

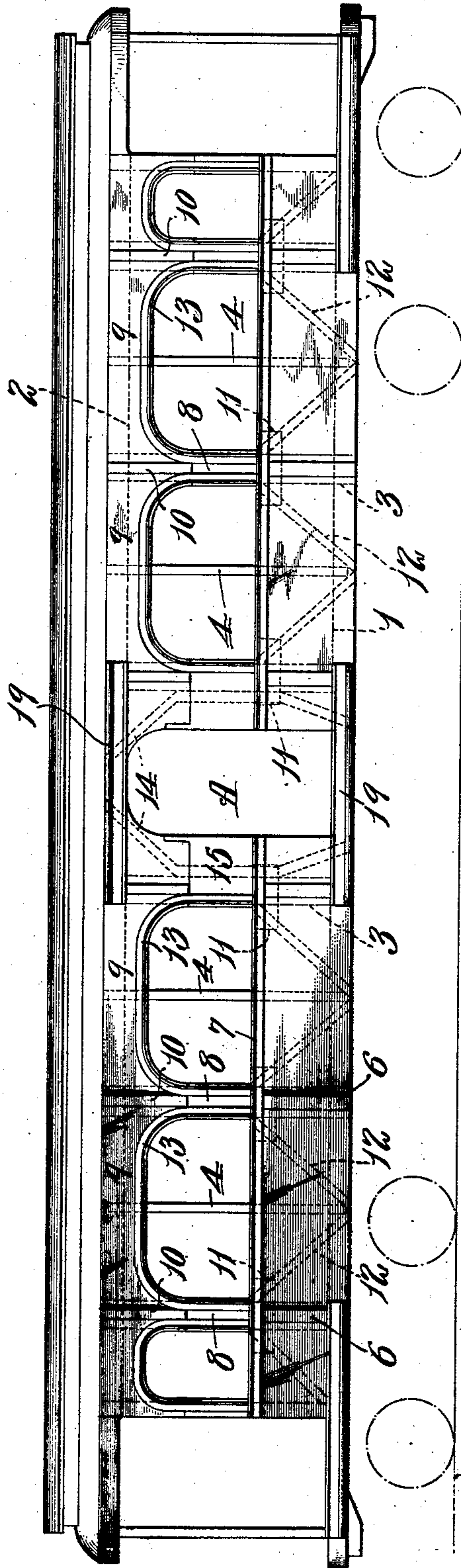
No. 849,826.

PATENTED APR. 9, 1907.

F. McF. BRINCKERHOFF.
PASSENGER CAR CONSTRUCTION.
APPLICATION FILED DEC. 14, 1906.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses:
Geo. R. Radson
M. L. Church.

Inventor,
F. McF. Brinckerhoff.
By
Baker & Cornwall
Attys.

