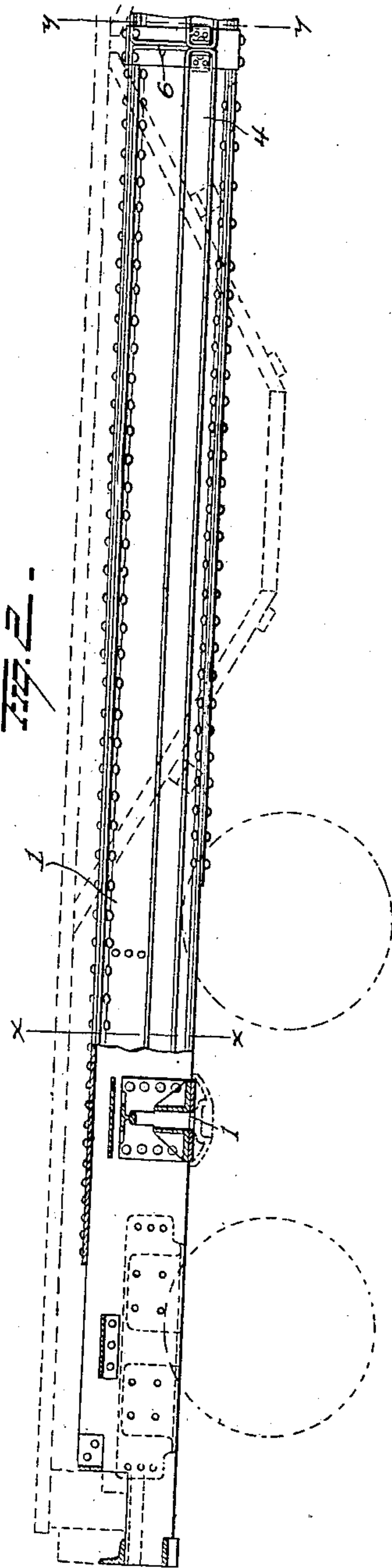
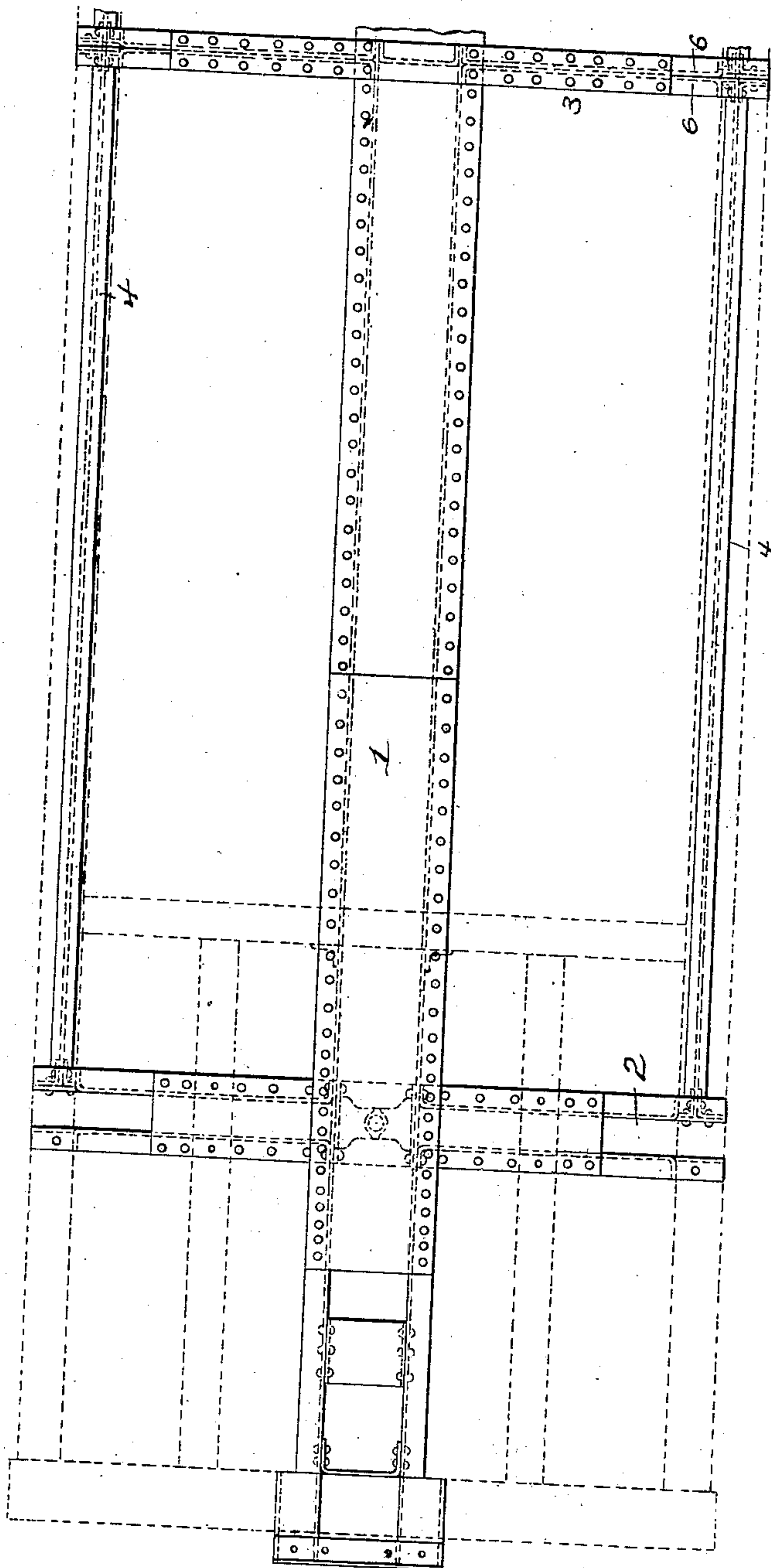


