

May 19, 1953

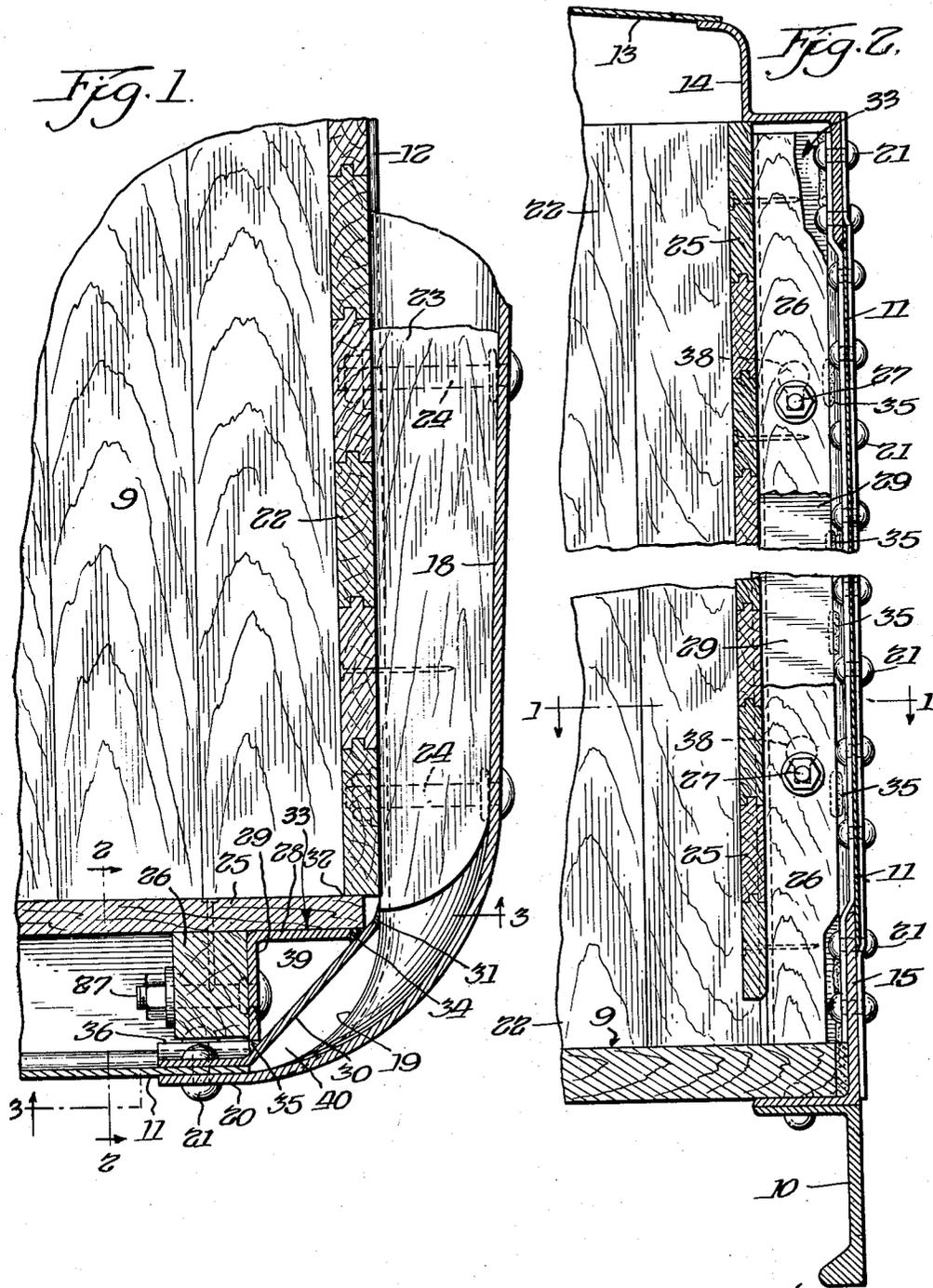
J. E. CANDLIN, JR

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WELDED CORNER POST ASSEMBLY

Filed Aug. 26, 1948

2 Sheets-Sheet 1



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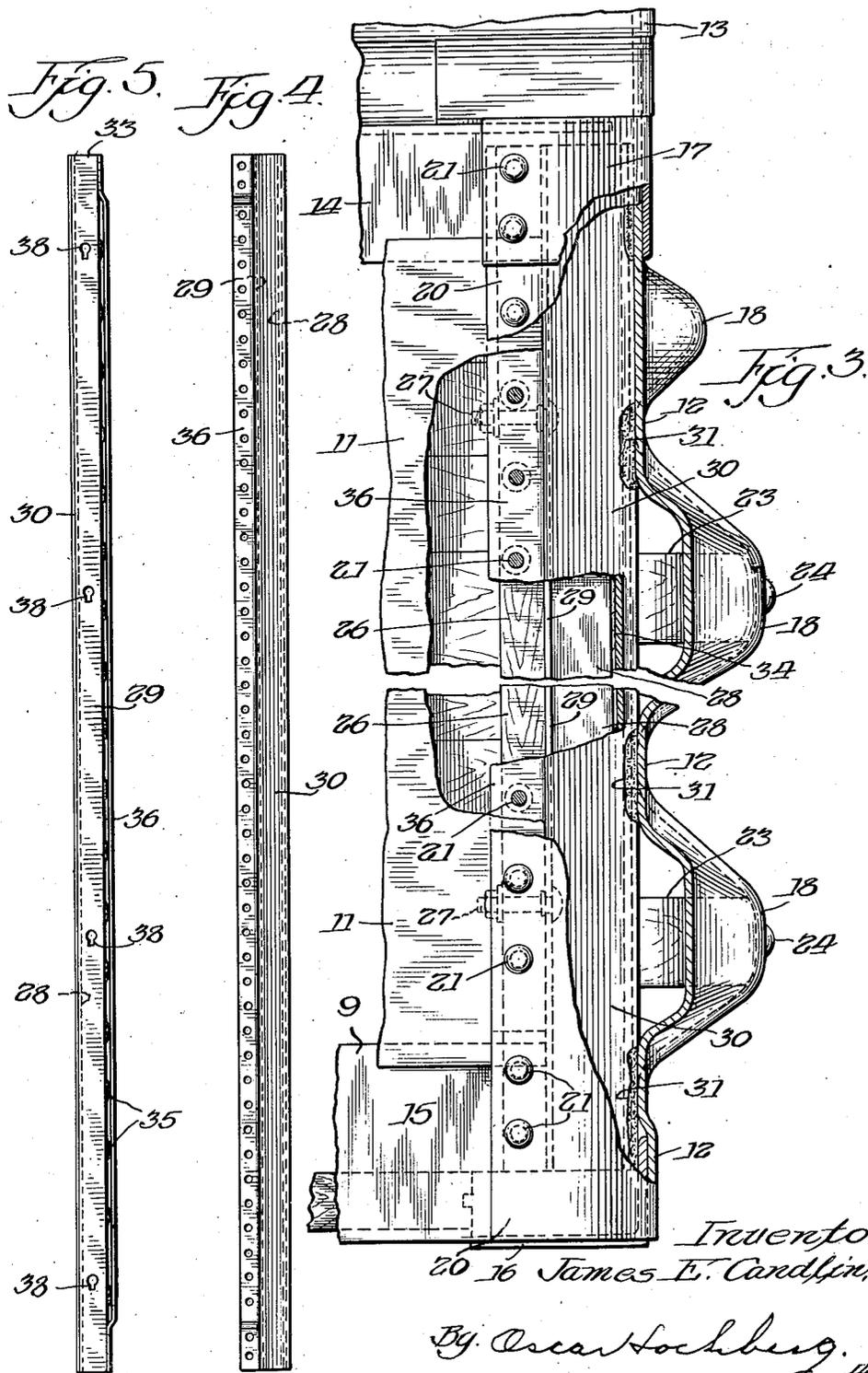
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UNITED STATES PATENT OFFICE

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WELDED CORNER POST ASSEMBLY

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Application August 26, 1948, Serial No. 46,286

4 Claims. (Cl. 105—410)

1

The invention relates to welded corner post construction for railway cars adapted for structural assembly with adjacent car wall portions.

An object of the invention is to provide a stable connection between the end and side walls of a car to form with the end wall a complete box section post structure affording high torsional resistance in both directions.

Another object is to reinforce the box section post structure throughout substantially the height of such post to prevent distortion thereof under thrust of the lading against the end wall of the car.

