Sept. 10, 1946. V. WILLOUGHBY 2,407,523

SIDE PLATE CONSTRUCTION FOR FREIGHT CARS

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Fig. 1.

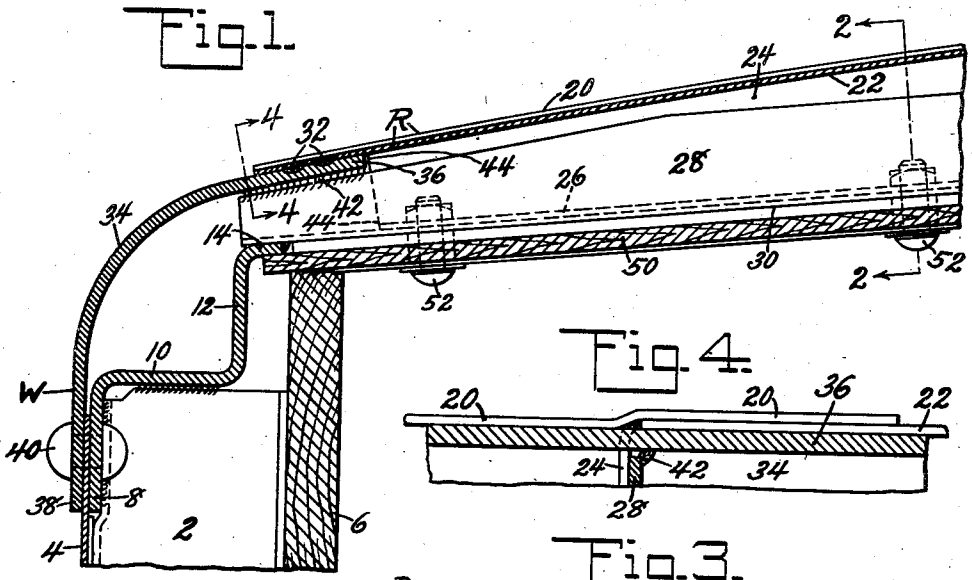


Fig. 4.

Fig. 3.

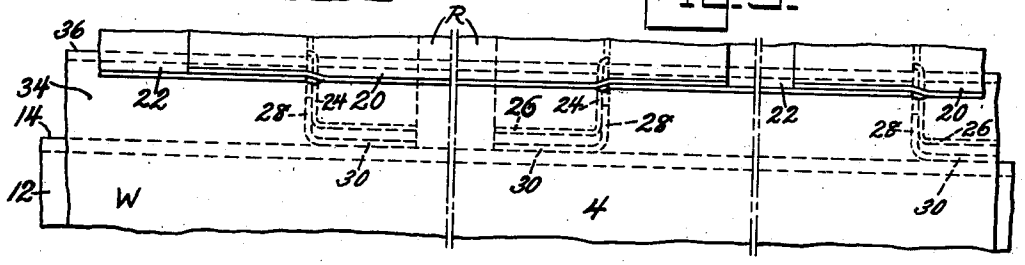
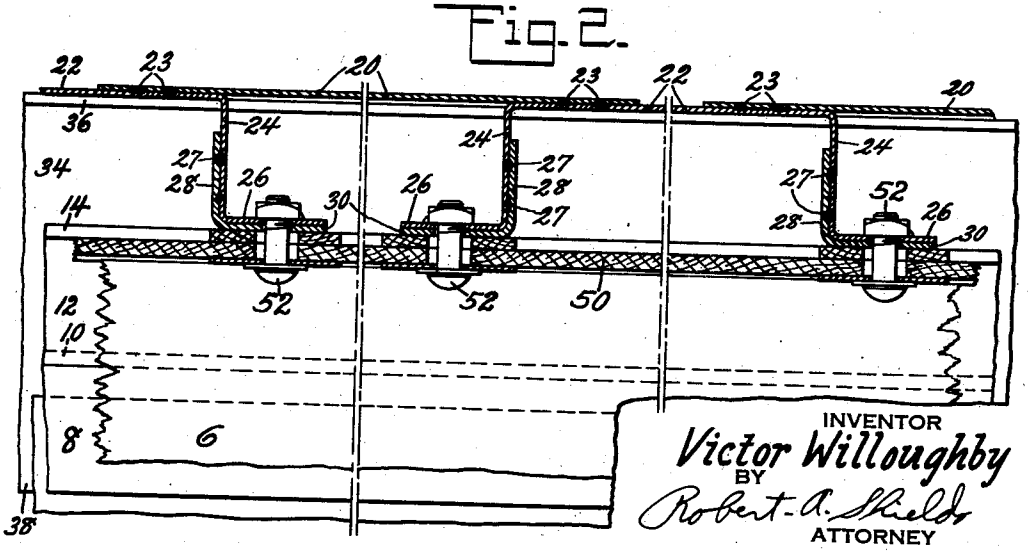


Fig. 2.



