

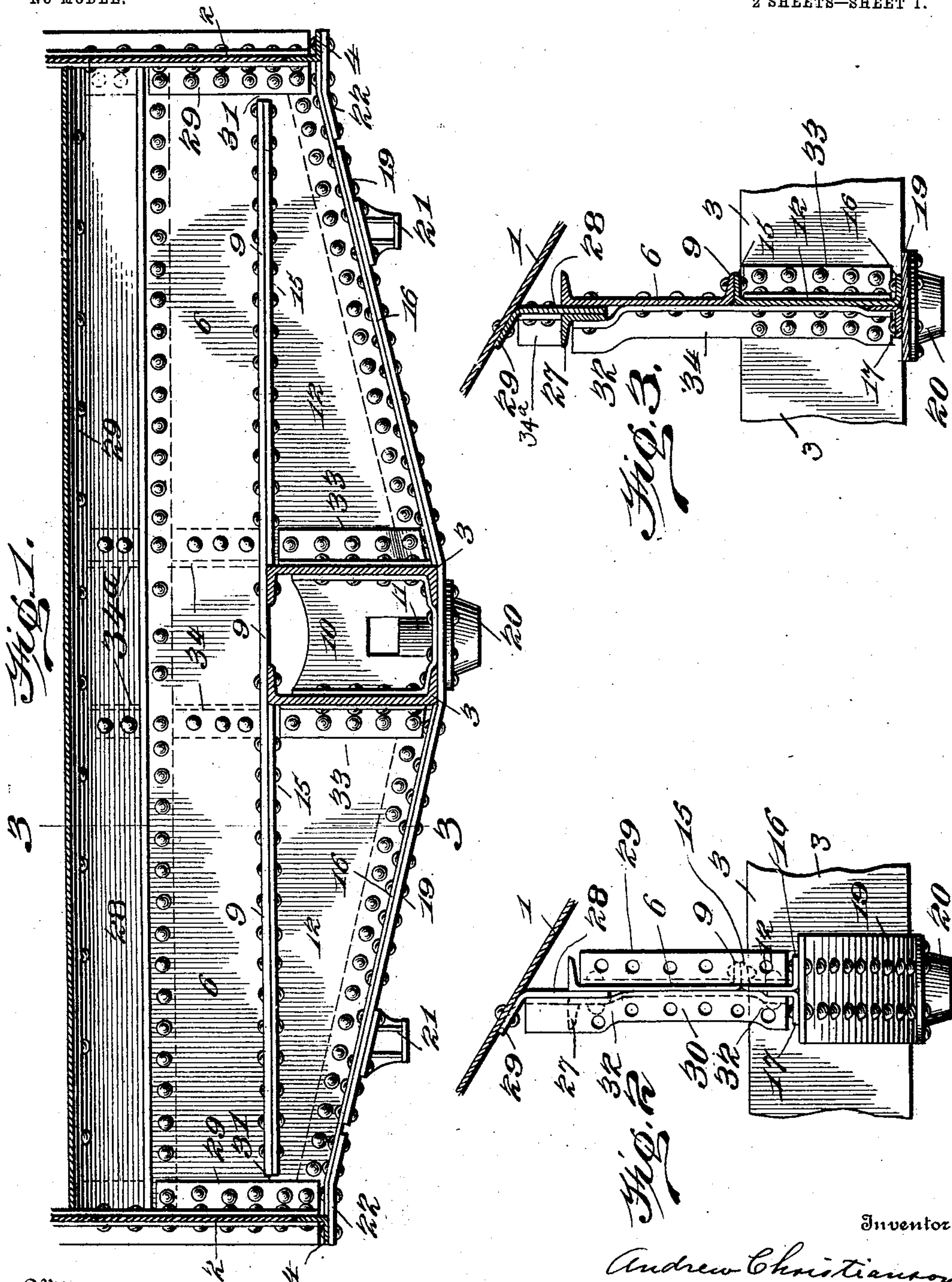
No. 720,221.

PATENTED FEB. 10, 1903.

