No. 877,474. PATENTED JAN. 21, 1908.

A. E. OSTRANDER.

PASSENGER CAR.

APPLICATION FILED DEC. 12, 1906

5 SHEETS—SHEET 1.

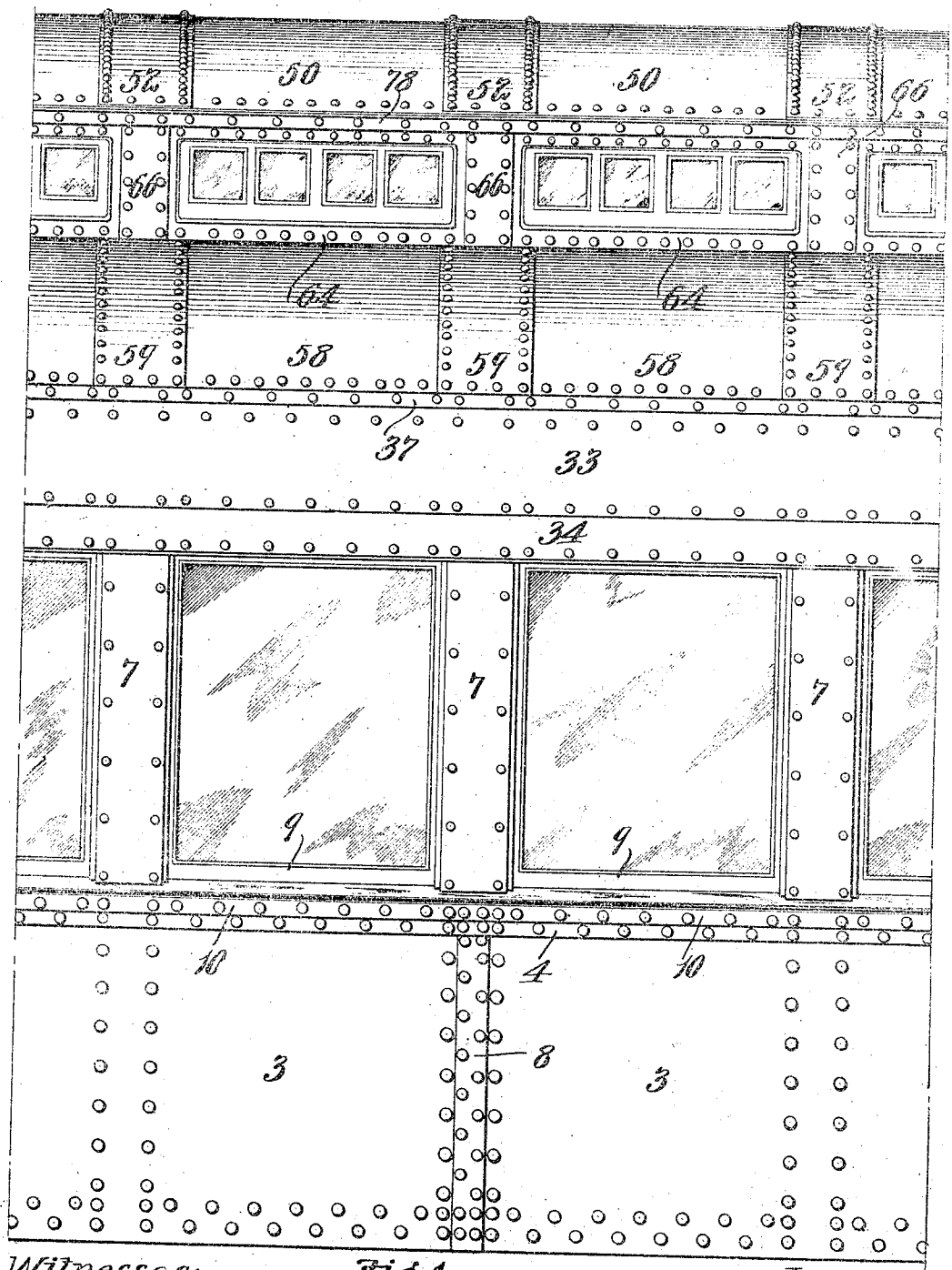

Fig. 1.

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5 SHEETS—SHEET 2.

Fig. 2.

