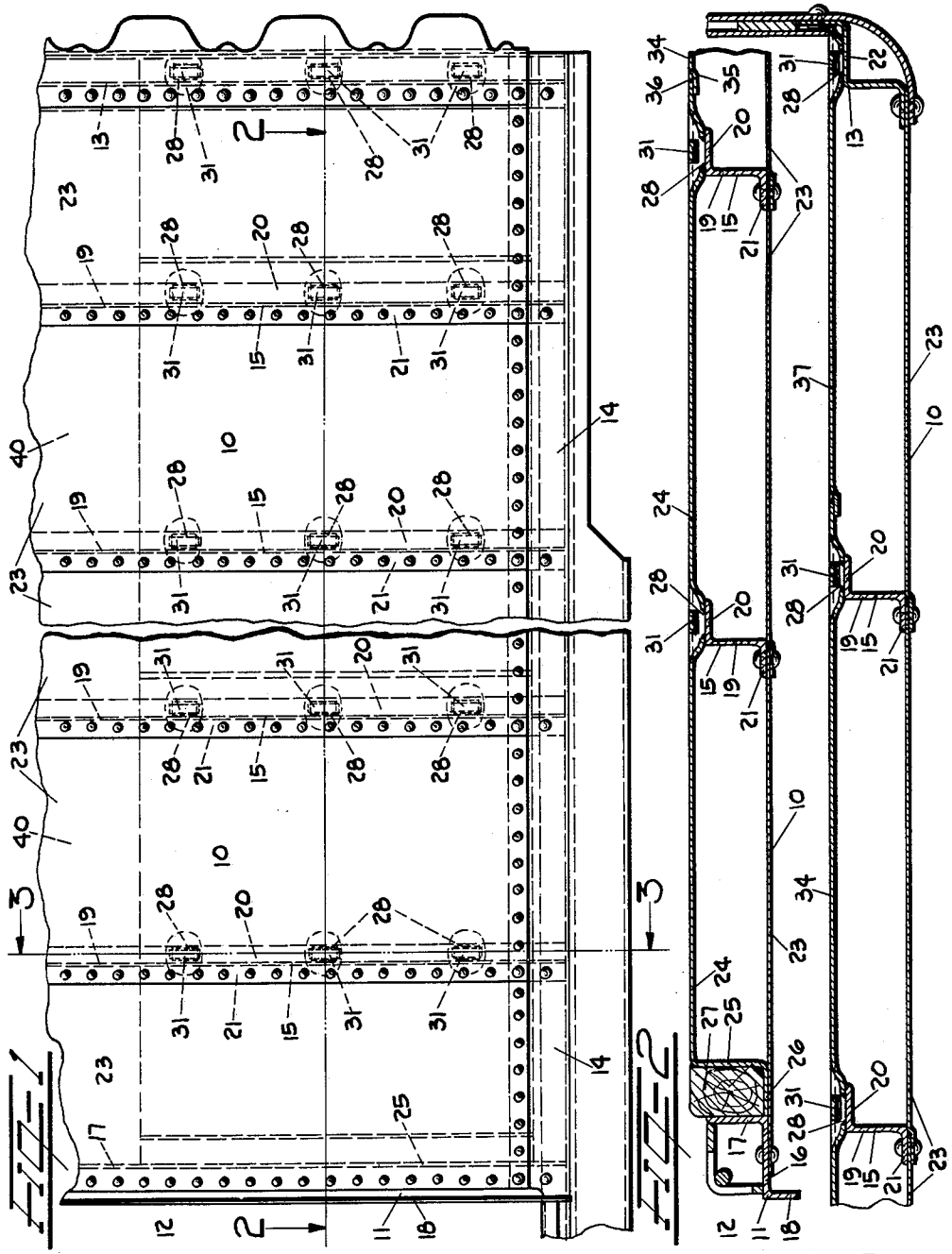
May 14, 1963 J. J. BUCKLEY 3,089,436

METALLIC LININGS FOR BOXCARS

Filed Aug. 5, 1957 3 Sheets-Sheet 1



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