A. CHRISTIANSON.
BOLSTER FOR HOPPER CARS.
APPLICATION FILED JUNE 9, 1902.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses

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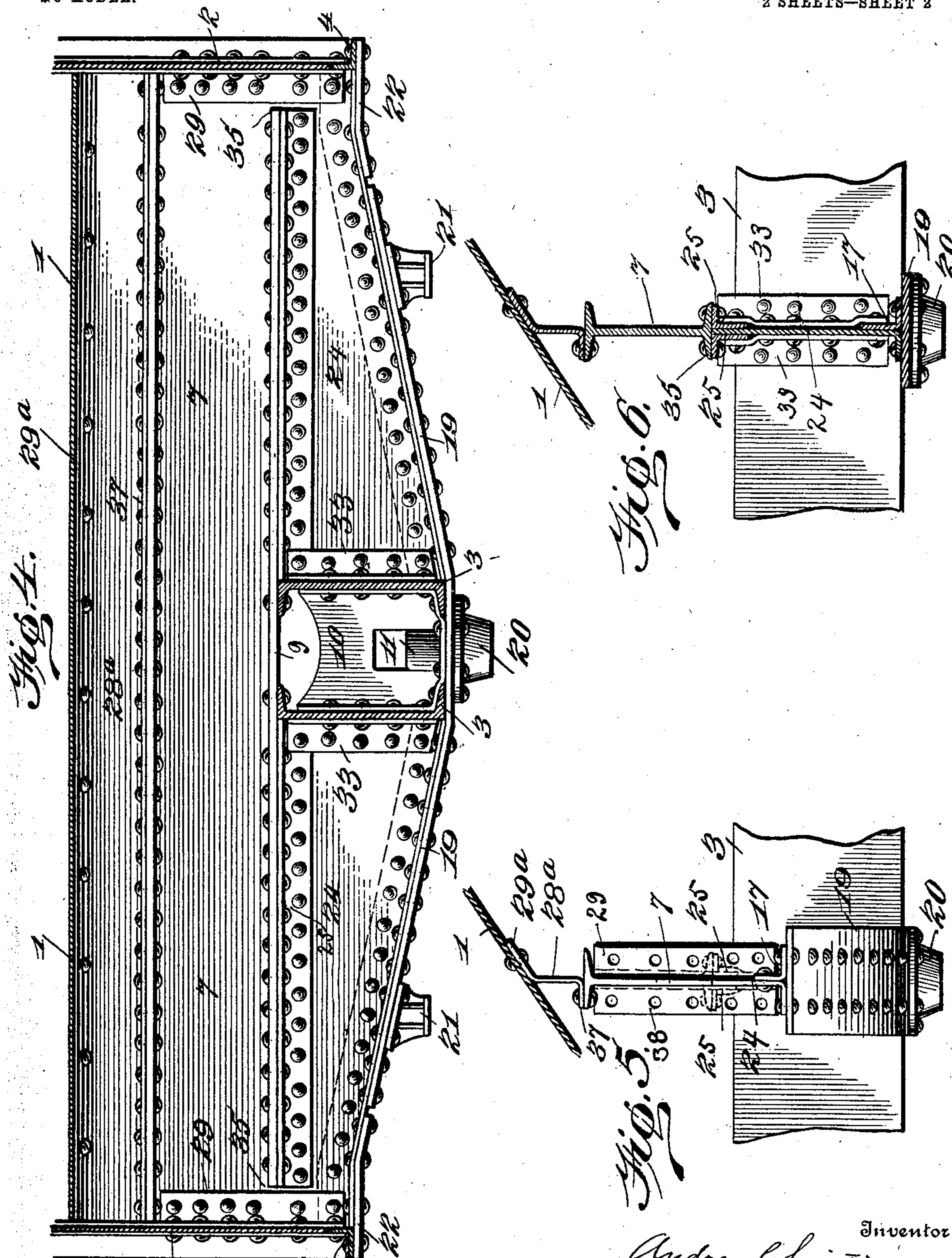
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UNITED STATES PATENT OFFICE.

ANDREW CHRISTIANSON, OF ALLEGHENY, PENNSYLVANIA, ASSIGNOR TO
STANDARD STEEL CAR COMPANY, OF PITTSBURG, PENNSYLVANIA, A
CORPORATION OF PENNSYLVANIA.

BOLSTER FOR HOPPER-CARS.

SPECIFICATION forming part of Letters Patent No. 720,221, dated February 10, 1903.

Application filed June 9, 1902. Serial No. 110,815. (No model.)

To all whom it may concern:

Be it known that I, ANDREW CHRISTIANSON, a resident of Allegheny, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Bolsters for Hopper-Cars; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to metallic railway-cars, and more especially to bolsters for hopper-cars having inclined floors. Its object is to improve metallic cars in details of construction, which will be hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a transverse section of a car, showing my bolster applied thereto. Fig. 2 is an end view of the bolster, showing a portion of the floor-plates. Fig. 3 is a section on the line 3-3, Fig. 1; and Figs. 4, 5, and 6 are views similar to Figs. 1, 2, and 3, showing a modification.