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Patented Feb. 16, 1909.

2 SHEETS—SHEET 1.



WITNESSES
E. W. Nottingham
G. J. Downing

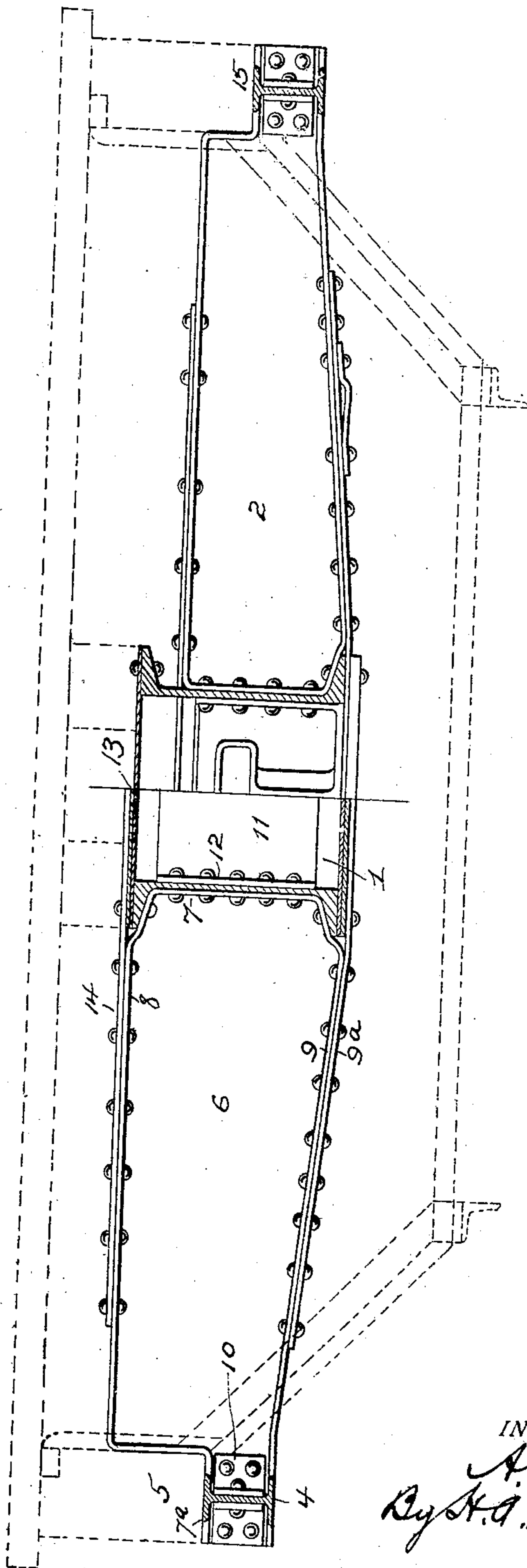
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Fig. 3.