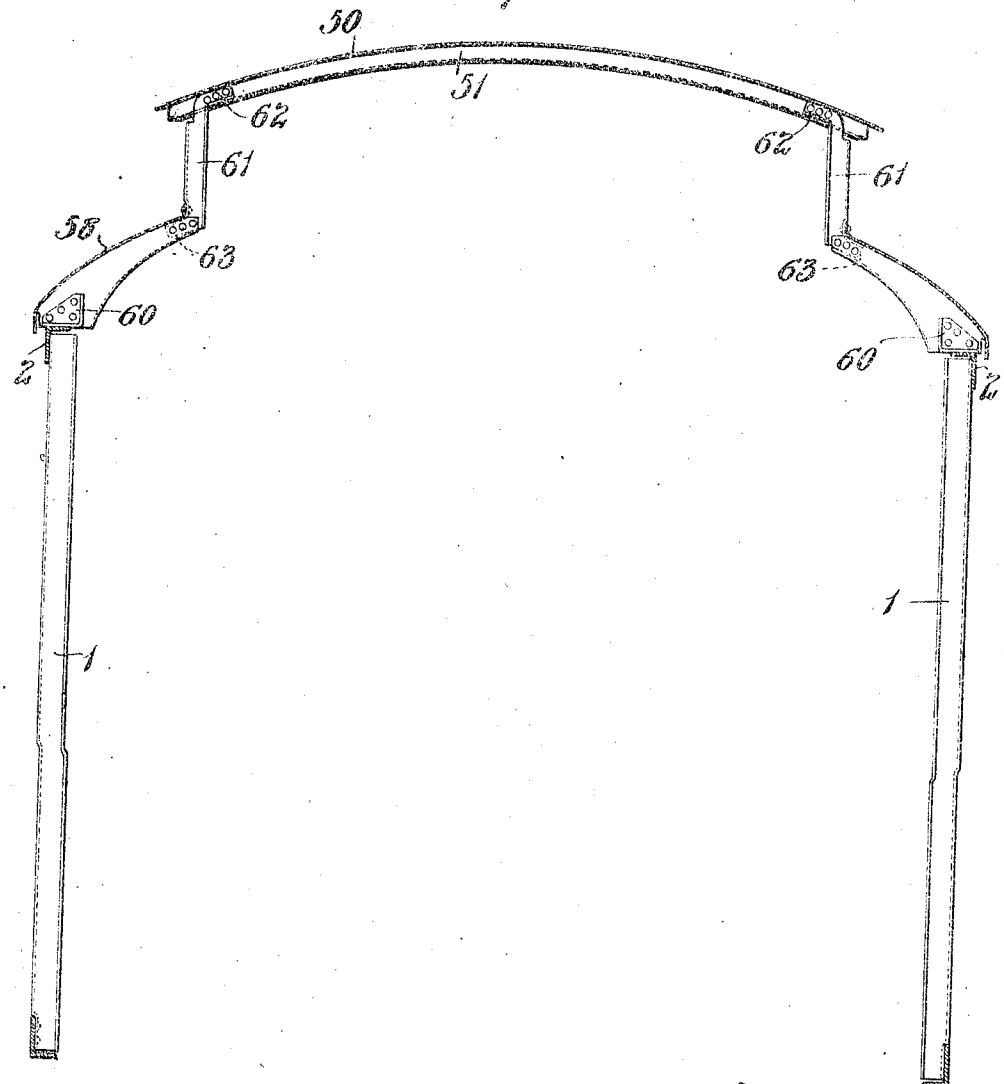
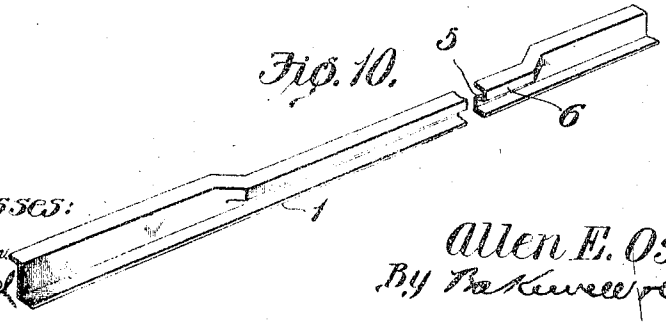


Fig. 10.



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H. L. Church

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5 SHEETS—SHEET 3.

