

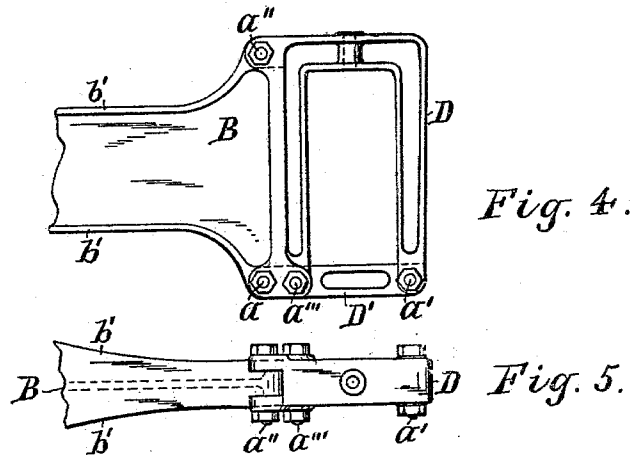
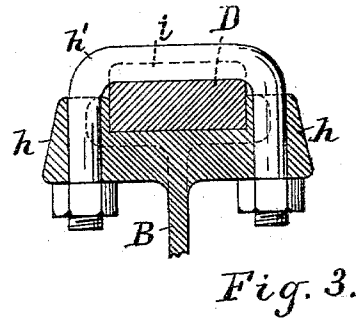
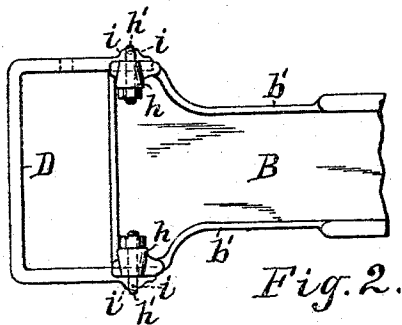
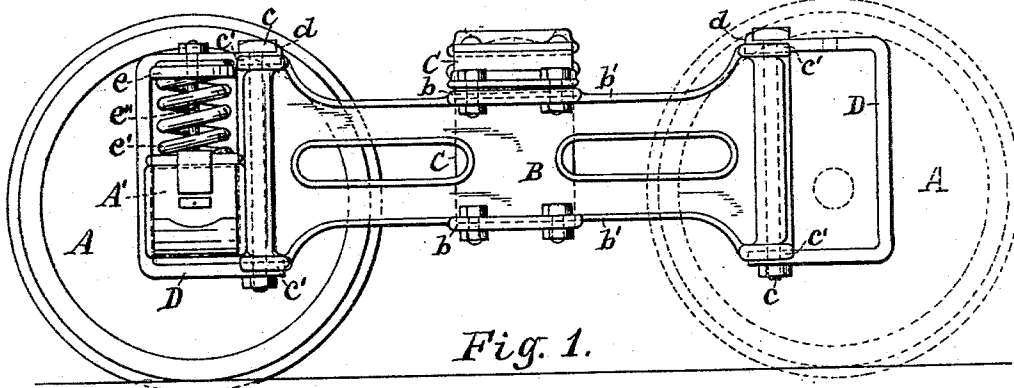
(No Model.)

2 Sheets—Sheet 1.

E. CLIFF.  
FREIGHT CAR TRUCK.

No. 553,103.

Patented Jan. 14, 1896.



Witnesses.

Mark W. Dewey  
Chas. D. Loring.

Inventor.

Edward Cliff.  
By C. H. Duell

his Attorney.

