J. R. CARDWELL.

CAR CONSTRUCTION.

APPLICATION FILED APR. 14, 1905.

960,502. Patented June 7, 1910.

Fig. 1.

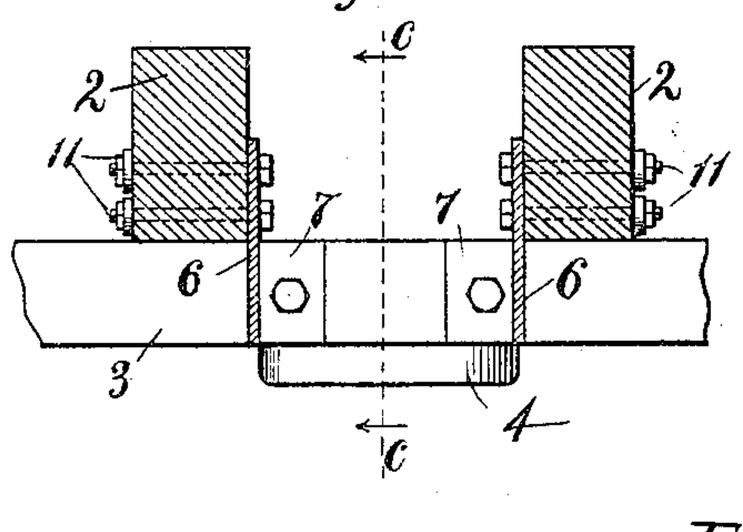


Fig. 2.

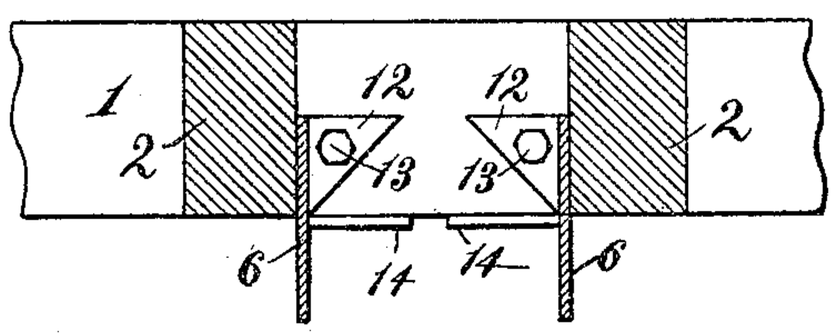


Fig. 3.

