

No. 761,263.

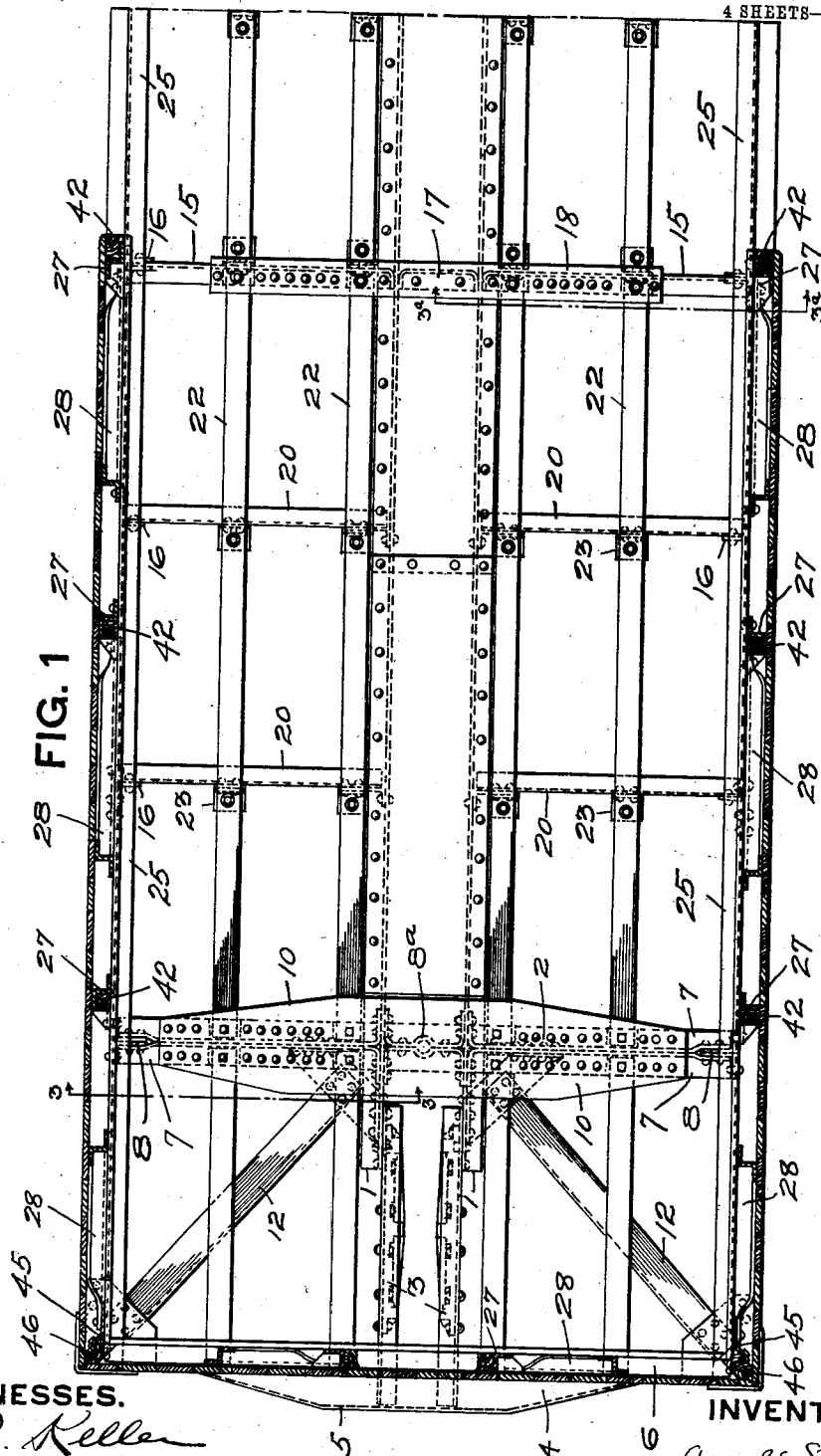
PATENTED MAY 31, 1904.