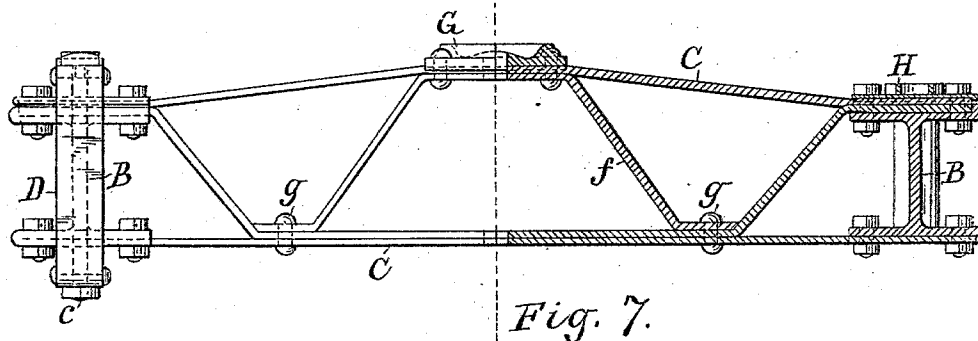
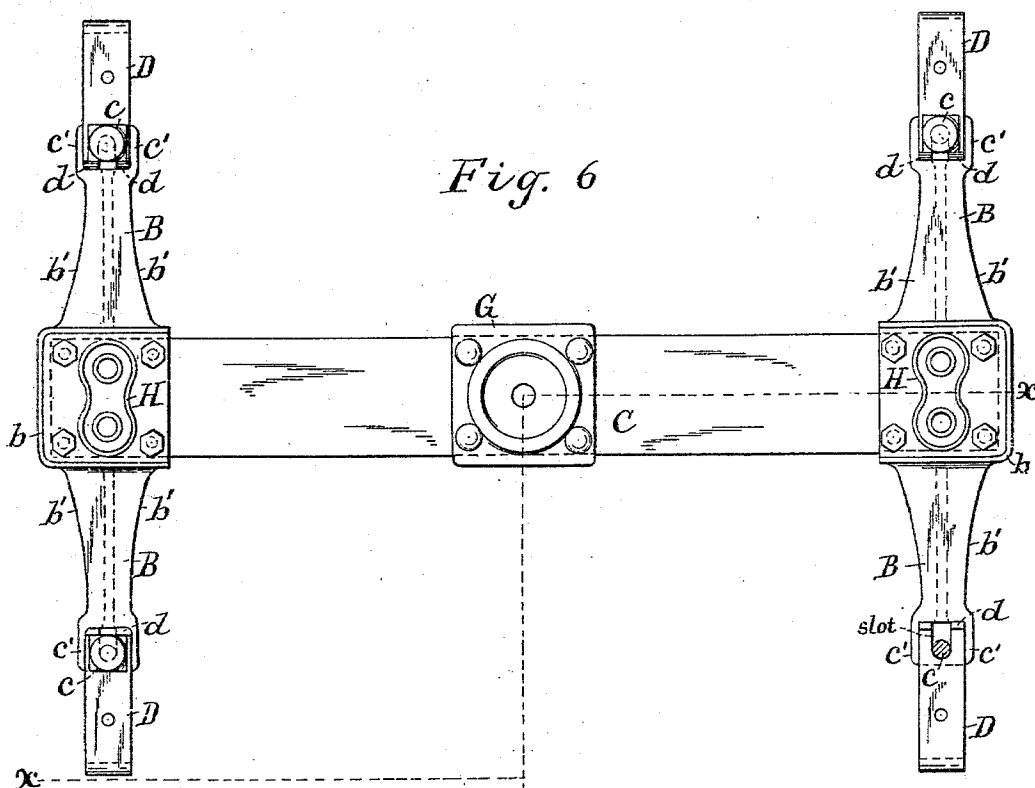
(No Model.)

2 Sheets—Sheet 2.

E. CLIFF.  
FREIGHT CAR TRUCK.

No. 553,103.

Patented Jan. 14, 1896.



Witnesses.

Mark W. Dewey  
A. B. Leroy

Inventor.

Edward Cliff  
By C. H. Duell

his Attorney.

# UNITED STATES PATENT OFFICE.

EDWARD CLIFF, OF NEWARK, NEW JERSEY, ASSIGNOR OF ONE-HALF TO  
GEORGE R. JOUGHINS, OF BERKLEY, VIRGINIA.

## FREIGHT-CAR TRUCK.

SPECIFICATION forming part of Letters Patent No. 553,103, dated January 14, 1896.

Application filed October 26, 1895. Serial No. 566,958. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD CLIFF, of Newark, in the county of Essex, in the State of New Jersey, have invented new and useful Improvements in Freight-Car Trucks, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

My invention relates to car-trucks, particularly freight-car trucks; and the object is to provide a simple and durable truck that will allow the wheels and axles, with the axle-boxes, to be readily and easily removed, and that will also allow the several sides of the pedestals to be formed of wrought-iron or steel, while the balance or central portion of the side frames are made of cast metal.

To this end my invention consists in the combination, with the wheels and axles and the axle-boxes, of side frames extending between the axle-boxes, a removable part or yoke lying on several of the sides of each axle-box and secured to the end of the side frame, and a bolster extending between and secured to the centers of the side frames; and my invention consists in certain other combinations of parts, hereinafter described, and specifically set forth in the claims.