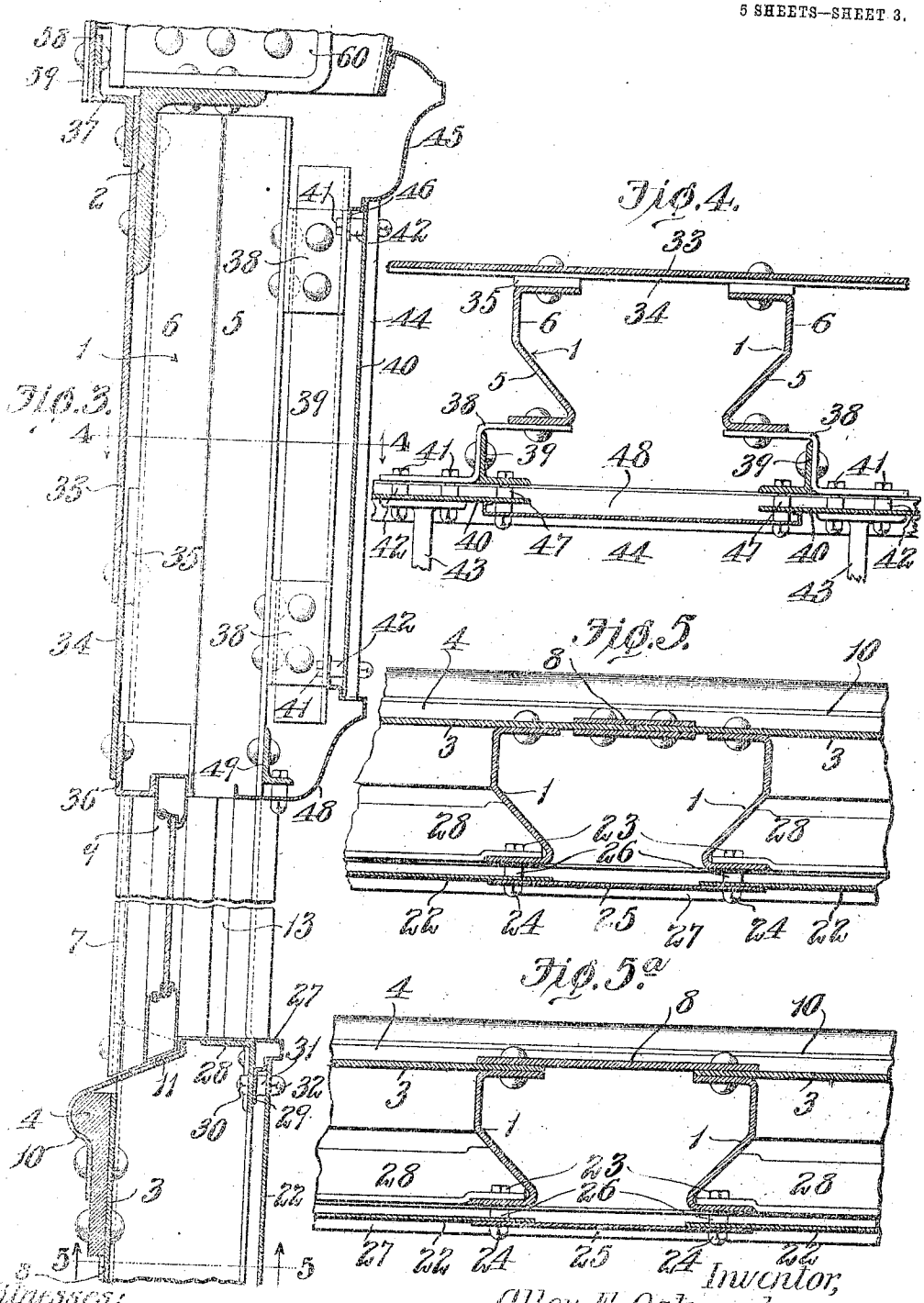

Fig. 3.

Fig. 4.

Fig. 5.

Fig. 5a.

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No. 377,474. PATENTED JAN. 31, 1906.

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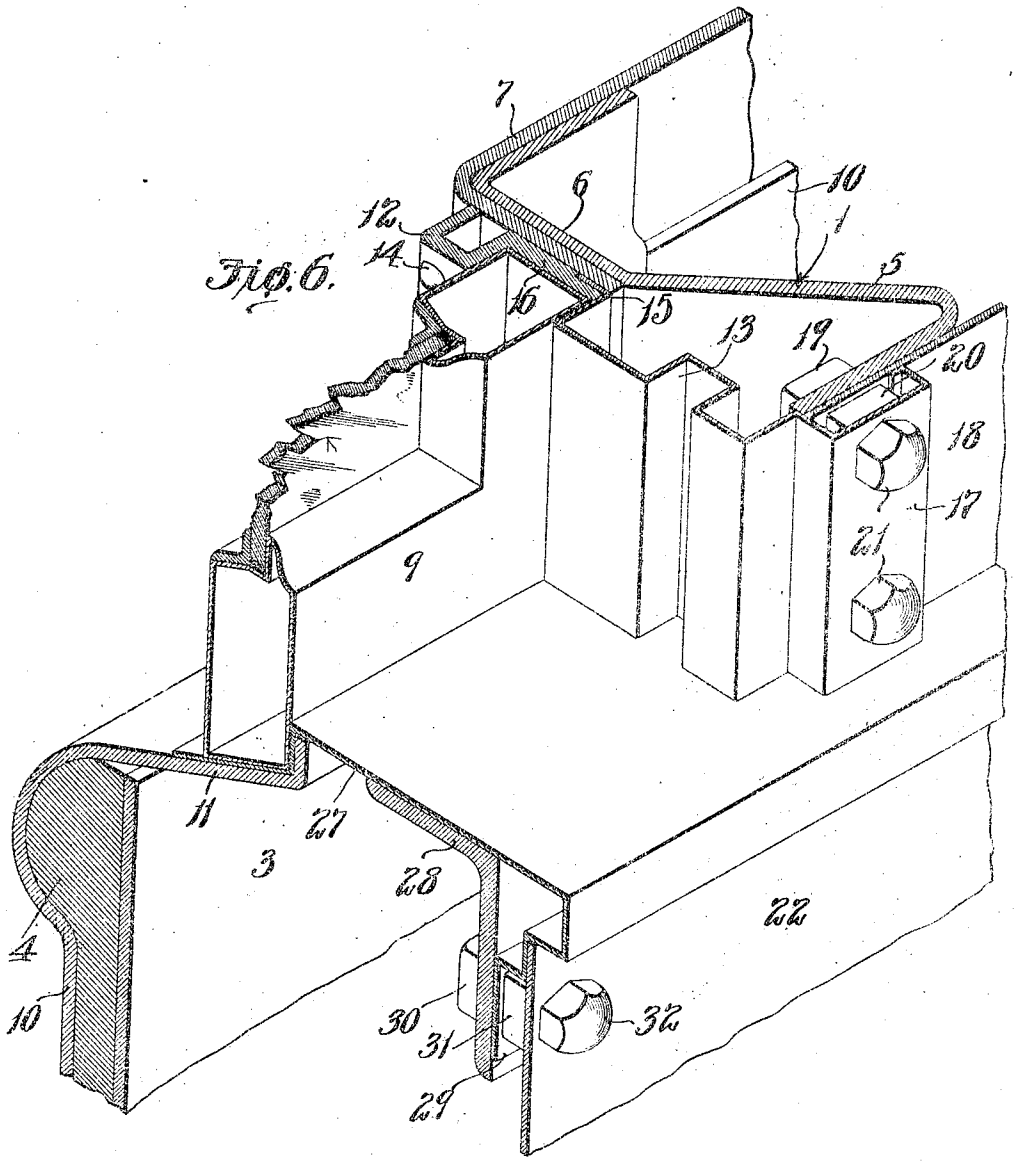
PASSENGER CAR.