A. STUCKI.
METALLIC CAR FRAME.

APPLICATION FILED OCT. 26, 1903.

NO MODEL.

4 SHEETS-SHEET 1.



WITNESSES.

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Robert C. Totten

INVENTOR.

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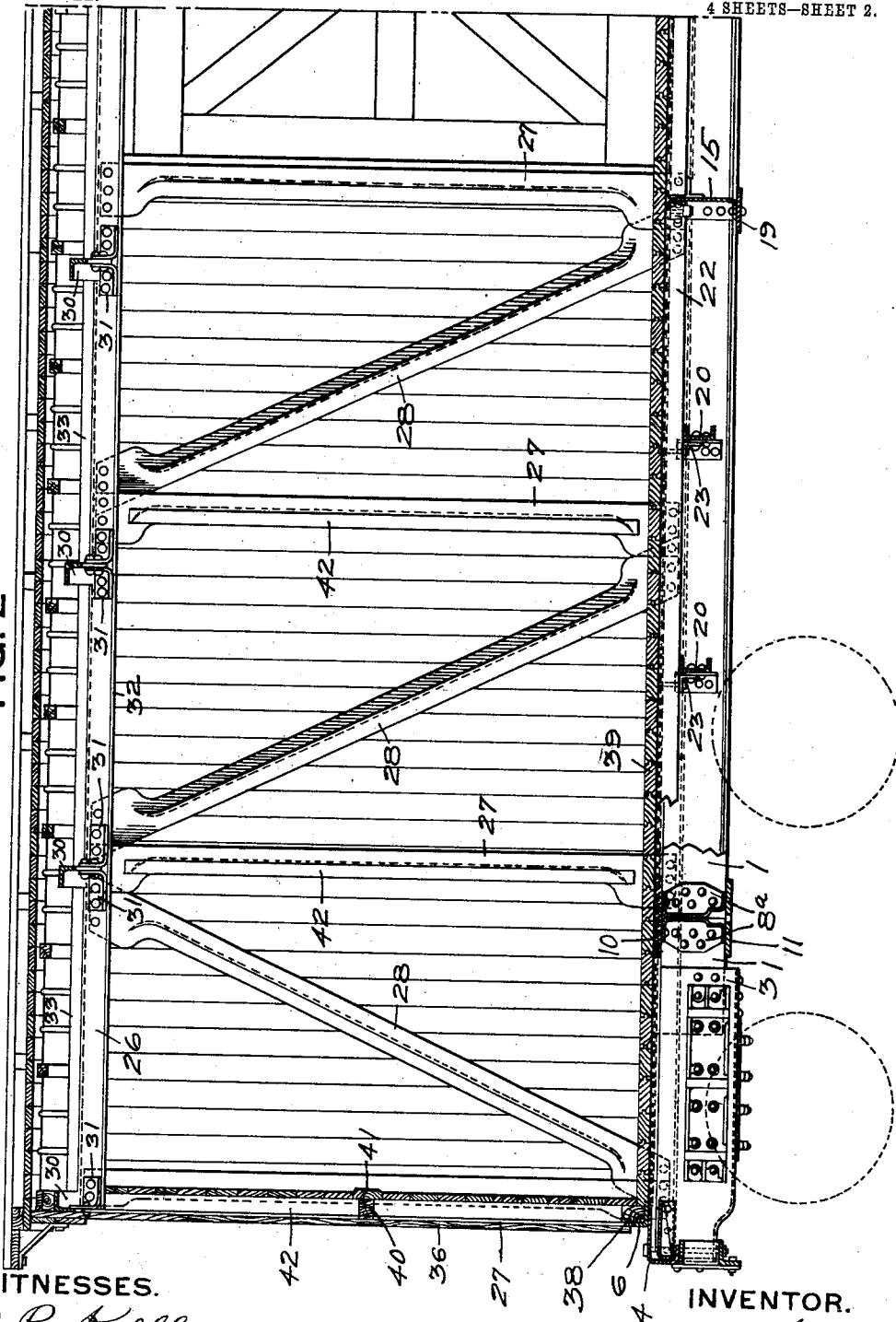
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4 SHEETS—SHEET 2.

