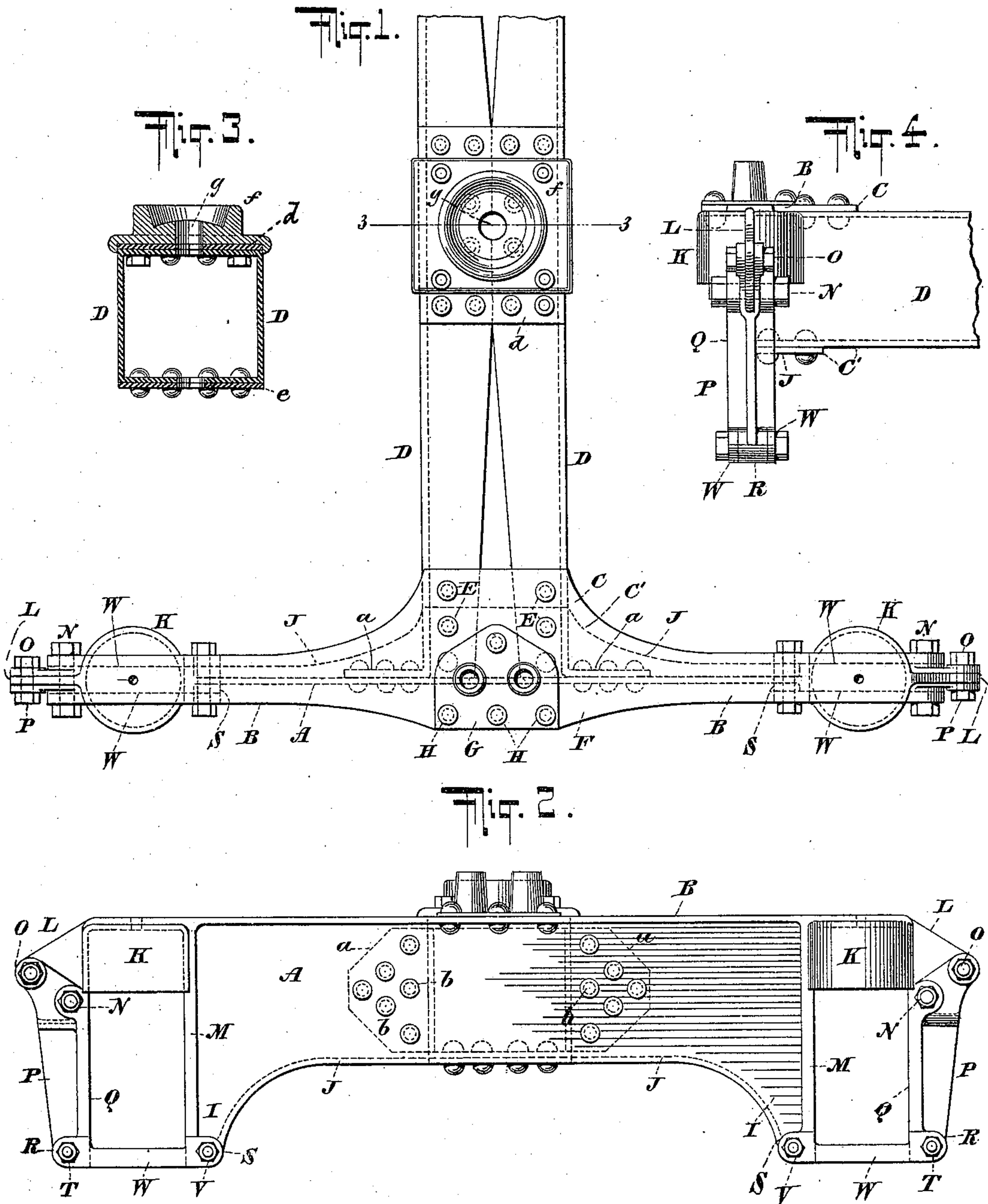


(No Model.)

E. CLIFF.
CAR TRUCK FRAME.

No. 577,236.

Patented Feb. 16, 1897.



WITNESSES:

Gustave Dietrich
John Kehlenbeck

INVENTOR

Edward Cliff

BY

Chas. C. Gill

ATTORNEY.

UNITED STATES PATENT OFFICE.

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

CAR-TRUCK FRAME.