APPLICATION FILED DEC. 12, 1906.

5 SHEETS—SHEET 4.

Fig. 6.



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No. 877,474. PATENTED JAN. 21, 1908.

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PASSENGER CAR.

APPLICATION FILED DEC. 12, 1906.

5 SHEETS—SHEET 5.

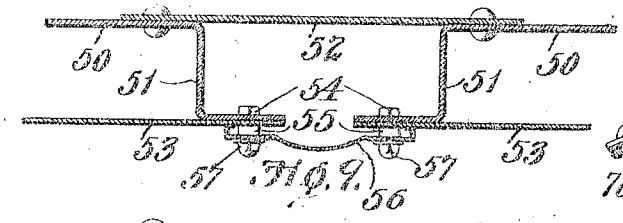

Fig. 9.

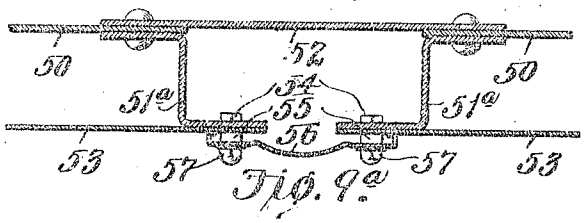

Fig. 9a.

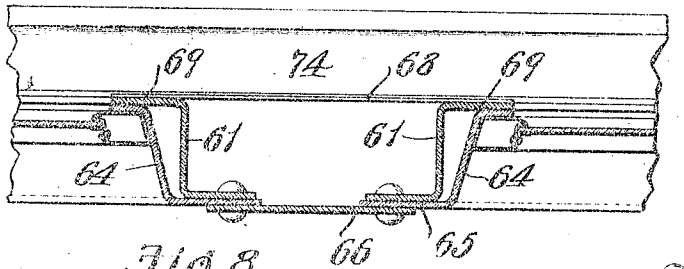

Fig. 8.

Fig. 7.

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UNITED STATES PATENT OFFICE.

ALLEN E. OSTRANDER, OF PATERSON, NEW JERSEY, ASSIGNOR TO AMERICAN CAR & FOUNDRY COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION OF NEW JERSEY.

PASSENGER-CAR.

No. 877,474. Specification of Letters Patent. Patented Jan. 21, 1908.

Application filed December 12, 1906. Serial No. 347,474.

To all whom it may concern:

Be it known that I, ALLEN E. OSTRANDER, a citizen of the United States, residing at Paterson, New Jersey, have invented a certain new and useful Improvement in Passenger-Cars, 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 use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevation of a portion of a passenger car constructed in accordance with my invention; Fig. 2 is a cross sectional view through the car showing the connection between the side posts and roof sheets; Fig. 3 is a detail vertical section taken through one of the windows; Fig. 4 is a transverse sectional view on line 4—4 of Fig. 3 looking in the direction indicated by the arrows; Fig. 5 is a transverse sectional view on line 5—5 of Fig. 3 looking in the direction indicated; Fig. 5ª is a modification showing a different method of applying splice plates to lower sheathing plates; Fig. 6 is a detail perspective view of the side post and window guide construction; Fig. 7 is an enlarged detail vertical section taken through one of the ventilators, showing deck construction; Fig. 8 is a transverse section on line 8—8 of Fig. 7; Fig. 9 is a transverse sectional view through the upper deck; Fig. 9ª is a modification showing separate carlines; and Fig. 10 is a perspective view of a modified form of side post.