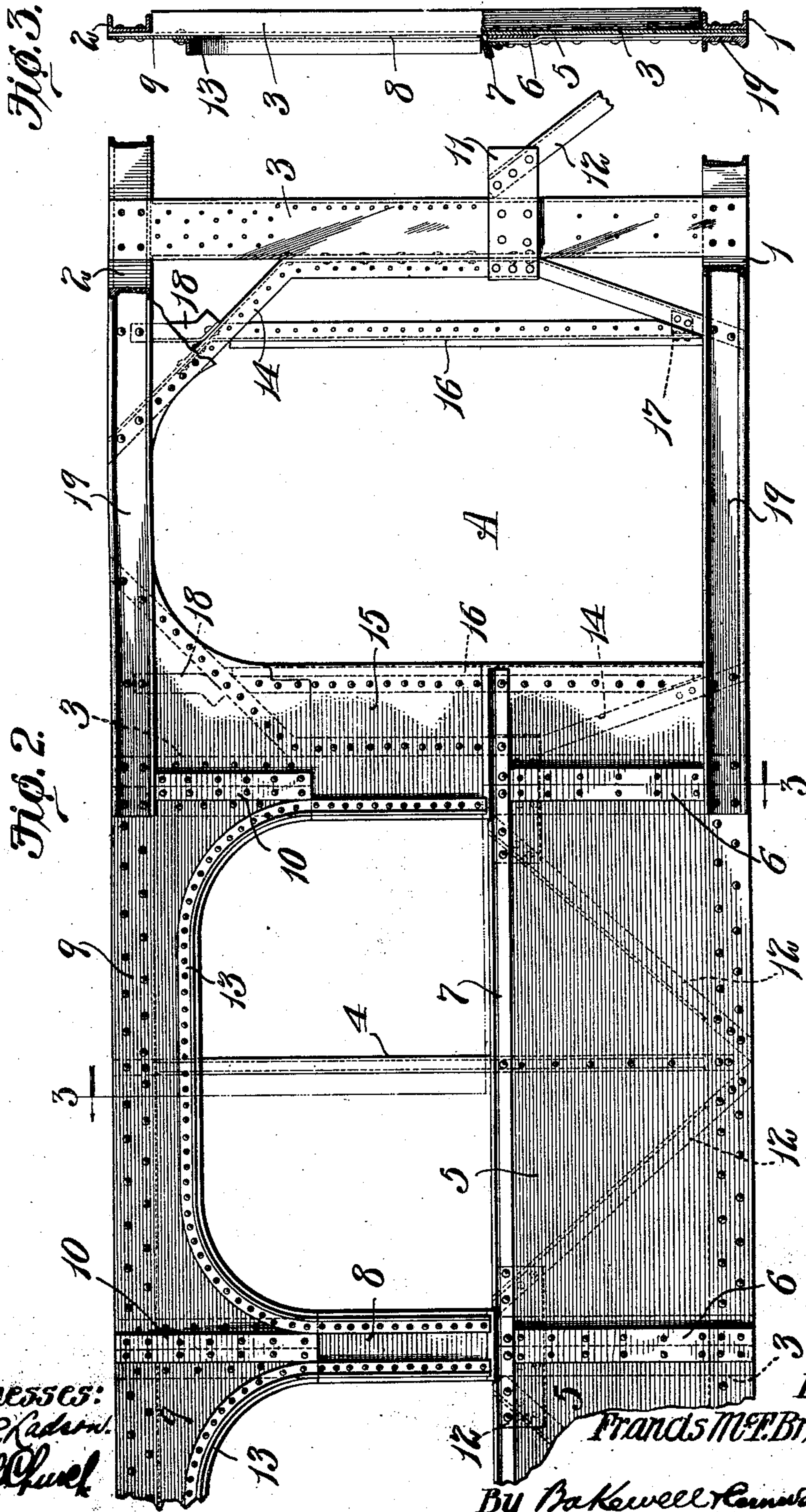
No. 849,826.

PATENTED APR. 9, 1907.

F. McF. BRINCKERHOFF.
PASSENGER CAR CONSTRUCTION.

APPLICATION FILED DEC. 14, 1906.

2 SHEETS—SHEET 2.



Witnesses:
Geo. R. Radwin.
Wells & Co.

Inventor,
Francis McF. Brinckerhoff.
By Bakewell & Cornwall Attys.

UNITED STATES PATENT OFFICE.

FRANCIS McFARLAN BRINCKERHOFF, OF NEW YORK, N. Y., ASSIGNOR OF ONE-THIRD TO HUGH HAZELTON AND ONE-THIRD TO LEWIS B. STILLWELL, OF NEW YORK, N. Y.

PASSENGER-CAR CONSTRUCTION.

No. 849,826.

Specification of Letters Patent.

Patented April 9, 1907.

Application filed December 14, 1906. Serial No. 347,822.

To all whom it may concern:

Be it known that I, FRANCIS McFARLAN BRINCKERHOFF, a citizen of the United States, residing at New York, State of New York, have invented a certain new and useful Improvement in Passenger-Car Construction, 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 passenger-car constructed in accordance with my invention. Fig. 2 is an enlarged detail-side elevation with a portion of the outside sheathing broken away to show the framing for the side wall, and Fig. 3 is a vertical cross-sectional view taken on the line 3 3 of Fig. 2.

This invention relates to passenger-cars, and particularly to steel passenger-cars.

The object of my invention is to provide a passenger-car having a trussed side wall which is constructed in a novel manner to produce great strength and rigidity.

