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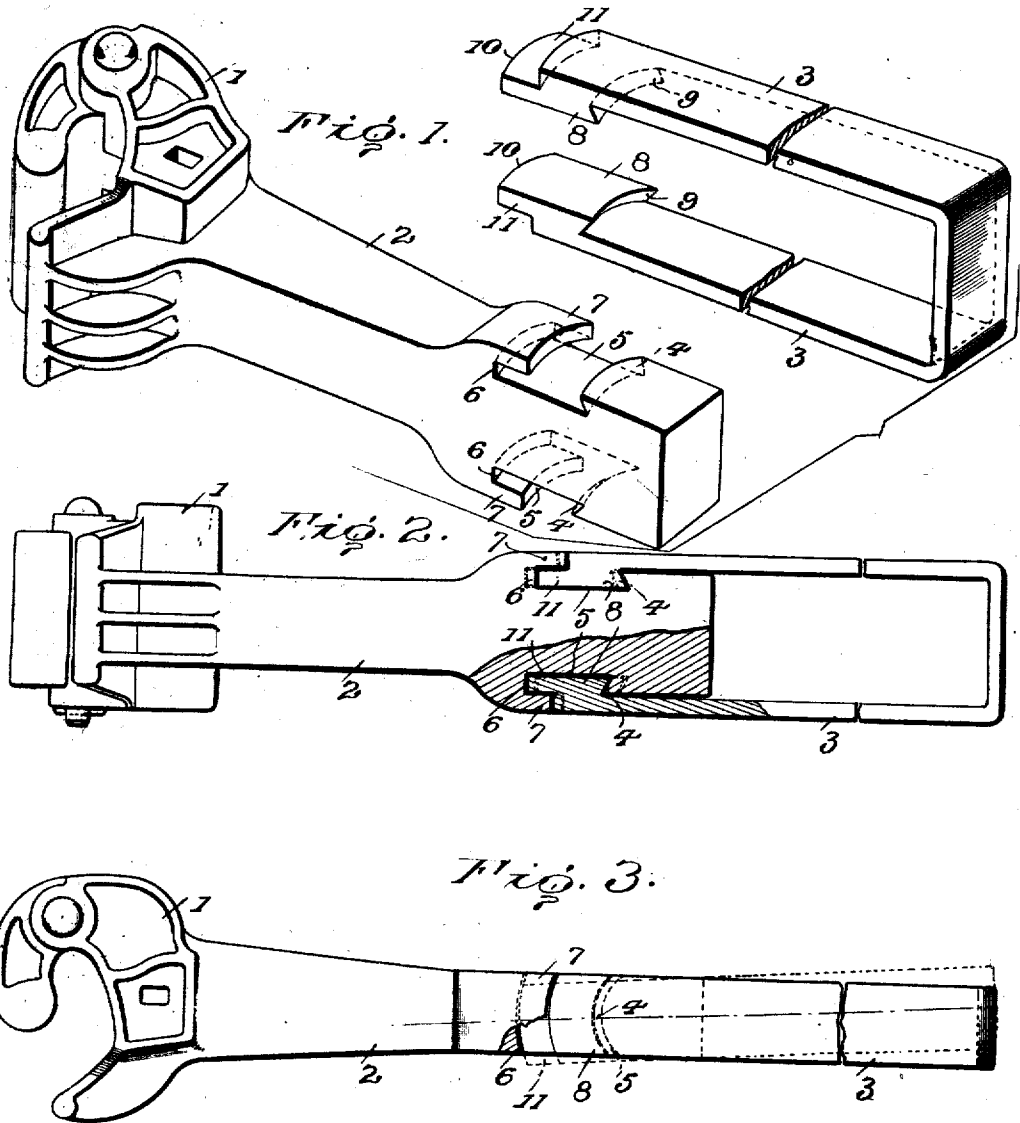
DRAFT RIGGING FOR CARS.

APPLICATION FILED NOV. 21, 1907.

1,017,108.

Patented Feb. 13, 1912.

2 SHEETS—SHEET 1.



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Fig. 4.

