

A. W. SULLIVAN & W. RENSCHAW.
RAILWAY CAR.

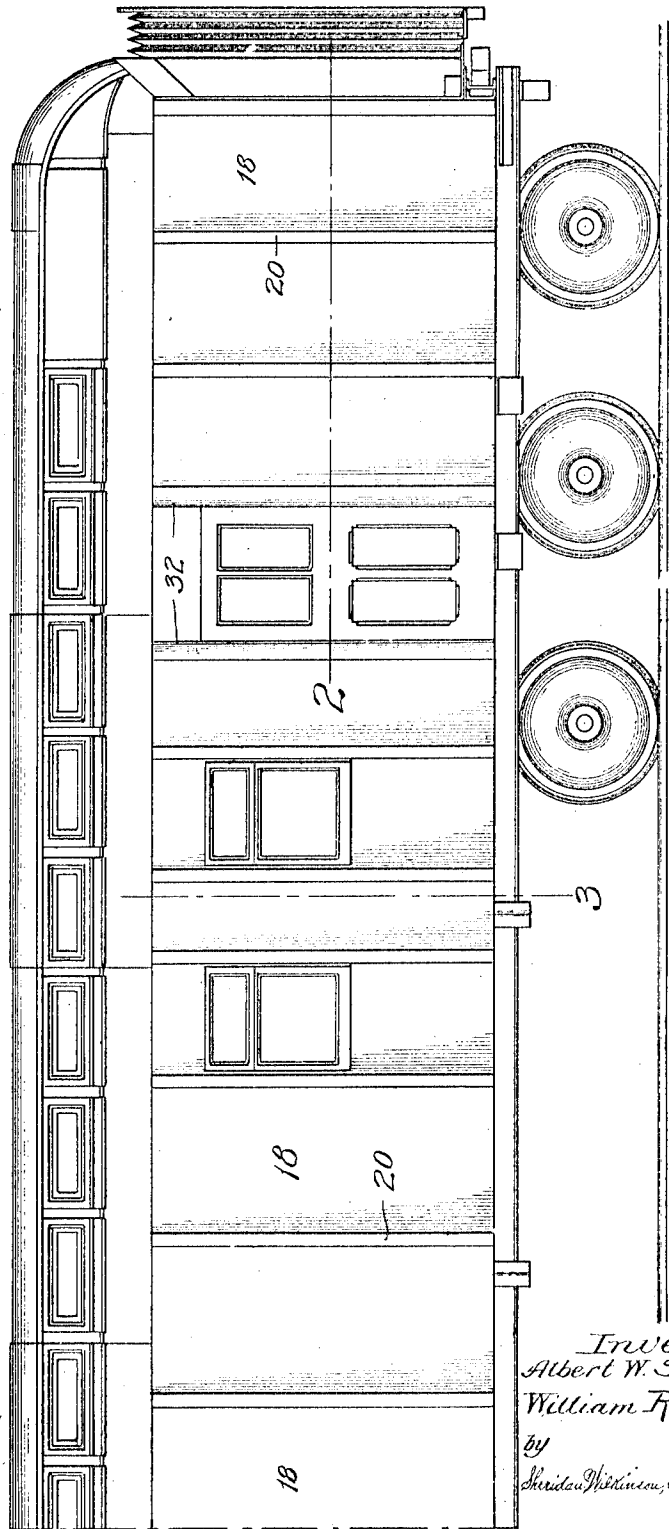
APPLICATION FILED NOV. 23, 1912.

1,090,174.

Patented Mar. 17, 1914.

4 SHEETS—SHEET 1.

Fig. 1.