Referring to the drawings, which represent the preferred form of my invention, 1 and 2 designate, respectively, the lower side sill and the upper side plate, each of which preferably consists of a rolled flanged member. The side posts 3 may either be T's, angles, or channels, as herein shown, the legs of said channel at the opposite ends of the post being removed, so that the web of the channel will lie flat against the outside faces of the lower side sill and upper side plate. The posts are spaced far enough apart to provide openings for double windows and also a side door, and as the side posts are spaced apart a uniform distance I can locate the side door at the center of the side wall or at any other desired point between two posts. The outside sheathing extends from the lower side sill to the upper side plate, except, of course, at the points where the windows and doors are located, and intermediate the side posts I employ suitable strengthening-braces, so that the side wall consists of a continuous truss in which the upper side plate and lower side sill form the upper and lower chords.

The window-openings are wide enough to receive twin windows, and midway each pair of side posts is an intermediate side post 4,

which preferably consists of a channel that is connected at its upper and lower ends to the side plate and side sill. The outside sheathing below the windows consists of plates 5, that are secured to the side posts and to the lower side sill, the meeting edges of said plates being covered by splice-plates 6. Extending along the upper edge of said plates is an angle 7, which forms the belt-rail. The outside sheathing above the belt-rails consists of the plates 8, connected to the side posts to form the piers between the windows and the plates 9, which constitute the letter-board, and are connected to the upper side plate 2 and to the side posts. The lower edges of said plates 9 are cut away to provide for the arched windows, and their meeting edges are covered by finishing-battens 10 or splice-plates.

Fastened to each side post adjacent the belt-rail is a plate 11, to which the upper end of a diagonal brace 12 is secured, the lower end of said brace being connected to the side sill 1. Two of these braces are arranged between each pair of side posts and are so disposed relatively to each other that they form a V, as shown in Fig. 2. Secured to the lower edge of the letter-board plate 9 is an arched member 13, the legs of which extend down to the belt-rail and are connected to the side posts. These arched members are preferably angles arranged with their horizontal legs projecting outwardly, so that they not only act as strengthening members, but also as finishing-battens for the twin windows. By constructing the side wall in this manner the plates 9 serve as webs or gussets to connect the side posts to the top chord of the truss, and accordingly produces a very rigid structure.

At the point where the door-opening A is formed I use a truss of a different construction. In this form of trussing the diagonal braces 12 are replaced by a member 14, arranged on each side of the door-opening and extending from the lower side sill to the upper side plate. The opposite ends of said members are inclined in opposite directions, as shown in Fig. 2, and the central straight portions thereof are connected to the side posts, so that they cooperate with the upper side plate and lower side sill to form an octagonal frame. The members 14 preferably con-

sist of angles arranged with one leg projecting inwardly, so that the outside sheathing-plates 15, surrounding the door-opening, can be riveted to the legs of said members, which
 5 extend flush with the outside faces of the webs of the side posts 3, said members also being connected to the plate 11. Preferably the side frames of the door-opening are formed by Z-bars 16, connected at their
 10 lower ends by brackets 17 to the members 14, the outer legs of said Z-bars being sheared off to conform to the inclined portion of the member 14. The legs or flanges at the upper ends of the Z-bars are cut away, and
 15 their central webs are bent at an angle and connected to the upper inclined portion of the member 14. Preferably a brace 18 is connected to the upper side plate 2 and to the upper inclined portion of each of the
 20 members 14 in alinement with the Z-bars 16.

To further strengthen the framing at the door-opening, I employ two members 19, which are connected to the upper side plate, lower side sill, and also the two side posts
 25 outside of the sheathing-plates. Preferably these members are specially-rolled channels in which one leg is formed with a bulb.

Having thus described my invention, what I claim as new, and desire to secure by Letters
 30 Patent, is—

1. A car having a side wall consisting of an upper side plate, a lower side sill and vertical side posts spaced apart to form an opening for a door or window, and an approximately
 35 octagonal-shaped frame arranged between said posts and consisting of a plurality of separate flanged members connected together and fastened to said side posts, side plate and side sill; substantially as described.
 40

2. A car having a side wall consisting of a side plate member, a lower side sill, vertical posts connected to said member and sill and spaced apart from each other, and a member
 45 connected to each post and having its upper and lower ends inclined and connected respectively to the side plate member and side sill; substantially as described.