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UNITED STATES PATENT OFFICE.

ANTON BECKER, OF COLUMBUS, OHIO, ASSIGNOR TO THE RALSTON STEEL CAR COMPANY,
OF COLUMBUS, OHIO.

UNDERFRAME FOR CARS.

No. 912,439.

Specification of Letters Patent.

Patented Feb. 16, 1909.

Application filed January 3, 1908. Serial No. 409,148.

To all whom it may concern:

Be it known that I, ANTON BECKER, of Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Underframes for Cars; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improved underframes for cars, and more particularly such as are adaptable for use with gondola cars of the "hopper-bottom" type, and in which the burden of the entire load is sustained by a certain sill or girder.

In the construction of underframes for cars having flat bottoms, it is possible to sustain that portion of the load which comes upon the side sills, by means of a number of cross-bearers secured at intervals to the side sills and connecting the latter with the center sill or girder. With a hopper-bottom car however it is not possible to use a number of such cross-bearers and it therefore becomes important to so construct the underframe for a hopper-bottom car that suitable space shall be afforded for the hopper-bottoms and at the same time so that the side sills shall properly sustain such weight as may be brought to bear thereupon, and it is the object of my invention to so construct an underframe for a hopper-bottom car that the side sills will have adequate support for such weight as might be brought to bear thereon, without the necessity for the provision of cross-bearers attached to or passing through the hoppers.

With this object in view the invention consists in certain novel features of construction and combinations and arrangements of parts as hereinafter set forth and pointed out in the claims.

In the accompanying drawings, Figure 1 is a plan view of a portion of a car underframe embodying my improvement. Fig. 2 is a side elevation partly in section, and Fig. 3 illustrates a transverse sectional view on the lines $x-x$ and $y-y$ of Fig. 2.

1 represents a center girder which, as shown in the drawing, may be of the "box-girder" type and 2 illustrates one of the bolsters. At the center of the underframe a cross-beam 3 is provided and at respective

sides of this cross-beam and between the same and the bolsters at respective ends of the car, the hopper-bottoms are located, as illustrated by dotted lines in Figs. 2 and 3, but as the construction of the hopper does not constitute any part of my present invention, they are not shown and described in detail. With an underframe of the type to which my invention relates, the center girder is adapted to sustain the entire load, portions of the latter being transmitted to said center girder from the side sills of the car structure, and as there will be spans of considerable length between the center of the underframe and the car bolsters, it is important that the side sills shall be effectually sustained where these spans occur. I therefore propose to provide under each side sill between the cross-beam 3 and the bolsters, I-beams 4 which will be disposed directly beneath the longitudinal center of each side-sill 5.

The cross-beam 3, above referred to, comprises two pairs of plates 6 disposed respectively at the sides of the center-girder and secured at their outer ends to the I-beams 4. The plates 6 of each pair are provided at their edges with flanges 7-8-9 and these plates are disposed back to back as shown in Fig. 2. The outer ends of the plates 6 are formed to provide depressed seats 7^a for the side-sills 5 and at these outer ends, the plates 6 are secured to the I-beams 4 by means of angle-irons 10. The flange 7 at the inner end of each plate 6 is bolted or riveted to a side member of the center-girder 1. A brace-plate 11 is located between the members of the center-girder and provided at its vertical edges with flanges 12, which are secured to said members of the center-girder by means of the same bolts or rivets which secure the flanges 7 of the plate 6 thereto.