This invention relates to passenger cars and has for its object to provide a steel passenger car in which no wooden furring is used.

Other desirable features of my car will be hereinafter pointed out.

Referring to the drawings which represent the preferred form of my invention, 1 designates the side posts which form part of the framing for the side wall of the car, and 2 designates the side plate angle secured to the upper ends of said posts. The outside sheathing of the side wall, below the windows, is formed by plates 3 connected to the posts and to the lower side sill which may consist of an angle to which the lower ends of the side posts are secured, a member 4 being connected to the upper edges of the plates 3 and to the side posts so as to produce a plate girder construction. This member, as herein shown, may be a rolled bulb bar which extends longitudinally of the car and if desired, said member may be strengthened by a reinforcing bar arranged in recesses in the side wall posts. The posts 1 are arranged in pairs and may be either Z-shaped in cross section or approximately Z-shaped, as shown in Fig. 4 wherein the web that connects the two flanges consists of an inclined portion 5 and a straight portion 6 which is disposed at right angles to the flanges, this latter construction being the preferred form. Windows are arranged between the pairs of posts, and between the belt rail and letter-board. Each pair of posts is incased by a pier cover 7 which preferably consists of a channel-shaped pressed metal member that is riveted to the outer flanges of the posts. At the points where the side plates 3 are spliced, splice plates 8 are used, said splice plates being arranged over the abutting edges of the plates 3 and being secured thereto by rivets, as shown in detail in Fig. 5. If desired, however, the ends of the plates 3 can terminate at the inner edges of the outer flanges of the posts 1, a wide splice plate being secured to the outer flanges of the posts by the same rivets which secure the side plates 3 to the posts, as shown in Fig. 5ª.

The window sashes 9 are preferably of metal and the sills for said window sashes are formed by plates 10 which incase the belt rail member 4, said plates extending inwardly and being provided at their inner edges with flanges 11 which engage the inside faces of the lower rails of the window sashes. These plates may either be formed in long lengths of from sixteen to twenty feet so that each plate will extend for a distance of several windows, or they may be formed in short lengths so that they will extend between the side posts. At the points where the side posts pass through said plates, the plates are provided with upwardly projecting flanges, as shown in dotted lines in Fig. 3, which are telescoped inside of the lower ends of the pier covers, thereby producing a water-tight construction, these flanges either being formed integral with the plates or as separate pieces that are brazed to the plates.

The side rails of each window sash are arranged between an outside window stop 12 and a pressed or drawn metal window stop and curtain guide 13. The outside window stop preferably consists of a piece of shaped metal and is secured to the flange of the pier cover and to the web of the side post by fas-

tening devices 14, as shown in Fig. 6. The piece that forms the inside window stop and curtain guide 13 is provided with a flange 15 that is interposed between the inwardly extending flange 16 on the outside stop and the flange of the pier cover 7, thereby securing one edge of said piece in place, and at its other edge is a channel-shaped part 17 that is arranged inside of the car. An inside sheathing plate or finishing batten 18 is connected to the inner flanges of each pair of posts by bolts 19 and jam nuts 20 and these bolts extend through the channel-shaped part 17 of the piece which forms the window guide and curtain stop, cap nuts 21 being threaded on the ends of said bolts to completely cover them and secure said piece in place.

The inside sheathing or wainscot below the belt rail consists of plates 22 that are connected to the inner flanges of the side posts by bolts 23 and nuts 24 which also secure the splice plates 25 at the points where the plates 22 are spliced, jam nuts 26 being threaded on the bolts 23 between the flanges of the posts and the plates 22, as shown in Fig. 5. At the upper edge of the wainscot is a longitudinally extending metal sash capping 27 that is supported by short pieces of angles 28 interposed between the side posts to which they are connected. The outer edge of this sash capping rests on the flange 11 of plate 10 and at the inner edge of said capping is a downwardly extending flange 29 through which bolts 30 extend. Nuts 31 on said bolts clamp the flange 29 to the angles 28 and the projecting ends of said bolts extend through the inside sheathing plates or wainscot, cap nuts 32 being threaded on the ends of said bolts to clamp said sheathing plates against a shoulder on the capping.

The letter-board 33 is riveted to the side plate angle 2 and the sub-letter-board 34 is riveted to the lower edge of the letter-board 33 and to the side posts, a filler 35 being interposed between the sub-letter-board and side posts. Secured to the lower edge of the sub-letter-board is a member 36 that acts as an upper guide for the window sashes, and at the upper edge of the letter-board 33 is a Z-shaped member 37 to which the lower edges of the lower deck roofing sheets are secured.

Fastened to the side posts just above the windows and adjacent to the side plate angle 2 are clips 38 which carry vertically disposed angles 39, these clips being substantially Z-shaped, as shown in Fig. 4 and being connected to the inner flanges of the side posts. The interior finish plates 40 above the windows are connected to the clips and to the angles carried thereby, by means of bolts 41 and cap nuts, jam nuts 42 being interposed between said finishing plates and the members to which they are connected, said clips also having the feet 43 of the basket racks connected thereto. The inside finishing battens 44 are secured to the angles 39 on the side posts by bolts, jam nuts, and cap nuts.