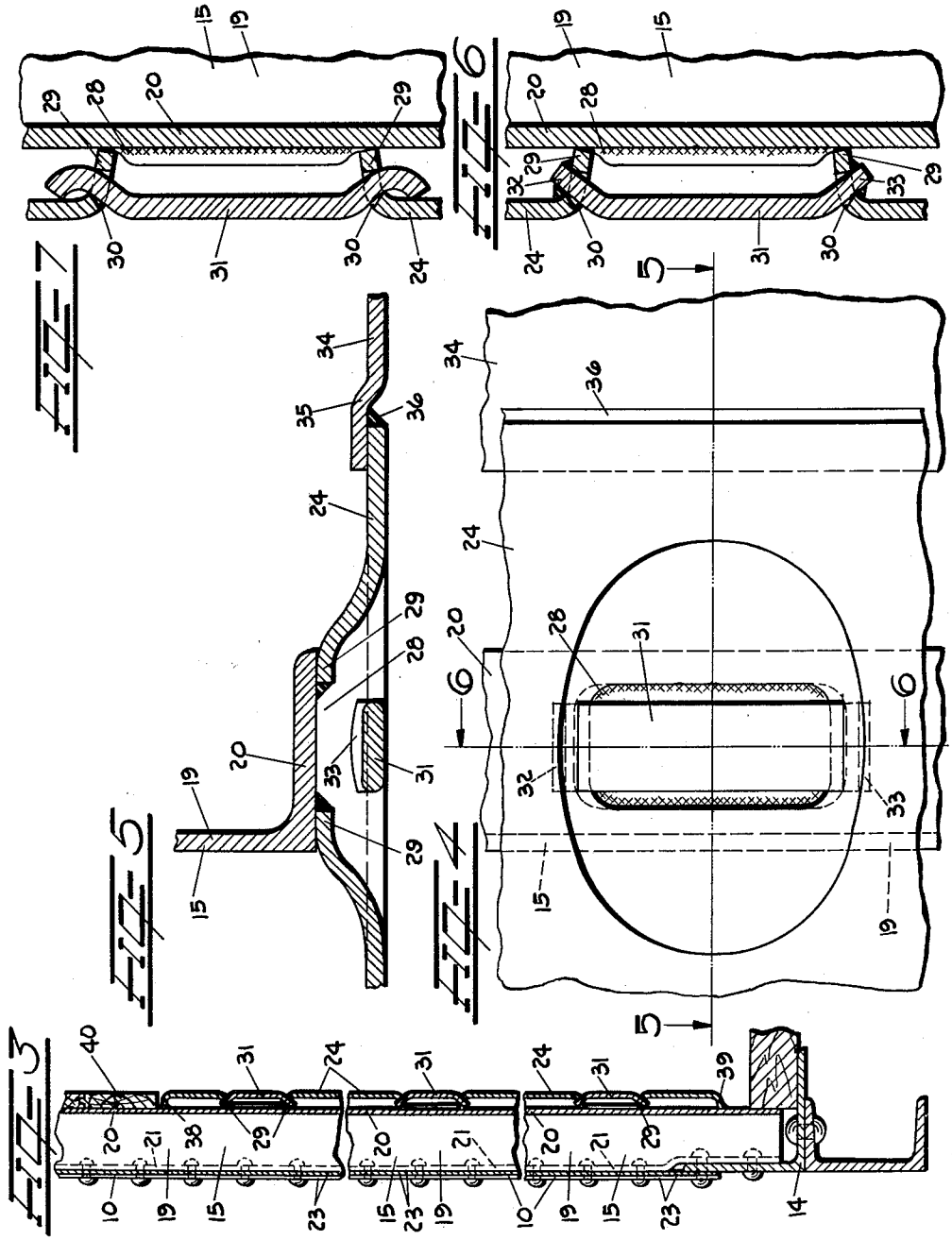
METALLIC LININGS FOR BOXCARS

Filed Aug. 5, 1957 3 Sheets-Sheet 2



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METALLIC LININGS FOR BOXCARS