A further and important object is to provide a reinforcement for the post structure such as to afford securing and backup means for the horizontally extending side wall lining boards at the proximate position of the vertical lining boards at the end wall to insure grain-tight joints at meeting points.

A still further object of the invention is to so correlate the attachment of the reinforcing means to the post and the post to the end wall by welding as to prevent eccentric loading of the weld metal and possible disruption of the assembly.

The foregoing and other advantages are obtained by the mechanism illustrated on the drawings and described in the accompanying specification. In said drawings—

Fig. 1 is a horizontal section through the side and end wall portions of a railway car taken on line 1—1, of Fig. 2, and showing the welded corner post assembly connecting said walls with the post angle reinforcement arranged to back up the side wall boards at their ends and to support the nailing strip securing said boards;

Fig. 2 is a vertical sectional view taken on line 2—2, of Fig. 1, through the car side wall adjacent the corner post assembly, showing attachment of the side wall board nailing strip to the post angle reinforcement and the wall boards nailed to said strip;

Fig. 3 is an elevational side view of the car at the corner post position showing portions of the flange of the corrugated steel end wall broken away to expose the corner post structure on line 3—3, of Fig. 1, and the method of securing same to the side and end walls, preferably by arc welding to the steel end corrugations and by other means to the car side;

Fig. 4 is an elevational view of the outer side of the diagonal plate element of the post assembly showing attaching flange for securing the assembly members at the side wall position; and

Fig. 5 is a transverse elevational view of the same showing the side extending transversely of

2

the car with the nailing stringer supporting flange of the reinforcing angle welded to the diagonal plate portion of the post assembly.

In said drawings, 10 represents a railway box car having metal side walls 11, corrugated metal end wall 12 connecting the side walls, metallic roof 13, side plate and sill longitudinals 14 and 15, respectively, and transversely arranged end sill members 16, and connecting side plates 14 and end wall 12 are the customary corner gusset plates 17, as best shown in Fig. 3. The end walls 12 are preferably corrugated as shown, with the corrugations 18 extending from side to side of the car and terminating in rounded corners 19 merging with the end wall securing flanges 20 taking rivets 21 at the side walls 11. Vertically disposed wood lining boards 22 are secured to the end wall by nailing them to furring timbers 23 nested within corrugations 18 and held from displacement therein by collar bolts 24 at spaced intervals between the side walls 11. Side lining boards 25, extending longitudinally of the car, are secured by nailing to upright wood post furrings 26 held to the car framing posts by collar bolts 27, or the like, as best shown in Figs. 1 and 3.

In the preferred embodiment of the invention herein disclosed, the side and end wall lining boards at their meeting points are held in grain-tight relationship by structure, presently to be described, designed to prevent disruption of the joint by restraining torsional movement of the corner post assembly functioning to stabilize the framing under car and lading impacts. In the corner post assembly structure of the present embodiment as depicted in Fig. 3, the diagonal plate member 30 is connected to the steel end wall 12 by arc welds 31 at the corrugations of the end in the vicinity of the joint 32 between the side and end lining boards 25 and 22, respectively, to prevent bulging of the end from top to bottom at that position. A rigidifying angle member 33 extending the full height of the plate and having a flange 28 disposed parallel to the side wall boards 25 is adapted to back up the boards at the joint 32 to insure contact with end wall boards 22, and a companion flange 29, extending outwardly from and normal to complementary flange 28, functions to support the nailing post furring strip 25 to which the side wall lining boards 25 are secured. Said reinforcing angle member 33 is secured to the diagonal plate member 30 by means of arc welds 34 intermittently applied at the edge of flange 28 and by arc welds 35 intermittently applied at the edge of flange 29. Thus connected, the angle member 33 and diagonal plate member 30 together form a hollow welded