Extending longitudinally of the car along the upper edge of the inside finish plate is a hollow metal molding 45 provided at its lower edge with a shoulder against which the upper edge of the inside finish plates abut, and with a flange 46 through which the bolts extend that hold said plates in position, the flange of the molding being firmly clamped to the clips by jam nuts 47, as shown in Fig 4. At the lower edges of the inside finish plates is a longitudinally extending curtain box molding 48, said molding being provided on its upper edge with a shoulder and flange similar to those on the lower edge of the molding 45 and secured in position in the same manner. The lower edge of the curtain box molding is secured by bolts, jam nuts, and cap nuts, to an angle 49 which extends longitudinally of the car and is fastened to the side posts 1. This curtain box molding is preferably provided with a slot for the bolt which secures the molding 45 and inside-finish plates in place, so that if it becomes necessary to remove the curtain the curtain box molding can be taken down without disturbing the basket racks or finish plate by simply removing the cap nuts and bolts which fasten said curtain box molding in place.

The roof sheets 50 of the upper deck extend transversely of the car, and each sheet is preferably provided on its edges with L-shaped flanges 51 which take the place of upper deck carlines, cover plates 52 being secured to the roof sheets by rivets. The inside ceiling plates 53 are secured to the laterally projecting legs of the flanges on the roof sheets by bolts 54 and jam nuts 55, said bolts extending through finishing moldings 56 which are held in place by cap nuts 57 that completely cover the ends of the bolts and are preferably of some ornamental design. While the construction just described forms a very efficient roof, a side wall or a floor could be formed in practically the same manner and therefore I do not wish it to be understood that my novel construction is limited to a car roof simply because I have herein illustrated it as forming the roof of a car. Instead of providing the roof sheets with L-shaped flanges, as described, I can use Z-shaped carlines 51^a to which the edges of said sheets are secured, as shown in Fig. 9^a. The lower deck sheets 58 are also preferably provided with L-shaped flanges which take the place of carlines and the outside cover plates 59 and inside ceiling plates and finishing moldings are secured in place in the same manner as described in connection with the upper deck. The flanges of the lower deck sheets are secured to the horizontal leg of the side plate angle 2 by means of connecting

brackets 60 which may be castings or pressed metal members, and the upper edge of the inside longitudinally extending molding 45 is connected to the lower edge of the ceiling plate of the lower deck, as shown in Fig. 7.

The deck posts are preferably Z-shaped pressings 61 which are bent in opposite directions at their ends to produce extensions 62 and 63 which are connected respectively to the flanges on the upper deck roof sheets, and to the flanges of the lower deck roof sheets, the fastening devices passing through the webs of said posts and the downwardly extending legs of the flanges on the roof sheets.

The ventilator frames 64 in which the sashes of the deck windows are mounted, are of pressed metal and each of said frames is provided with an outer flange 65 that is riveted to the outer flanges of the deck posts, the outside finishing battens 66 also being secured by the same rivets. The sill for the side deck consists of a continuous plate 67 extending longitudinally of the car and being so formed that it incases the corner formed by the junction of the clear story and lower deck, as shown in Fig. 7, said plate being fastened to the deck posts and to the flanges of the lower deck sheets which act as carlines. The inside finishing plate 68 of the deck piers is connected to the inner flanges of the deck posts and to the inner flanges 69 of the ventilator frames, and at its lower edge is connected to the upper deck sill plate 70 which is flanged and connected to a flange 71 on the deck sill plate by bolts 72 and jam nuts 73. A metal molding 74 is connected at its upper edge to the upper deck sill plate 70 and to the inner flanges of the ventilator frames, and the lower edge of said molding is secured by cap nuts 75 on the ends of the bolts 72 which project through said molding.

Extending longitudinally of the car at the junction of the side deck and upper deck is another metal molding 76 connected at its lower edge to the inner flanges of the deck posts and to the flanges of the ventilator frames, the upper edge of said molding being constructed to form a slot which receives the ceiling plates 53 of the upper deck.

A longitudinally extending Z-shaped member 77 is connected to the laterally extending legs of the flanges on the upper deck roof sheets, and an eaves angle 78 is secured to the outer flange of said member 77 and to the projecting ends of the roof plates. The outer flanges at the upper edges of the ventilator frames are connected to the downwardly extending flange of the member 77, and the outer flanges at the lower edges of said ventilator frames are riveted to upstanding flanges on the lower deck plates, as shown in Fig. 7.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

1. In a passenger car construction, a plurality of plates provided on their edges with inwardly extending flanges which stiffen said plates, said flanges being spaced away from each other, and inside and outside finishing battens secured to said plates and covering the space between the flanges thereof; substantially as described.

2. In a passenger car construction, a plurality of plates provided on their edges with flanges which stiffen said plates, said plates being so arranged that there are spaces between the flanges thereof, and finishing battens secured to said plates and covering the openings between the flanges of the plates; substantially as described.