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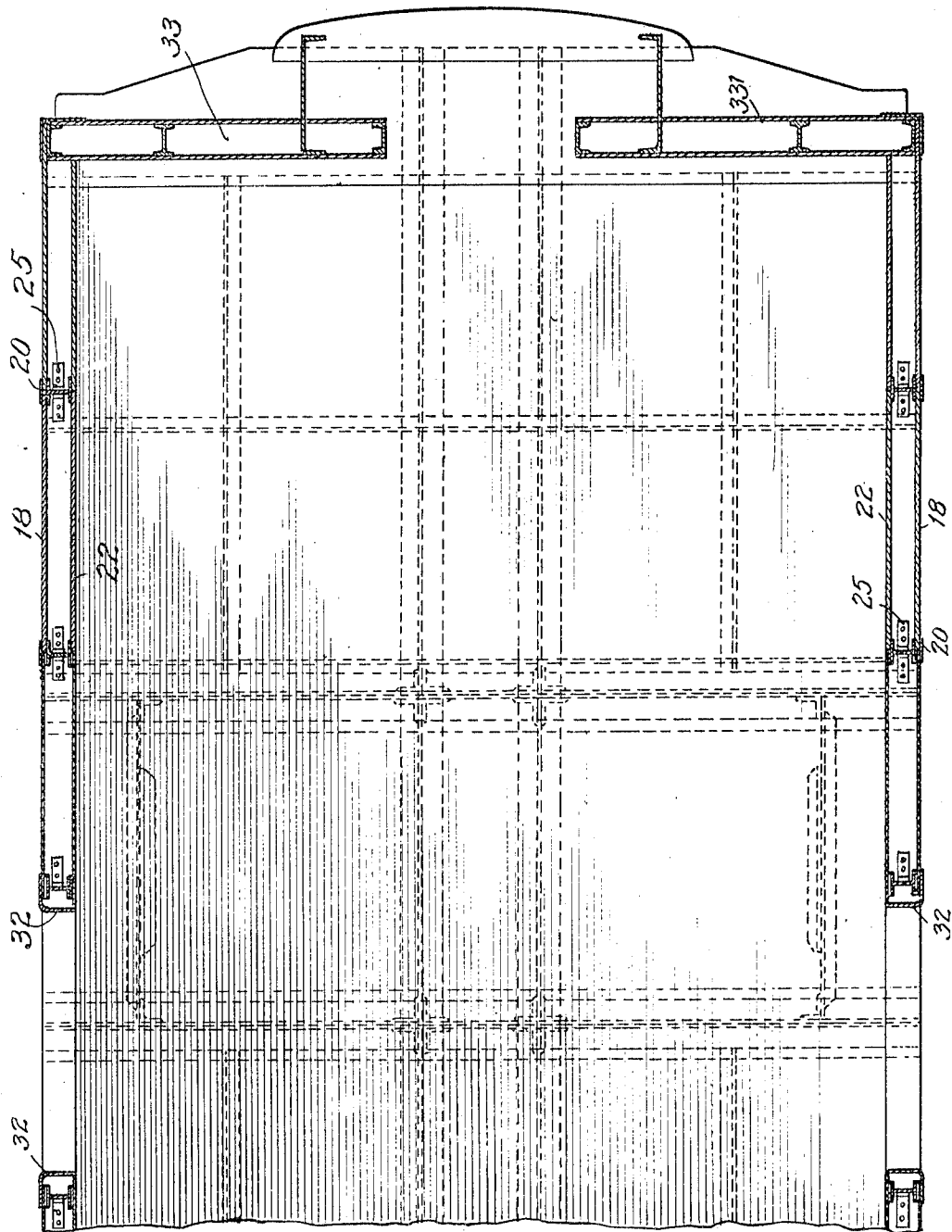
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4 SHEETS—SHEET 2.



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Fig. 2.