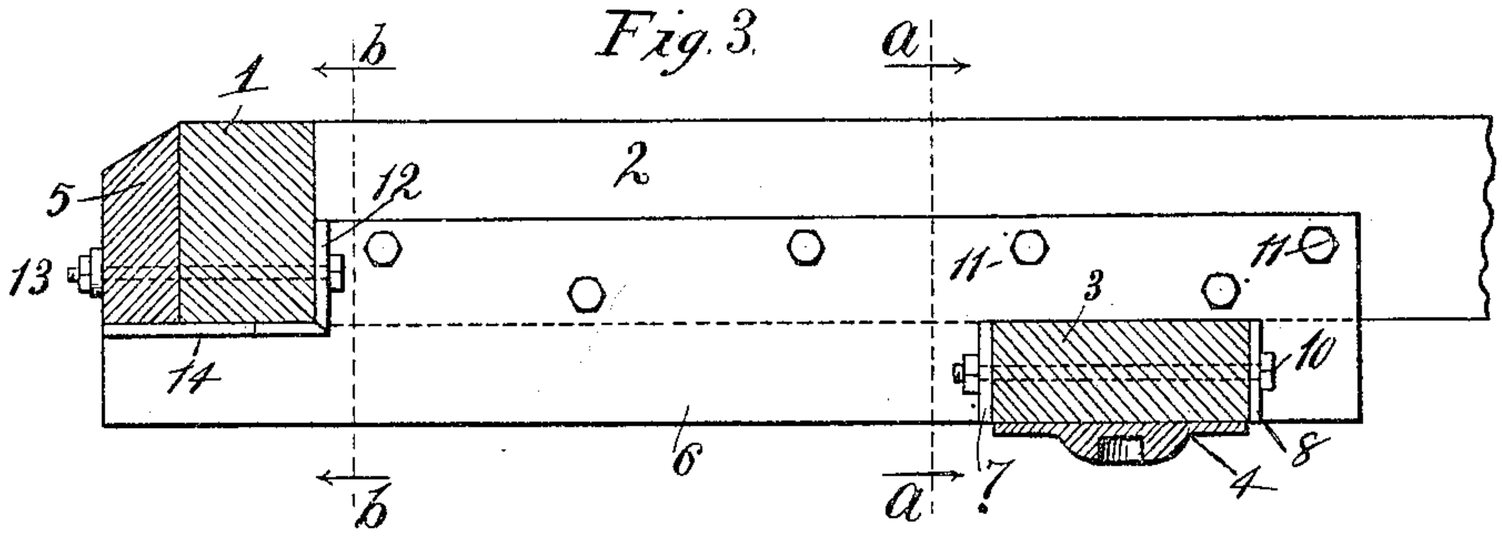


Fig. 4.

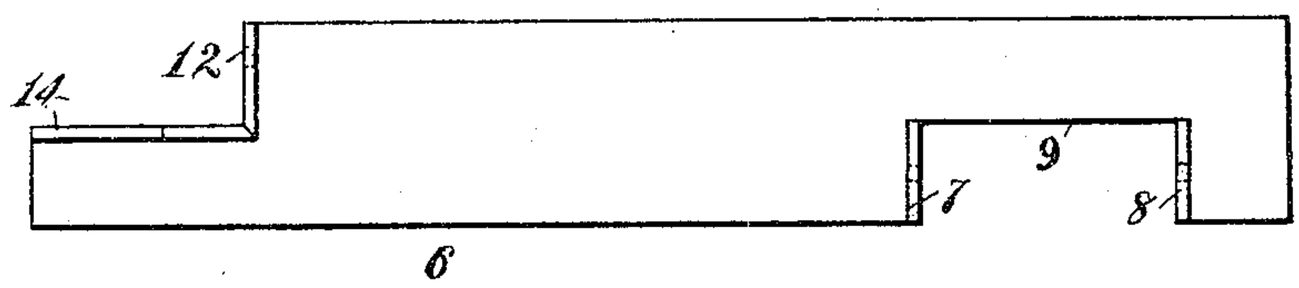


Fig. 5.

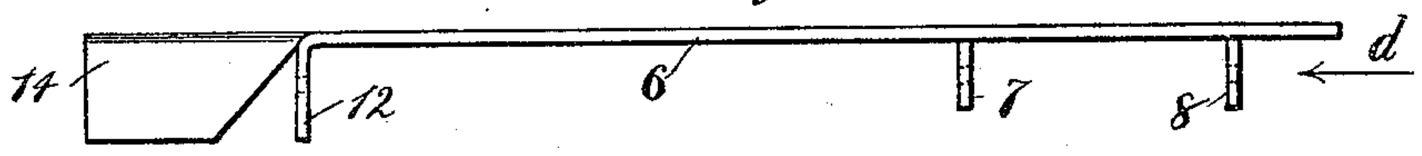


Fig. 6.

