

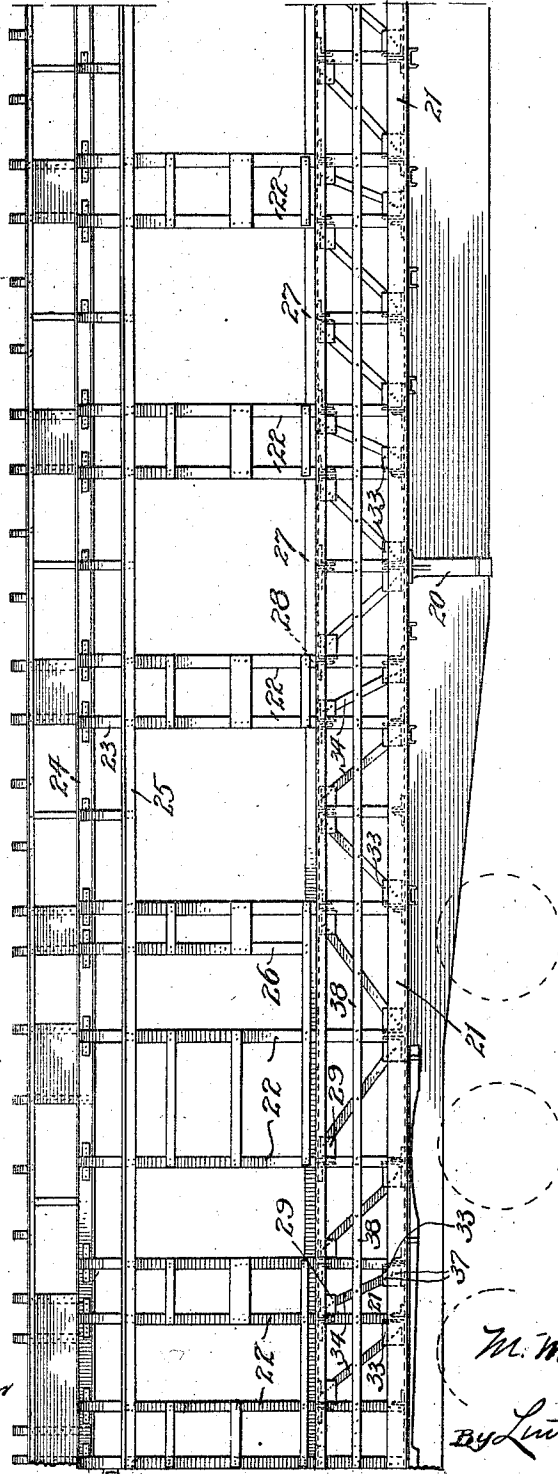
M. M. SCHNEIDER.  
CAR BODY FRAME CONSTRUCTION.  
APPLICATION FILED OCT. 30, 1909.

1,006,136.

Patented Oct. 17, 1911.