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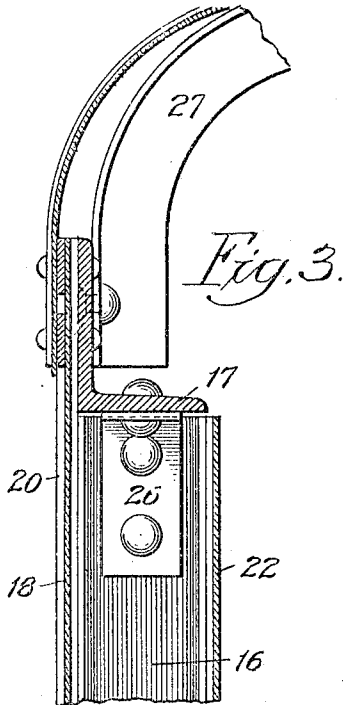
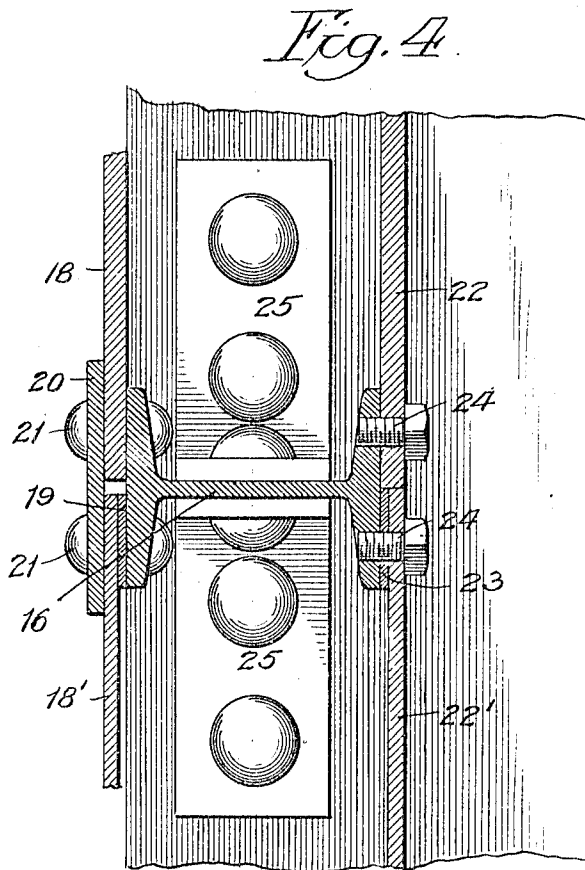
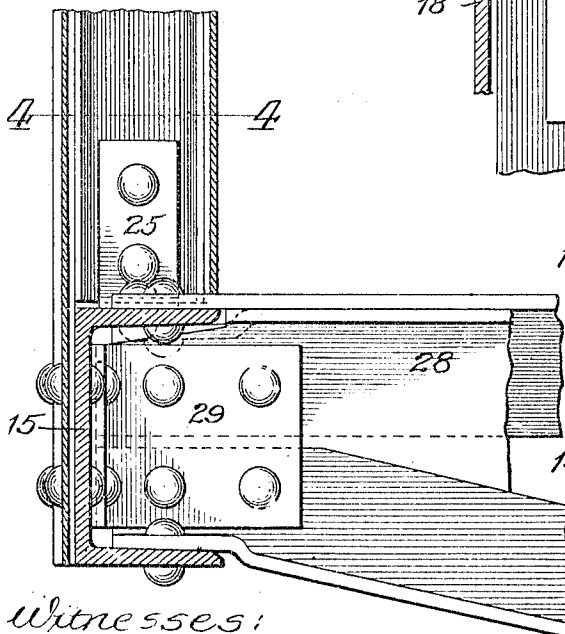
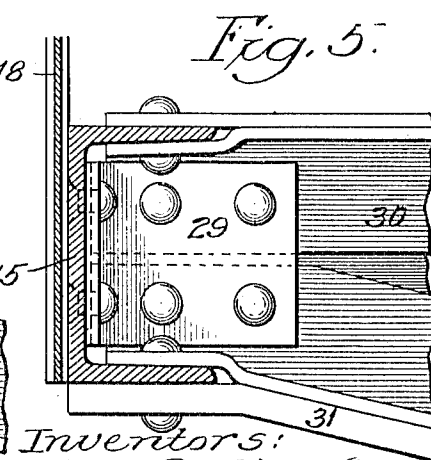
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4 SHEETS-SHEET 3.