3. In a passenger car construction, a plurality of plates provided on their edges with inwardly extending L-shaped flanges which stiffen said plates, said plates being so arranged that there are spaces between the flanges thereof, outside finishing battens secured to said plates, and inside finishing battens secured to the inner legs of the flanges of the plates; substantially as described.

4. A passenger car comprising side walls and a roof in which the upper and lower decks consist of plates provided at their edges with inwardly extending stiffening flanges, cover plates located at the points where said plates join, and side deck posts connected to the flanges of the upper and lower deck plates; substantially as described.

5. A passenger car having a roof in which the upper and lower decks consist of plates provided at their edges with inwardly extending stiffening flanges, cover plates located at the points where said plates join, side deck posts connected to the flanges of the upper and lower deck plates, finishing battens connected to said side deck posts, and ventilator frames secured to said posts; substantially as described.

6. In a passenger car construction, a plurality of members arranged adjacent each other and forming part of the frame-work of the car, plates connected to said members by bolts and nuts, a cover plate resting on the top faces of said nuts and having the bolts projecting therethrough, the edges of said cover plate being provided with flanges that project toward said plates, and cap nuts covering the ends of said bolts and clamping said cover plate against the top faces of said nuts; substantially as described.

7. In a passenger car construction, a plurality of flanged members arranged adjacent each other, a plate connected to the flange of each member by a bolt and nut, a cover member arranged over the meeting ends of said plates and provided with openings to receive said bolts, and cap nuts covering the ends of said bolts and securing the cover member in position; substantially as described.

8. A passenger car having a roof consisting of a plurality of transversely extending plates, outside cover plates arranged at the junction of said plates and riveted thereto, inwardly extending L-shaped members at the edges of said plates, ceiling sheets connected to the laterally extending legs of said members, and an inside finishing piece covering the meeting edges of said ceiling sheets; substantially as described.

9. A passenger car having a roof consisting of upper and lower decks formed from plates that are provided at their edges with inwardly extending L-shaped flanges, flanged side deck posts arranged in pairs and secured to the flanges of the upper and lower deck plates, inside and outside finishing battens connected to said posts, and metal ventilator frames provided with outside flanges that are connected to the side deck posts and to the lower deck plates; substantially as described.

10. A car having a roof consisting of an upper and lower deck, side deck posts secured to the upper and lower decks, ventilator frames secured to said deck posts, an eaves angle forming part of the upper deck, and a flanged member extending longitudinally of the car and having said eaves angle and ventilator frames connected thereto; substantially as described.

11. A passenger car having a roof consisting of an upper deck provided with an eaves angle and a longitudinally extending Z-shaped member to which said angle is connected, side deck posts, and ventilator frames secured to said posts and provided with flanges which are connected to said Z-shaped member; substantially as described.

12. A passenger car having a roof consisting of an upper deck provided with an inside ceiling plate, side deck posts, a hollow metal molding connected to said posts and provided with a slot to receive the ceiling plate of the upper deck; substantially as described.

13. A passenger car having a roof consisting of upper and lower decks and side decks, a longitudinally extending plate covering the corner formed by the junction of the lower deck and side deck, an inside finishing plate forming part of the side deck and connected to said longitudinally extending plate, and a molding covering the point where said members are joined; substantially as described.

14. A passenger car having a roof consisting of a lower deck and side deck, an inside finishing plate forming part of the side deck and provided at its lower edge with a flange, a longitudinally extending side deck sill plate provided with a flange, bolts connecting the flanges of said plates together, and a hollow metal molding secured at its upper edge to the side deck, the lower edge of said molding being held in place by cap screws on the bolts which connect said flanges together; substantially as described.

15. A car having a roof comprising an upper and lower deck, Z-shaped deck posts connected to said upper and lower deck, metallic ventilator frames provided with inner and outer flanges which are connected to the flanges of the side posts, outside metallic finishing battens connected to the outer flanges of said posts and frames, and an inside metallic finishing plate connected to the inner flanges of said posts and frames; substantially as described.

16. A passenger car having a decked roof in which the lower deck is formed from plates that are provided on their edges with inwardly extending L-shaped flanges that constitute carlines, a longitudinally extending angle forming the side plate of the car, and brackets connected to said angle and to the flanges on the lower deck plates; substantially as described.

17. A car comprising side posts having a side plate angle connected to their upper ends, a letter-board connected to said angle and side posts, lower deck roof plates which project beyond the letter-board, and a Z-shaped member extending longitudinally of the car and connected to the projecting ends of the roof plates and to the letter-board; substantially as described.

18. A car comprising side posts, window sashes arranged between said side posts, a sub-letter-board connected to the side posts, and a longitudinally extending member secured to the lower edge of said sub-letter-board and bearing against the top rails of the window sashes; substantially as described.

19. A car comprising side posts, window sashes arranged between said posts, vertically disposed members connected to the side posts above the windows and extending inside of the car, and inside finish plates fastened to said members; substantially as described.