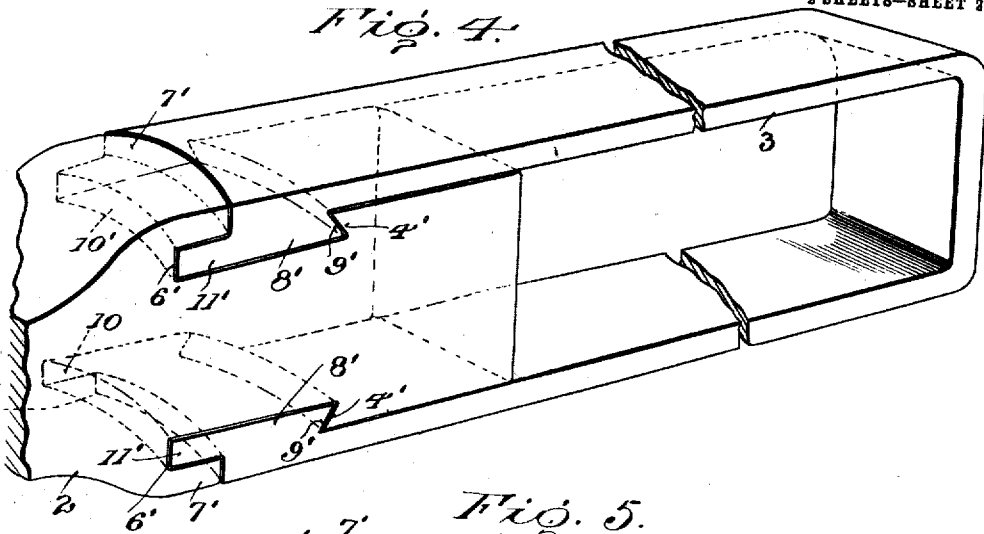


Fig. 5.

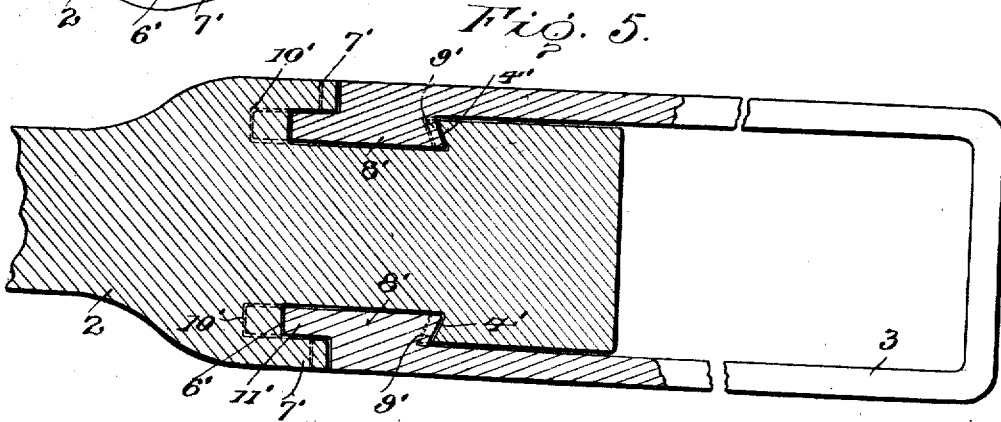
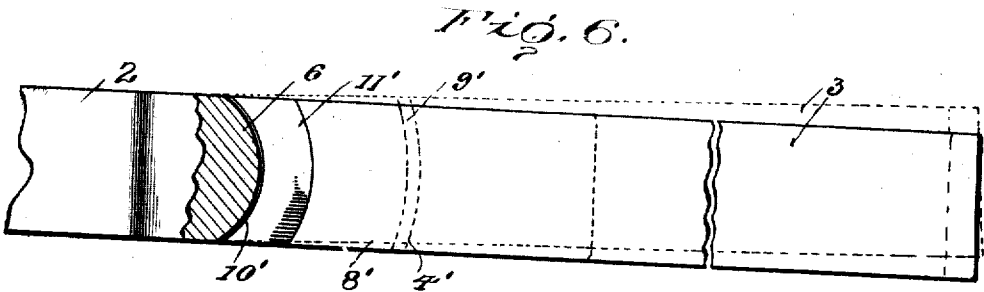


Fig. 6.



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UNITED STATES PATENT OFFICE.

ALOIS P. PRENDERGAST AND JOHN J. TATUM, OF BALTIMORE, MARYLAND.

DRAFT-RIGGING FOR CARS.

1,017,108.

Specification of Letters Patent.

Patented Feb. 13, 1912.

Application filed November 21, 1907. Serial No. 403,204.