3 SHEETS—SHEET 1.

Fig. 1



Witnesses:  
J. H. Dwyer  
Maurice Goldberger

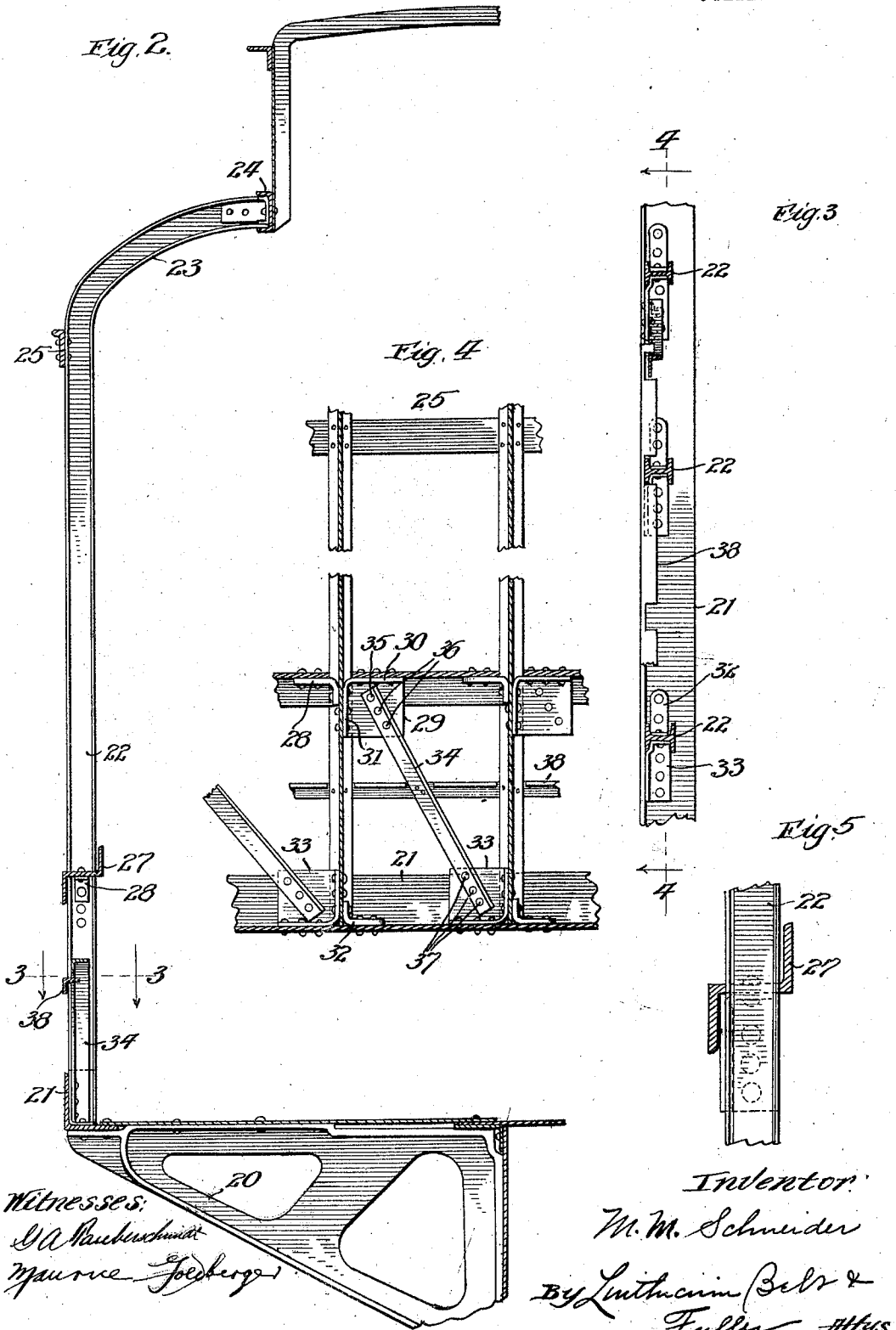
Inventor:  
M. M. Schneider  
By Luther C. Bell  
& Fuller

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3 SHEETS—SHEET 2.



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3 SHEETS—SHEET 3.

