

A. P. PRENDERGAST & J. J. TATUM.

DRAFT RIGGING FOR CARS.

APPLICATION FILED NOV. 25, 1907.

1,002,930.

Patented Sept. 12, 1911.

Fig. 1.

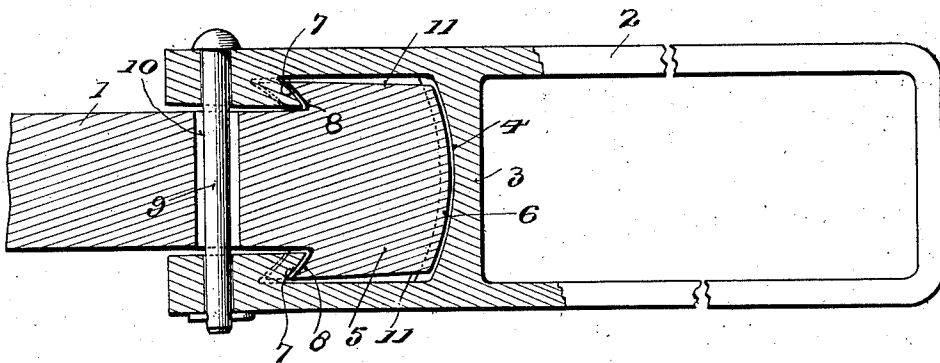


Fig. 2.

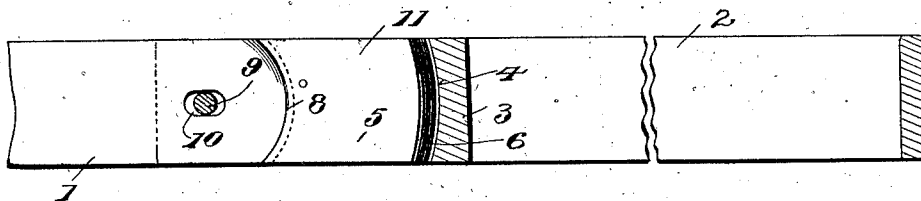


Fig. 3.

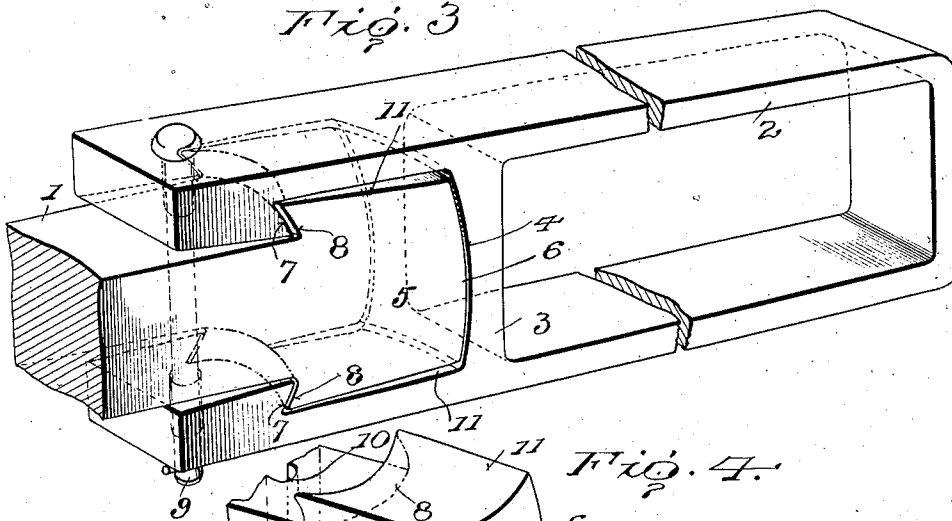
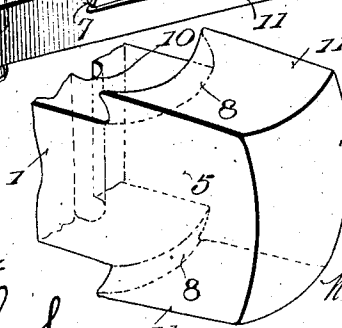


Fig. 4.