FIG. 2



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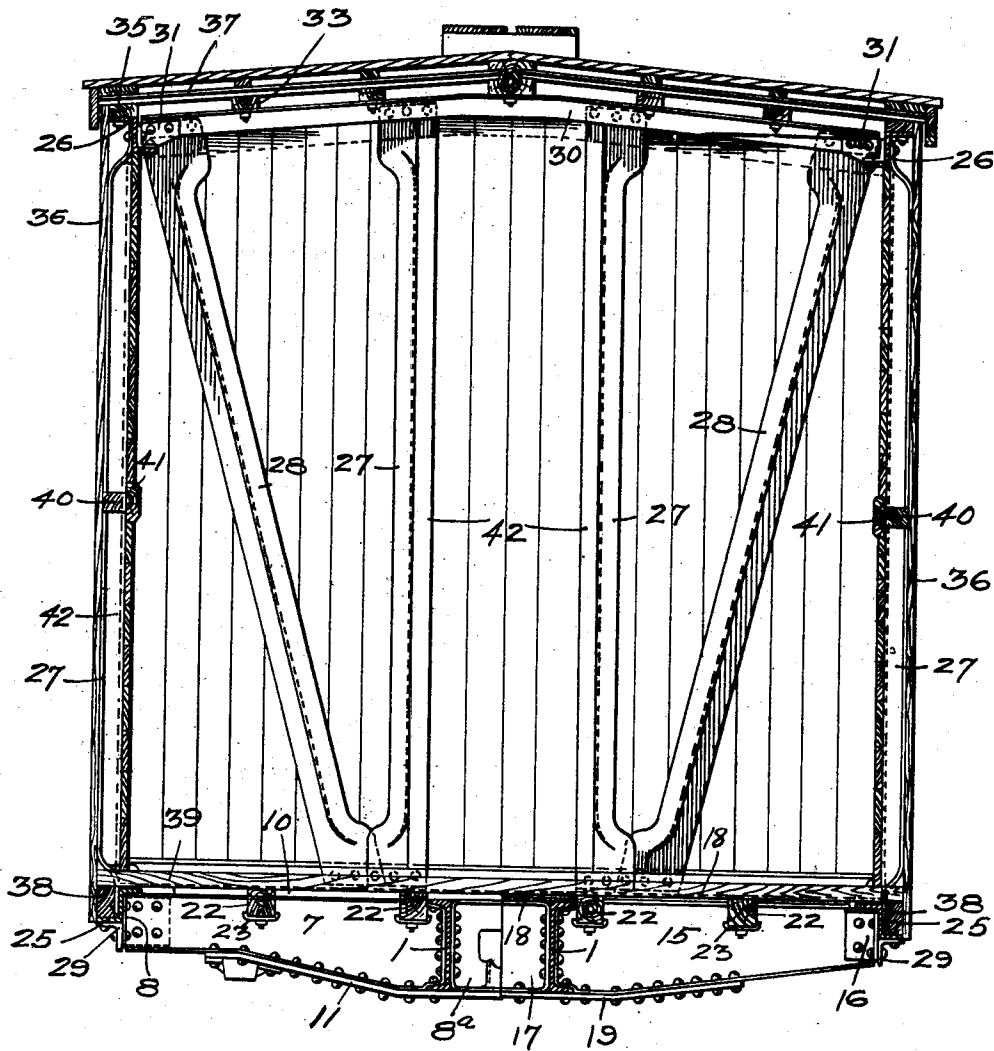
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4 SHEETS—SHEET 3.

FIG. 3



WITNESSES.

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4 SHEETS—SHEET 4.