To all whom it may concern:

Be it known that we, ALOIS P. PRENDERGAST and JOHN J. TATUM, both of Baltimore, Maryland, have invented a new and useful
5 Improvement in Draft-Rigging for Cars, which improvement is fully set forth in the following specification.

This invention relates to draft rigging for railway cars, and more particularly to
10 the construction of the draw-bar connected to the coupler mechanism and the yoke through which the said draw-bar is connected to the car proper. In our Patent No. 837,754, dated December 4, 1906, we have
15 shown a construction of this character in which the draft is taken by curved engaging shoulders upon the draw-bar and yoke, and a pin is passed through the yoke and draw-bar to prevent the yoke from slipping later-
20 ally with relation to the bar without, however, imposing any of the draft strain upon said pin.

The present invention is designed as an improvement upon the construction shown
25 in said patent, and has for its object to simplify the construction, reduce the number of parts, and facilitate the ready substitution of one part for another by the train-hands in case of breakage along the train line, there-
30 by avoiding the necessity of returning the car to the shops for repairs. These objects are accomplished by the elimination of the pin and by the peculiar construction of the engaging shoulders on the draw-bar and
35 yoke respectively, whereby the lateral disengagement of the yoke and the draw-bar is rendered impossible when the parts are in place, while at the same time affording the flexibility necessary to enable the train to
40 pass even the sharpest curves without materially diminishing the engaging surfaces between the yoke and the draw-bar. Furthermore, means are provided for preventing the spread of the outer ends of the yoke and the
45 consequent disengagement of the latter from the draw-bar, said means consisting of shoulders on the draw-bar projecting over the ends of the yoke, thereby firmly but flexibly holding the parts in working posi-
50 tion.

The invention is capable of being embodied in a variety of mechanical structures, two of which, for the sake of illustrating the invention, are shown in the accompanying
55 drawings in which—

Figure 1 is a perspective view of the draw-bar and yoke disengaged from each other; Fig. 2 is a broken side elevation of the draw-bar and yoke assembled in their operative positions; Fig. 3 is a plan view of Fig. 2; Fig. 4 is a broken perspective illustrating
60 another embodiment of the inventive idea; Fig. 5 is a part sectional side elevation of Fig. 4; and Fig. 6 is a broken plan of Fig. 5.

Referring to Figs. 1 to 3 of the drawings, 65 in which like reference numerals indicate like parts, 1 is a coupler-head of any suitable or usual construction, 2 is the draw-bar carrying the coupler-head 1, and 3 is the yoke. The inner end of the draw-bar is
70 provided on the upper and lower sides thereof with undercut shoulders 4, 4, struck in the arc of a circle whose axis is on that side of the shoulders lying toward the yoke. These shoulders 4, 4, form one end of slots
75 or grooves 5, 5, whose other ends 6, 6, are arc-shaped, being struck from the same center as the arcs of the shoulders 4, 4. Projecting over the ends 6, 6, of the grooves 5, 5, are lugs 7, 7, which extend toward but
80 not to the shoulders 4, 4, there being intervening slots or spaces between the ends of the lugs 7, 7, and the shoulders 4, 4, as will be clearly understood by reference to Fig. 1. The projecting ends of the lugs 7, 7, are
85 arc-shaped, the center of the arcs being the center from which the arcs of the shoulders 4 and 6 are struck. Each arm of the yoke 3 is provided with an inwardly projecting lug 8 having undercut curved shoulders 9,
90 and with the ends of the lugs curved or arc-shaped as shown at 10, the axis of the shoulders 9 and the arcs 10 being the same as that of the undercut shoulders 4 and the shoulders 6 upon the draw-bar. The inwardly
95 projecting lugs 8 are cut away on their ends, as shown at 11, 11, so that when the parts are assembled such cut-away portions pass under the lugs 7, 7, on the draw-bar, with the undercut shoulders 9, 9, on the yoke, en- 100

gaging the undercut shoulders 4, 4, on the draw-bar, as will be clearly understood from inspection of Fig. 2.