SPECIFICATION forming part of Letters Patent No. 577,236, dated February 16, 1897.

Application filed June 11, 1896. Serial No. 595,098. (No model.)

To all whom it may concern:

Be it known that I, EDWARD CLIFF, a citizen of the United States, and a resident of Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Car-Truck Frames, of which the following is a specification.

The invention relates to improvements in car-trucks, and particularly to the construction of the frames of car-trucks, without regard to the form or construction of the wheels, axles, axle-boxes, springs, side bearings, or center bearing.

The invention consists in novel features of construction, hereinafter described and claimed, pertaining to the side frames of the truck, the pedestals for the axle-boxes at the ends of said side frames, the hinged or removable sections at the bottom and outer side of said pedestals, and the bolster or bolsters connecting said side frames.

The object of my invention is to provide a truck-frame of great durability and efficiency and simple and convenient in construction and use.

The invention will be fully understood from the detailed description hereinafter presented, reference being had to the accompanying drawings, in which—

Figure 1 is a top view of a portion of a car-truck frame constructed in accordance with and embodying the invention. Fig. 2 is a side view of same. Fig. 3 is a central section through the bolster and center bearing of same on the dotted line 33 of Fig. 1, and Fig. 4 is an end view of a portion of same.

In the drawings, A designates the side frame of the truck, the frames at opposite sides of the truck being counterparts of one another. The frame A is formed at its upper longitudinal edge with the laterally-extending flange B, which at the center of said frame passes inward and forms a substantial extension or plate C, below which the upper flanges of the channel-iron girders D D, constituting the bolster, are secured by means of rivets E. At the center of the side frames A the flange B also passes outwardly to form a substantial extension or plate F to receive and properly support the side bearing G, the latter being

secured by means of the rivets H. At its lower edge each side frame A extends downwardly at its opposite ends, as indicated at I, and along said lower edge each side frame A is formed with the inwardly-extending flange J, which follows the general outline of the extension C of the upper flange B, but does not extend inward to the same extent as the said upper flange. The outline of the flange J is clearly indicated in Fig. 1, and between the central portion or inward extension C' of said flange and the extension C of the upper flange B are riveted the transverse girders D D, the lower flanges of said girders being riveted to the flange J, and the upper flanges of said girders being riveted to the flange B, as shown.

At the ends of the side frames A are cast the inverted hollow receptacles or boxes K, the outwardly-projecting web-flanges L, and vertical flanges M, the latter forming one side of the pedestals for the axle-boxes. (Not shown.) The flanges L extend outward longitudinally from and centrally with the boxes K, and to said flanges at each end of each side frame is removably secured by the bolts N O the frame P, which, when in position, forms the outer side of the vertical bearing or pedestal for the usual axle-boxes.

The upper portion of the frame P is bifurcated, as shown in Fig. 4, to straddle the flange L, and at its inner vertical edge the said frame P is provided with the flange Q, which corresponds and is in line with the flange M, formed directly on the side frame A. At the lower end of the frame P is formed the hub R, which corresponds with a like hub S, formed at the lower end of the downwardly-extending portion I of the side frame A, and upon these hubs R S are secured upon the bolts T V the bars W W, which connect the sides of the pedestals and close the space formed for the reception of the axle-boxes. Upon the removal of the bolts V N the bars W and frame P may be swung outward on the bolts O, so as to leave the axle-boxes and the axles within them in convenient position to be moved outward from beneath the truck.

The bolster is composed of the channel-iron girders D D, which correspond with one an-

other and have their flanges extend toward one another. The upper flanges of the girders D D are, as above described, secured by rivets E to the central portion of the flange B, formed on the side frames A, and the lower flanges of said girders D D are secured by rivets to the lower flange J, formed on said side frames A. The girders D D are further secured to said frames A by means of the flanges *a*, formed at their ends and extending outward in close relation to said sides A, to which, by means of rivets *b*, they are secured. The girders D D are thus secured to both the upper and lower flanges B J and also to the inner faces of the side frames A. The flanges of the girders D D meet one another at the center of the truck, as shown in Fig. 1, and toward the ends of said girders the said flanges are sheared away to form tapered openings between the girders for convenience in applying the rivets. At the central portion of the girders D D, where their upper and lower flanges meet one another, are secured the upper and lower plates (lettered *d e*) which connect the girders, and the upper one of which receives the central bearing *f*, of well-known form. The bearing *f* is provided with the usual vertical aperture *g*, and the girders D D and plates *d e* have apertures formed in them in line with the said aperture *g* in the bearing *f*, said apertures being provided to receive the king-bolt.

