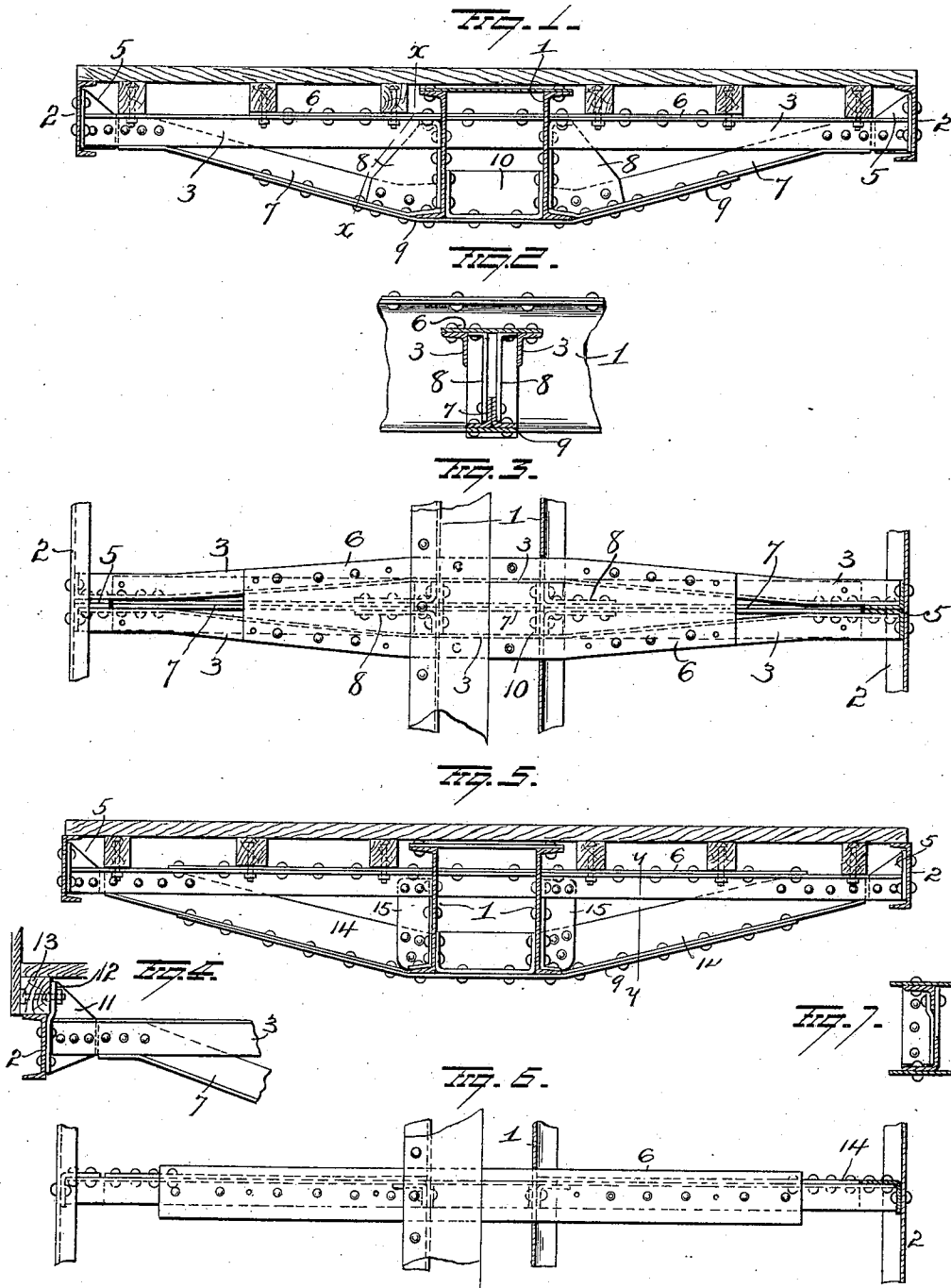


A. BECKER.
 UNDERFRAME FOR CARS.
 APPLICATION FILED APR. 16, 1909.

934,382.

Patented Sept. 14, 1909.



WITNESSES
E. Nottingham
G. J. Downing

INVENTOR
A. Becker
 By *H. A. Seymour*
 Attorney

UNITED STATES PATENT OFFICE.

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

UNDERFRAME FOR CARS.

934,382.

Specification of Letters Patent. Patented Sept. 14, 1909.

Application filed April 16, 1909. Serial No. 490,302.

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.

This invention relates to improvements in underframes for cars, and more particularly to the construction of the cross-bearers and their connection with the center girder,—the object of the invention being to so construct the cross-bearers of the underframe and connect the same with the center girder and side sills in such manner that they will operate to transmit the load to the center girder and thus cause the latter to sustain substantially the entire load.