FIG. 4

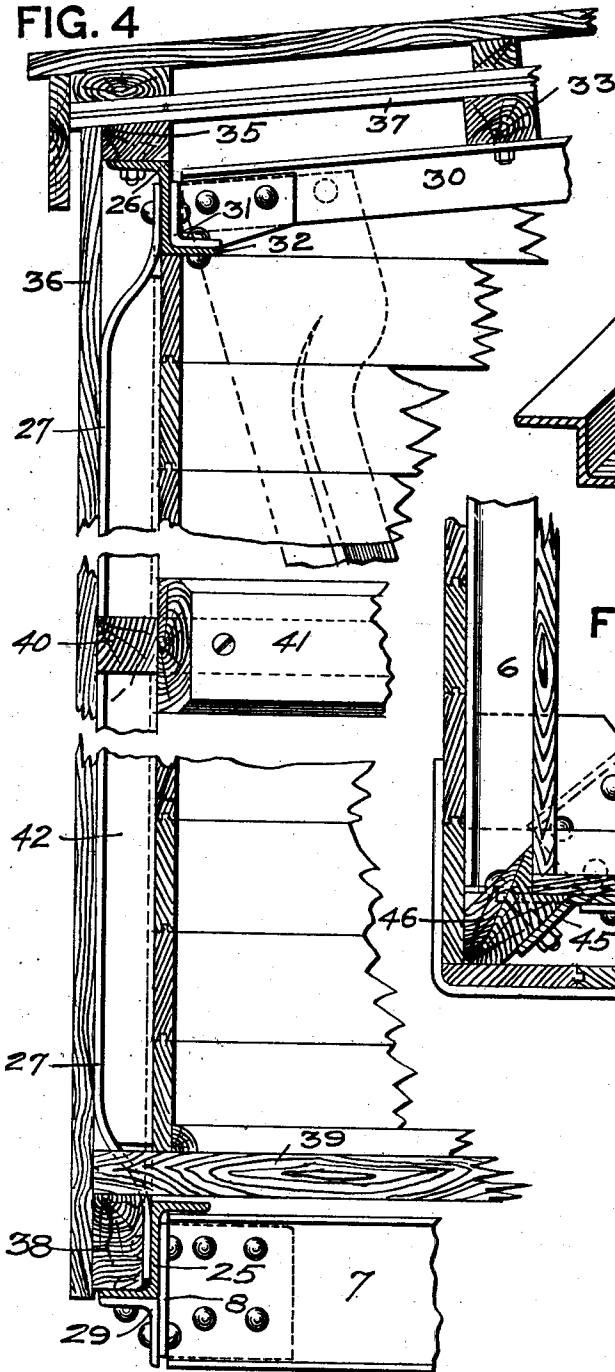


FIG. 5

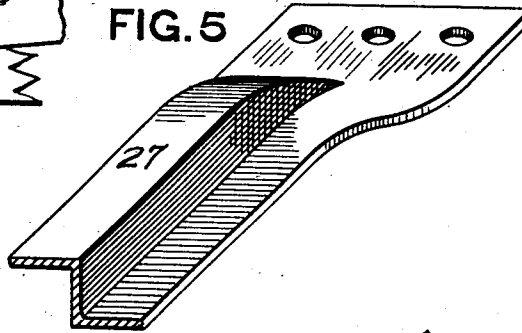
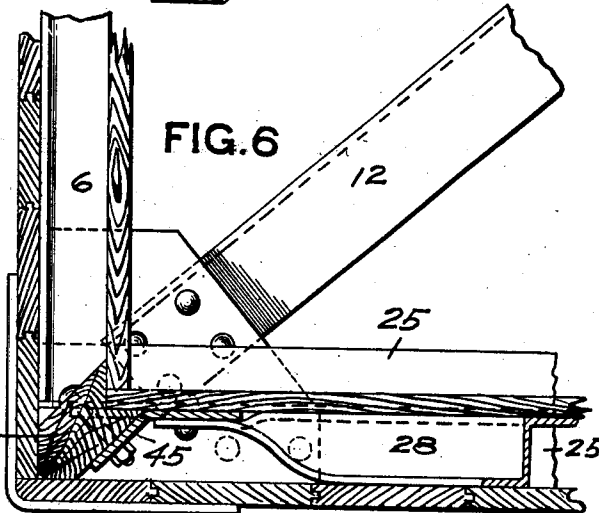


FIG. 6



WITNESSES.