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FIG-9

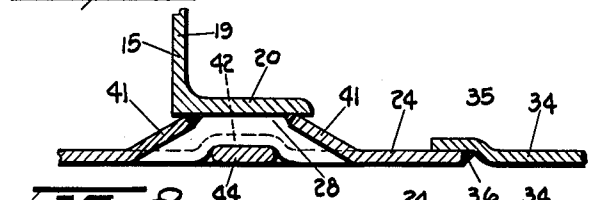


FIG-8

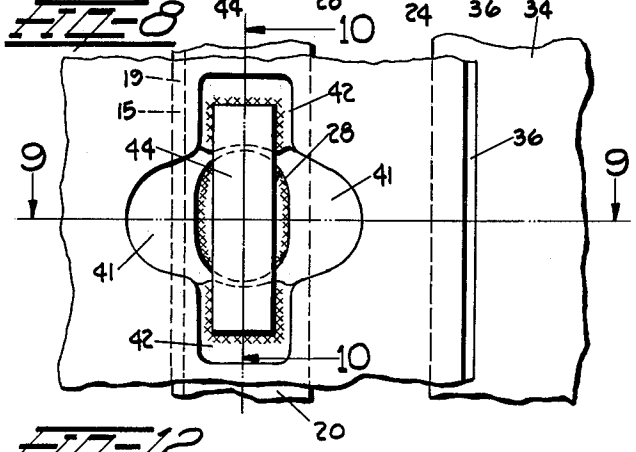


FIG-10

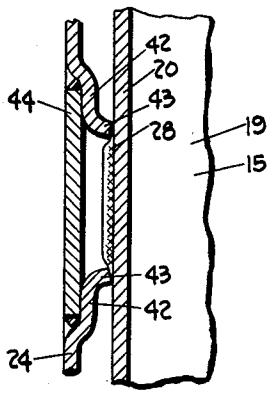


FIG-12

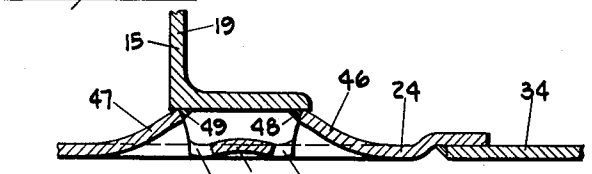


FIG-11

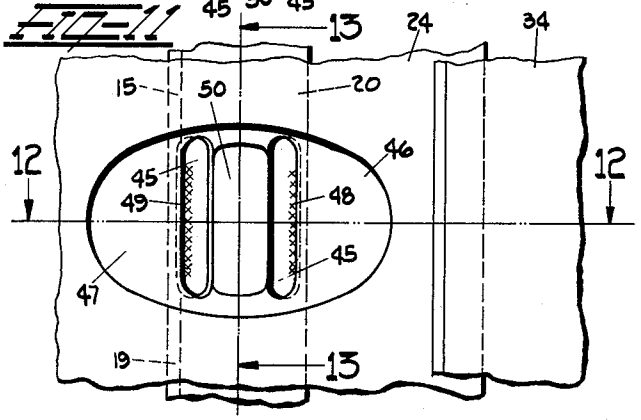
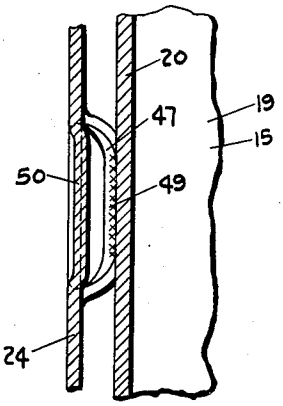


FIG-13



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METALLIC LININGS FOR BOXCARS

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Filed Aug. 5, 1957, Ser. No. 676,298
8 Claims. (Cl. 105—369)

This invention relates to boxcars and more particularly to metallic linings therefor.

It is an object of this invention to provide metallic linings for the side walls of boxcars which shall be capable of replacing the customary wooden lining or of being used to complement wooden linings in those areas where the greatest abuses occur.

A further object is to provide metallic linings for the side walls of boxcars capable of application with equal facility to new and existing cars.

A further object is to provide metallic linings for the side walls of boxcars which shall be flush with complementary wooden lining and so constructed as to be self-positioning and thereby eliminate separate filler members heretofore required to obtain such flush relationship with adequate support of the metallic linings.

A further object is to provide metallic linings for the side walls of boxcars which shall incorporate lading band anchors.

A further object is to provide metallic linings for the side walls of boxcars so constructed as to be self-positioning and supporting and wherein such construction embodies integral lading band anchors.

