

No. 625,745.

Patented May 30, 1899.

E. CLIFF.
PASSENGER CAR TRUCK.

(Application filed Aug. 24, 1898.)

(No Model.)

3 Sheets—Sheet 1.

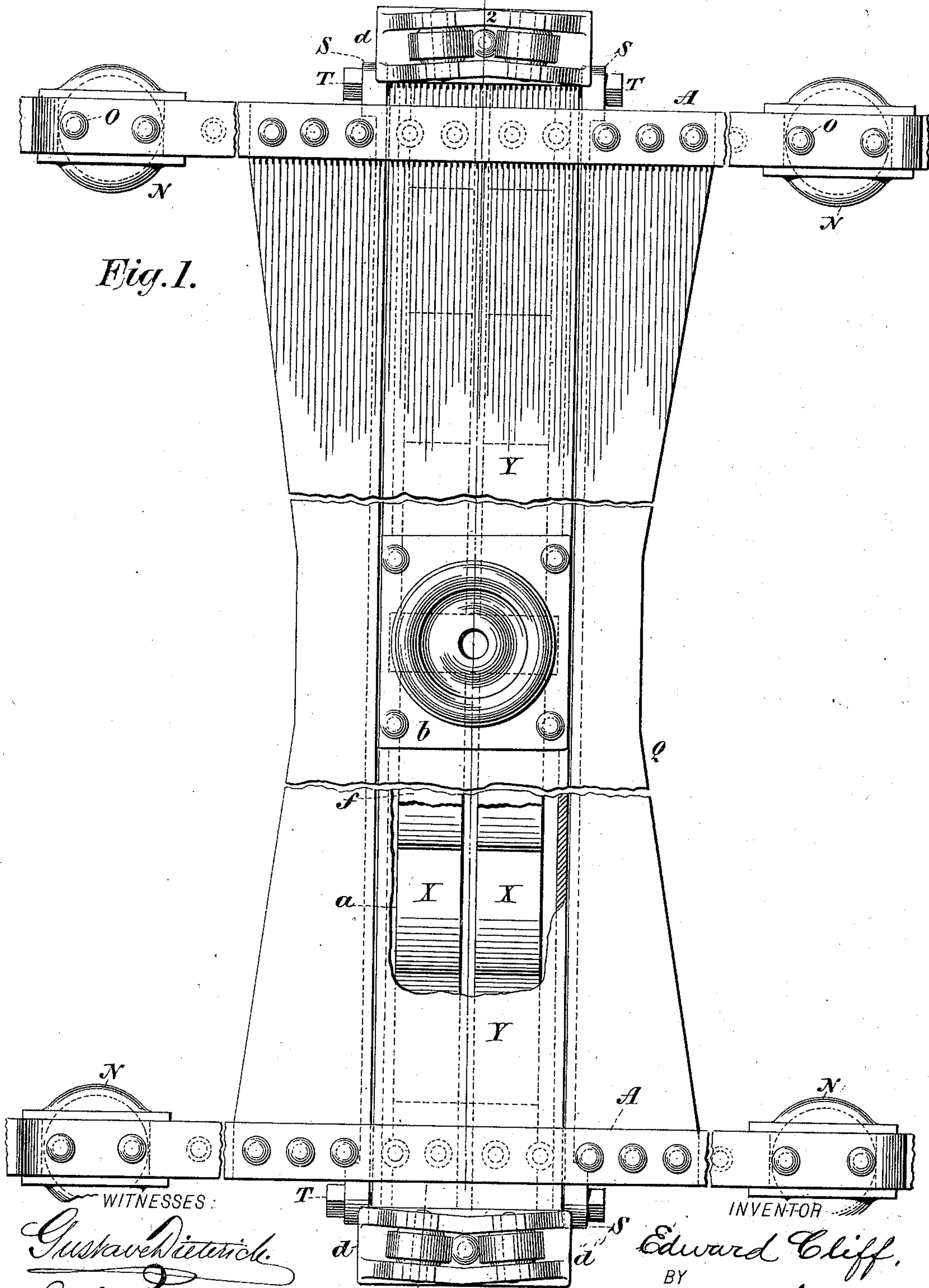


Fig. 1.

