post coöperate, when the side and end walls are connected, to cause these walls to lock themselves to said corner post. Thus a much stronger connection of the end and side walls is secured than can be had by mere rivet or bolt connections.

What I claim is:

1. In a car, corner posts, bolster posts, an end sill, a bolster, a corrugated metallic end lapping said end sill, a corrugated side wall extending from said corner post to said bolster post and having a bifurcated portion receiving the latter post and means connecting said side wall with said bolster post.

2. In combination, a bolster post, a corner post, a reinforced metallic car end connected with two sides of said corner post, a metallic side wall portion lapping said end, a bolster post partially inclosed by said side wall and means connecting the side and end through said corner post.

3. In combination, a metallic end sill and side sill, a wood floor nailing strip resting on said side sill, a metallic bolster extending under said side sill and connected thereto, a floor resting on said wood nailing strip and a side wall of wood and metal portions connected respectively to said nailing strip and said side sill.

4. In combination, a flanged side sill, a floor nailing strip thereon, a floor resting above said strip, and a closely connected plural plate metallic side wall, one plate of which laps said side sill and one plate of which rests on said floor.

5. In combination, a box car having wood side posts and corner posts, a flanged metallic side sill, a floor nailing strip resting on said side sill, a floor secured on said nailing strip, a metallic end wall lapping said corner post, a metallic side wall formed with angularly disposed corrugations and terminating in flattened edge portions lapping and being secured to said wood side post and corner post and to said side sill and a wood lining spaced from said end wall and side wall and secured to said posts.

6. In a box car, a metallic end sill and side sill, a wood floor nailing strip on said side sill, a floor supported above said nailing strip, a wood corner post, a metallic end lapping and secured to said end sill and corner post, a wood side post, a wood lining extending from the corner post past the side post over said floor and a reinforced metallic side wall lapping the corner post, and side sill and clamping said side post.

7. In combination, a metallic side sill, wood corner and side posts, a lining secured to inner faces of said posts and a reinforced side wall of metal formed with angularly disposed corrugations and flattened edge portions, some of said edge portions lapping said corner post and side post and said side sill.

8. In a railway car, the combination of a Z-shaped side sill, a plural part sheet metal side wall connected directly to one of the flanges of said sill, a wood floor-nailing-strip resting on the web of said sill, a floor resting on said nailing-strip and a wood lining vertically above said floor.

9. In a railway car, the combination of a flanged metallic side sill having a vertical flange, a sheet metal side sheathing lapping and being secured to said vertical flange, a floor extending over said side sill, wood posts secured to the said side sheathing and an inner lining secured to the inner faces of said wood posts and extending vertically above said floor.

10. In a railway car, the combination of a metallic side sill having a vertical flange, a sheet metal side sheathing lapping and being secured to said vertical flange, a floor extending over said side sill, wood posts secured to the said side sheathing and an inner lining secured to the inner faces of said wood posts and extending vertically above but being spaced from said floor.

11. In a railway car, wood corner and side posts, a metallic end wall and metallic side wall comprising parallel closely connected plates connected together at said corner post, a metal side sill lapping and being connected with said side wall, a wood nailing strip on said side sill, a floor secured to said nailing strip within the zone of said metallic side wall, and a wood side wall connected to said nailing strip intermediate the bolster posts.

12. In a railway car, a metallic side sill, a wood nailing strip supported thereby and a composite side wall comprising a metal portion secured to said side sill and a wood portion secured to said nailing strip.

13. In a railway car, a metallic side sill having a vertical face, a nailing strip supported by and extending longitudinally of said sill, a side wall having metallic end portions lapping and being secured to said sill, flooring secured to said nailing strip within the zone of said metallic side wall portions and a wood portion of said side wall secured to said nailing strip intermediate the metallic side wall portions.

14. In a car, corner posts, side posts, an end sill, a side sill, a longitudinal nailing strip on said side sill, a metallic end lapping said end sill, a sheet metal side wall extending from said corner post to and lapping one of said side posts and being connected directly to said side sill and a wooden wall portion connected directly to said nailing strip.

15. In combination, a bolster post, a corner post, a metallic car end connected with said corner post, a metallic side wall portion lapping said corner post and said bolster post, a side sill connected directly to said side wall, a longitudinal nailing strip supported by said side sill and a wood side wall portion connected to said nailing strip.

16. In combination, a metallic end sill and side sill, a wood floor nailing strip resting on said side sill, a bolster connected with said side sill, a floor resting on said wood nailing strip, a metallic side wall portion connected directly to said side sill, and a floor and a wood side wall portion connected to said wood nailing strip.

17. In combination, a flanged side sill having a horizontal web, a floor nailing strip on said web, a floor resting on said strip, a plate metal side wall connected to a flange of said side sill, and a wooden wall portion connected with said nailing strip.

18. In combination, a wood corner post and side post, a metallic side sill, a metallic side wall portion connected to said side sill, said corner post and said side post; a wood nailing strip extending longitudinally of said side sill and a wood floor and wood side wall portion connected to said nailing strip.

19. In combination, wood side posts and corner posts, a flanged metallic side sill, a floor nailing strip resting on said side sill, a floor secured on said nailing strip, a metallic end wall lapping said corner post, a metallic side wall end portion lapping and being secured to said wood side post, to said corner post and to said side sill and a wooden side wall portion, secured directly to said nailing strip.

20. In a box car, a metallic end sill and side sill, a wood side plate, a wood floor nailing strip on said side sill, a floor supported above said nailing strip, a wood corner post, a metallic end lapping and secured directly to said end sill and said corner post, a wood side post, a reinforced metallic side wall portion lapping and being secured directly to said side plate, the corner post, side post and side sill, and extending inwardly of the car in alinement with and between the side sill and side plate.

21. In combination, a flanged side sill, wood corner and side posts and side plate,

a wood lining secured to inner faces of said posts and a reinforced side wall of metal lapping said corner post and side post and being secured directly to the flange of said side sill.

22. In a railway car, the combination of a wood side plate, a Z-shaped metallic side sill, a sheet metal side wall portion connected with one of the flanges of said sill, a wood floor-nailing-strip resting on the web of said sill, a floor resting on said nailing-strip and a wood side wall portion connected with said side plate and floor nailing strip.

23. In a box car, a bolster, a Z-shaped sill having horizontal web and vertical flanges, a metallic side wall secured directly to one of said flanges and extending vertically above said web.

24. In a box car, a bolster, a Z-shaped side sill having horizontal web and vertical flanges, a metallic side wall secured directly to one of said vertical flanges, a wood nailing strip interposed between said wall and another vertical flange, and a floor secured to said nailing strip.

25. In a box car, in combination, bolsters, a side sill, a floor nailing strip supported thereby, a floor secured to said nailing strip, a bolster post, a door post, an exterior wood sheathing lapping the door post and bolster post, a corner post and a reinforced metallic sheathing lapping and being secured to said side sill, bolster post and corner post.

26. In a railway car, a side wall formed with an intermediate outer wood sheathing portion and opposite end portions of corrugated metallic sheathing in alinement therewith, in combination with corner posts lapped by said metallic sheathing and end walls lapping said corner posts and vertical edge portions of said metallic sheathing.

27. In a railway car, a composite side wall comprising end portions of reinforced plate metal and intermediate wood portions in alinement therewith, in combination with a side plate to which said end and intermediate portions are secured, a side sill to which said plate metal portions only are directly secured, and means supported by said side sill to which said wood portions are secured.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

ALLEN EDWARD OSTRANDER.

Witnesses:

JOHN A. GALLAGHER,

L. V. JOYCE.