A further object is to provide metallic linings for the side walls of boxcars so constructed as to be self-positioning and supporting and wherein the means for positioning and supporting the metallic linings shall constitute means for securing them in place.

Other objects of the invention will become clear as the description thereof proceeds.

In the drawings forming part of this specification:

FIG. 1 is a fragmentary elevation of a portion of a side wall of a box car embodying the instant invention.

FIG. 2 is a horizontal section taken on line 2—2 of FIG. 1.

FIG. 3 is a vertical section taken on line 3—3 of FIG. 1.

FIG. 4 is an enlarged elevation of the portion of a lining embodying the instant invention at an intermediate post.

FIG. 5 is an enlarged horizontal section taken on line 5—5 of FIG. 4.

FIG. 6 is an enlarged vertical section taken on line 6—6 of FIG. 4.

FIG. 7 is a view similar to FIG. 6 showing another mode of securement of the anchor bar to the metallic lining.

FIG. 8 is an elevation similar to FIG. 4 showing a modified form of the invention.

FIG. 9 is a horizontal section taken on line 9—9 of FIG. 8.

FIG. 10 is a vertical section taken on line 10—10 of FIG. 8.

FIG. 11 is a view similar to FIG. 4 showing a further embodiment of the invention.

FIG. 12 is a horizontal section taken on line 12—12 of FIG. 11.

FIG. 13 is a vertical section taken on line 13—13 of FIG. 11.

Referring first to the embodiment of the invention illustrated in FIGS. 1 to 6, inclusive, of the drawings there is shown a portion of a side wall of a railway boxcar indicated generally by the reference numeral 10. This portion extends from a door post 11 which defines one edge

of a door opening 12 formed in the side wall to the adjacent corner post 13. The side wall 10 embodies an angle side sill 14 to which the corner and door posts are secured in the usual manner. Between these posts a plurality of spaced intermediate posts 15 are secured to the side sill 14. In accordance with the well-known construction of the side walls of railway boxcars all of the described posts extend upwardly from the side sill and are secured to a side plate (not shown) which constitutes the upper chord of the side wall.

It will be understood that the other portion of the side wall is complementary to and of the same construction as the portion illustrated and described above and that the side walls on both sides of railway boxcars will be of the same construction.

As shown in FIG. 1 of the drawings the door post 11 is in the form of a Z-bar arranged with its web 16 parallel with the side wall and its inner and outer flanges 17 and 18 at right angles thereto. Each of the intermediate posts 15 is also formed of a Z-shaped member arranged with its web 19 at right angles to the side wall and its inner and outer flanges 20 and 21 parallel thereto. The corner post 13 is arranged as shown so that one of its flanges 22 is parallel with the side wall. Outer metallic sheathing formed of a plurality of sheets 23 overlapped at and secured to the intermediate posts and also secured to the corner and door posts forms the outer sheathing for the side wall.

Prior to applicant's invention it was customary to provide a wooden lining for the side wall which extended substantially from the floor of the car to the side plate and from the door posts to the corner posts. Being formed of wood the lining and more particularly that portion thereof located at the lower part of the side wall was quickly damaged and required frequent and expensive repairs. According to the instant invention the wooden lining, particularly in the critical area referred to above, is replaced by a metallic lining capable of better withstanding normal useage and abuses. It will be apparent from the construction of the lining embodying the instant invention that it may entirely replace the wooden lining if desired so that it will extend substantially over the entire side wall.

The lining embodying the considered form of the invention is constructed of a plurality of metallic sheets which, as clearly shown in FIG. 2 of the drawings, is disposed inwardly of the posts of the side wall. The metallic sheet 24 of the lining adjacent to the door post 11 is bent outwardly to provide a flange 25 which is spaced from the inwardly extending flange 17 of the door post. Flange 25 is formed with a forwardly extending flange 26 which engages the adjacent sheet 23 and which is adapted to be secured to the door post as by means of welding. Flanges 25 and 26 cooperate with the flange 17 of the door post to provide an inwardly opening channel-shaped construction which is adapted to receive a nailing timber 27. From the flange 25 the metallic lining sheet 24 extends rearwardly across two intermediate posts 15 and terminates beyond but adjacent to the second of these posts. At each of the intermediate posts the lining sheet 24 is formed with a plurality of vertically spaced elongated openings 28. Around each of these openings the sheet is pressed outwardly to provide a flange 29 the shape of which is clearly illustrated in FIGS. 4, 5 and 6 of the drawings. The flanges 29 engage the inner face of flange 20 of the considered intermediate posts and thereby establish a firm backing for the sheet against the intermediate posts and proper positioning of the sheet inwardly of the posts. The latter is secured to flanges 20 of the intermediate posts by means of welding as shown more clearly in FIGS. 4 and 5 of the drawings.