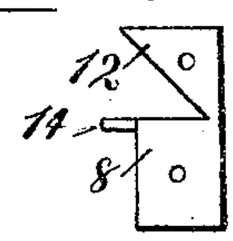
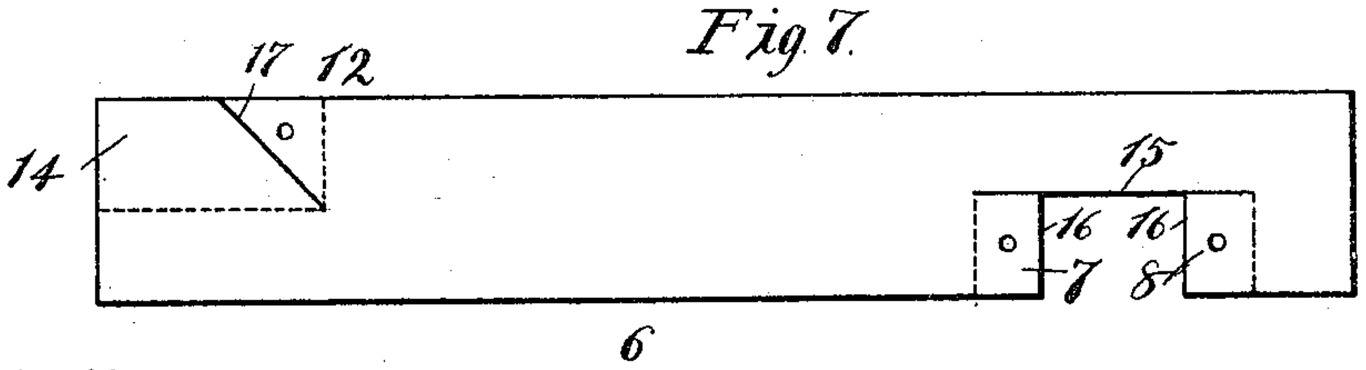


Fig. 7.



Witnesses:

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UNITED STATES PATENT OFFICE.

JAMES R. CARDWELL, OF CHICAGO, ILLINOIS.

CAR CONSTRUCTION.

960,502. Specification of Letters Patent. Patented June 7, 1910.

Application filed April 14, 1905. Serial No. 255,571.

To all whom it may concern:

Be it known that I, JAMES R. CARDWELL, citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Car Construction, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to the construction of under frames of car bodies, and has for its object the provision of improved reinforcement and mechanical connections for the end sills, the body bolsters and the center sills forming parts of said frames.

In the preferred embodiment of my invention, the above objects are realized by the employment of plates which may act also as draft sills.

By means of my invention tie rods between the end sills and body bolsters may be eliminated. These tie rods act as tension members, but, in the preferred embodiment of my invention, the plates named, in combination with certain adjuncts thereto, act as tension and compression members. To secure this latter result the plates are provided with wings, preferably, though not necessarily, integrally formed therewith, the body bolsters being in engagement with these wings, preferably, as are also the end sills. As the under frames commonly employ two center sills extending longitudinally of the car, there are preferably two of these winged plates for the center sills, one at each end, there being thus four such plates to each car.

I will explain my invention more fully by reference to the accompanying drawing, showing the preferred embodiment thereof, in which—

Figure 1 is a view in cross-section on line *a*—*a* of Fig. 3. Fig. 2 is a view in cross-section on line *b*—*b* of Fig. 3. Fig. 3 is a central longitudinal sectional elevation on line *c*—*c* of Fig. 1. Fig. 4 is a longitudinal elevation of a completely constructed draft sill plate. Fig. 5 is a plan view of the plate as it appears in Fig. 4. Fig. 6 is an end elevation in the direction of arrow *d* of Fig. 5. Fig. 7 is a longitudinal elevation of a partially formed draft sill, showing one of the stages of its construction.

Like parts are indicated by similar characters of reference throughout the different figures.

I have shown only so much of the under frame as is essential to an understanding of my invention, there being indicated an end sill 1, two center sills 2—2, a body bolster 3 provided with a center plate 4, the end sill 1 being shown with the usual buffer block 5 in front of the same. This structure is duplicated at the other end of the car. Each end sill 1 and each body bolster 3 has associated therewith two metal plates 6 of my invention which may also constitute draft sills, if desired. These plates 6 are provided with wings 7 engaging the front face of the body bolster and wings 8 engaging the rear face of the body bolster, these wings desirably being equal in height to the vertical thickness of the body bolster. Each plate 6 is preferably equal in width to twice the vertical thickness of the body bolster, each plate 6 having a recess 9 therein that corresponds in size to the cross-section of the body bolster, said plate being thus preferably extended on both sides of the body bolster, so as to secure a firm purchase thereon against each of its vertical faces that extend across the frame.