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UNITED STATES PATENT OFFICE.

ARNOLD STUCKI, OF ALLEGHENY, PENNSYLVANIA, ASSIGNOR TO STANDARD STEEL CAR CO., OF PITTSBURG, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

METALLIC CAR-FRAME.

SPECIFICATION forming part of Letters Patent No. 761,263, dated May 31, 1904.

Application filed October 26, 1903. Serial No. 178,573. (No model.)

To all whom it may concern:

Be it known that I, ARNOLD STUCKI, a resident of Allegheny, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Metallic Car-Frames; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to railway-cars, and more especially to box, stock, and similar cars.

The object of my invention is to provide a car of this type having load-carrying trussed metallic side frames of a simple and efficient construction, the invention consisting in certain details, which will hereinafter be described and claimed.

In the accompanying drawings, Figure 1 is a horizontal section of one-half the car, showing the floor removed. Fig. 2 is a central vertical longitudinal section of one-half the car with the lining of the car side omitted. Fig. 3 is a transverse section on its left-hand portion, being taken on the line 3-3, Fig. 1, and on its right-hand portion on the line 3^a-3^a, Fig. 1, and showing the lining at the end of the car omitted. Fig. 4 is an enlarged section through the side sill, the side plate, and nailing-strips and showing a portion of the car-line. Fig. 5 is a perspective view of the end of the side or end posts, and Fig. 6 is a detail sectional view of the corner of the car.

The underframe of the car shown in the drawings is not new with me, the same including center sills 1, preferably of rolled channel-beams and only of sufficient weight to take the buffing and tugging strains, it being the intention to carry the load by the trussed side frames. These center sills project slightly beyond the body-bolsters 2, so as to facilitate the attachment of draft-sills 3 thereto in case of repairs made necessary by accident. These draft-sills may be of any preferred construction, being shown as channel shape in cross-section. The outer ends of these draft-sills are secured to the end sill 4, the latter being a pressed plate of angle shape, having its central portion bulged outwardly, as at 5, and provided with a notch or opening for the passage of the draw-bar shank. This

end sill is stiffened by means of an angle 6, riveted to its upper horizontal flange, said angle-bar having its vertical flange projecting upwardly and its horizontal flange projecting inwardly, as shown.

The body-bolsters 2 are of an old design, comprising two filling members 7 between the center sills and car sides, said filling members being provided with flanges on their inner ends for attachment to the center sills and with flanges on their top and bottom edges. Two such members are placed back to back and are attached to the car sides by means of vertical sections of angle-bar 8, secured between the spread-apart ends of the filling members. Between the center sills is a brace 8^a, which may be either cast or formed of two pressed box-shaped members placed back to back. A top cover-plate 10 extends over the center sills and is riveted to the upper flanges of the filling members of the body-bolsters, and a similar tie or cover plate 11 passes underneath the center sills and is riveted to the lower flanges of the bolster filling members.

Diagonal braces 12 extend from the corners of the car inwardly to the angle of the body-bolster and center sills, being joined at both ends to the underframe by means of suitable connection-plates. Intermediate the body-bolsters suitable cross-bearers are provided, which serve to transfer the load from the center sills to the trussed car sides. Two such cross-bearers are shown, each formed of the filling members 15 between the center sills and car sides, said filling members being practically the same as the filling members of the body-bolsters, and are attached to the center sills by means of their integral flanges and attached to the car sides by vertical sections of angle-bar 16. Between the center sills in line with these filling-pieces is a pressed pan-shaped filling-piece 17. A top cover-plate 18 and a bottom cover-plate 19 pass, respectively, above and below the center sills and are riveted, respectively, to the upper and lower flanges of the filling-pieces. Intermediate these deep cross-bearers and the body-bolsters are transverse floor-supports 20, comprising

sections of channel-bar secured to the center sills and car sides by means of angle or knee pieces. The wooden floor-stringers 22 are supported on brackets secured to the filling or web members of the body-bolsters and cross-bearers and rest upon the transverse floor-supports 20, being attached to suitable brackets 23, secured to these floor-supports.