In the drawings hereto annexed and forming a part of this specification, Figure 1 is a side elevation of my improved freight-car truck. Figs. 2 and 3 show a modified form of fastening device for securing the removable part to the end of the side frame. Figs. 4 and 5 are side and top plan views, respectively, of a modified form of the removable part, together with its fastening devices. Fig. 6 is a top plan view of the truck-frame shown in Fig. 1; and Fig. 7 is a side elevation of the bolster, partly in section and taken on line *x* *x* of Fig. 6.

Referring specifically to the drawings, A A are the axles and wheels, and A' is an axle-box. In Fig. 1 one of the axles and wheels is shown in broken lines, and its box is removed to show more clearly the construction of the pedestal.

B B are the side frames, which are preferably made partly of cast metal and partly of wrought metal, and C is the bolster extending between and connecting the centers of the

side frames together, as hereinafter described. The side frames are substantially I-shaped in cross-section, but are preferably perforated as shown. The upper and lower flanges *b'* *b'* are broader in the center of the beam than at its ends, as shown in Fig. 6, and are there provided with ribs or gibs *b b* on both the upper and lower sides to retain the bars forming the bolster C. The ends of the side beams are made deeper than the central portion to form the inner sides of the pedestals. The ends of the beam in Figs. 1 and 2 form the inner side guides for the axle-boxes A'. The other three sides of each pedestal are formed by a rectangular removable part or yoke D of metal, which is secured to the side beam in any suitable manner. In Figs. 1 and 6 these parts are secured in place by gibs *c'* and long bolts *c*, which extend through the ends of the yokes lying upon the upper and lower sides of the beam and through the beam B.

The lower end of the yoke D is simply perforated, but the upper end is recessed or slotted and provided with a gib *d* to bear upon one side of the head of the bolt *c*. This construction allows the removal of the yoke for the purpose of removing the axle-box without entirely removing the bolt *c*. In order to remove the yoke it is only necessary to remove the nut from the lower end of the bolt *c* and raise the bolt until its lower end is above the lower end of the yoke, when the latter may be removed by drawing the yoke outward from the end of the side frame or beam B.

The inner long side of the yoke D forms the outer guide for the axle-box. Bearing against the upper portion of the yoke is a spring-socket *e* for the upper end of the spring *e'* bearing on the top side of the axle-box. A bolt *e''* passes vertically through the spring and the upper horizontal portion of the yoke. The modification shown in Figs. 2 and 3 consists simply in providing the upper and lower flanges at the ends of the side beam with perforated ears *h* to receive clips *h'*, which secure the yoke D to the beams. In this case the ends of the yoke are not perforated, as the clips are U-shaped, but the yokes are provided with gibs *i i* to lie on each side of the clips *h'*, as shown in the drawings.

In Figs. 4 and 5 all the sides of the pedestal are formed by the removable yoke D. This pedestal, however, is formed of two movable parts which are secured together and to the end of the side beam B by short horizontal bolts parallel with each other. The sides of the pedestal are integral with the horizontal upper side, while the lower side, D', is removable. By removing the bolt *a* the pedestal will swing outward from the end of the side beam on the bolt *a''*. Then, by removing one or both of the bolts *a'* and *a'''*, the axle-box with the axle (not shown in this figure) may be removed from and through the bottom of the pedestal. This construction is, in some respects, superior to the other, as it allows the removal of the box without entirely removing the yoke from the side beam.

The bolster or cross-beam C of the truck is formed of three bars, the ends of two being connected to the side beams above the same, and the other being connected to the beams below the same. The upper bar is slightly arched or raised in its center above its end portions, the lower bar extending between the lower sides of the beams is straight and horizontal, while the third or central bar is bent to lie with its center in contact with the lower bar and with its ends in contact with the ends of the upper or arch bar.

In the center of the bolster, between the bars, is a separator formed of an angular bar *f*, having its center in contact with the lower side of the arch-bar below the center plate G, and secured thereto by rivets. The end portions of the bar *f* extend downward and outward toward the sides of the truck and are provided with horizontal feet which abut against the angle formed in the central bar and are secured thereto, and also to the lower straight bar, by rivets *g g*. All of the bars are perforated in their center to receive the king-bolt. (Not shown.)

It will be observed that the bolster may be formed in this way without castings and with strips of wrought iron or steel.

Side bearings H of any suitable and well-known form may be secured above the ends of the bolster, as indicated in the drawings.