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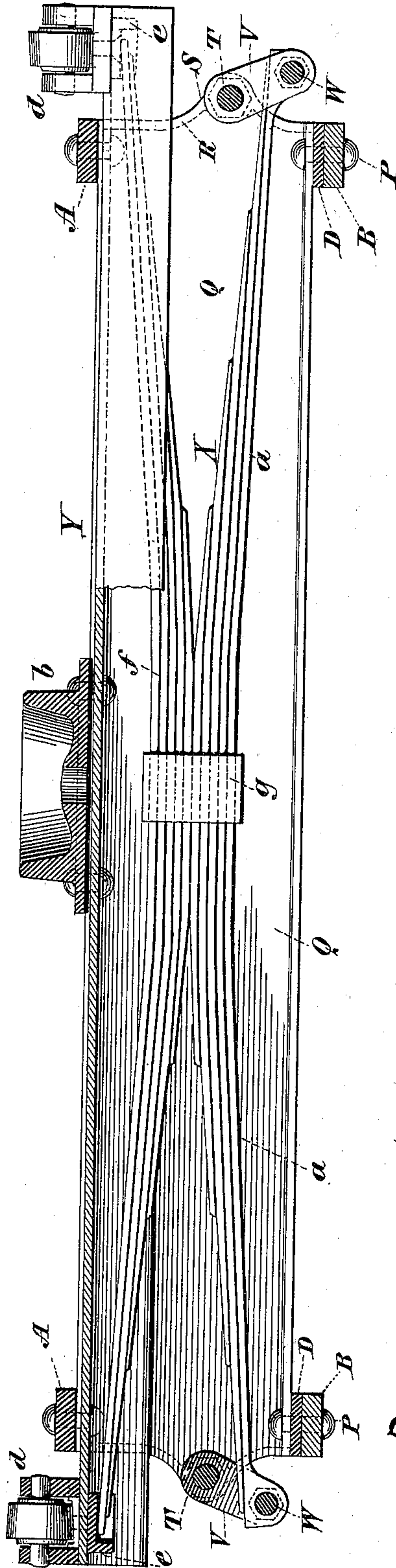
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3 Sheets—Sheet 2.

Fig. 2.



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UNITED STATES PATENT OFFICE.

EDWARD CLIFF, OF NEWARK, NEW JERSEY.

PASSENGER-CAR TRUCK.

SPECIFICATION forming part of Letters Patent No. 625,745, dated May 30, 1899.

Application filed August 24, 1898. Serial No. 689,419. (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 Passenger-Car Trucks, of which the following is a specification.

The invention relates to improvements in trucks for passenger-cars; and it consists in the novel features and combinations of parts hereinafter described, and particularly pointed out in the claims.

The invention is presented in this application as embodied in a car-truck having novel side frames, pedestal-frames, bolster, and other features, all of which 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, partly broken away, of a car-truck constructed in accordance with and embodying the invention. Fig. 2 is a vertical transverse section of same on the dotted line 2 2 of Fig. 1. Fig. 3 is a side elevation of the truck, the wheels being omitted. Fig. 4 is a detached perspective view of a portion of the pedestal-frame structure, and Fig. 5 is a detached side elevation of a portion of a modified form of side frame.

The side frames of the truck correspond with one another, and each comprises the upper bar A, the lower bar B, the lower pedestal-frame members C, and the intermediate brace-bar D.

The upper bar A at its ends extends downward to form the vertical pedestal-frame members E E, and thence at its ends turns outward to form at the base of said members the horizontal bars or extensions F, through which pass the bolts G, by which the outer ends of the bars C, constituting the lower pedestal-frame members, are secured in place.

At its ends the lower bar B turns upward to form the inner vertical pedestal-frame members H, and thence at its ends turns outward below the upper bar A and forms at its ends the bars or extensions I, which terminate in close relation to the outer vertical pedestal-frame members E.

The upper bar A is in one integral piece, and the lower bar B is likewise in one integral piece, and these two bars, in connection with the bars C, constitute the main body of the side frame and pedestal-frames. The bars

C are substantially of U shape and extend below the side frame of the truck and are, through their upper end horizontal portions, secured to the side frame by means of the bolts G and bolts J, the bolts G securing the outer ends of the bars C and the bolts J securing the inner ends of the bars C to the lower bar B, as clearly illustrated in Fig. 3. Within the pedestal-frames composed of the members E, H, and C is arranged the inclosed U-shaped pedestal-frame member K, (shown in perspective in Fig. 4,) which member is flanged at its edges and snugly fits upon the vertical side edges of the said members E, H, and C and receives and affords suitable rubbing-surfaces for the axle-boxes L. Upon the axle-boxes L are provided the usual springs M, whose upper ends are held in the inverted sockets N, which are secured within the upper ends of the pedestal-frames by bolts or rivets O. The sockets N and springs M are of known construction and function. The axle-boxes L are adapted to have a vertical movement within the pedestal-frames, and during such movement their guiding-surfaces directly contact with the surfaces of the pedestal-frame members K, and thus the wear occasioned by the movement of the axle-boxes does not come upon the main pedestal-frames, but is taken by the U-shaped pedestal-frame members K. The pedestal-frame member K covers the joint between the lower pedestal-frame member C and the adjoining portions of the side frame and is preferably secured by bolts or rivets to the lower pedestal-frame member C, as illustrated in Fig. 3. The vertical arms of the pedestal-frame member K snugly fit between the vertical pedestal-frame members E H, but are capable of being drawn downward from between said members E H, and hence it will be apparent that the lower pedestal-frame member C and inner pedestal-frame member K may be readily applied to and removed from the side frame of the truck.