The essential novelty of my car-frame is comprised in the superstructure. The side frames are formed as trusses, so as to carry practically all of the load, these trusses being of very simple design, so as to reduce the amount of riveting in manufacture and also reduce the cost of repairs. They are also so constructed as to most efficiently resist outward bulging due to the pressure of the lading.

Each side frame comprises a side sill 25, shown as a rolled Z-bar, a side plate 26, likewise formed of a Z-bar, and vertical posts 27 and diagonal braces 28, also formed of Z-bars and having their ends flattened and riveted directly to the side sill and plate. The side sill 25 is secured to the underframe by means of the vertical sections of angle-pieces 8 and 16, heretofore described, and it is reinforced at the body-bolsters and cross-bearers by means of sections of angle-bar 29, the latter having as their principal function to form a secure attachment for the body-bolsters and cross-bearers to the side sills. Both the side sill 25 and side plate 26 are placed with the web portion of the Z-bar arranged vertically, and the side posts and diagonal braces are so placed that one flange is on the inside and the other on the outside, thus using the material to the best advantage possible to resist the outward bulging effect of the lading. The flattened end portions of these posts and diagonals lie substantially in the plane of the flanges of the Z-bar, both end portions being either in the plane of the same flange or one thereof in the plane of one flange and the other thereof in the plane of the other flange, and said end portions are of sufficient width to receive the necessary number of rivets for securely attaching the same to the side plates and side sills, thus dispensing with connection-plates and greatly reducing the amount of riveting and the number of pieces in the car-frame. The flattened end portions can be easily formed under a hammer or press. At the ends of the car similar posts and diagonal braces are used, the lower ends being riveted to the upwardly-projecting leg of the end-sill angle 6, thus efficiently resisting outward bulging in case the load should shift its position, and the upper ends being attached to an end carline 30. All of the carlines are formed of flanged bars, preferably angle-bars, attached to brackets 31, which are secured to the side plates and rest upon the inwardly-projecting lower flange 32 of said plates. The purlins 33 rest directly on the carlines. A wooden nailing-strip 35 rests upon and is bolted to the out-

wardly-projecting upward flange of the Z-bar side plate in such position that it serves as a convenient fastening means both for the sheathing 36 and the roof-joint strips 37. A wooden nailing-strip 38 is also attached to the Z-bar side sill and serves as a convenient means for fastening the sheathing and also the floor-planks 39. Interposed between the vertical posts and diagonal braces substantially midway between their ends are wooden nailing-pieces 40, and extending inside of the car-frame in line with these nailing-strips is the belt-rail 41. Attached to each of the vertical posts is a wooden nailing-piece 42, which extends practically for the entire height of said posts and serves as a means for nailing thereto the wooden lining 43. The posts at the sides of the door-opening have this wooden nailing-strip 42 lying on the side toward the door-opening and of sufficient size to entirely cover the projecting flange of said posts, so as to prevent injuring merchandise, stock, and the like in passing in and out.

It will be observed that by the use of Z-bar side sills, plates, and posts the nailing-pieces or stringers can be practically continuous from end to end, thus reducing the amount of labor in building the car.

The corner-post is of a peculiar construction, being formed as an obtuse angle 45, having flattened upper and lower ends for riveting to the side sills and side plates. To the diagonal flange of this angle is bolted the wooden corner-piece 46, having its outer edge provided with beveled edges at right angles to each other and having its inner edge provided with a V-shaped face having the two sides at right angles to each other, thus serving as a very convenient means for nailing thereto both the outside sheathing and the inside lining.

The car will be provided with the usual roof, running-board, ladder, steps, and other appurtenances usual with railway-cars; but as these form no part of my invention they are not described.