Witnesses:

John Enders
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Inventors:

Albert W. Sullivan
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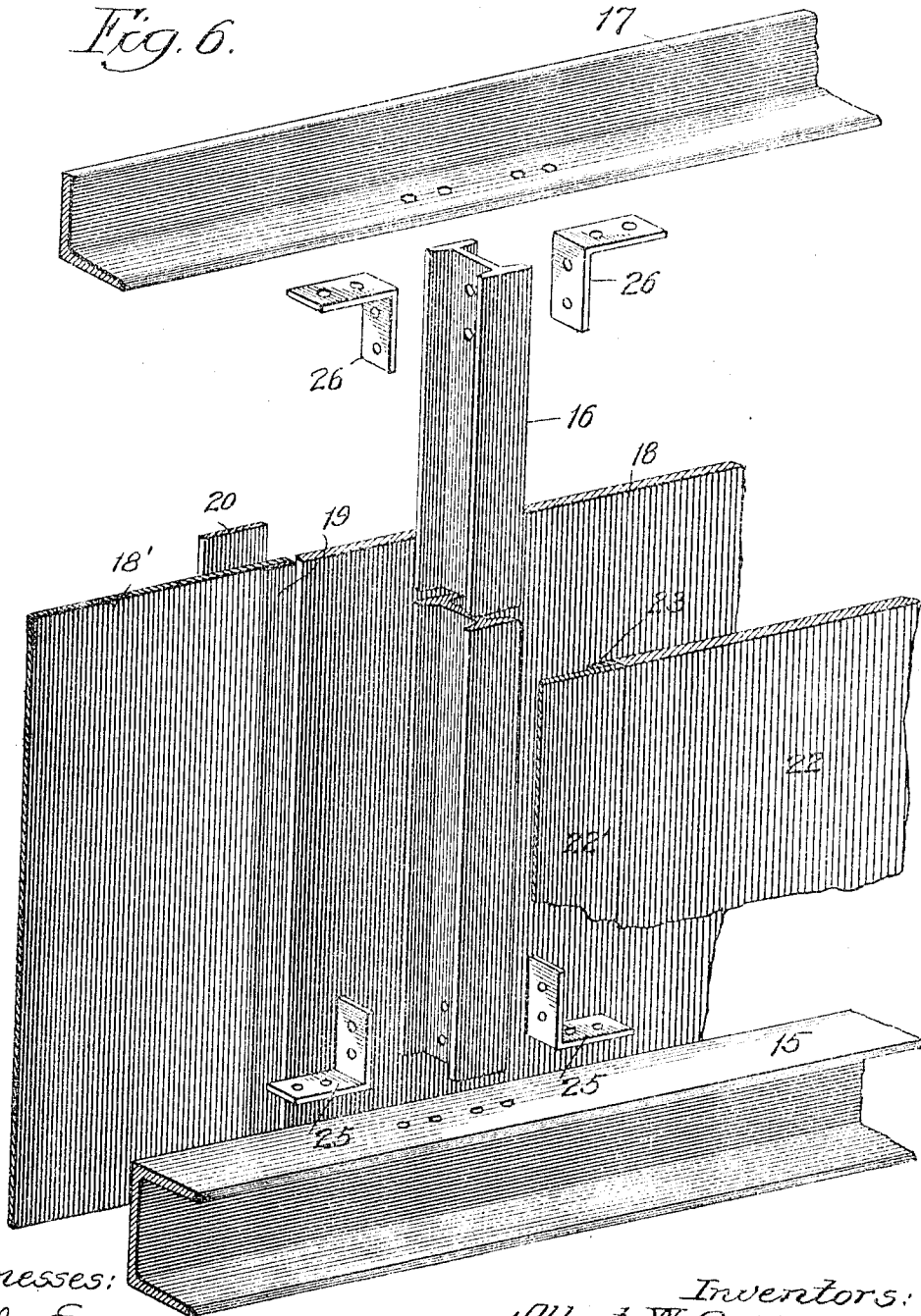
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A. W. SULLIVAN & W. RENSHAW,
RAILWAY CAR.
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1,090,174.

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4 SHEETS-SHEET 4.

Fig. 6.



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UNITED STATES PATENT OFFICE.