For the purpose of imparting additional strength and security to the side frame I provide the bar D, whose outer ends are intermediate the upper bar A and the ends J of the bar B and whose middle portions extend downward on inclined lines to the central portion of the bar B and are there secured by bolts or rivets P. The ends of the brace-bar D are secured in place by means of the bolts or rivets

O, which sustain the inverted sockets N and afford the means for connecting the ends J of the bar B with the upper outer horizontal portions of the bar A.

5 The side frames of the truck are connected by the transverse transom-beams Q Q, which are substantially of Z shape and have their upper outwardly-turned flanges riveted or bolted to the upper bar A and their lower inwardly-turned flanges secured by means of the bolts or rivets P, which extend through the lower bar B, the lower central horizontal portion of the brace-bar D, and the lower inwardly-turned horizontal flanges of the transom-beams Q. Thus the bolts P secure together the lower flanges of the transom-beams, the central portion of the brace-bar D, and the central portion of the lower bar B. The transom-beams Q extend outward to the outer vertical edges of the side beams, and hence they may not only be effectually secured to said side frames, but very securely connect the upper and lower bars of the side frames and perform their maximum duty in affording the requisite degree of strength, durability, and rigidity to the truck. Upon the outer end edges of the transom-beams Q are formed the vertical flanges R and bearings S, as more clearly illustrated in Figs. 2 and 3, said bearings S being provided to receive the horizontal bolts T, from which are hung the links V, carrying at their lower ends the bolts W for the lower section *a* of the bolster-spring X, as clearly illustrated in Figs 2 and 3.

35 The bolster is lettered Y and is in the form of a channel-beam, whose edge flanges turn downward between and are guided by the vertical web portions of the transom-beams Q and whose upper portions carry at their center the center bearing *b* and at their ends suitable rub-irons *d*. The bolster Y extends beyond the outer vertical sides of the side frames of the truck and passes below the upper bars A and between the transom-beams Q. At the lower side of the ends of the bolster Y are secured the sockets *e* for the ends of the upper section *f* of the spring X, said sockets loosely receiving the ends of the said section *f* and permitting of a limited sliding movement of said ends without losing their housing within said sockets.

The form of the bolster-spring X is illustrated in Fig. 2, and in the present instance two of the said springs are employed, as illustrated in Figs. 1 and 3. As many of the springs X as desired may be employed. Each spring X is formed of a lower section *a* and the upper section *f*, and these two sections are connected at their center by the band *g*. The ends of the lower section *a* extend downward and outward and are secured upon the bolts W, and the ends of the upper spring-section *f* extend outward and upward and are housed within the sockets *e*. The weight of the car is taken by the bolster Y and is sustained upon the springs X, which afford the proper ease of motion to the car. Dur-

ing the movement of the car-body the spring-sections *a f* may approach one another at their ends and may have a suitable yielding action, owing to the capacity of the links V to move outward and the freedom afforded to the ends of the upper spring-section *f* by the socket-castings *e*.

The side frames comprising the bars A B C are of simple and comparatively inexpensive construction, but are of great strength and durability and are capable of being manufactured at the minimum expense. The side frames, constructed as above described, are capable of withstanding all of the usual strains to which car-trucks are subjected and are also of a character to be readily repaired. The lower pedestal-frame members C receive the inner pedestal-frames K, and the latter furnish the rubbing-surfaces for the axle-boxes and prevent the said boxes from wearing on the main pedestal-frame members. The lower pedestal-frame members C are suspended from the side frames, and hence the said members and the inner pedestal-frames K may be readily removed and replaced at will.

The transom-beams Q not only connect the opposite side frames with one another, but also connect the bars A B of each side frame with one another and materially add to the strength and efficiency of the side frames. The invention is not limited to use of Z-beams for the transoms; but when the transom-beams are of Z shape they will be found to be entirely efficient and of great advantage to the general structure of the truck-frame.

The bolster Y extends below the upper bars A and is confined between the transom-beams Q. The transom-beams coöperate with the side flanges of the bolster Y in guiding said bolster and preserving it in proper alignment. The bolster Y is mounted upon the springs X, and hence is at all times yielding and efficient.

I do not confine all the features of the invention to the carrying downward of the outer ends of the upper bar A to form the outer vertical pedestal-frame members E, and hence in the modified construction shown in Fig. 5 I illustrate the lower bar B as passing upward and then outward and then downward to form three sides of the pedestal-frame.