Fig. 8

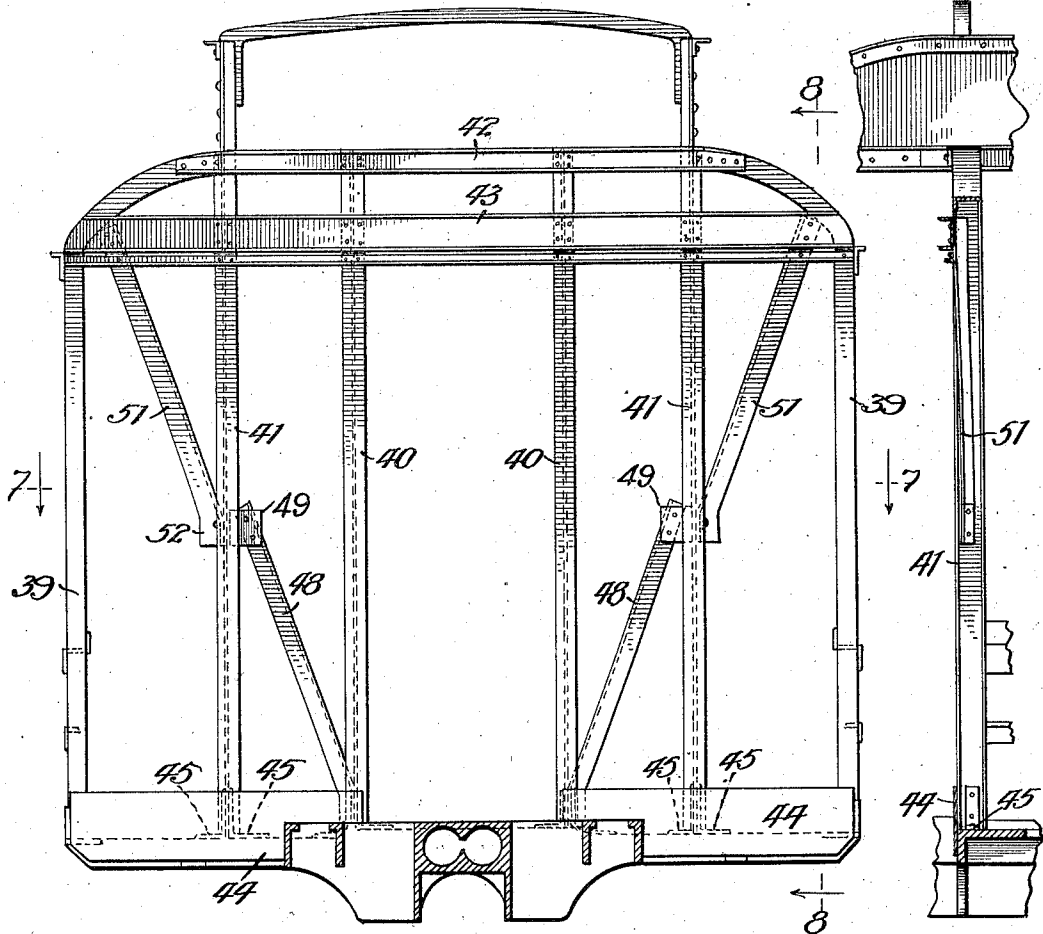


Fig. 7

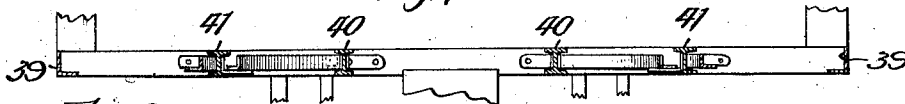


Fig. 9

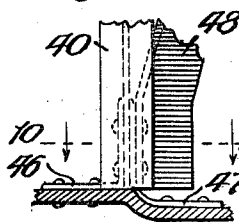


Fig. II

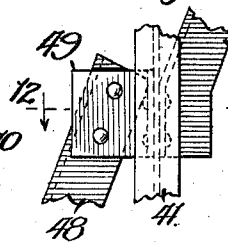


Fig 12

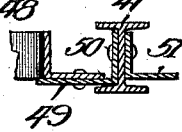
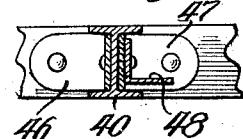


Fig. 10



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# UNITED STATES PATENT OFFICE

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## CAR-BODY-FRAME CONSTRUCTION.

1,006,136.

Specification of Letters Patent.

Patented Oct. 17, 1911.

Application filed October 30, 1909. Serial No. 525,472.

*To all whom it may concern:*

Be it known that I, MAX M. SCHNEIDER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Car-Body-Frame Constructions, of which the following is a specification.

My invention pertains to improvements in the metal supporting and strengthening framing of the bodies of railway cars, and concerns particularly, though not exclusively, improvements and features of novelty in cars of the passenger type.

One aim and object of the new form of side framing is, in addition to providing a construction of great rigidity and strength, to so build the skeleton framing that there will be but few rivet holes exposed on that portion of the framing which is covered by the external sheathing, whether the latter is of wood or sheet-metal. The parts of the framing are so constructed and arranged that none of the main and principal securing rivets will in any way interfere with the ready and proper attachment of such sheathing or outer covering. Those rivets, however, which are exposed on such part of the frame construction are countersunk so that the framing will present a substantially flush and smooth surface.

The invention also includes improvements in the end portion of the car frame structure, especially in the arrangement and securing in place of the diagonal braces or strengthening bars.

In the accompanying drawings, which form a part of this specification, and in which a preferred and desirable embodiment of the invention has been fully illustrated, like reference characters refer to the same parts throughout the various views.

In these drawings—Figure 1 is a fragmentary side elevation of the superstructure framing of a railway car; Fig. 2 is a vertical cross-section through one side of the car illustrating the parts on an enlarged scale; Fig. 3 is a horizontal section on line 3—3 of Fig. 2, the parts being viewed as indicated by the arrows; Fig. 4 is a longitudinal vertical fragmentary section on line 4—4 of Fig. 3; Fig. 5 is a fragmentary vertical section through the belt rail adjacent to one of the vertical posts; Fig. 6 is an elevation of

the end of the car frame; Fig. 7 is a horizontal section on line 7—7 of Fig. 6; Fig. 8 is a vertical fragmentary section on line 8—8 of Fig. 6; Fig. 9 is a vertical section illustrating the manner of attachment of the inclined or diagonal braces; Fig. 10 is a horizontal section on line 10—10 of Fig. 9; Fig. 11 is a fragmentary elevation on an enlarged scale of the attachment or means of securing of the two parts of one of the diagonal braces to the intermediate post; and Fig. 12 is a horizontal section on line 12—12 of Fig. 11.

