

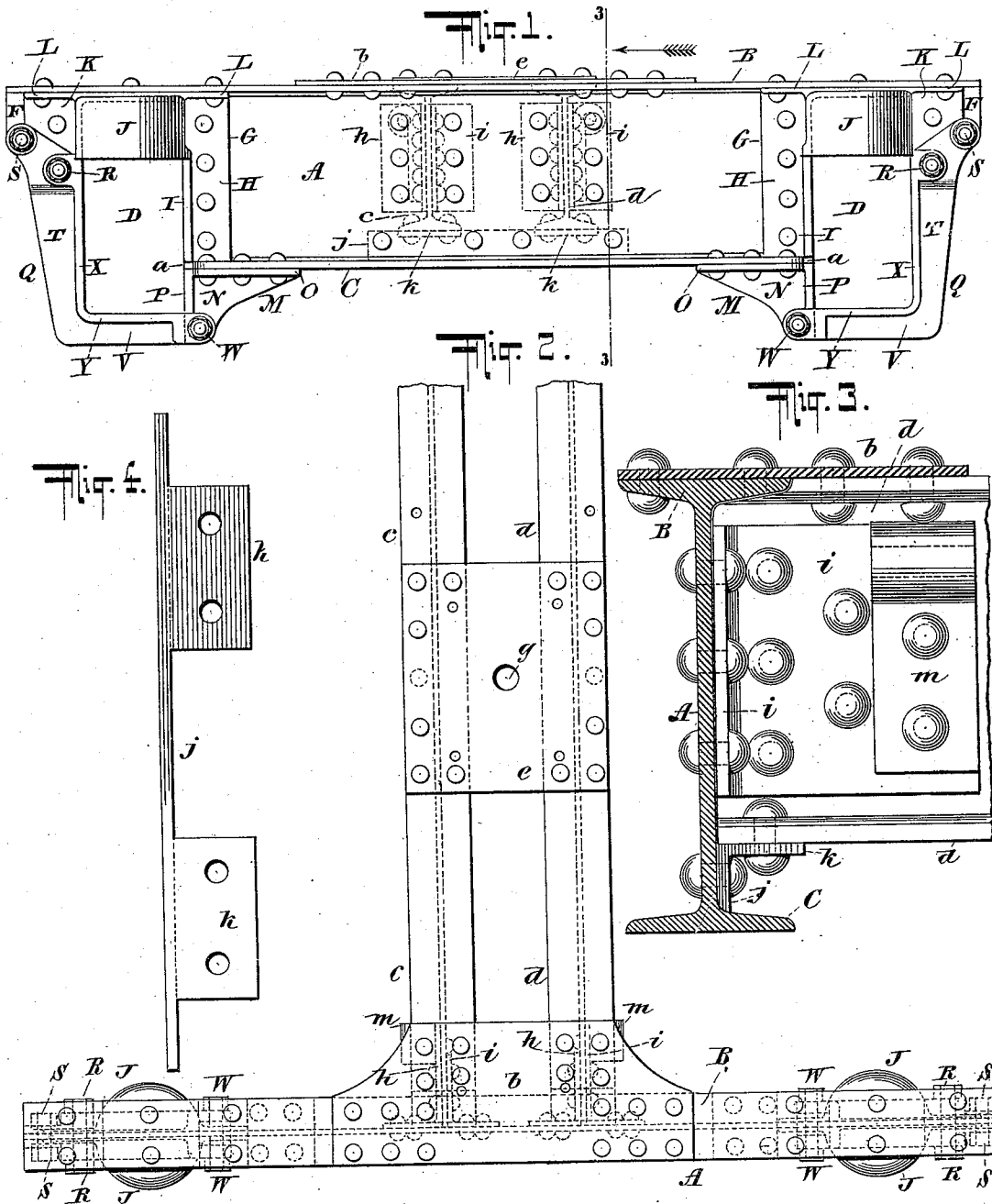
(No Model.)

3 Sheets—Sheet 1.

E. CLIFF.
CAR TRUCK FRAME.

No. 574,983.

Patented Jan. 12, 1897.



WITNESSES:
Gustave Dietrich.
John Kehlbeck.

INVENTOR
Edward Cliff,
BY
Chas. C. Gill
ATTORNEY.