20. A car comprising side posts, window sashes arranged between said posts, vertically disposed members connected to the side posts above the windows and extending inside of the car, inside finish plates fastened to said members, hollow metal moldings extending longitudinally of the car at the upper and lower edges of said finishing plates, and removable fastening devices connecting said moldings to the vertically disposed members; substantially as described.

21. A car comprising side posts arranged in pairs, windows located between said pairs of posts, devices connected to said posts above the windows for supporting vertically disposed angles, inside finish plates connected by bolts and nuts to said angles, a

finishing batten mounted on the projecting ends of the bolts at each pair of posts, and cap nuts covering the ends of said bolts for securing the finishing batten in position; substantially as described.

22. A car comprising side posts having inwardly projecting members connected to the upper ends thereof, longitudinally extending hollow metal moldings connected to said members by bolts and nuts, the bolts extending through vertically disposed flanges on said moldings, inside finish plates mounted on the projecting ends of said bolts and bearing against shoulders on said moldings, and cap nuts covering the ends of said bolts to secure the finish plates in position; substantially as described.

23. A passenger car comprising side posts having a longitudinally extending angle connected to the inner faces thereof above the side wall windows, and a longitudinally extending metal molding secured to said angle; substantially as described.

24. A car comprising a side wall post, a metallic member connected to said post to form a window stop, said member being provided with a flange, and a coöperating metallic window stop having a portion which extends underneath the flange of the stop first referred to; substantially as described.

25. A car comprising a side post having a channel-shaped metallic member connected thereto to form a window stop, a flange on one of the legs of said member, and a coöperating pressed metal stop provided with a flange which extends underneath the flange on said member; substantially as described.

26. A car comprising a side post provided with inner and outer flanges, a metallic outside window stop connected to the web of said post and provided with an inwardly extending flange, a sheet metal window stop and curtain guide connected to the inner flange of the side post, and a flange on said sheet metal stop which extends underneath the flange on the outside stop; substantially as described.

27. A car comprising a side post having an inside sheathing plate connected thereto by a bolt and nut, a sheet metal curtain guide arranged parallel to the side posts and provided with an opening to receive the projecting end of said bolt, and a cap nut covering the end of said bolt; substantially as described.

28. A car comprising a side post, an inside sheathing plate connected to said post by bolts and nuts, a sheet metal curtain guide provided with a channel-shaped portion which incases said nuts, said portion being provided with openings to receive the projecting ends of said bolts, and cap nuts covering the ends of said bolts; substantially as described.

29. A passenger car comprising side posts having outside sheathing plates connected thereto, a longitudinally extending plate forming a sill for the window sash, a flange at the inner edge of said plate to engage the inside face of the lower rail of the window sash, and an upwardly projecting flange on said plate at the point where the side posts pass through the plate; substantially as described.

30. A passenger car comprising side posts having outside sheathing plates connected thereto, a longitudinally extending plate forming sills for the window sashes, a flange at the inner edge of said plate to engage the inside faces of the lower rails of the window sashes, and a plate arranged on the inside of the car to form an arm-rest and bearing at its outer edge upon said flange; substantially as described.

31. A car comprising side posts having outside sheathing plates connected thereto, a belt rail member connected to said posts, a longitudinally extending plate incasing said belt rail member and forming sills for the sashes of the side wall windows, an upwardly projecting flange at the inner edge of said plate adapted to engage the inside faces of the lower rails of the window sashes, and an inside arm rest plate bearing upon said flange; substantially as described.

32. A car comprising side posts having inside and outside sheathing plates connected thereto, longitudinally extending plates at the upper edge of the outside sheathing which form sills for the window sashes, said plates being provided at their inner edges with upwardly projecting flanges that engage the inside faces of the lower rails of the window sashes, and a sash capping formed by a metal plate that runs along the upper edge of the inside sheathing across a number of window openings and having its outer edge portion resting upon the upwardly projecting flanges of said longitudinally extending plates; substantially as described.

33. A car comprising side posts having angles connected to the inner sides thereof, a metal sash capping resting on said angles and provided at its lower edge with a flange, a bolt and nut for securing said flange to said angles, an inside sheathing plate provided with an opening to receive the projecting end of said bolt, and a cap nut covering the end of said bolt; substantially as described.

34. A passenger car comprising side posts, a plate girder side, a plate extending along the upper edge of said girder and projecting inwardly, flanges on said plate at the points where the side posts pass through it, and a metallic pier cover extending over said flanges; substantially as described.

35. A car comprising side posts arranged in pairs and each consisting of an approximately Z-shaped member, the webs of said

members for a portion of their length being disposed at right angles to the outer flanges thereof and channel-shaped pier covers incasing the outer flanges and the straight portions of the webs of said members; substantially as described.

In testimony whereof I hereunto affix my signature in the presence of two witnesses, this 20th day of November 1906.

ALLEN E. OSTRANDER.

Witnesses:
EDW. D. HILLMAN,
ROBT. G. JEFFERY.