Within the pedestals formed at the ends of the side frames A will be placed the usual axle-boxes, (not shown,) which will have their vertical movement between the flanges M Q, and above the said axle-boxes will be placed the usual or any suitable springs, (not shown,) whose upper portions will be located within the boxes or receptacles K, provided therefor.

The boxes K are integral with the side frames A, and their halves are at opposite sides of said frames and at such opposite sides connect the flanges M L, which are in line with the vertical center of said boxes.

The parts of the truck-frame, both in their detail and in their relative arrangement with one another, combine to produce a truck-frame of great durability and efficiency and simple and convenient in construction and use.

The frames P, forming the outer sides of the pedestals for the axle-boxes and secured by the bolts N O, are of special importance. The bolt O forms the hinge of the frame P, while the bolt N serves to rigidly secure the frame in its vertical position. When the nut on the bolt O is tightened up, the bolt N is thereby aided in securing the frame P. The bolt N is of importance in securing safety, since it will effectually maintain the frame P in position in the event of any accident happening to the bolt T. If the bolt N were omitted and the bolt T should break, it will be obvious that the bolt O alone might permit the frame P to swing out and allow the

axle-box to escape from its housing. Ordinarily when it is desired to free the axle-box the bolts T N will be withdrawn, the bars W turned down slightly, when necessary, on the bolt V, and the frame P swung outward on the bolt O, thus leaving the box entirely free to pass from the pedestal. The spring will not escape with the axle-box, since it is in a well-known manner held by a bolt passing through the aperture at the top of the box or receptacle K. The bolts N O will preferably be arranged as shown, the bolt N being in the thickened inner edge of the frame P and the bolt O being on a higher elevation at the upper outer end of an upward and outward extension formed at the top of said frame, where the latter is bifurcated to straddle the web-flange L, as shown.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a car-truck, the side frames A having at their upper edges the inwardly-projecting horizontal flanges and at their lower edges the inwardly-projecting flanges, and at their ends the pedestals for the reception of the axle-boxes, combined with the bolster formed of the connected channel-irons, whose upper and lower flanges face one another and are at their ends secured between the said flanges of the side frames; substantially as set forth.

2. In a car-truck, the side frames having at their upper and lower edges the horizontal flanges and provided at their ends with the pedestals for the axle-boxes, combined with the bolster connecting said sides and formed of the channel-irons whose upper and lower flanges face one another and are secured at their ends between the said upper and lower flanges of the said side frames, the flanges of the said channel-irons being sheared away on lines tapering outward toward the ends of said channel-irons; substantially as set forth.

3. In a car-truck, the side frames having at their upper and lower edges the inwardly-projecting horizontal flanges and provided at their ends with the pedestals for the axle-boxes, combined with the bolsters connecting said side frames and composed of the channel-irons whose upper and lower flanges face one another and are secured between the upper and lower flanges of said side frames, said channel-irons having at their ends the additional flanges in face-to-face contact with said side frames and being thereto rigidly secured; substantially as set forth.

4. In a car-truck, the side frames having the upper and lower flanges and provided with the pedestals for the axle-boxes, the upper flange of said side frames having inward and outward extensions at about its center and the lower flange of said side frame having at its center the inward extension, combined with the bolster connecting said side frames and being secured at its ends between the said inward extensions, the outwardly-projecting extension of the said upper flanges receiving

the side bearings and the inwardly-projecting extension of said upper flanges being rigidly secured to the ends of the said bolster; substantially as set forth.

5. In a car-truck, the side frames having integral therewith the vertical flanges M, inverted receptacles K and flanges L, the said receptacles extending entirely across the pedestal-spaces from the outer edges of the flanges M to the opposite sides of the flanges L, and the flanges L extending centrally outward from said receptacles, combined with the removable frames P inclosing the outer side of the spaces provided for the axle-boxes and hinged at their upper ends to said flanges L and adapted to be swung outward from said spaces, and a bar closing the lower end of said spaces and bolted to said side frame and said removable hinged frame; substantially as set forth.