column 39 adapted for assembly with the corrugated end wall portion 19 through the medium of arc welds 31 to provide a prefabricated unitary structure designed for assembly with the car side walls 11 preferably by rivets 21 connecting the end wall flange 20 and the diagonal plate and stiffener angle unit through flange 36 on the diagonal plate portion of said unit, as best shown in Figs. 1, 2 and 3. The diagonal plate and reinforcing angle unit provides the connecting element for the whole corner structure. The diagonal plate portion 30, secured at one of its edges to the side wall through flange 36 by rivets 21 and by arc welds 31 to the end wall at its opposite edge, is subjected to tension in its function to prevent distortion of that portion of the end wall represented by the arch 19 between said welds and rivets to preserve the rounded corner of the corrugated end wall 12 to provide in effect a hollow column 40 extending from the side plate 14 of the car to the bottom at floor 9. The column 40 thus created operates to supplement the hollow column 39 formed by the welding of the flanges of the stiffening angle 33 to the diagonal plate member 30, the two column members together providing a structurally stable corner to maintain the rectangular relationship between the side and end wall lining boards at the joint 32. With the arc welds 31, 34 and 35, disposed as they are at the edges of diagonal plate 30 and flanges 28 and 29, and in line with stresses imposed parallel to said plate and flanges, eccentric loading of the welds is avoided to insure complete integrity of this unit. Proximity of the welds 35 to the juncture of plate 30 and its securing flange 36, lessens the possibility of distortion of this member under excessive stressing of the framework at the corners of the car and resultant bulging of the end wall from car impact and lading thrusts. As in common practice, bolts of the collar type 24 and 27 are used to secure the side and end wall furring pieces 26 and 29 to support the respective lining boards. For removably mounting the side furrings 26, the flange 29 of reinforcing angle 33 is provided with a plurality of contracted openings 38 to receive the bolt heads, shown best in Figs. 1, 2 and 5.

From the foregoing it will be noted that a corner structure has been provided having a high torsional resistance in proportion to its weight, since the welding together of the elements comprising the assembly of parts disposed in the relationship stated develops the full strength of the material used. The construction permits the prefabrication of the end wall and corner structure as a unitary whole and is made possible by the fabrication of the hollow column member 39 as a sub-assembly and its subsequent attachment to the end wall 12 by welds 31. The welds 31 are sufficiently rugged to hold the hollow column unit 39 in desired relationship with the end wall such that the flanges 20 of the end and flanges 36 of the unitary members 39 will be held spaced apart to admit side wall sheathing plates 11 between them when the end is mounted in position upon the car for assembly with the car sides and riveted, as best shown in Figs. 1 and 3.

What I claim is:

1. A railway car corner construction comprising side and end wall elements defining a corner, a wall connecting plate of substantially the wall height having a plane surface throughout its height extending in said corner diagonally between the side and end walls to form therewith a hollow upright column on one side of said plate,

and an upright angle member secured by its flanges to the opposite side of the plate to form therewith a second hollow upright column substantially coextensive with and complementing said first-mentioned column.

2. A railway car construction comprising connected side and end walls defining a corner, end and side wall lining boards in rectangular relationship supported on said walls, and a hollow unitary wall connecting column defined by an upright flanged member and a plate both of substantially the wall height, said plate having a plane surface throughout its height, extending in said corner diagonally between the side and end walls to form therewith a hollow column substantially coextensive with and supplementing the first-mentioned column, having a flange portion along one edge thereof attached to one of said walls, and being welded at its opposite edge to the other wall.

3. In a railway car construction comprising connected side and end wall elements defining a corner, side and end furring pieces supported on said wall elements, and side and end lining boards secured to said furring pieces, a wall connecting plate of substantially the wall height having a plane surface throughout its height extending in said corner diagonally between the side and end walls to form therewith a hollow upright column and engaging the end wall laterally outwardly of the end lining boards, and an upright angle member secured by its flanges to the inner side of said plate to form therewith a second hollow column substantially co-extensive with and complementing said first-mentioned column, said angle member backing up said side lining boards substantially at the joint thereof with said end lining boards, and said end furring pieces contactingly backing up the end lining boards throughout their full width substantially to the joint with the side lining boards.

4. A unitary corner post assembly for a railway car corner defined by side and end walls, comprising an angle plate having two flanges at an obtuse angle to each other at least one of which is planar substantially throughout its extent, and an angle member having its flange edges welded to said one flange of the angle plate in the interior angle thereof, said angle plate and angle member being of a length substantially equal to the height of said walls and defining a hollow column of triangular cross section adapted for connection to said walls with said one angle plate flange extending in said corner diagonally between the side and end walls to define therewith a second hollow column substantially coextensive with and complementing the first-mentioned column and having its edge welded to one of the walls and with the other angle plate flange attached to the other wall.

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