Referring first to the construction shown in Figs. 1 to 5, inclusive, it will be noticed that the car may be equipped with any suitable form of cross bearers or transoms 20, and that it is supplied at each side with an angle side sill 21 having the outer flange disposed vertically and projecting upwardly, while its companion flange or member is positioned horizontally and is secured to and supported by the transoms. The side framing includes a number of vertical angle posts 22, which at their top ends are curved inwardly to form carline portions 23, the inner ends of which are attached in any approved manner to the longitudinal channel deck-sill 24. At their top parts these posts are connected together by a longitudinal tension dropper bar 25 riveted, as is indicated, to the outer flanges of the posts, it being understood that the greater portion of the latter extend down substantially to the bottom flange of the side sill, although a few of such posts may be somewhat shorter, one of such latter being indicated in Fig. 1 at 26. Between the angle sill and the tension dropper bar 25 a longitudinal Z-bar belt-rail 27 is provided, such bar being located below the window openings of the framing, and being apertured as is indicated at intervals for the passage therethrough of the I-posts 22. It should be noted that the inner flange of such belt-rail projects upwardly, while the outer flange extends downwardly, as is clearly indicated in Figs. 2 and 5. It is, of course, necessary that a firm and secure connection be obtained between these posts and the stiffening and strengthening belt-rail, and it is also especially desirable, particularly in cases where metal sheathing or covering is to be employed, that the connecting rivets be not exposed on the outer part of the framing to interfere with the ready and

proper attachment of such sheathing. Instead, therefore, of riveting the outer flanges of these posts to the outer flange of the belt-rail, I rivet against the under surface of the horizontal web of the belt-rail one arm of an angle bracket 28 (Fig. 4), the other leg or part of such bracket lying against and being riveted to the web of the post. On the other side of the post I employ a flanged gusset-plate 29, one flange 30 of which is riveted against the under side of the belt-rail web, while the companion flange 31 thereof is riveted to the post web. At its lower end the post is similarly secured or joined to the horizontal flange of the angle side-sill 21 by another bracket 32 and a like gusset-plate 33, the latter being so formed as to lie against the inner face of the side-sill, as is indicated in Fig. 3. The various top and bottom gusset-plates are connected together by the inclined or diagonal strengthening angle braces 34 which are riveted directly to the plate portions of such gusset-plates. On the outside of the car framing the head of the upper rivet 35 of the three rivets securing the top end of the brace is countersunk so as to be substantially flush or flat with the outer surface of the belt-rail, the outer heads of the other two rivets 36 being somewhat flattened, if desired, so as not to project or extend beyond the outer face of the belt-rail flange. The three rivets 37 pass not only through the gusset-plate 33 and the angle brace 34, the latter having its short flange projecting inwardly, but also extend through the vertical flange of the side-sill and have their outer heads countersunk therein to present a flush and smooth surface of the latter. The side-frame is further strengthened and rendered more firm and rigid by a smaller longitudinal angle-bar 38 having one flange disposed against the outer faces of the posts and diagonal braces, its other or top flange being cut away or recessed, as is clearly indicated, to accommodate these parts. The outer downwardly-extended flange of this longitudinal tension angle member is riveted to the flanges of the posts and inclined braces, the heads of such rivets on the outer face of the frame being countersunk, as are the other similarly disposed rivets of the frame. It will, therefore, be apparent that the larger main securing rivets which fasten the posts to the belt-rail and side-sill do not extend to the outer parts of the framing, and can, therefore, in no way interfere with or hinder the application or securing in place of the external sheathing or covering. The remaining smaller rivets which extend through the belt-rail, angle tension bar, and side-sill are all countersunk so that these parts present a smooth surface to which the sheathing may be readily fastened in any approved manner. It has been found that a framing possessing these characteristics and

structural features is strong and rigid and satisfactorily performs the function for which it is provided.