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SIDE PLATE CONSTRUCTION FOR FREIGHT CARS

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8 Claims. (Cl. 105—409)

1

This invention relates in general to side plate constructions and in particular to such side plate constructions adapted for sub-assembly work in the construction of freight cars.

For a number of years freight cars were built with a single side plate and were assembled piece by piece. Later it was discovered that by sub-assembly work cars could be built much faster and with greater ease. The tendency, however, was to still utilize a single side plate or a single side plate made up of several parts which had to be fastened together and then attached either to the side or to the roof. This type of construction, while permitting sub-assembly work, required expensive lifting beams and handling members for either the roof or the sides since one of these would be too flexible to be handled by itself. It is an object, therefore, of the present invention to provide a two-part side plate so arranged that one part can be attached to the roof and the other to the side in sub-assemblies.

A further object of the invention is the provision of a side plate made up of at least two parts and arranged to accommodate therebetween the side wall sheets and carlines.

A still further object of the invention is the provision of a side plate so arranged that the carline ends may be interposed between parts of the side plate and tie the side plate parts together.

A yet further object of the invention is the provision of a side plate construction having the parts so arranged as to permit carlines of considerable depth to be attached thereto.

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 drawing, in which:

Fig. 1 is a sectional view through the roof and side wall of a freight car;

Fig. 2 is a sectional view taken through the roof and substantially on line 2—2 of Fig. 1;

Fig. 3 is an elevational view of the improved construction, and

Fig. 4 is a sectional view taken substantially on line 4—4 of Fig. 1.

Referring now to the drawing in detail, it will be seen that the upper part of the side wall W and the outer edge of the roof R are illustrated. It is, of course, understood that the car is symmetrical, that is, with the roof wall extending from side wall to side wall to complete the closure of the car body. As clearly shown, the side wall of the car includes side posts 2 of Z formation, to the outer flange of which are attached side sheets 4, while the inner flanges carry lining 6. The side

2

wall carried or inner member of the side plate is of W cross section, having a depending flange 8 interposed between the posts and side sheets and being welded to the side posts. The upper edge of flange 8 merges into a horizontal web portion 10 which is welded to the posts and this in turn merges into a vertical web portion 12 terminating in an inwardly directed upper flange 14. This flange 14 may be either horizontal, that is, parallel to web portion 10 or, as shown, it is inclined slightly so as to be in a plane parallel to the under surface of the carlines. This W shaped inner plate member or side wall carried member will be attached to the side wall sub-assembly and stiffen the same so that the side wall may be readily transported from its sub-assembly point to the final assembly point where the car will be completed.

The roof is preferably made up of a plurality of flat sheets 20 and pressed sheets 22 which may be termed as carline forming roof sheets. These carline forming roof sheets are of general flanged channel cross-section having the web forming part of the roof and the flanges 24 directed downwardly at the proper carline spacing and terminating in outwardly directed reflanged portions 26. These carline forming roof sheets will be alternated with the flat sheets 20, which latter overlap and are spot welded or otherwise attached as at 23 to the flat web portions of the carline forming roof sheets. The vertically directed flanges 24 of the carline forming roof sheets are spot welded or otherwise attached as at 27 to the vertical flange 28 of angle shaped carline members, having a horizontal flange 30 located substantially parallel to the reflange 26. The angularly shaped carlines are more or less of constant depth, but for the end portions of vertical flanges 28 cut at an angle corresponding to the slope of the roof but still leaving considerable depth of vertical flange at their ends. The side edges of the roof have attached thereto as by spot welding 32 a curved outer plate forming member. This plate forming member has the central portion 34 curved on an arc substantially concentric with the point of juncture of webs 10 and 12 of the inner plate member and this curved portion terminates in tangential portions 36 and 38, the tangential portion 36 being attached to the edge of the roof sheets by welding, as previously referred to, and the tangential portion 38 being attached to the side walls by means of rivets 40. The ends of the carlines are overlapped by the tangential portion 36 to which they are attached by welding as at 42. In order that the roof sheets