ALBERT W. SULLIVAN, OF POUGHKEEPSIE, NEW YORK, AND WILLIAM RENSHAW,
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RAILWAY-CAR.

1,090,174.

Specification of Letters Patent.

Patented Mar. 17, 1914.

Application filed November 23, 1912. Serial No. 733,067.

To all whom it may concern:

Be it known that we, ALBERT W. SULLIVAN and WILLIAM RENSHAW, citizens of the United States, residing in Poughkeepsie, in the county of Dutchess and State of New York, and in the city of Chicago, in the county of Cook and State of Illinois, respectively, have invented certain new and useful Improvements in Railway-Cars, of which the following is a specification.

The principal object of our invention is to provide a new and improved substantially all steel railway car.

Another object of our invention is to provide such a car, of the class known as "postal cars", so framed and constructed as to efficiently withstand the tremendous stresses incident to the use of such cars.

Another object of the invention is to provide such a car so framed as to present a comparatively smooth exterior side surface.

A further object of the invention is to build such a car in simple, efficient, and comparatively inexpensive manner.

All these objects, and others, will be readily understood and appreciated in connection with the following description of one specific embodiment of our invention which we have illustrated in the accompanying drawings. For definition of our invention we refer to the appended claims.

Referring to the drawings—Figure 1 is a side elevation of one end of our improved car. Fig. 2 is a horizontal section of the same, taken on the line 2 in Fig. 1, looking down. Fig. 3 is a vertical section taken on the line 3 of Fig. 1. Fig. 4 is a horizontal section taken on the line 4 of Fig. 3, looking down. Fig. 5 is a vertical section showing a detail of the bolster construction; and Fig. 6 is a perspective view of the elements of the side wall all spaced apart slightly from their normal relative positions.

This car is one of the type in which the sides of the car act as the main carrying members having their support at the bolsters: in other words, each side wall of the

car between the bolsters constitutes a side truss or girder, and these trusses substantially carry the weight of the car and transmit the same through the bolsters to the wheeled-trucks of the car.

Along each side, extending the entire length of the car, is a side sill 15, consisting of a channel beam with its web in a vertical plane and its flanges in a horizontal plane and directed inwardly. On each side sill 15 stands a series of vertical side posts 16, each of such posts consisting of an I-beam with its web standing in a plane transverse to the length of the car. By the use of an I-beam so arranged, we are enabled to secure the side plates to the flanges on each side of the web, as will be hereinafter described. By means of this arrangement, twisting or turning stresses about the web as an axis due to "side swipes" or the like are practically eliminated or balanced, owing to the location of the fastening members on each side of the web and greater rigidity of structure is the result. Furthermore, this I-beam construction facilitates assembling of the structure and renders fastening of the side plates or walls comparatively easy and secure, since in riveting or drilling flanges, access may be readily had thereto by the mechanics. Along the upper part of each side wall extends a "plate" 17 consisting of an angle iron. Each plate 17 rests on the upper ends of the corresponding side posts 16. The corner angles 25 connect the lower ends of the posts 16 to the side sills 15, and the corner angles 26 connect the upper ends of the posts 16 to the plate 17.

Rectangular sheets or plates of steel 18 are applied to the outer sides of the posts 16 to form an outer plating or wall. These sheets, near or adjacent to the ends of the car, are made a little thicker than those at the middle, and the transition from the thick sheets to the thin sheets is effected by joints, as shown in Fig. 4, where the thick sheet is designated 18 and the thin sheet 18'. A thin strip or shim 19 is placed under the

thinner sheet 18', then a batten 20 is lapped over the meeting edges of the sheets 18 and 18' and the parts are all secured, preferably by means of the rivets 21. On the inside face of the side wall similar steel sheets 22 and 22' are applied, and a similar shim 23 is employed to compensate for the thinner sheet 22' at the meeting edges of adjacent sheets of different thickness. The inside plates 22 and 22' are secured to the flanges of the side posts, preferably by means of machine screws 24.