The upper edges of the plates 6 which constitute the central cross-beam are substantially in line with the upper surface of the cover-plate 13 on the center-girder. A strap 14 extends over the center girder and also over the major portions of the cross-beam members and this strap is riveted to the flanges 8 on the upper edges of the plates constituting said cross-beams and it is also riveted to the upper flanges of the center-sill members. A similar transverse strap 9^a extends across the bottom of the center-

girder and is riveted to the latter and also to the bottom flanges 9 of the cross-beam members.

As clearly shown in Fig. 3, the bolsters are provided with depressed seats 15 for the side-sills and the I-beams 4 are secured to the bolsters under said depressed seats in the same manner as above described with relation to the connection of the cross-beam with the I-beams.

With the construction and arrangement above described, the only connection of the sides of the underframe with the center girder between the bolsters of the car, is afforded by the cross-beam 3 and the side-sills of the car between this cross-beam and the car bolsters will be effectually sustained and reinforced by the I-beams 4.

While I have described a single composite cross-beam 3 it is evident that two or more of such cross-beams may be employed so long as they are located in proximity to each other at the central portion only of the underframe.

My improvements are well adapted for applying underframes to wooden cars of the gondola hopper-bottom type and in the drawings, I have shown the outline of such car bottom in dotted lines.

Various slight changes might be made in the particular form and construction of the various parts herein described and hence I do not wish to restrict myself to the specific details set forth.

Having fully described my invention what I claim as new and desire to secure by Letters-Patent, is;—

1. In a car underframe, the combination with a center girder, side sills and transverse supports for the latter, of beams having compression and tension members at the respective edges and located under the side sills from one transverse support to another.

2. In a car underframe, the combination with a center girder, transverse members secured thereto and side sills mounted upon said transverse members, of beams having compression and tension members at the respective edges, said beams being located under and sustaining the side sills between the supports of the latter on the transverse members.

3. In a car underframe, the combination with a center girder, transverse members secured thereto and projecting laterally therefrom, and side sills at the outer ends of said transverse members, of I-beams disposed under the side sills and sustaining the same against vertical and lateral strains from one transverse member to another.

4. In a car underframe, the combination with a center girder, transverse members secured thereto and projecting laterally therefrom, said transverse members having seats

at their outer ends, and side sills mounted on the seats of said transverse members, of beams having compression and tension members at the respective edges, disposed under and sustaining said side sills between the seats for the latter on the transverse members.

5. In an underframe for hopper bottom cars, the combination with a center girder, bolsters and side sills, of a cross-beam located approximately centrally between the bolsters, and sustaining beams for the side sills located under the latter and connecting the central cross-beam with the bolsters, said sustaining beams having compression and tension members at the respective edges.

6. In an underframe for hopper-bottom cars, the combination with side sills and transverse supports therefor, of I-beams located under and sustaining the side sills between said transverse supports.

7. In an underframe for hopper-bottom cars, the combination with side sills and transverse supports therefor, of beams having compression and tension members at the respective edges and located under said side sills for sustaining the latter between the lateral supports, said sustaining beams being secured at their ends to the transverse side sill supports.

8. In an underframe for hopper-bottom cars, the combination with a center girder and bolsters secured thereto, of a cross-beam secured to the center girder approximately centrally between the bolsters, and beams having compression and tension members at the respective edges and connecting the outer ends of the central cross-beam with the outer ends of the bolsters and constituting sustaining means for the side sills of a car between the seats of the side sills upon the bolsters and central cross-beam.

9. In an underframe for hopper-bottom cars, the combination with a center girder, bolsters secured thereto and provided at their outer ends with depressed seats for side sills, of a centrally located cross-beam secured to the center girder and provided at its outer ends with depressed seats for side sills, and beams having compression and tension members at the respective edges, secured at their ends to the cross-beam and the bolsters under the side sill seats thereof and sustaining the side sills against vertical and lateral strains between the seats of the side sills upon the bolster and central cross-beam.

In testimony whereof, I have signed this specification in the presence of two subscribing witnesses.

ANTON BECKER.

Witnesses:

E. J. CULVER,

W. T. SHELDON.