One or more bolts 10 may be passed longitudinally of the under frame through the body bolster and through the wings 7—8 to prevent the corresponding plate from twisting out of position. A number of other bolts 11 distributed longitudinally of each plate, pass through the same and through the corresponding center sill, to secure the plates or sills 6 firmly in position. The other end of each plate 6 is provided with a wing 12 that, by means of a bolt 13, is secured to the rear face of the corresponding end sill and with a wing 14 extending underneath the bottom face of the end sill. It will be seen that each plate 6 is carried forwardly to have its front faces in line with the surface of the element 5 that receives the impact of the coupler horn, said plate 6 thus also taking a part of the blow of the coupler horn. The blows of the coupler horn are received by the wings 14. The bolts 13 desirably also pass through the buffer blocks, while the wings 14 preferably extend underneath said block, to be flush with the buffer surface, to make a more rigid construction for the coupler horn to strike. It will thus be seen that the plates 6 are disposed in vertical planes

and longitudinally of the center sills, while the wings extend at right angles therefrom substantially. The wings 7—8—12 lie in vertical planes, while the wing 14 lies in a horizontal plane below the wing 12. All of the wings extend laterally from their plate. The wings 12—14 of each plate 6 form a pocket for the end sill and the buffer block. Said wings for each plate are desirably formed integrally therewith, to which end each plate is desirably sheared along the longitudinal line 15, the transverse lines 16, and the oblique line 17, whereafter the metal at these sheared or cut parts is bent to form the wings. I do not wish to be limited, however, in all embodiments of my invention to a construction wherein the wings are integrally formed with the plate, nor do I wish to be limited in all embodiments of my invention to the employment of as many wings for each plate as I have indicated. The end sill end of each plate is recessed from the top side of the plate to afford a pocket for the end sill, while it is recessed at 9 from the bottom side of the plate to afford a pocket for the body bolster. The plates 6 are preferably disposed between the center sills, though this construction need not be rigidly adhered to.

Not wishing to be limited to the precise features shown as modifications may readily be made without departing from the spirit of my invention, I claim as new and desire to secure by Letters-Patent the following:—

1. An under frame for car bodies including end sills, center sills, body bolsters, and metal plates provided with pockets at their bottom portions for receiving the body bolsters, which plates are also fastened to the center sills, each pocket having wings integral with the plate having this pocket and extending laterally of the plate in which the pocket is formed, and engaging the corresponding body bolster upon its front and rear vertical faces, each plate also having a pocket formed in its upper portion and there provided with wings integral with the plate having this pocket and extending laterally of the plate and engaging the rear vertical face and the bottom face of the corresponding end sill, the said plates extending forwardly and having transversely extending integrally formed wings 14, 14 positioned to receive blows of the coupler horns.

2. An under frame for car bodies including end sills, center sills, body bolsters, and metal plates provided with pockets at their bottom portions for receiving the body bolsters, which plates are also fastened to the center sills, each plate also having a pocket formed in its upper portion and engaging the corresponding end sill, the said plates extending forwardly and having transversely extending wings 14, 14 positioned to receive blows of the coupler horns.

3. An under frame for car bodies including end sills, center sills, body bolsters, and metal plates fastened to the center sills and extending longitudinally thereof, said metal plates having transversely extending wings 14, 14 positioned to receive blows of the coupler horns.

In witness whereof, I hereunto subscribe my name this twelfth day of April A. D., 1905.

JAMES R. CARDWELL.

Witnesses:

G. L. Cragg,

Leon Stroh.