My invention is shown applied to a hopper-bottom metallic car having the inclined floor-plates 1, side plates 2, and center sills 3. The latter are preferably channel-shaped structures, such as the rolled channel-beams shown, and placed, preferably, with their flanges projecting inwardly. The type of car illustrated has no side sills as such, but the side plates are provided with the bottom angle rails 4, and they are also provided with top angle-rails and vertical stiffeners, so that they are, in effect, plate-girders, which assist in supporting the load, as will be understood without further description.

The body-bolster comprises a flanged member, which may be either a channel-beam 6, as shown in Figs. 1, 2, and 3, or an I-beam 7, as shown in the remaining figures, or some other standard flanged shape. This member extends from side to side of the car and lies above the center sills, having its lower flange or flanges 9 riveted to the upper flanges of said sills. In conjunction with this transverse member I provide compression elements, consisting of a center brace 10, placed between the center sills, and web-fillers 12, on either side of the center sills. The center

brace, preferably, is of cast metal, provided with flanges, whereby it is secured to the center sills, and has a central boss 11, provided with a vertical opening for receiving the center pin.

The web-fillers 12 may be of various constructions. In Figs. 1, 2, and 3 they are shown as channel-shaped members of varying depth, having webs and top and bottom flanges 15 and 16, respectively. The top flanges 15 are riveted to the lower flange of the channel-beam 6. Riveted to the webs of the web-fillers, along their lower edges, are angle-bars 17, having their horizontal flanges flush with the bottom flanges 16 of the web-fillers. Riveted to the bottom flanges of the web-fillers and to the horizontal flanges of the angle-bars 17 is the bottom cover-plate 19, which extends underneath the center sills out toward the ends of the car. The center bearing-plate 20 and side bearings 21 are riveted to this bottom cover-plate. At the ends of the bolster are extension-plates 22, which are, in effect, continuations of the bottom cover-plate and extend beyond the ends of the bolster to form brackets for supporting and having secured thereto the lower angle-rails 4 of the car sides.

In the construction shown in Figs. 4, 5, and 6 the web-fillers comprise angle-plates 24 of varying depth, having the flanges at their lower edges and having also riveted to said lower edges the angle-bars 17, to which flanges and angle-bars the lower cover-plate 19 is riveted. The web-fillers are secured to the I-beam 7 by means of angle-bars 25, having their horizontal flanges riveted to the lower flanges of the I-beam and their vertical flanges riveted to the upper edges of the web-filler plates. The angle-plate 24 and one of the angle-bars 25 might be replaced by a single Z-bar, as will be readily understood.

Both forms of bolsters are reinforced by vertical stiffening-bars; but by reason of the differences in structure of the types of bolsters the vertical bars will be somewhat differently arranged. With the form of bolster shown in Figs. 1, 2, and 3 the channel 6 will preferably be strengthened by an angle-bar

27, riveted along the upper edge of its web, with its horizontal flange flush with the upper flange of the channel-bar. Suitably supported on the bolster is a floor-supporting plate 28, having a flange 29 at its upper edge, upon which the floor-plates 1 rest and to which they are riveted. This floor-support can conveniently be secured to the bolster by having its lower edge riveted between the channel-beam 6 and the strengthening-bar 27. At the ends of this bolster are two vertical strengthening angle-bars 29 and 30. The former extends from near the lower edge of the web-plate 12 to the upper flange of the channel-beam 6, the lower flange of the latter and the upper flange of the web-plate being cut away, as shown at 31, to make room for this angle-bar. The angle-bar 30 on the opposite face of the bolster extends from the bottom of the web-plates 12 up to the flange of the floor-supporting plate 28. It is slightly offset, as indicated at 32, to fit over the bottom angle member 17 and the plate 28. The angle-bar 27 extends only as far as these end vertical angle-pieces. The laterally-projecting flanges of the angles 29 and 30 serve as a convenient means for the attachment of the side plates 2 of the car. At the center of the bolster short vertical angle-bars 33 are riveted to the inner ends of the web-plates 12 and to the center sills, these angle-bars extending only for the depth of said web-plates. On the opposite face of the bolster are the vertical angle-bars 34, extending from near the bottom of the web-plates 12 to the stiffening-angle 27 and riveted to the web-plates, the channel-beam, and center sill. If desired, a short section of angle-bar 34^a may be riveted to the plate 28 above the angle-bar 27.