In Figs. 6 to 12, inclusive, the end portion of the car-body frame is set forth in detail, and an inspection of these figures will show that the combined corner-posts and carlines 39 are of angle section instead of I-section, while the inner posts 40 and the intermediate posts 41 are I-bars. The top ends of the posts 40 and 41 are connected, as indicated, to the pair of cross or transverse bars 42 and 43, the parts being directly riveted together. The lower end of each of the intermediate posts 41 is fastened to the horizontal web or plate portion of the end casting 44 by a pair of angle brackets 45 which are riveted directly to the end casting and to the web of the posts. As is indicated in Figs. 9 and 10, the base ends of the inner upright posts 40 are fastened or secured to the casting in similar manner by a pair of angle brackets 46 and 47, the latter of which is not quite of the usual design but is shaped to conform to the top face of the end sill casting. The rivets which secure these angle brackets 46 and 47 to the web of the post also fasten thereto the lower vertical end of an inclined diagonal angle brace 48, the upper end of which, approximately midway the height of the car, is directly riveted to the outstanding flange of an angle bracket 49, the other flange of which lies against and is riveted to the web of the adjacent post 41, this construction being clearly indicated in Figs. 6, 11 and 12. The same rivets 50 which attach the brackets 49 to the post also secure thereto on the opposite side of the web of the post another angle brace 51 forming a continuation of the brace 48, the lower end 52 of such brace being bent so as to lie vertically. The upper end of the part 51 lies against the inner face of and is directly riveted to the cross upper channel bar 43. As is clearly shown, both sides of the end framing are constructed alike, and by this improved means the inclined or diagonal bracing is effected in a cheap and efficient manner without cutting or weakening the posts.

Although I have herein indicated one desirable embodiment of the invention, I do not wish to have it understood that the invention is limited or restricted to the precise and exact structural features shown, because these may be varied within comparatively wide limits without departure from the substance and essence of the invention, and without sacrificing any of its benefits and advantages.

I claim:

1. In a railway car-framing, the combination of a side-sill, a belt-rail having vertically disposed side portions connected by a horizontal apertured plate portion and a plurality of posts secured to said side-sill and

extended through the apertures of said belt-rail, and means connecting said posts to the horizontal plate portion only of said belt-rail, substantially as described.

5 2. In a railway car-framing, the combination of a side-sill, a belt-rail having an apertured horizontal plate portion, a post secured to the side-sill and extended through said aperture so that the belt rail entirely  
10 surrounds said post, and an angle bracket connecting said post to said horizontal plate portion only of the belt-rail, substantially as described.

15 3. In a railway car-framing, the combination of a side-sill, a Z-bar belt-rail having its web horizontally disposed and apertured, an I-beam-post secured to said side-sill and extended through the aperture of said belt-rail, and means connecting together the webs  
20 of said post and belt-rail, substantially as described.

4. In a railway car-framing, the combination of a side-sill, a belt-rail having a horizontally-disposed apertured plate portion  
25 and vertically-disposed side portions, a post secured to said side-sill and extended through said aperture, and means connecting said post to said plate portion only of the belt-rail, said means constituting the sole  
30 connection between the post and rail, substantially as described.

5. In a railway car framing, the combination of an apertured belt-rail, a post extended through the aperture of said rail, and a  
35 flanged gusset-plate, the flanges of which are riveted to said post and rail, and a diagonal brace secured to said gusset-plate, substantially as described.

6. In a railway car framing, the combination of a side-sill, a Z-bar belt-rail having  
40 its web horizontally disposed and apertured, an I-beam post secured to said side sill and extended through the aperture of said belt-rail, a flanged gusset-plate having its flanges

riveted to the web of the belt-rail and to the web of the post, and a diagonal brace fastened to said gusset-plate, substantially as described. 45

7. In a railway car framing, the combination of a side-sill, a belt-rail having an apertured horizontal plate portion, a plurality of  
50 posts secured to said side-sill and extended through the apertures of said belt-rail, a flanged gusset-plate secured to one of said posts and fastened to the plate portion of said belt-rail, a flanged gusset-plate fastened  
55 to the bottom end of another of said posts and also secured to said side-sill, and a diagonal brace connecting said gusset-plates, substantially as described. 60

8. In a railway car framing, the combination of an upright post and a divided diagonal brace, the ends of the sections of said  
65 brace being fastened to opposite sides of said post, substantially as described. 65

9. In a railway car framing, the combination of a webbed post, a divided diagonal brace having the end of one section riveted  
70 directly to the web of said post, and a bracket secured to said post web and affording means for attachment of the end of the other divided brace section, substantially as described. 70

10. In a railway car framing, the combination of an I-beam post, a divided angle  
75 diagonal brace, an angle bracket, means securing one end of one of said divided brace sections to one side of the web of said post, said connecting means fastening said  
80 bracket to the other side of said post web, and means connecting the other section of the divided brace to said bracket, substantially as described. 80

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Witnesses:

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