

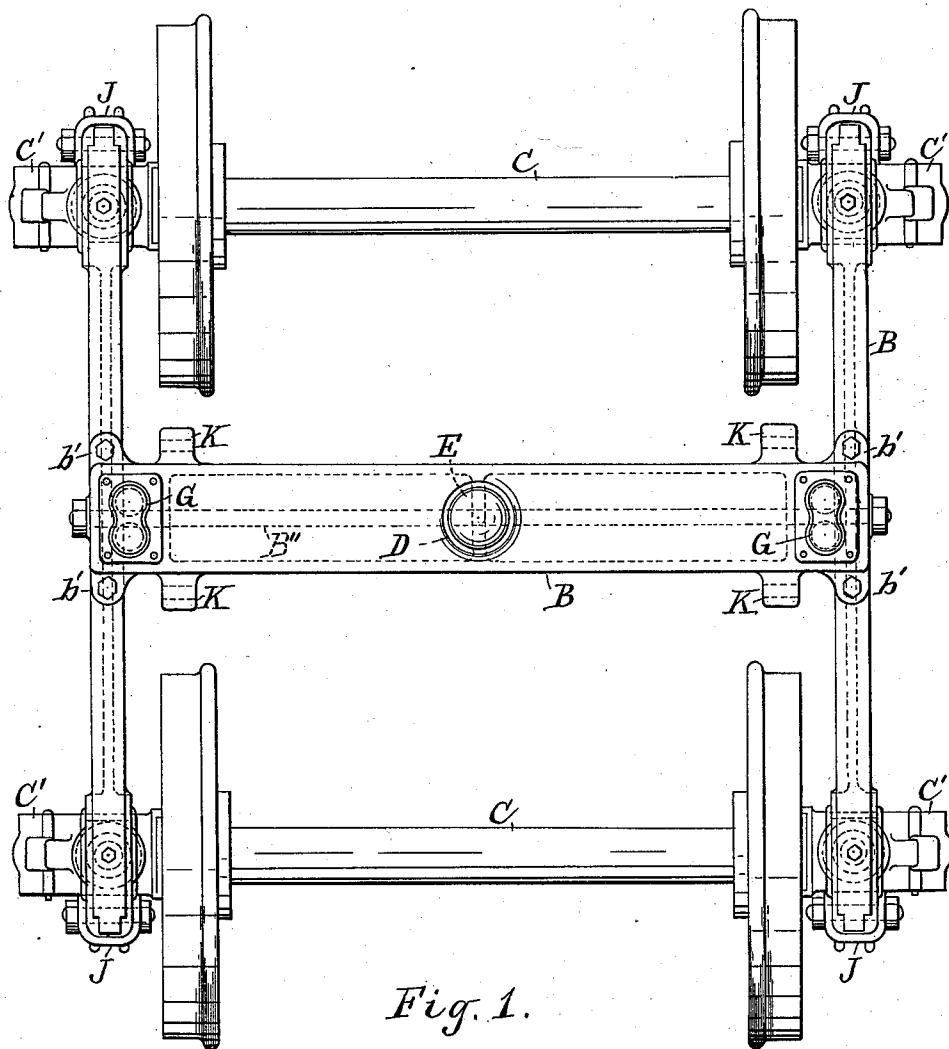
(No Model.)

2 Sheets—Sheet 1.

E. CLIFF.  
FREIGHT CAR TRUCK.

No. 548,827.

Patented Oct. 29, 1895.



Witnesses:

Mark W. Dewey  
R. S. Dewey

Inventor.

Edward Cliff  
By C. H. Duell  
his Attorney.