6. In a car-truck, the side frames A provided with flanges at their upper and lower edges, the vertical flanges M formed on said side frames and the longitudinal flanges L at the upper corners of said side frames, combined with the bolster connecting said side frames and secured at its ends to said flanges at the upper and lower edges of said side frames, the removable frames P hinged to said flanges L and inclosing one side of the spaces provided for the axle-boxes, means at the upper end of said removable frames for maintaining the latter in a vertical position during the use, and the removable bars secured at one end to said removable frames P and at the other end to the main portion of the side frames; substantially as set forth.

7. In a car-truck, the side frames, and the bolster connecting said side frames, the said side frames at their outer ends being provided with spaces for the reception of the axle-boxes, combined with the removable frames P inclosing the outer side of said spaces and secured by the bolts N, O, to the upper corners of the said frame, and the cross-bars W inclosing the lower side of said spaces and secured by the bolt T to said removable frames P and by the bolt V to the main side frames; substantially as set forth.

8. In a car-truck, the side frames and the bolster connecting said frames, the ends of said side frames being formed with the spaces for the reception of axle-boxes, the inverted receptacles above and extending entirely across the said spaces to receive the springs, and the longitudinally-projecting flanges L extending outward from said receptacles, combined with the removable frames P secured to said extensions and inclosing the outer side of said spaces, and the lower bars removably secured to the lower ends of the said frames P and the main side frames and closing said spaces; substantially as set forth.

9. In a car-truck, the side frames having the upper and lower edge flanges and provided with the spaces for the reception of the axle-

boxes, combined with the bolster formed of the channel-irons whose upper and lower edges face one another and are secured at their ends between the said upper and lower flanges, the central portion of said flanges of the channel-irons being together and there provided with the vertical aperture for the king-bolt, and thence from the central bearing being sheared on lines diverging outward toward the ends of the said bolster; substantially as set forth.

10. In a car-truck, the side frames and the bolster connecting said side frames, said side frames having formed therein at their ends the spaces for the reception of the axle-boxes, the vertical flanges M at the inner sides of said spaces and integral with said side frames, the outwardly-extending flanges L also integral with said side frames and being at the upper outer corners of said side frames, the inverted receptacles connecting at the opposite sides of the side frames the said flanges M and the said flanges L, and being integral with said frames, the removable sides secured to said flanges L and adapted to be swung outward from the said spaces for the axle-boxes, and the lower bars closing said spaces at their lower ends and removably secured to the said sides and said side frames, said removable sides being provided integral therewith with the flanges Q corresponding and in line with the said flanges M; substantially as set forth.

11. In a car-truck, the connected side frames having at their ends the spaces for the reception of the axle-boxes and springs, combined with the removable frames inclosing the outer sides of said spaces, and lower bars closing the lower ends of said spaces, each of said removable frames being secured to the lower bar by a bolt and to the side frame by bolts N, O, one of which acts as a hinge; substantially as set forth.

12. In a car-truck, the connected side frames having at their ends the spaces for the reception of the axle-boxes and springs, combined with the removable frames P inclosing the outer sides of said spaces, and lower bars closing the lower ends of said spaces, each of said removable frames being bolted to the lower bar and secured to the side frame by bolts N, O, the former of which is in the thicker inner part of said removable frame, while the bolt O is on a higher elevation in an upward and outward extension of said frame; substantially as set forth.

13. In a car-truck, the side frames having at their ends the spaces for the reception of the axle-boxes and springs, combined with the frames P inclosing the outer side of said spaces, and the bolts N, O, securing said frames P, one of said bolts acting as a hinge and the other maintaining the said frames in a vertical position during use; substantially as set forth.

14. In a car-truck, the side frames having

the inwardly and outwardly turned flanges
at both its upper and lower edges and formed
at its ends with the spaces for the reception
of the axle-boxes and springs, and the verti-
5 cal flanges along the inner edges of said spaces
and integral with said side frames, combined
with the removable side frames for the outer
sides of said spaces; substantially as set forth.

Signed at New York, in the county of New
York and State of New York, this 9th day of 10
June, A. D. 1896.

EDWARD CLIFF.

Witnesses:

CHAS. C. GILL,
E. JOS. BELKNAP.