Witnesses  
M. B. Kernan.  
Ruth C. Fitzhugh.

Inventors  
A. P. Prendergast  
J. J. Tatum  
by  
Mauro Cameron Lewis Masie  
Attorneys

# UNITED STATES PATENT OFFICE.

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

## DRAFT-RIGGING FOR CARS.

1,002,930.

Specification of Letters Patent. Patented Sept. 12, 1911.

Application filed November 25, 1907. Serial No. 403,698.

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 Improvement in Draft-Rigging for Cars, which improvement is fully set forth in the following specification.

This invention relates to draft rigging for cars, and more particularly to the manner of uniting the draw-bar on the coupler to the yoke employed for connecting said draw-bar to the car.

In our Patent No. 837,754, granted Dec. 4, 1906, we have shown a construction of this character in which the draw-bar and the arms of the yoke have engaging arch-shaped shoulders which alone receive all the draft strains between the draw-bar and yoke, with a pin passing vertically through said yoke arms and draw-bar and the axis of said shoulders, the pin being free from draft strains.

The present invention is designed as an improvement on the structure of said patent, and particularly with the view of affording greater flexibility of the parts in a vertical as well as a horizontal direction.

The invention involves certain features of construction and combination of parts which will be hereinafter more specifically described and then pointed out in the claims.

While the inventive idea involved is capable of embodiment in a variety of mechanical structures, we have illustrated in the accompanying drawings the best embodiment with which we are familiar, in which drawings—

Figure 1 is a broken vertical section; Fig. 2 is a sectional plan, the draw-bar head being shown in full lines; Fig. 3 is a broken perspective of the yoke and the draw-bar head; and Fig. 4 is a broken perspective of the draw-bar head alone.

Referring to the drawings, in which like reference numerals indicate corresponding parts, 1 is the draw-bar, 2 is the yoke, the arms of which are connected by a bridge wall 3 whose face 4 adjacent to the draw-bar head 5 is formed like the concave surface of a portion of a sphere, the outer end 6 of the draw-bar head being formed like the convex portion of the surface of a sphere corresponding to the concave surface 4 of the bridge wall 3.

7, 7 are the draft shoulders, here shown as undercut on the inner faces of the ends

of the yoke-arms, and 8, 8, are corresponding undercut draft shoulders on the draw-bar head and facing in the reverse direction to the shoulders 7 on the yoke, said shoulders 7 and 8 being a portion of the surface of a sphere whose center is in pin 9 passing through an oblong hole 10 formed in the draw-bar between the head of said draw-bar and the coupler-head, said pin serving to prevent the lateral separation of the yoke and bar, but being free from draft strains, as in our patent referred to. The center of the sphere of which the end of the draw-bar head 5 forms a portion is the same as that for shoulders 7 and 8, and is located at a point along the axis of the pin 9 and midway between the upper and the lower faces of the draw-bar 1. The shank of the draw-bar is slightly smaller than the space between the inwardly projecting shoulders 7, 7 on the yoke, and the upper and lower faces of the head of the draw-bar lying between the arms of the yoke are slightly beveled, as shown at 11, 11, Fig. 1. It will be seen that by this construction not only does the draw-bar head have sufficient play to afford flexibility of the parts in a horizontal direction such as is necessary when the train is passing around curves, but in addition thereto, the draw-bar has a limited play in a vertical plane such as would occur when two cars whose couplers are in slightly different horizontal planes are to be coupled together. By reason of the oblong shape of the perforation or hole 10, the vertical play of the coupler bar occurs without any strain upon pin 9, and since all the draft strains are taken up by the engagement of the shoulders 7 and 8 on the yoke and draw-bar respectively, and the bumping strains are taken up between the spherical surfaces 4 and 6 on the bridge 3 and the head 5 respectively, it will be seen that the utmost flexibility of the parts is secured without imposing any draft or other strains upon the pin 9, except such as are merely required to prevent lateral relative movement between the draw-bar and the yoke such as occur when the parts are to be disassembled.