The instant embodiment of the invention also utilizes the flange 29 around each of the openings 28 formed in the lining sheet to provide anchors for the securement of lading bands adapted to prevent shifting of the lading within the car. For this purpose the flange 29 at the top and bottom of each opening 28 is perforated as indicated at 30. An anchor bar 31 which is substantially rectangular in section and is formed with rounded corners is bent to provide upper and lower angularly related end portions 32 and 33. These end portions extend through the openings 30 and are welded to the flange 29 as a subassembly in order to secure the anchor bars to the lining sheet. With reference to FIG. 6 of the drawings it will be apparent that the anchor bar is so disposed that the main portion thereof between the anchor ends lies flush with the lining sheet. If this flush relationship is not desired a straight anchor bar can be used which will accordingly lie outwardly of the lining sheet.

The lining also embodies a metallic sheet 34 which is secured to and extends from the lining sheet 24 across the two remaining intermediate posts 15. To secure the sheets 24 and 34 together without disturbing their alinement sheet 34 is offset outwardly as indicated at 35 and overlapped with and welded to the adjacent portion of sheet 24 as indicated at 36. As shown in FIG. 2 of the drawings the joint between sheets 24 and 34 is spaced from but adjacent to an intermediate post.

Lining sheet 34 is otherwise similar in construction to lining sheet 24. Thus it is provided with the series of vertically spaced openings 28 around which the lining sheet is flanged outwardly as indicated at 29. The flanges 29 around the openings are welded to the flanges 20 of the intermediate posts. Anchor bars 31 are formed and related to the flanges 29 at the top and bottom of the openings 28 in the manner hereinabove described. Sheet 34 terminates between the last intermediate post and the corner post.

The metallic lining is completed by a sheet 37 having an offset marginal portion similar to the offset marginal portion of sheet 34 which is secured to the adjacent marginal portion of sheet 34 in the manner described above. The portion of lining sheet 37 adjacent to the corner post is also formed with a plurality of vertically spaced openings 28 around which the sheet is flanged outwardly as shown at 29. The outwardly extending flanges 29 bear against and are welded at the openings to the flange 22 of the corner post. Anchor bars 31 are associated with the flanges 29 in the manner above described in order to provide lading strap anchors.

The construction of the upper and lower edges of each of the metallic lining sheets is clearly illustrated in FIG. 3 of the drawings. The upper edge of each of these sheets is provided with an outturned flange 38 and the lower edge of each of these sheets is provided with an outturned flange 39. These flanges, as shown in FIG. 3, abut against and are welded to the intermediate and also the corner posts. With further reference to FIG. 3 of the drawings it will be observed that the metallic lining shown is restricted to the critical lower area of the side walls of the car. The lining of each of the side walls above the metallic lining is formed of plywood 40 as illustrated or it may be formed of the familiar tongue and groove lining boards. As noted hereinabove the metallic lining can, if desired, extend substantially to the side plate of the car. The flush relationship between the metallic and wooden linings is clearly shown in FIG. 3 of the drawings.

More economical securement of the anchor bars to the lining sheets can be obtained by peening over the ends of the anchor bars as shown in FIG. 7 of the drawings in place of welding these bars to the sheets.

A further embodiment of the invention is illustrated in FIGS. 8, 9 and 10 of the drawings. According to this embodiment the lining sheets are also formed with a series of vertically spaced openings 28. Also the lining

sheets are flanged outwardly around these openings as indicated at 41. At the top and bottom of the openings 28 the flanges 41 are modified by offsetting them outwardly as indicated at 42 a distance equal to the thickness of the anchor bar which is to be used and bending the offset portion 42 of the flange further outwardly as indicated at 43. This modification of the flange 41 permits the use of straight anchor bars 44 which are seated against and welded to the outwardly offset portions of flanges 41 in flush relationship with the lining sheets.