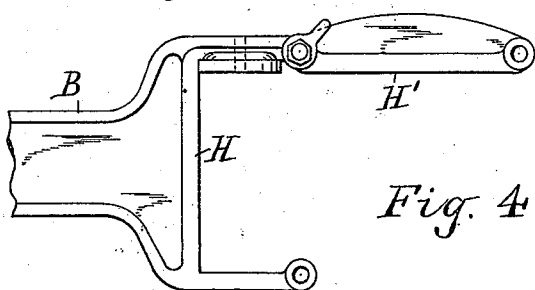
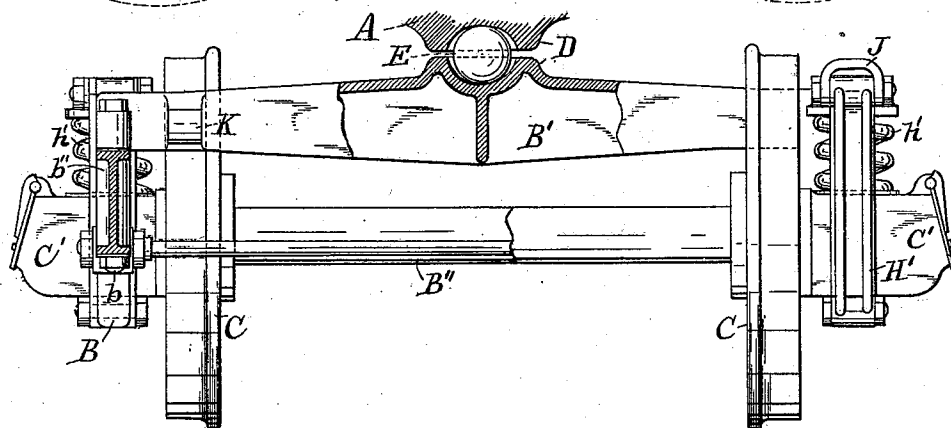
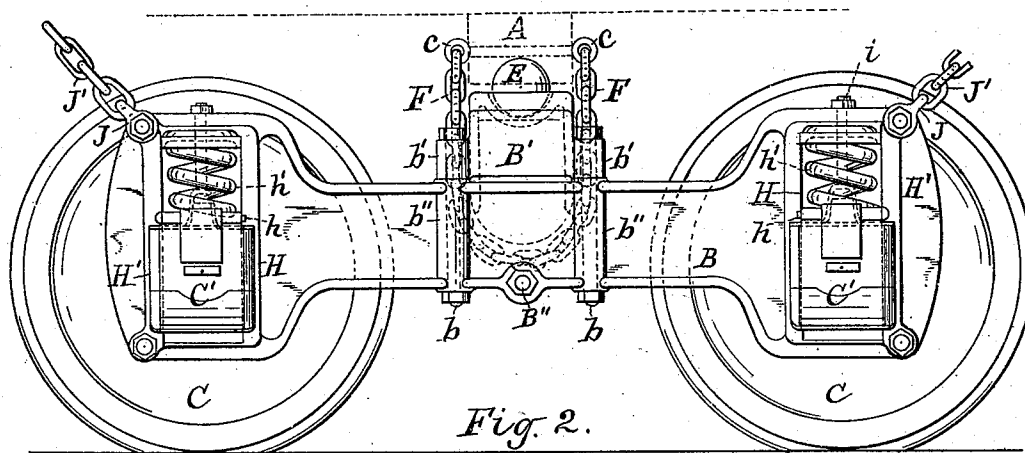
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# UNITED STATES PATENT OFFICE.

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. 548,827, dated October 29, 1895.

Application filed June 22, 1895. Serial No. 553,640. (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  
5 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 truck that will be simple, durable, and easy riding, and that will allow the wheels and axles to be removed therefrom easily and quickly.

15 To this end my invention consists in the combination, with the truck-frame and the transom-beam, of a socket in the center of each and opposite each other and a single ball in the sockets, thus forming a central pivoted  
20 bearing to take the place of a king-bolt.

My invention consists, further, in the combination of the truck-frame and an axle-box adapted to move between guides in the frame with a removable or pivoted guide on the  
25 outer side to allow the removal of the box and axle; 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 top plan view of the truck. Fig. 2 is a side elevation of the same. Fig. 3 is an end elevation, partly in section, to show the shape of portions of the frame more clearly; and  
35 Fig. 4 is a view of a portion of the frame with the guide open.

Referring specifically to the drawings, A indicates the transom beam or bolster, usually connected to the body.

