T. N. RUSSELL.

RAILWAY CAR.

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1,171,663.

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Fig. 1

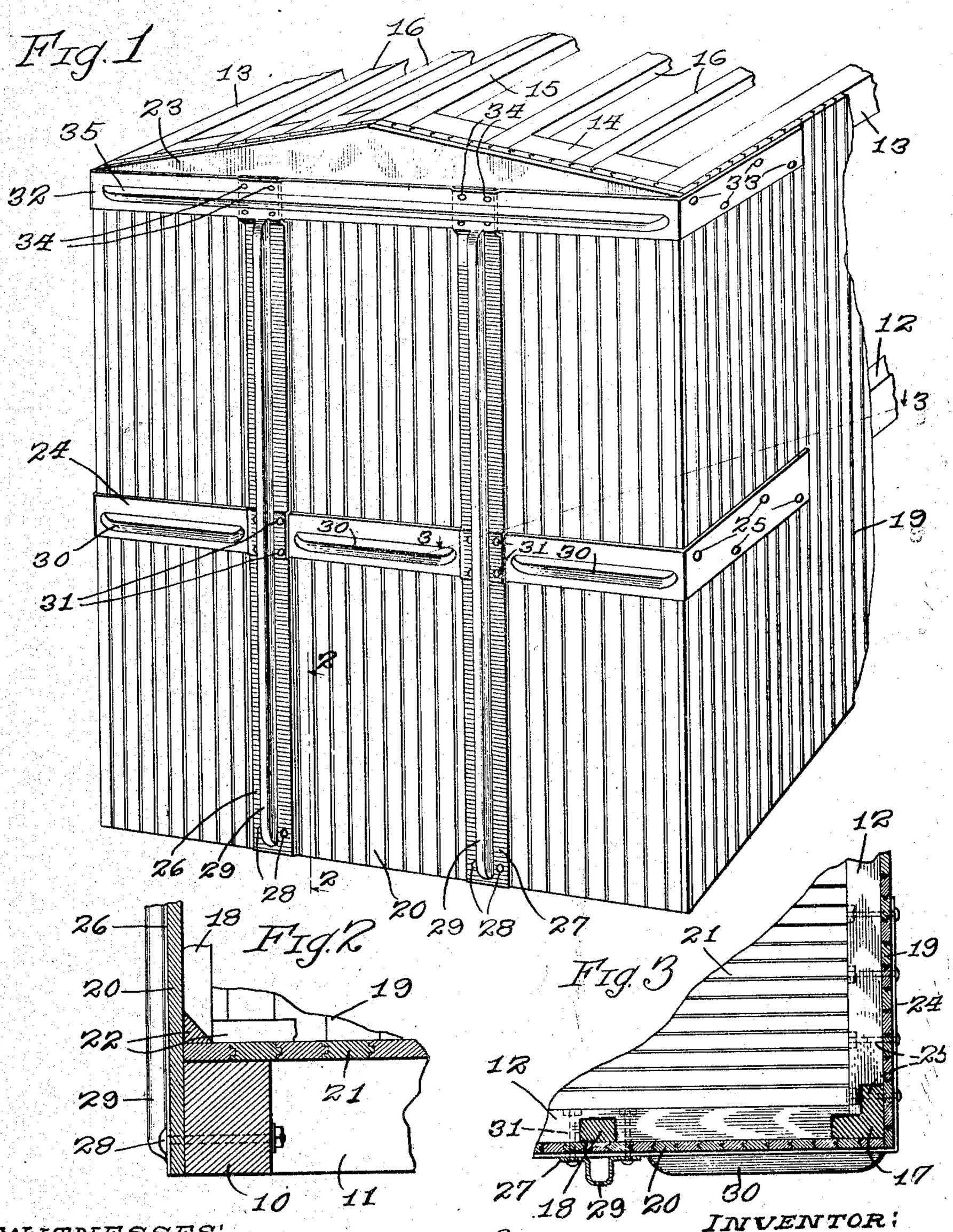

Fig. 2

Fig. 3

WITNESSES:

L. B. Graham

W. A. Furnner.

INVENTOR:

Thomas N. Russell

By Adams & Jackson

Att'ys.

UNITED STATES PATENT OFFICE.

THOMAS NATHAN RUSSELL, OF CHICAGO, ILLINOIS, ASSIGNOR TO CHICAGO-CLEVELAND CAR ROOFING COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

RAILWAY-CAR.

ISSUED

1,171,663. Specification of Letters Patent. Patented Feb. 15, 1916.