Another form of the invention is illustrated in FIGS. 11, 12 and 13 of the drawings. In this form longitudinally spaced pairs of openings 45 are arranged in vertically spaced relationship in the sheets. The outer edges of these pairs of openings are turned outwardly to provide flanges 46 and 47 which abut and are welded to the flanges 20 of the intermediate posts and flange 22 of the corner posts as indicated at 48 and 49. The outward bending of the noted edges of the pairs of longitudinally spaced openings 45 leaves intermediate portions 50 of the lining sheets which are disposed in spaced relationship to the intermediate and corner posts and in flush relationship with the lining sheets. These intermediate portions thereby serve as anchor bars for lading straps in the same manner as the bars 31 function as anchor bars.

It will be apparent that numerous changes and modifications in the details of the invention will be clear to those skilled in the art. It is intended, therefore, that all such modifications and changes be comprehended within this invention which is to be limited only by the scope of the claims appended hereto.

I claim:

1. In a railway boxcar having a side wall including a side sill, intermediate, corner and door posts secured to said side sill and metallic sheathing secured to said side sill and said posts, a planar metallic lining sheet disposed inwardy of said posts, said lining sheet extending substantially from said door posts to said corner posts and spanning said intermediate posts, said lining sheet having portions within the edges thereof which are pressed outwardly at vertically spaced intervals, said outwardly pressed portions being disposed in lateral alignment with said intermediate posts, openings formed within said outwardly pressed portions, and vertical anchor bars extending across the openings and secured to said outwardly pressed portions in spaced relationship to said intermediate posts, said outwardly pressed portions being welded directly to said intermediate posts and spacing said lining sheet inwardly of said posts.

2. The combination as defined in claim 1 wherein said lining sheet is formed with outwardly extending substantially horizontal upper and lower marginal flanges which span and are welded directly to said intermediate posts.

3. The combination as defined in claim 1 wherein the main portion of said anchor bars is flush with said lining sheet and the upper and lower ends thereof are bent outwardly, said upper and lower ends being secured to said outwardly pressed portions above and below the openings.

4. The combination as defined in claim 1 wherein the main portion of said anchor bars is flush with said lining sheet and the upper and lower ends thereof are bent outwardly and extend through said outwardly pressed portions above and below the openings therein, said ends of said anchor bars being peened over to prevent disengagement thereof from said outwardly pressed portions.

5. The combination as defined in claim 1 wherein said lining sheet is formed of a plurality of sections which are secured together adjacent and in spaced relationship to said intermediate posts.

6. In a raliway boxcar having a side wall including a side sill, intermediate, corner and door posts secured to said side sill and metallic sheathing secured to said side sill and said posts, a metallic lining sheet disposed inwardy of said posts, said lining sheet extending substan-

tially from said door posts to said corner posts and spanning said intermediate posts, said lining sheet being formed with pairs of openings disposed in lateral alignment with said intermediate posts, the pairs of openings being spaced vertically relative to each other, the openings of each pair being spaced longitudinally relative to one another, portions of said lining sheet contiguous to the openings being pressed outwardly, said outwardly pressed portions bearing against and being welded directly to said intermediate posts and spacing said lining sheet inwardly of said posts, the portions of said lining sheet between the pairs of openings being spaced from said intermediate posts and forming anchors.

7. The combination as defined in claim 1 wherein said outwardly pressed portions above and below the openings are also offset outwardly a distance equal to the thickness of said anchor bars and said bars are straight and welded to said offsets in flush relationship with said lining sheet.

8. As an article of manufacture a planar metallic lining sheet for railway boxcars adapted to be secured to framing posts on the interior of said cars, portions of said lining sheet within the edges thereof being pressed outwardly at vertically spaced intervals, openings formed within said outwardly pressed portions, said outwardly pressed portions constituting means for securing said lining sheet directly to said framing posts and spacing said lining sheet inwardly of said posts, and vertical anchor bars extending across the openings and lying substantially in the plane of said lining sheet, said anchor bars being secured to said outwardly pressed portions above and below the openings therein.

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