UNITED STATES PATENT OFFICE.

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DRAFT-ARM AND SILL-REINFORCEMENT.


To all whom it may concern:

Be it known that I, William J. Roa, residing at St. Louis, Missouri, and being a citizen of the United States, have invented certain new and useful Improvements in Draft-Arms and Sill-Reinforcements, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and to use the same, reference being had to the accompanying drawings, which illustrate the preferred form of the invention, though it is to be understood that the invention is not limited to the exact details of construction shown and described, as it is obvious that various modifications thereof will occur to persons skilled in the art.

In said drawings:

Figure 1 shows an end portion of an underframe extending from the striking plate rearwardly and is restricted to the transverse median zone of the underframe, being a composite view showing the improved draft arm and sill reinforcement in plan in the upper portion and in the lower portion being a horizontal section through the same.

Fig. 2 is a vertical section taken on the line 2—2 of Fig. 1, and Figs. 3, 4 and 5 are transverse detail sections, respectively, on the lines 3—3, 4—4 and 5—5 of Fig. 2.

The object of the invention is to inclose the outer ends of old wood center sills of cars for that portion thereof between body bolsters and end sills in such manner as to reinforce such old sills and to provide a large area of metal for the connection of draft lugs, to provide means for placing draft arm and center sill bolts in double shear and to facilitate the connection of new, metallic, draft arms with such old center sills of wood, such arms being adapted to receive well known forms of draft gears.

Figuring to the parts A A indicate wood center sills which extend from the wood end sill B at one end of the underframe to a correspondingly positioned end sill at the opposite end of the car.

C C indicate draft lugs such as are illustrated in Ellis Patent, 1,042,416 of October 29, 1912.

D indicates a striking casting of metal and E indicates a body bolster which may be of any suitable type.

A single relatively heavy plate 1 connected with each wood sill A A extends from its overlap of the striking casting, with which it is secured by rivets 2, to a line well back of the bolster shown and intermediate the pair of bolsters essential to a car underframe.

The upper portions 4 of the plates 1 are in contact with the outer faces of the wood center sills, as shown in Figs. 1, 3 and 4, 05 from the end sills well within the space between the body bolsters.

At the lower corners of the wood sills said plates are bent inwardly at 5 forming shoulders on which rest the wood sills which latter remain of full section except within the zone of the draft lugs.

The plates 1, forwardly of the bolster, extend vertically downwardly from the shoulders 5 and terminate, at some distance 75 below the wood sills, in outstanding flanges 7.

Paralleling each center sill and the portion 4 of plate 1 is a companion plate 10 which is provided with an offset shoulder 80 portion 11 for the reception of which the wood center sill is gained out as best illustrated in Fig. 8.

The plates 1 and 10 are secured to the center sills by long bolts 12 which extend 85 through and couple such parts securely together.

Similar bolts 12 connect the plate portion 4 and sill A where the plate continues rearwardly of the inner end of plate 10.

The plates 10 continue downwardly from the shoulders 11 in surface contact with the portions 6 of plates 1, being secured thereto as hereinafter described and terminate in approximately alinement with the lower edges 95 of the draft lugs C.

Plates 10 may extend beyond the rear end of the draft lugs as may be desired but it is desirable that they be concentric and that the rivets 15 employed to secure the draft lug in position shall extend through the draft lug and both of such plates so as to give said rivets greater bearing, and the bolts 12 aforementioned are placed in double shear, thereby materially increasing the efficiency of the assembly.

At each outer side of the plates 1 angle brackets 20 are connected respectively to the wood end sills and connection straps 21 110
unite the opposing flanges 7 before indicated.

At the rear or inner side of the bolster the lower oppositely disposed stiffening 5 flanges 22 of plates 1 are connected by one or more angles 10, one only being employed at each end of the underframe where wood or other subsills 28 are employed.

Forming the plates as illustrated and described provides a plurality of open mouthed pockets adapted to receive the center sills and the draft arms thus provided may be slipped up from below for connection with the wood sills to which the plates are bolted as hereinbefore described.

This is easy of accomplishment as such work is now performed due to the fact that, when old wood cars are strengthened to meet modern stresses, the old bolsters are commonly removed and stronger bolsters substituted.

Due to the shoulders 5 and 11 the lower portions of plates 1 and 10 are brought into surface contact vertically below the wood center sills and the draft lags are properly spaced to receive standard draft gears which may be found in many instances on the cars strengthened by the present invention.

It will also be noted that the lower part of plate 1 that extends from the striking casting D rearwardly to the bolster is channel-shaped while the upper portion of plate 1 is in the form of an angle, a portion of the horizontal flange of which also constitutes the top flange of the vertically disposed lower channel portion, and forms shoulder 5. Extending across and rearwardly of the bolster, the upper portion of said plate 1 is also angular, its horizontal flange 22 projecting outwardly.

What I claim is:

1. In combination, a single metal plate having top and bottom terminal edges and comprising a lower vertical channel portion and an upper angular portion a part of which forms part of said channel portion, another metal plate, the upper portions of both plates being spaced apart and the lower portions being in surface contact, a shoulder being formed intermediate the upper and lower portions of said plates, a wood center sill positioned between the upper portions of said plates to rest on said shoulder, and a draft lug secured to the lower portions of said plates.

2. In combination, shouldered plates comprising parallel plate metal portions spaced apart for a part of their upper portions and in surface contact for a part of their lower portions thereby forming a sill pocket, a wood center sill secured in said pocket between the spaced upper portions of said plates and a draft lug extending under said wood center sill and being secured to the lower portions of said plates.

3. In combination, a plurality of separately formed plates comprising parallel upper portions spaced apart said plates being juxtaposed for a part of their lower portions and stiffened by a lower flange throughout the major portion of their juxtaposition, and there being a shoulder intermediate the upper and lower portions of said plates adapted to support a wood center sill between the spaced upper portions of said plates and above said shoulder and a draft lug secured to the lower portions of said plates.

4. In combination, an end sill, a bolster, a single metal plate comprising a lower vertical channel portion and an upper angular portion a part of which forms part of said channel portion, another metal plate, the upper portions of both plates being spaced apart and the lower portions being in surface contact, a shoulder being formed intermediate the upper and lower portions of said plates, a wood center sill positioned between the upper portions of said plates to rest on said shoulder, and a draft lug secured to the lower portions of said plates.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

WILLIAM J. ROA.

Witnesses:

WILLIAM V. MORRISON,
OSCAR H. OCHSTENS.

Copies of this patent may be obtained for five cents each, by addressing the “Commissioner of Patents, Washington, D.C.”