Each end of the bolster C is secured rigidly to the side frame by eight short bolts passing through the bars of the bolster and the flanges of the side frame. Four bolts pass through each flange, as shown.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a freight car truck, the combination with the wheels and axles, and the axle-boxes, of side beams extending between the inner sides of the axle-boxes, a removable yoke lying on several of the sides of each axle-box and secured to the end of the side beam, means to secure the said yoke to the side beam, and a bolster extending between and rigidly secured to the centers of the side beams, as set forth.

2. In a freight car truck, the combination with the wheels and axles, and the axle-boxes, of side beams extending between the inner sides of the axle-boxes, a removable rectangular yoke on each end of the side beams, bolts to secure the yokes to the side beams, and a bolster extending between and rigidly secured at its ends to the centers of the side beams, as set forth.

3. In a freight car truck, the combination with the wheels and axles, and the axle-boxes, of side beams extending between the inner sides of the axle-boxes, a removable rectangular yoke on each end of the side beams, gibs on the beams to hold the ends of the yokes, a bolt passing vertically through the ends of each yoke and the end of the beam, and a bolster extending between and rigidly secured to the centers of the side beams, substantially as described and shown.

4. In a freight car truck, the combination with the wheels and axles, and the axle-boxes, of cast metal side beams extending between the inner sides of the axle-boxes, a removable rectangular yoke formed of wrought metal on each end of the side beams, gibs on the beams to hold the ends of the yokes, a bolt passing vertically through the ends of each yoke and the end of the beam, and a bolster, extending between and rigidly secured to the centers of the side beams as set forth.

5. In a freight car truck, the combination with the wheels and axles, and the axle-boxes, of side beams extending between the inner sides of the axle-boxes, a removable rectangular yoke on each end of the side beams, having a recess in its upper end and gibs to bear upon the side of the head of a bolt, gibs on the beams to hold the ends of the yokes, a bolt passing vertically through the ends of each yoke and the end of the beam, and a bolster extending between and rigidly secured to the centers of the side beams, substantially as described and shown.

6. In a freight car truck, the combination with wheels and axles, and the axle-boxes, of side beams extending between the inner sides of the axle-boxes, a removable yoke lying on several of the sides of each axle-box and secured to the end of the side beam, said side beams having horizontal flanges on their upper and lower sides, and a bolster formed of a plurality of bars secured at its ends to and extending between the center of the side beams, and a series of bolts extending through each flange of the side beams and one or more bars of the bolster, substantially as described and shown.

7. In a freight car truck, the combination with the wheels and axles, and the axle-boxes, of side beams extending between the inner sides of the axle boxes, a removable yoke lying on several of the sides of each axle-box and secured to the end of the side beam, said side beams having horizontal flanges on their upper and lower sides, and a bolster secured at its ends to and extending between the cen-

ters of the side beams, said bolster being  
formed of an upper arch bar, a lower straight  
horizontal bar, a central angular bar having  
its central portion lying on the upper side of  
5 the lower bar and extending with its end por-  
tions upward and lying on the lower sides of  
the end portions of the said arch bar, and a  
fourth bar lying with its central portion on  
the lower side of the center of the arch bar  
10 and with its ends bent to lie on the upper side  
of the said central bar, its ends reaching to  
and abutting against the angles formed in the  
central bar, said bars being riveted together  
and bolted to the flanges of the side frames,  
15 substantially as described and shown.

8. In a freight car truck, the combination  
with the wheels and axles, and the axle-boxes,  
of side beams extending between the inner  
sides of the axle-boxes, a removable rectangu-  
20 lar yoke on each end of the side beams hav-  
ing a recess in its upper end and gibs to bear  
upon the side of the head of a bolt, gibs on  
the beams to hold the ends of the yokes, a  
bolt passing vertically through the ends of

each yoke and the end of the beam, and a 25  
bolster secured at its ends to and extending  
between the centers of the side beams, said  
bolster being formed of an upper arch bar, a  
lower straight horizontal bar, a central angu-  
lar bar having its central portion lying on the 30  
upper side of the lower bar and extending  
with its end portions upward and lying on the  
lower sides of the end portions of the said arch  
bar, and a fourth bar lying with its central  
portion on the lower side of the center of the 35  
arch bar and with its ends bent to lie on the  
upper side of the said central bar, its ends  
reaching to and abutting against the angles  
formed in the central bar, said bars being  
riveted together and bolted to the flanges of 40  
the side frames, substantially as described  
and shown.

In testimony whereof I have hereunto  
signed my name.

EDWARD CLIFF. [L. s.]

Witnesses:

E. L. TODD,

W. H. GRAHAM.