A further object is to eliminate the use of diaphragms at each side of the center girder in the construction of the cross-bearers.

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

In the accompanying drawings, Figure 1 is a transverse sectional view of a car underframe embodying my invention. Fig. 2 is a view in section on the line $x-x$ of Fig. 1. Fig. 3 is a plan view of the structure shown in Fig. 1. Fig. 4 is a view of a modification showing the application of my improvements to a box car and illustrating the manner of securing the sheeting in place. Fig. 5 is a transverse sectional view of a car underframe showing a modification of my invention. Fig. 6 is a plan view of the structure shown in Fig. 5, and Fig. 7 is a sectional view on the line $y-y$ of Fig. 5.

1 represents a center girder of the box type and 2 the side sills of a car underframe.

Two angle beams 3, 3, pass through slots in the center girder members and extend to the side sills 2. The angle beams 3 are spaced apart where they pass through the center girder and then converge toward the side sills, the outer ends of said angle beams being disposed parallel with each other in proximity to the side sills and have secured between them, gussets 5. The gussets 5 project somewhat above the plane of the beams

3 and are securely riveted to the side sills 2. A cover plate 6 is secured upon the angle beams 3 and passes through the center girder. The angle-beams 3 and cover plate 6 constitute the tension members of a cross-bearer,—the compression members consisting of the diagonally disposed angle-beams 7 having their outer ends disposed between the parallel portions of the tension angle beams 3 and securely riveted to the latter. The inner end of each compression member 7 terminates coincident with the lower side of the center girder and is secured to the center girder by means of a bracket 8. Each bracket 8 is secured at its lower edge to the vertical flange of the diagonal tension member 7 and to the vertical web of a center girder member. A compression plate 9 is secured at its respective ends to the horizontal flanges of the angle beam compression member 7 and passes under the center girder. Between the center girder members and in line with each cross-bearer, a compression brace 10 is secured and this compression brace may if desired be provided with a flange at its lower edge riveted to the compression plate 9.

In the construction shown in Fig. 4, each gusset 11 which connects the cross-bearer to the side sill, projects above the plane of both the cross-bearer and the side sill and is provided with a lateral flange 12. With this construction the side furring strip 13 of a box car can be seated upon the top of the side sill and bolted to the lateral flange 12 of the gusset 11.

In the construction shown in Figs. 5, 6 and 7, the lower member of each cross-bearer consists of an angle beam 14 of pressed form and containing more metal in its vertical web than is contained in the vertical web of the lower member 7, shown in Fig. 1. Instead of the triangular bracket 8 shown in Fig. 1, an elongated bracket 15 may be employed, as shown in Fig. 5, said bracket 15 having a vertical flange secured to the center girder and having its end portions riveted to the top member of the cross-bearer and the wide vertical web of the lower or compression member of said cross-bearer. In other respects the construction shown in Figs. 5, 6 and 7 is similar to that shown in Fig. 1, with the exception that instead of making the upper member of the cross-bearer in two parts, a single angle-beam is employed.

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, of a cross-bearer comprising a continuous angle-beam tension member extending from side to side of the underframe, a continuous tension plate secured to said tension beam at respective sides of the center girder, compression angle beams secured to the tension beams and connected with the center girder, and a continuous compression plate secured to the compression beams and passing under the center girder.

2. In a car underframe, the combination with a center girder and side sills, of a cross-bearer comprising an angle-beam extending from one side sill to the other, and angle beams, each secured at its outer end to said continuous angle beam and connected at its inner end with the lower portion of the center girder.

3. In a car underframe, the combination with a center girder and side sills, of a continuous horizontal angle beam extending from one side sill to the other and passing through the center girder, diagonal angle-beams secured at their outer ends with the continuous angle beam and at their inner ends to the lower portion of the center girder, and a compression plate secured to said diagonal angle beam and to the center girder.

4. In a car underframe, the combination with a center girder and side sills, of a cross-

bearer having its tension member composed of a continuous angle beam extending from one side sill to the other, a tension plate secured to said angle beam tension member, diagonal angle beam compression members secured at their outer ends to the ends of the tension member and connected at their inner ends to the lower portion of the center girder, and a compression plate secured to diagonal compression members and passing under the center girder.

5. In a car underframe, the combination with a center girder and side sills, of a cross-bearer comprising a tension member consisting of two angle beams spaced apart at their intermediate portions and extending from one side sill to the other, the ends of said angle beams disposed parallel with each other, gussets connecting the parallel ends of said angle beams with the side sills, compression members consisting of angle beams having their outer ends disposed between and secured to the parallel portions of the first mentioned angle beams and having their inner ends connected with the center girder at the lower edge thereof, and a compression plate secured to the compression beam and made continuous from one side of the center girder to the other.

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

ANTON BECKER.

Witnesses:

T. A. LIVINGSTON,
E. S. CULVER.