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

1. In a car-truck, the side frame comprising the upper and lower bars and the lower pedestal-frame members suspended from the side frame and with the latter forming the pedestal-frames for the axle-boxes and springs, the said upper and lower bars being plain rolled flangeless solid bars bent into shape and being of uniform dimensions and forming skeleton side frames; substantially as set forth.

2. In a car-truck, the side frame compris-

ing the upper bar whose outer ends turn downward to form outer vertical pedestal-frame members, and the lower bar whose ends turn upward to form inner vertical pedestal-frame members, combined with lower pedestal-frame members secured to the side frame, the said upper and lower bars being plain rolled flangeless solid bars bent into shape and being of uniform dimensions and forming skeleton side frames; substantially as set forth.

3. In a car-truck, the side frames comprising the upper and lower bars, and the lower pedestal-frame members suspended from the side frames and with the latter forming the pedestal-frames for the axle-boxes and their springs, combined with the transom connecting the side frames and secured at its ends between and to said upper and lower bars, the said upper and lower bars being plain rolled flangeless solid bars bent into shape and being of uniform dimensions and forming skeleton side frames; substantially as set forth.

4. In a car-truck, the side frame comprising the upper bar whose outer ends turn downward to form the outer vertical pedestal-frame members, and the lower bar whose ends turn upward to form the inner vertical pedestal-frame members and then turn outward to said outer members, combined with the lower pedestal-frame members secured at their outward ends to a portion of said upper bar, and at their inner ends to said lower bar, the said upper and lower bars being plain rolled flangeless solid bars bent into shape and being of uniform dimensions and forming skeleton side frames; substantially as set forth.

5. In a car-truck, the side frame comprising the upper and lower bars and forming at their ends the pedestal-frames, combined with the lower pedestal-frame members suspended from the side frames, and the brace-bar extending downward and inward from the outer portions of the upper bar to the central portion of the lower bar and secured to said upper and lower bars; substantially as set forth.

6. In a car-truck, the side frames comprising the upper bar, and the lower bar whose ends turn upward to form a part of the pedestal-frames, combined with the lower pedestal-frame members, and the transom connecting said upper and lower bars and also connecting the side frames, the said upper and lower bars and said lower pedestal-frame members being plain rolled flangeless solid bars bent into shape and being of uniform dimensions and forming skeleton side frames; substantially as set forth.

7. In a car-truck, a side frame having at its ends the pedestal-frames to receive the axle-boxes and their springs, combined with the inner U-shaped pedestal-frame members K adapted to slide within said pedestal-frames and furnish the rubbing-surfaces for the axle-

boxes, each of said members K being in one integral piece of channel-beam bent into U form and having its flanges passing upon the edges of the sides and lower end of the pedestal-frames; substantially as set forth.

8. In a car-truck, the side frames forming at their ends the substantially inverted-U-shaped pedestal-frames, combined with the lower substantially U-shaped pedestal-frame members suspended from the side frames, and the substantially U-shaped inner pedestal-frame members which receive the axle-boxes and afford the proper rubbing-surfaces therefor, said inner pedestal-frame members being of channel shape in cross-section and having their flanges passing upon the edges of said pedestal-frames and lower pedestal-frame members; substantially as set forth.

9. In a car-truck, the side frame comprising the upper bar whose outward ends turn downward to form the vertical pedestal-frame members, and the lower bar whose ends turn upward to form the inner vertical pedestal-frame members, combined with the lower pedestal-frame members suspended from said side frame, and the brace-bar extending from said outer vertical pedestal-frame members along the top of the pedestal-frames and thence downward and inward to the central portion of the lower bar to which it is secured; substantially as set forth.

10. In a car-truck, the side frames comprising the upper and lower bars and the pedestal-frames at the ends of said side frames, combined with the parallel flanged beams secured at their ends to and between said upper and lower bars, the horizontal channel-beam bolster arranged between said transom-beams and below said upper bars and at its ends extending outward beyond said bars, the springs supporting said bolster and the rub-irons on the ends of said bolster; substantially as set forth.

11. In a car-truck, the side frames and pedestal-frames, and the parallel transom-beams connecting said side frames and supporting at their outer ends the links V, V, and bolts W, the latter being carried at the lower end of the pairs of links V, combined with the spring X composed of the upper and lower sections and supported by said bolts W, and the horizontal channel bolster-beam arranged between said transom-beams and resting upon the ends of the upper section of said spring, and the ends of said bolster-beam being extended beyond and below the top of said side frames and provided with rub-irons; substantially as set forth.

Signed at New York, in the county of New York and State of New York, this 22d day of August, A. D. 1898.

EDWARD CLIFF.

Witnesses:

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