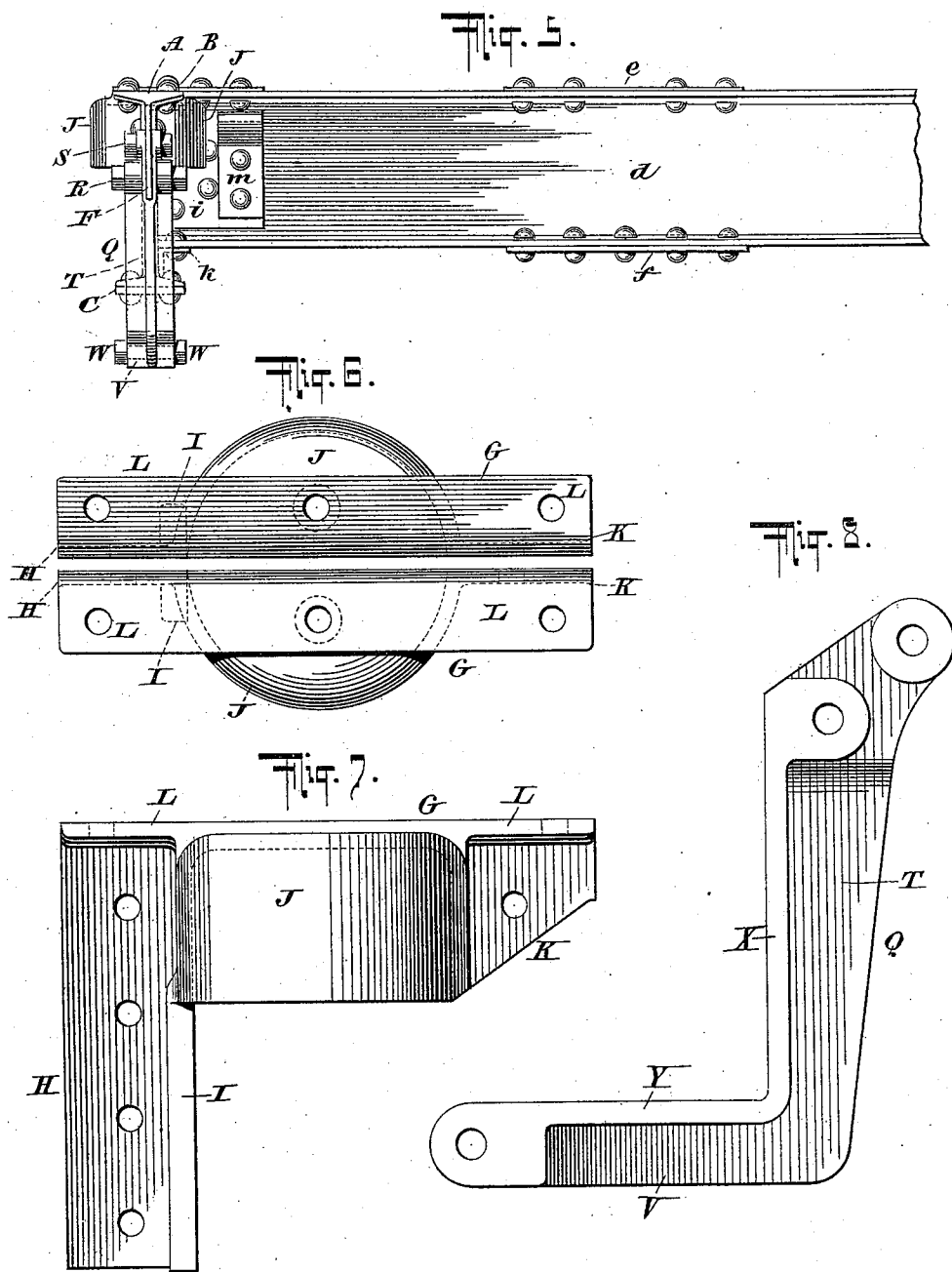
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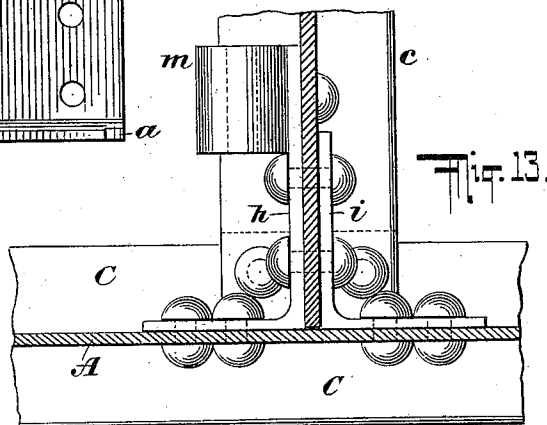
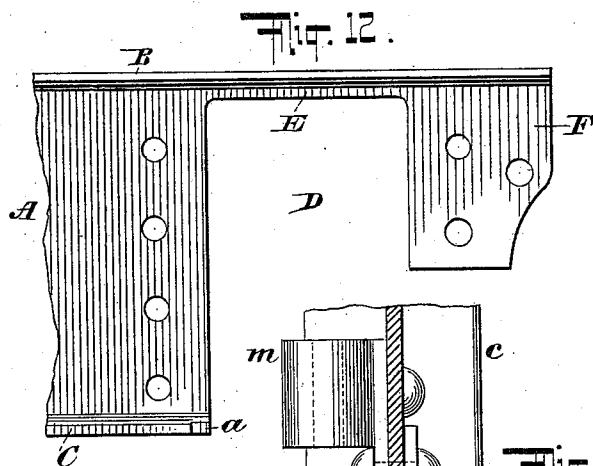
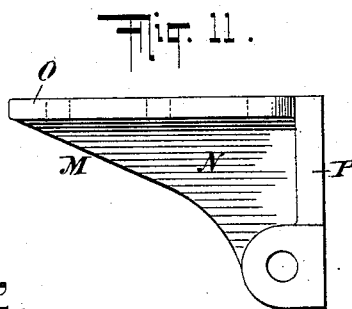
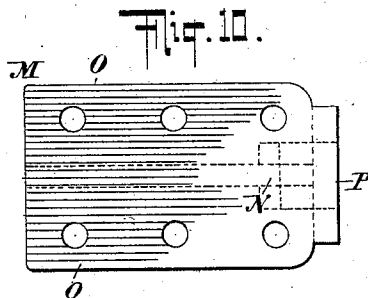
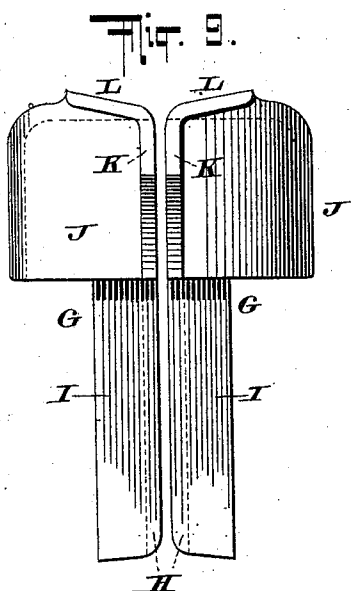
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UNITED STATES PATENT OFFICE.