In the underframe described the load is carried entirely by the side frame, the center sills being only of such strength as to take care of the buffing and tugging strains. The side trusses are exceedingly efficient and very simple, being composed of a minimum number of parts, and the Z-posts and braces serving most efficiently to prevent outward bulging. Furthermore, all of the wooden parts are practically continuous, so that the labor in constructing the car is considerably reduced and the strength of the parts is of the maximum.

What I claim is—

1. A metallic post for railway-car frames comprising a member Z shape in cross-section and having flattened end portions, said flattened end portions having one flange and the web of said Z-shaped member brought into

substantially the plane of the other flange thereof.

2. A metallic brace for railway-car frames comprising a member **Z** shape in cross-section and having flattened end portions, said flattened end portions having one flange and the web of said **Z**-shaped member brought into substantially the plane of the other flange thereof.

3. A metallic corner-post for railway-cars formed as an obtuse angle.

4. A metallic corner-post for railway-car frames formed as an obtuse angle having flat end portions.

5. A corner-post member for railway-cars arranged to be placed diagonally at the car-corner and having a chamfered outer edge providing faces at right angles to each other, and a grooved inner edge providing faces at right angles to each other.

6. A corner-post for railway-car frames comprising an obtuse metallic angle and a wooden nailing-strip secured thereto and provided with a chamfered outer edge and a grooved inner edge.

7. A corner-post for railway-car frames comprising an obtuse metallic angle having flat end portions, and a wooden nailing-strip secured to said angle and having a chamfered outer edge and a grooved inner edge.

8. A metallic side frame for car-bodies comprising side sills, side plates, vertical posts and diagonal braces, said posts and diagonal braces being composed of members **Z**-shaped in cross-section and provided with flattened end portions for securing the same to the side sills and plates, said flattened end portions having one flange and the web of said **Z**-shaped members brought into substantially the plane of the other flange thereof.

9. A metallic side frame for railway-cars comprising side sills, side plates, vertical posts and diagonal braces, said posts and diagonal braces being composed of members **Z**-shaped in cross-section and provided with flattened end portions for securing the same to the side sills and plates, said flattened end portions having one flange and the web of said **Z**-shaped members brought into substantially the plane of the other flange thereof, and wooden nailing-strips secured to said side posts.

10. A metallic side frame for railway-cars comprising side sills, side plates of **Z** shape in cross-section, vertical posts and diagonal braces, means for securing said parts together, longitudinal nailing-strips secured to the side sills, and similar nailing-strips secured to the side plates and serving as an attachment for the sheathing and a roofing member.

11. A metallic frame for railway-cars comprising side plates of **Z** shape in cross-section placed with the web vertical, carlines resting upon one of the flanges of said plate, and a wooden nailing-strip supported on the other flange of said plate and serving as a fastening means for the sheathing and a roofing member.

12. A side frame for railway-cars comprising side sills of **Z** shape in cross-section, side plates of **Z** shape in cross-section, posts and diagonals joining the same, nailing-strips supported on the flange of the side sill, a nailing-strip secured to the side plates and serving as a means for attachment of the sheathing and a roofing member, wooden filling-pieces between the diagonals and posts, and a continuous belt-rail secured to said filling-pieces inside of the diagonals and posts.

13. A side frame for railway-cars comprising side sills, side plates, posts and diagonal braces, all of said members being of **Z** shape in cross-section, and said posts and diagonals having flattened end portions for securing the same to the side sills and plates.

14. A side frame for metallic railway-cars comprising side sills, side plates, posts and diagonal braces, all of said parts being of **Z** shape in cross-section, suitable means for securing said parts together, and wooden nailing members secured to said parts.

15. A metallic railway-car comprising side sills, side plates, posts and diagonals uniting the same, an end sill, an end carline, and metallic end posts of **Z** shape in cross-section having flattened end portions for securing the same to the end sill and end carline.

In testimony whereof I, the said ARNOLD STUCKI, have hereunto set my hand.

ARNOLD STUCKI.

Witnesses:

ROBERT C. TOTTEN,
G. C. RAYMOND.