40 B is the truck-frame, which is preferably made entirely of iron or steel, forged or cast, and C C are the wheels and axles.

The frame is substantially H-shaped, the cross-bar or truck-bolster B' thereof being secured upon the upper sides of the side beam by a pair of bolts b b at each end extending vertically through ears b' b' on the cross-bar and ribs b'' b'' on the side beams. The side beams have preferably an I shape, while the  
45 cross-bar has an inverted-U shape in the cross-section and tapers slightly toward its ends. In

the center of the cross-bar and in the center of the bolster I provide a socket D for the reception of a large metal ball E. The socket is preferably somewhat larger than the ball—  
55 that is, its horizontal diameter is greater than that of the ball. This is for the purpose of giving flexibility or to allow the bolster and frame B to move slightly relatively to each other at times. The ball may be solid or hollow and  
60 is preferably about eight inches in diameter. It will be seen, therefore, that the sockets are deep and that the ball cannot work out. However, to insure against this, I preferably place eyes C C in the sides of the bolster and  
65 connect the eyes together by a chain F, which passes around below the cross-bar B'. On the ends of the cross-bar I mount a suitable and well-known side bearing G. These side bearings are indicated in Fig. 1, but are omitted  
70 in the other figures.

In order to bind the side beams more firmly together, I provide a tie-rod B'', which extends through the lower part of the beams below and parallel with the cross-beam B'.  
75

The axles and axle-boxes C' may be the same as usual and are provided with vertical grooves in their sides to receive guides H and H' in the ends of the side beams of the truck. The side beams are each made deeper at each  
80 end to receive the axle-box and the follower h and spring h' above it. The follower is simply a plate or socket for the lower end of the coil-spring, and is connected at its center by a bolt i, which extends through the axis of  
85 the spring. The spring may be of any suitable and well-known form of construction and extends upward from the follower to a socket rigidly secured to the frame. The inner vertical guide of each box C' is rigid on  
90 the frame, but the outer guide is removable or so connected and secured in place that by simply taking out one bolt at its lower end it may be swung on its upper bolt or pivot and allow the axle-box with its axle and wheels  
95 to be removed, as shown in Fig. 4.

It will be obvious that by simply drawing up slightly on the bolt connected to the follower h, after a rest has been placed beneath the frame, when the guide H' has been disconnected, as before explained, the wheels and  
100 axles may be removed very easily and quickly.

The removable or pivotal guide is ribbed, as shown in the drawings, and is very strong and rigid when secured in place.

J J are loops secured to the upper bolts of the guides to which the safety-chains J' J' are connected.

K K are lugs cast on the sides of the cross-bar opposite the peripheries of the wheels to which the brakes are connected.

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

1. The combination with a truck frame and an axle-box adapted to move between guides 15 in the frame, vertical guides for the box to move between, one of said guides being removably connected to the frame and pivoted at one end thereto, and a spring between the upper side of the box and the frame, as set 20 forth.

2. The combination of a truck frame and an axle-box held in a recess in the frame provided with vertical sides, one of said sides being pivoted to allow it to swing toward and 25 from the axle-box to allow the said box to be removed, as set forth.

3. The combination with a truck frame and

an axle-box adapted to move between guides in the frame, vertical guides between which the box slides, one of said guides being piv- 30 oted to the frame at its upper end, a bolt to secure it to the frame in a vertical position, a follower above the box, a spring between the follower and the frame above, and a bolt con- 35 necting the follower with the frame and extending through the axis of the spring, as set forth.

4. A frame for a car truck made entirely of metal, comprising I shaped side beams, a cross beam extending between the centers of 40 the side beams, a rod extending between the said side beams below the cross beam, recesses in the ends of the side beams to receive the axle boxes and springs, and a vertical side for each recess adapted to be secured to the frame 45 by bolts extending transversely through the side, as and for the purpose described.

In testimony whereof I have hereunto signed my name.

EDWARD CLIFF. [L. S.]

Witnesses:

E. L. TODD,  
W. H. GRAHAM.