EDWARD CLIFF, OF NEWARK, NEW JERSEY.

CAR-TRUCK FRAME.

SPECIFICATION forming part of Letters Patent No. 574,983, dated January 12, 1897.

Application filed July 13, 1896. Serial No. 598,934. (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 the 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 outer side and bottom 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 side elevation of a car-truck frame constructed in accordance with and embodying the invention. Fig. 2 is a top view of a portion of same. Fig. 3 is an enlarged vertical section of same on the dotted line 3 3 of Fig. 1, looking in the direction of the arrow. Fig. 4 is an enlarged top view of the step which is secured to the side frame and upon which the lower flanges of the rolled beam bolster or bolsters are secured. Fig. 5 is an end view of a portion of the truck. Fig. 6 is a detached enlarged top view of the two castings which form a portion of the pedestal-frames and the receptacle for the usual springs to be located above the axle-boxes. Fig. 7 is a detached side elevation of one of said castings. Fig. 8 is an enlarged detached side elevation of the hinged and removable portion of the pedestal-frame. Fig. 9 is an enlarged end view of the pedestal-frame castings. Fig. 10 is a top view of the bracket forming a part of the pedestal-frame and to which the hinged and removable portion thereof is connected.

Fig. 11 is a side elevation of same. Fig. 12 is a detached side elevation of one end of the side frame of the truck, less the pedestal connections which in Fig. 1 are shown applied thereto; and Fig. 13 is an enlarged top view, partly in section, of a portion of a side frame and adjoining end of bolster, showing the means for securing one to the other, the top securing-plate and the top flange of the side frame being removed.

In the accompanying drawings, A designates the side frame of the truck, which frame is formed of an I-beam having at its upper edge the flange B and at its lower edge the flange C, said flanges being parallel with one another and on straight lines.