With the form of bolster shown in Figs. 4, 5, and 6 the end angle-bars 29 are substantially identical with those in the former construction, and the lower flange 9 of the I-beam and the angle-bars 25 are cut away, as shown at 35, to make place for these vertical angles. On the opposite face of the ends of this bolster is another channel-bar 38, which is of exactly the same height and arranged in the same way as the angle-bar 29. At the center of the car short angle-bars 33 are riveted to the inner ends of the web-plates and to the center sills, one on each face thereof, and do not, however, extend beyond the upper flanges of the web-fillers. The floor-support in this construction comprises a plate 28^a, having at its upper edge the flange 29^a for supporting the floor and having its lower edge provided with a flange 37, which is riveted to one of the upper flanges of the I-beam.

With both forms of my bolster the only special shapes are the web-plates, which preferably will be formed of pressed plate. All of the other parts are either ordinary flat plates or rolled commercial steel, and all of the parts are so united that the rivets can be driven by machinery. As a consequence the

bolster can be constructed at a minimum cost.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a metallic car, the combination with a center sill, of a body-bolster comprising a flanged member extending across the car and lying above the center sill and secured thereto, and a plate secured to said flanged member and having its upper edge flanged to form a floor-support.

2. In a metallic car, the combination with the center sill, of a body-bolster comprising a flanged member extending across the car above the center sill, two web-fillers one on either side of the center sill and abutting against and secured thereto and secured to the lower flange of said flanged member.

3. In a metallic car, the combination with a center sill, of a body-bolster comprising a vertically-disposed flanged member extending across the car and lying above the center sill, two web-fillers one on either side of the center sill and abutting against the same and riveted to the lower flange of the flanged member, and a tie-plate secured to the lower edges of said web-fillers and extending underneath the center sill.

4. In a metallic car, the combination with a center sill, of a body-bolster comprising a vertically-disposed flanged member extending across the car and lying above the center sill, and two web-fillers one on either side of the center sill, said web-fillers comprising flanged plates having their upper flanges secured to the lower flange of the flanged member.

5. In a metallic car, the combination with a center sill, of a body-bolster comprising a channel-beam extending across the car above the center sill, and two web-fillers one on either side of the center sill, said web-fillers comprising flanged shapes having their upper edges secured to the channel-beam.

6. In a metallic car, the combination with a center sill, of a body-bolster comprising a channel-beam extending across the car above the center sill, a stiffening-angle riveted to the web thereof near its upper edge, and two web-fillers one on either side of the center sill, said web-fillers comprising flanged shapes secured to the lower edge of the channel-beam.

7. In a metallic car, the combination with a center sill, of a body-bolster comprising a channel-beam extending across the car above the center sill, and two web-fillers one on either side of the center sill, said web-fillers comprising channel shapes having their upper flanges secured to the lower flange of the channel-beam, and a stiffening-angle riveted to the webs of said fillers near their lower edges.

8. In a metallic car, the combination with a center sill, of a body-bolster comprising a channel-beam extending across the car above the center sill, a stiffening-angle riveted to

the web thereof near its upper edge, and a floor-supporting plate secured between the channel-beam and the stiffening-angle.

5 9. In a metallic car, the combination with a center sill, of a body-bolster comprising a flanged member extending across the car above the center sill and secured thereto, a floor-supporting plate secured to the upper edge of said flanged member, vertically-ar-
10 ranged stiffening-angles riveted to the ends of the flanged member and floor-supporting plate.

15 10. In a metallic car, the combination with a center sill, of a body-bolster comprising a channel-beam extending across the car above the center sill, two web-fillers one on either

side of the center sill, said web-fillers having upper flanges riveted to the lower flange of the channel-beam, the floor-supporting plate riveted to the channel-beam and extending 20 upwardly, and vertical stiffening-angles riveted to the ends of the bolsters, those on one face extending from the bottom to the upper flange of the channel-beam and those on the other face extending upwardly beyond the 25 same and secured to the floor-supporting plate.

In testimony whereof I, the said ANDREW CHRISTIANSON, have hereunto set my hand.

ANDREW CHRISTIANSON.

Witnesses:

WM. BIERMAN,

ROBERT C. TOTTEN.