may overlap the tangential portion 36 it is necessary for the reflanges 26 and flange 24 of the carline forming roof sheets to be clipped as at 44 (Fig. 1). The roof made up of the flat roof sheets, carline forming roof sheets, carlines and curved outer plate forming member can be all secured together in a sub-assembly which will be quite rigid since the sheets will be stiffened by their flanges, by the carlines and by the curved plate forming member. Such a structure is sufficiently stiff to permit transportation from the sub-assembly point to the final assembly point, at which point it can be lowered onto the side walls and riveted thereto. After the roof has been lowered into position and attached to the side walls by means of the rivets 40, the horizontal flanges 30 of the carlines are attached to the inner edges of the flanges 14 of the W shaped inner plate forming member. Thus it will be seen that the carline resting upon flanges 14 will hold the roof while rivets 40 are being driven and that after the flanges 14 are welded to the carline flanges 30, the carlines brace and connect the inner edges of the plate forming members to form in effect an open sided box member with the open sides braced by the carline ends. Such a construction gives a very good support for the carline ends since they rest directly on the flange 14 of the inner plate forming member. As shown in Fig. 1, a ceiling 50 may be attached to the carlines by means of bolts or other securing devices 52 extending through the ceiling and through the flanges 30 and 26. In certain constructions it may be desirable to eliminate the ceiling, in which case it may be advisable to utilize small plates or other means sealing the space between flange 14 and tangential portion 36. However, this sealing may be effected by extending the lining 6 upwardly to contact the tangential portion 36.

While the construction has been shown more or less in detail with specific reference to the drawing, it will be obvious to persons skilled in the art that various modifications and rearrangements of parts may be made without departing from the scope of the invention as defined by the following claims.

What is claimed is:

1. A railway car construction comprising side posts, an inner side plate member secured to the upper ends of the side posts, roof sheets, an outer side plate member having its inner edge secured to the edges of the roof sheets and its outer edge secured to the outer edge of the inner side plate member, and carlines secured to the roof sheets and having their outer ends interposed between and joining the inner edges of said inner and outer side plate members.

2. A railway car construction comprising flanged side posts, an inner side plate member secured to the upper ends of the side posts, side sheets secured to the flanges of the side posts and to the outer edge of said inner side plate member, roof sheets, an outer side plate member having its inner edge secured to the edges of the roof sheets and its outer edge overlapping and secured to the side sheets and inner side plate member, and carlines secured to the roof sheets and having their outer ends interposed between and joining the inner edges of said inner and outer side plate members.

3. A railway car construction comprising side posts, an inner side plate member having a downwardly extending flange overlapping the upper ends of the side posts and an inwardly extending flange located in spaced relationship thereto, an outer side plate member having a downwardly directed edge overlapping and secured to said downwardly directed flange and an inner edge located in upwardly spaced relation to said inwardly directed flange, roof sheets secured to said inner edge, and carlines secured to said roof sheets and to said inner edge and inner flange, said carlines having their ends interposed between and joining said inner edge and inner flange of the side plate members.

4. A railway car construction comprising side posts, an inner side plate of W cross-section having a downwardly directed flange and a web secured to the upper ends of the side posts and also having an upstanding web and an inwardly directed flange located in planes substantially parallel respectively to said downwardly directed flange and first named web, an outer side plate of curved cross-section terminating in tangential edge portions the outer of which overlaps and is secured to said downwardly directed flange and the inner of which is located in upwardly spaced relationship to said inwardly directed flange, and carlines having their ends resting upon and secured to said inwardly directed flange and underlapping and secured to the inner edge portion of said curved outer side plate.

5. A railway car construction comprising in part, an inner side plate member having an inwardly directed flange adapted to directly support a carline end and a downwardly directed flange adapted to be overlapped by the upper edges of the car side sheets, and an outer side plate having one edge portion adapted to overlap the upper edges of the side sheets and another edge portion adapted to overlap and be secured to the ends of the carlines.

6. A railway car construction comprising in part, an inner side plate member of W cross-section having a downwardly directed flange and an inwardly directed flange, an outer side plate of curved cross-section having edge portions arranged in spaced substantially parallel relationship to said flanges, carlines, and side sheets, said carlines and side sheets being interposed between said flanges and edge portions and spacing the same.

7. A side plate construction for railway cars comprising an inner side plate member, an outer side plate member, means joining said members together adjacent their outer edges, and spaced apart carlines having their ends interposed between and attached to said members thereby connecting and bracing the inner edges of the members at spaced points.

8. A side plate construction for railway cars comprising an inner side plate member of W cross-section, an outer side plate member of generally curved cross-section, means joining said members together adjacent their outer and lower edges, means connecting the upper inner edges of said members together in spaced relationship to thereby form an open sided box section side plate with the open side braced by said last named means.

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