Application filed December 4, 1914. Serial No. 875,435.

To all whom it may concern:

Be it known that I, THOMAS N. RUSSELL, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Railway-Cars, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to railway cars, and it has for one of its objects the provision of reinforcing and strengthening members adapted to be applied to a car for insuring proper rigidity of the end wall of the car. As is well known in the railway car art, upon the sudden starting or stopping of a loaded car, enormous stresses are brought to bear upon the ends of the car and it is essential that the end walls be very strongly constructed or reinforced if the car is to be maintained for any considerable time in first-class condition.

My invention has to do particularly with the provision of reinforcing means adapted to be applied to a car of the ordinary well-known construction whereby, without reconstructing the car, proper protection may be secured against undue straining and battering of the car under normal conditions.

It is another object of my invention to improve cars in sundry details hereinafter pointed out.

The means by which I have accomplished these objects are illustrated in the accompanying drawings and are hereinafter specifically described.

That which I believe to be new is set forth in the claims.

In the drawings, Figure 1 is a perspective view of one end of the body of a car of ordinary wood construction, with the roofing sheets removed therefrom; Fig. 2 is an enlarged detail, being substantially a section taken on line 2—2 of Fig. 1; Fig. 3 is an enlarged detail, being substantially a section taken on line 3—3 of Fig. 1.

Referring to the several figures of the drawings, in which corresponding parts are indicated by the same reference characters,—10 indicates the end sill, 11 the side sill, 12 the belt rail, 13 the side plate, 14 the end plate, 15 the ridgepole, and 16 the purlins of a car of ordinary wood construction. As will be readily understood, the framework of the car comprising the parts named is securely braced in the ordinary manner so as to provide a maximum of rigidity between the upper frame comprising the side plates 13 and the end plates 14 and the lower frame comprising the side sills 11 and end sills 10,—corner posts 17 and end posts 18 being used in the usual manner for this purpose. Inasmuch as this construction is well known in the art, it is not believed to be necessary to further describe it herein.

The car is provided on its sides with vertically-extending side sheathing 19 and at its ends with vertically-extending end sheathing 20. A deck 21 is provided by the use of laterally-extending flooring boards extending between the side sills 11 and suitably supported intermediately in any appropriate manner. Grain-strips 22, of any suitable type, are used at the juncture between the side sheathing and the deck 21. An end fascia 23 is provided covering the upper ends of the end sheathing boards 20.

Coming now to my improved strengthening means, 24 indicates a strip of pressed steel extending in horizontal position across the end of the car opposite the belt rail 12, the ends of said strip 24 being turned forward along the sides of the car where they are secured in position by means of bolts 25.

26—27 indicate strengthening strips formed of pressed steel extending across the end of the car in vertical position opposite the end posts 18, the lower ends of said strips 26—27 being secured to the end sill 10 by means of bolts 28. At the points where the strips 26—27 extend across the horizontally-extending strip 24, said strips 26—27 are offset outward so as to fit snugly against said strip and against the end of the car. At their upper ends the strips 26—27 are also offset to fit snugly about the fascia 23. As shown clearly in Fig. 1, each of the strips 26—27 is provided with a strengthening rib or corrugation 29 pressed therein longitudinally thereof, said ribs 29 being faded at their upper ends into the offset portions of the upper ends of the strips. The strip 24 is provided with strengthening ribs or corrugations 30 extending between the strips 26—27 and from said strips 26—27 toward the ends of the strip 24. The strips 26—27 are secured to the strip 24 and to the end of the car by means of bolts 31 which, in the

construction shown, pass through the belt rail 12 as shown in Fig. 3.

32 indicates a strengthening strip of pressed steel extending across the fascia 23, having its ends turned forward along the sides of the car where it is secured in position by bolts 33 passing through the side plates 13. At the points where the strip 32 extends across the upper ends of the strips 26—27 the strip 32 is offset to fit snugly about said ends and against the fascia 23, bolts 34 being used for securing said strips to the end plate 14. The strip 32 has pressed therein longitudinally thereof a strengthening rib or corrugation 35 by which the strip is given the maximum longitudinal strength. As will be seen from an inspection of Fig. 1, at the points where the strips 26—27 are offset about the strip 24 and at the points where the strip 32 is offset about the strips 26—27, the offset, in the construction shown, is pressed in the bearing faces only of such strips, leaving the outer edges of the strengthening ribs smooth and uniform.