The upper framework of the car, which supports the roof, is designated 27; the cross members of the car underframe are designated 28, and the bolsters 30. The cross members and the bolsters are secured at their ends to the side sills by means of the corner angles 29. As shown in Fig. 5 the bolster is heavily reinforced on its under side by the bar 31.

In our structure it is to be noted that the entire side walls act as trusses or supporting plate girders, not merely as walls. Consequently, we are able to dispense with the usual heavy and cumbersome car underframe members. Furthermore, these side walls extending between the roof structure and the floor structure, act as the trusses or girders, not merely a portion thereof, so that the stress, due to shock or collision, does not tend to shed off any portion of the side walls, but presents a rigid and strong structure, resisting all stresses at the ends of the car whether applied adjacent the floor or the roof structure. This advantage is not present in the form of structure in present day use and is highly advantageous.

Side door openings for the car are left between certain pairs of side parts, and these are finished by inserting the angles 32 which form side casings for the door openings. The end walls 33 of the car have a construction similar to that of the side walls, as shown in Fig. 2.

The construction herein shown and described is very simple, utilizes commercial structural steel shapes, combines them in a simple manner to form strong, rigid side walls constituting at the same time the carrying members for the load of the car.

One advantage of the construction that we have herein disclosed is that the side walls of the car present a fairly smooth exterior, which is more to the liking of some of the railway officials than when the posts or elements of the posts are on the exterior. By constructing the side walls in the manner described and using suitable dimensions for the posts 16 the sum of the section moduli of all the posts taken at any horizontal section between the floor line and top line is made sufficient to meet the requirements of

good standard specifications for this type of car.

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We claim:—

1. In a railway car of the class described, a series of vertical I-beam side posts with the web portions arranged transversely of the length of the car, and a double wall of sheet metal sheathing comprising outside and inside metal plates attached along their edges to the exterior and interior flanges of said I-beam side posts, certain of said plates adjacent the ends of the car being of greater thickness than the middle plates.

2. In a railway car of the class described, side plate girder walls formed of an upper chord or plate located adjacent the roof of said car, a lower chord or side sill adjacent the floor of said car, a series of vertical wrought metal I-beam side posts with their web portions arranged transversely of the length of the car and forming struts for said side-carrying member and connecting the upper and lower chords together, and a double wall of sheet metal sheathing comprising outside and inside metal plates attached along their edges to the exterior and interior flanges of said I-beam side posts, one pair of inside and outside plates being secured to each side post on one side of the web thereof and the adjacent pair of inside and outside plates being attached to the flanges of said post along the other side of the web thereof.

3. In a railway car of the class described, side plate girder walls formed of an upper chord or plate located adjacent the roof of said car, a lower chord or side sill adjacent the floor of said car, a series of vertical wrought-metal I-beam side posts with their web portions arranged transversely of the length of the car and forming struts for said side-carrying member and connecting the upper and lower chords together, and a double wall of sheet metal sheathing comprising outside and inside metal plates attached along their edges to the exterior and interior flanges of said I-beam side posts, one pair of inside and outside plates being secured to each side post on one side of the web thereof and the adjacent pair of inside and outside plates being attached to the flanges of said post along the other side of the web thereof, said outside plates being secured to said side posts by rivets or the like, said inside plates being detachably secured to said posts by bolts or the like.

4. In a railway car, channel beam side sills and a series of I-beam side posts standing thereon and secured thereto with their webs transverse to the length of the car and extending between said side sills and the roof structure of said car, plates on top of said I-beam posts, corner angles connecting

and securing the upper and lower ends of
said I-beam side posts to the said plates and
side sills, respectively, a double wall of sheet
metal sheathing attached to the outside and
5 inside flanges of said I-beam side posts, the
plates of said metal sheathing adjacent the
ends of said cars being of greater thickness
than the intermediate plates of said metal
sheathing, metal batten strips vertically ar-
10 ranged over the meeting edges of the side
plates, and shims arranged between the edges
of the thinner plates and the flanges of the I-
beam posts to compensate for the difference

in thickness of the plates and to present sub-
stantially smooth exposed surfaces.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."