3. A car having a side wall consisting of an
 50 upper side plate member, a lower side sill, vertical posts connected to said parts and spaced away from each other to form an approximately square opening, and inclined braces arranged at the four corners of said
 55 opening and connected to the side posts and to the side sill and side plate member; substantially as described.

4. A car having a side wall consisting of an upper side plate member, a lower side sill,
 60 vertical posts connected to said parts and spaced away from each other to form an approximately square opening, inclined braces arranged at the four corners of said opening and connected to the side posts and to the
 65 side sill and side plate member, and members

arranged parallel to the side posts and connected at their opposite ends to said braces to form a door-frame; substantially as described.

5. A car comprising a side wall consisting of a lower side sill and a side plate member, a
 70 vertical post connected to said parts, and a truss secured at its center to the post and at its upper and lower ends to the side plate member and side sill; substantially as described.
 75

6. A car having a side wall which consists of an upper side plate, a lower side sill, a vertical post connected to said side plate and side sill, a member connected to one side of
 80 said post and having its opposite ends inclined at an angle thereto and connected to the side plate and side sill, a post extending parallel to the side post and connected at its opposite ends to the inclined parts of said
 85 member, and a brace interposed between the side plate and the inclined part at the upper end of said member; substantially as described.

7. A car having a side wall consisting of a side plate, a side sill, a vertical post connected
 90 to said parts, a continuous member connected at its center to the vertical post and having its ends bent away from said post and connected to the side plate and side sill, and a vertical Z-bar arranged parallel to the post
 95 and connected at its opposite ends to the inclined parts of said member, the flanges at the upper end of said bar being removed and its web being bent to conform to the shape of the upper inclined part of said member; sub-
 100 stantially as described.

8. A passenger-car having a side wall provided with window-openings and consisting of a side plate, vertical posts spaced away from
 105 each other, and a continuous arched member extending between said posts and having its legs connected thereto to frame in a window-opening; substantially as described.

9. A passenger-car having a side wall provided with a window-opening and consisting
 110 of an upper side plate, side posts, a continuous arched member arranged between and connected to the side posts and having depending legs which extend to the lower edge of the window-opening, and a web-plate con-
 115 nected to said arched member and side plate and forming part of the outside sheathing of the side wall, the lower edge of said plate conforming to the curvature of the arched member; substantially as described.
 120

10. A passenger-car having a side wall consisting of vertical posts spaced apart to provide a window-opening, a belt-rail connected to said posts below the window-opening, and a continuous arched member framing in the
 125 window-opening and provided with legs which extend down to the belt-rail, said legs being connected to the side posts; substantially as described.

11. A passenger-car having a side wall con- 130

sisting of vertical posts, outside sheathing-plates connected to said posts and provided with a window-opening, and a continuous arched angle secured to the edge of said plate
5 surrounding said opening and having downwardly-extending legs that are connected to the side posts, said angle framing in the sides and top of the window-opening; substantially as described.

10 12. A car having a side wall consisting of vertical side posts spaced apart to provide window-openings, a lower side sill, a belt-rail member, a V-shaped brace member arranged between a pair of posts and connected
15 to said posts and to the side sill below the belt-rail member, and a continuous arched member connected to the side posts to frame in the window-opening and having downwardly-projecting legs that extend to the
20 belt-rail; substantially as described.

13. A car having a side wall consisting of a side plate, a side sill, vertical posts spaced apart to provide openings for twin windows, an intermediate post arranged midway between each pair of vertical posts, gusset- 25 plates connected to the vertical posts, inclined braces connected to said plates and to the side sill, outside sheathing-plates provided with window-openings, and continuous arched members secured to the edges of
30 said plates around said openings and connected to the side posts; substantially as described.

In testimony whereof I hereunto affix my signature, in the presence of two witnesses, 35 this 3d day of December, 1906.

FRANCIS MCFARLAN BRINCKERHOFF.

Witnesses:

W. EVERITT RUNDLE,
THOMAS GREGORY.