By the use of a plurality of strengthening strips as shown provided with strengthening ribs pressed therein, with such strips firmly secured in place by pins or bolts passing through the end and side plates, the belt rail, and the side and end sills, respectively, a very strong construction is obtained capable of withstanding exceedingly heavy stresses without undue wear and tear upon the structure, the strengthening ribs being so disposed as to prevent under normal conditions of use any undue bulging outward or other straining of the ends of the car.

That which I claim as my invention, and desire to secure by Letters Patent, is,—

1. In a device for strengthening the end of a car, the combination of a metal strip secured across the outer face of the car end and provided with a strengthening rib pressed in the strip longitudinally thereof, and a second metal strip secured across the outer face of the car end at an angle to said first-named strip and extending under the said first-named strip and under the strengthening rib thereof, said second strip being provided with strengthening ribs pressed therein longitudinally of said strip at opposite sides of its point of contact with said first-named strip.

2. In a device for strengthening the end of a car, the combination of a metal strip secured across the outer face of the car end and provided with a strengthening rib pressed in the strip longitudinally thereof, and a second metal strip secured across the outer face of the car end at an angle to said first-named strip and extending under the said first-named strip and under the strengthening rib thereof, said second strip being provided with strengthening ribs pressed therein longitudinally of said strip at opposite sides of its point of contact with said first-named strip, and said first-named strip having an offset pressed in the bearing face thereof to fit snugly over said second strip.

3. In a device for strengthening the end of a car, the combination of a metal strip secured in a horizontal position across the end of the car, and another metal strip secured in vertical position across the outer face of the car end and across said horizontally-extending strip, said second-named strip being provided with a vertically-extending strengthening rib pressed therein, and said first-named strip being provided with horizontally-extending strengthening ribs pressed therein at opposite sides of said second-named strip, and means for securing said strips together at their crossing point independently of the said ribs.

4. In a device for strengthening the end of a car, the combination of a metal strip secured across the outer face of the car end, and a plurality of other metal strips each secured across the outer face of the car end and the outer face of said first-named strip and each provided with a strengthening rib pressed therein longitudinally of the strip across said first-named strip, said first-named strip being provided with strengthening ribs pressed therein longitudinally of the strip both between said second-named strips and also from said second-named strips toward the ends of the first-named strip.

5. In a device for strengthening the end of a car, the combination of a metal strip secured in horizontal position across the end of the car, another metal strip secured in vertical position across the outer face of the car end and across said horizontally-extending strip, and a third metal strip secured across the upper portion of said car end and across the upper end of said second-named strip, said third-named strip being provided with a strengthening rib pressed therein extending across said second-named strip, said second-named strip being provided with a strengthening rib pressed therein extending across said first-named strip, and said first-named strip being provided with strengthening ribs pressed therein at opposite sides of said second-named strip.

6. In a device for strengthening the end of a car, the combination of a metal strip secured in horizontal position across the end of the car and having its ends turned and extended forward along the sides of the car opposite the belt rail, another metal strip secured in vertical position across the outer face of the car end and across said horizontally-extending strip, a third metal strip secured across the upper portion of said car end and across the upper end of said second-

named strip, said third-named strip having its ends turned and extending forward along the sides opposite the side plates of the car, and means for securing said several metal strips together at the points where they cross each other.

7. In a device for strengthening the end of a car, the combination of a metal strip secured in horizontal position across the end of the car and having its ends turned and extended forward along the sides of the car opposite the belt rail, another metal strip secured in vertical position across the outer face of the car end and across said horizontally-extending strip, a third metal strip secured across the upper portion of said car end and across the upper end of said second-named strip, said third-named strip having its ends turned and extending forward along the sides opposite the side plates of the car, and means for securing said several metal strips together at the points where they cross each other, each of said metal strips being provided with longitudinally-extending strengthening ribs pressed therein for substantially its full length across the end of the car except that at the point where one of said strips crosses under another strip the strengthening rib of the under strip is faded out.

8. In a device for strengthening the end of a car, the combination of a metal strip secured in horizontal position across the end of the car and having its ends turned and extended forward along the sides of the car opposite the belt rail, another metal strip secured in vertical position across the outer face of the car end and across said horizontally-extending strip, a third metal strip secured across the upper portion of said car end and across the upper end of said second-named strip, said third-named strip having its ends turned and extending forward along the sides opposite the side plates of the car, means for securing said several metal strips together at the points where they cross each other, means for securing the forwardly-extending ends of said first-named strip to the belt rail, and means for securing the forwardly-extending ends of said third strip to the side plates of the car.

THOMAS NATHAN RUSSELL.

Witnesses:
W. H. DeBusk,
W. A. Furnner.