What we claim is:

1. In a draft rigging for cars, the combination of a draw-bar having a head whose end forms a portion of the convex surface of a sphere, and upwardly and downwardly projecting shoulders on either side of said head, with a yoke whose arms are united by

a bridge wall, one of whose faces constitutes a part of the concave surface of a sphere, said yoke having inwardly projecting shoulders engaging the shoulders on the upper and lower sides respectively of the draw-bar head.

2. In a draft rigging for cars, the combination of a draw-bar provided with outwardly projecting shoulders on its upper and lower sides and a longitudinally extending oblong perforation, the end of said head being shaped like a portion of the convex surface of a sphere, with a yoke having inwardly projecting shoulders engaging the shoulders on the draw-bar head, and a bridge wall located between the closed and open ends of said yoke and uniting the arms thereof, the surface of said wall adjacent to the draw-bar head being the concave surface of a portion of a sphere, and a pin passing through the ends of the yoke arms and the perforation in the draw-bar.

3. In a draft rigging for cars, the combination of a draw-bar having outwardly projecting shoulders provided with an oblong perforation, the end of the draw-bar head forming part of the convex surface of a sphere, whose center is located within said perforation, a yoke having inwardly projecting shoulders engaging the shoulders on the draw-bar head and provided with a bridge wall connecting the arms of the yoke, the surface of the bridge wall adjacent to the draw-bar head forming a part of the concave surface of a sphere whose center is also within said perforation, and a pin passing through the ends of the yoke-arms and said perforation.

4. In a draft rigging for cars, the combination of a draw-bar having outwardly projecting curved shoulders and an oblong perforation, the end of the draw-bar head forming a part of the convex surface of a sphere, and the draw-bar head being slightly beveled on its upper and lower surfaces, with a yoke having inwardly projecting curved shoulders engaging the curved shoulders on the draw-bar, the arms of said yoke being connected by a bridge wall whose surface adjacent to the draw-bar head forms a part

of the concave surface of a sphere, and a pin passing through the ends of the yoke-arms and the perforation in the draw-bar.

5. In a draft rigging for cars, the combination of a yoke whose arms are connected by a bridge wall, one of whose surfaces forms part of a concave surface of a sphere, the arms of said yoke being provided with inwardly projecting curved shoulders, a draw-bar having a longitudinally extending oblong perforation and provided with a head which latter fits loosely between the arms of said yoke, and having curved shoulders engaging the said shoulders on the yoke-arm, the end of the draw-bar head forming a part of the convex surface of a sphere and lying adjacent to the concave spherical surface of said bridge wall, and a pin passing through the ends of the yoke-arms and the longitudinally extending oblong perforation in the draw-bar.

6. In a draft rigging for cars, the combination of a draw-bar having upwardly and downwardly projecting shoulders on either side thereof, the surface of each of said shoulders forming a part of the surface of a sphere, with a yoke having inwardly projecting spherical shoulders engaging the shoulders on the upper and lower sides respectively of the draw-bar.

7. In a draft rigging for cars, the combination of a draw-bar having a head whose end forms a portion of the convex surface of a sphere, and upwardly and downwardly projecting concave spherical shoulders on either side of said head, with a yoke whose arms are united by a bridge wall having a face constituting a part of the concave surface of a sphere, said yoke having inwardly projecting convex spherical shoulders engaging the concave spherical shoulders on the draw-bar head.

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

ALOIS P. PRENDERGAST.  
JOHN J. TATUM.

Witnesses:

D. ARDIN CARRICK,  
GEO. W. CARRICK.