It will be seen that by this construction the spreading of the yoke under strains of the draft is prevented by the engagement of the ends 11 of the yoke with the lugs 7 on the draw-bar, and by the undercut construction of the shoulders 4 and 9. Furthermore, it will be apparent that all of the draft strains are taken between the shoulders 4 and 9, and that the bumping strains will be taken up between the ends of the yoke 11 and the shoulders 6 and the ends of the lug 7 and the shoulders formed by the cut-away portions 11 on the yoke. It will furthermore be apparent that while it is rendered impossible for the yoke and the draw-bar to become separated, there is nevertheless perfect flexibility of the parts, since the passage of the train around curves is readily permitted by the arc-shaped shoulders, while the extent of the engaging surfaces when the train is going around a curve is only very slightly reduced over that obtained when the train is on a straight track. This latter will be readily appreciated by an inspection of Fig. 3, in which full lines indicate the relative positions of the draw-bar and the yoke on a straight track, and the dotted lines the positions assumed when passing around a curve. The disengagement of the yoke from the draw-bar when the parts are in position upon the car is prevented by the engagement of the draw-bar and yoke with the sill and other parts of the framework of the car.

Referring to Figs. 4, 5 and 6, there is therein shown an embodiment of the invention in which the axis of the arc-shaped shoulders of the yoke and the draw-bar lies toward the coupler end of the draw-bar from said shoulders, instead of toward the closed end of the yoke, as is the case in the construction illustrated in Figs. 1 to 3. In this embodiment of the invention, 4', 4' indicate the arc-shaped shoulders on the draw-bar and 9', 9' indicate corresponding arc-shaped undercut shoulders on inwardly projecting lugs 8', 8' on the ends of the yoke, while 7', 7' indicate the projecting lugs on the draw-bar engaging the cut-away ends 11', 11' of the ends of the yoke, said cut-away ends being in the form of concave arc-shaped shoulders 10', 10' engaging corresponding convex arc-shaped shoulders 6', 6' on the draw-bar.

In both of the embodiments illustrated herein, the upper and lower surfaces of the yoke are preferably in the same plane as the outer surfaces of the respective lugs projecting over the end of the yoke, whereby a smooth, even and workmanlike finish is secured, though this is not essential, since if desired, the lugs 7 may project outward

beyond the surface of the yoke, or the surface of the yoke may project outward beyond the surface of the lugs.

It will be readily perceived that no highly skilled labor is required to disengage the yoke from the draw-bar and to substitute a new yoke or draw-bar, as the conditions may require. Furthermore, it will be perceived that the cost of manufacture is reduced to the minimum, since the entire structure is composed of but two parts, and that the labor of forming these parts is of a simple character. Furthermore, the entire structure is one of great strength and well calculated to sustain the necessary strains to which such parts are subjected, while at the same time avoiding breakages due to shearing of pins or rivets such as are liable to occur in structures heretofore employed. The strength of the parts is materially enhanced by the absence of any perforations for pins or rivets, and the cost of construction is also reduced by the lack of the necessity of forming such perforations and of supplying the pins or rivets heretofore employed, and all this is obtained while at the same time securing perfect flexibility of the parts and their certainty of engagement at all times when in position on the car.

Having thus described our invention, what we claim is:

1. In a draft rigging for cars, the combination of a draw-bar having a groove formed in the upper and lower faces thereof, the walls of said grooves being arc-shaped, and also having a lug projecting over one end of each of said grooves, the ends of said lugs being arc-shaped, with a yoke having arc-shaped shoulders engaging the arc-shaped walls of said grooves and other arc-shaped shoulders engaging the arc-shaped ends of said lugs, all of said arcs being struck from a common center located between said arcs and the closed end of said yoke.

2. In a draft rigging for cars, the combination of a draw-bar having a groove formed in the upper and lower faces thereof, the end walls of said grooves being arc-shaped, and also having a lug projecting over one end of each of said grooves, the ends of said lugs being arc-shaped, with a yoke having arc-shaped shoulders engaging the arc-shaped walls of said grooves, and other arc-shaped shoulders engaging the arc-shaped ends of said lugs, all of said arcs being struck from a common center located outside of said arcs.

3. In a draft rigging for cars, the combination of a draw-bar having on each of its upper and lower sides two arc-shaped end-thrust-receiving shoulders lying in different vertical and horizontal planes and an undercut draft-receiving arc-shaped shoulder, all of said arcs being struck from a common center outside of said arcs, with a non-perfo-

rated yoke embracing said draw-bar and having two arc-shaped shoulders engaging the said end-thrust-receiving shoulders on the bar, and an arc-shaped draft-receiving shoulder engaging the undercut shoulder on the draw-bar.

In testimony whereof we have signed this

specification in the presence of two subscribing witnesses.

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Witnesses:

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