The side frame or beam of the truck is formed at its ends with the spaces D (shown more clearly in Fig. 12) for the reception of the axle-boxes and their springs. The spaces D are cut upward into the ends of the I-beam A, but do not entirely reach the upper flange B of said beam, whereby a portion (lettered E) of the web of the beam A is left below the upper flange B and above the space D. At the outer side of each space D the lower part of the beam A is entirely cut away, as shown in Fig. 12, while the upper portion thereof forms a depending flange F, which bounds the upper outer side of said space D, and to which portions of the pedestal-frames are secured, as hereinafter described.

The side frames A correspond with one another at opposite sides of the truck, and the ends of the side frames correspond with one another at each side of the truck. Upon opposite sides of each end of each side frame A of the truck, and surrounding the inner and upper sides of the spaces D, are secured the pedestal-frames G G, which correspond and are secured in alinement with one another at opposite sides of the beam A. The pedestal-frames G are each formed with the flange H, fitting against and riveted to the web of the beam A; the flange I, which affords a rubbing-surface for the axle-boxes; the half-section of the spring-receptacle J, which extends entirely across the upper end of the space D; the flange K, which fits against and is riveted to the adjoining flange F of the beam A, and the horizontal flanges L, which fit against the lower surface of the upper flange B of

the beam A and are riveted thereto. When the castings G G are placed in line with one another upon opposite sides of the beam A, one set of rivets passing through the same and the said beam will secure both of the castings in position, and when in position the sections J of said castings constitute a complete inverted receptacle for the usual springs located above the axle-boxes. The flanges II I extend downward to the upper surface of the lower flange C of the I-beam A, and the receptacle-sections J extend entirely across the spaces D from the vertical flange I to the longitudinal flanges K, and said receptacle-sections when secured impinge between their upper facing edges that portion E of the beam A left below the upper flange B and above the space D. The castings G are further secured by means of rivets passing downward through the flange B and the upper ends of said receptacle-sections J, as shown in Figs. 1 and 2. The flanges L of the castings G are at each end of the receptacle-sections J, as shown, and said castings when constructed and secured in the manner shown and described afford strength and are entirely effectual and durable. The vertical flanges I of the castings G G, being in alinement with one another and at opposite sides of the web of the beam A, form effectual rubbing-surfaces for one side of the usual axle-boxes, and said flanges I terminate directly at the upper side of the lower flange C of said beam A. Below the flange C of the beam A at each end of the truck-frame is secured the bracket M, which at opposite sides of its central web N is formed with the horizontal flanges O, which afford means whereby the rivets shown may secure said bracket to the lower flange C of the beam A. The bracket M is also provided with the vertical flange P, which is in direct alinement with the flanges I of the castings G, and said flange P forms a continuation of the rubbing-surface for the usual axle-boxes. The receptacle-sections J close the upper end of the space D, the flanges I and flange P form the inner side of the pedestal, and the outer side and lower side of each pedestal is formed by the frame Q, which is bifurcated at its upper end to pass upward upon the flange F of the I-beam A, where it is secured by means of the bolts R S, the latter being in the upper outer end of the upper portion of said frame Q and serving as a hinge upon which at the proper times said frame Q may be swung outward and upward from the spaces D. The bolt R is within the inner thicker portion of the upper end of the frame Q and serves to rigidly hold the said frame in its closed or lower position. (Illustrated in Fig. 1.)

The frame Q is composed of the vertical arm T and the horizontal arm V, said arms being integral with one another and the end of the arm V being bifurcated and adapted to be secured upon the lower end of the bracket M by means of the bolt W. It will be observed upon reference to Fig. 1 that

when the frame Q is in its closed position it will be securely held by the bolts R, S, and W, and that upon the bolt S being loosened and the bolts R W withdrawn the side frame Q may be swung outward and upward upon the bolt S in order to free the axle-boxes. The bolt R forms a great security against any accident which might happen if it were omitted and the bolt W or bolt S should become broken.

With the bolts R S W arranged and operating in the manner shown the outer and lower side of the pedestal-spaces become securely closed and the structure is rendered safe and efficient. The inner edges of the arms T V of the frame Q are formed with the flanges X Y for the axle-boxes. The flange X corresponds with the flanges I P, and affords a proper rubbing-surface for the axle-boxes.

The width of the lower flange C of the I-beam A should be coextensive with the width of the flange P on the bracket M and the flanges I of the castings G, and hence, as illustrated, the end of the flange C adjacent to the spaces D and at opposite sides of the beam A is cut away, as indicated at *a*, in order that that portion of the flange C between the flanges I P may conform to and form a part of the rubbing-surface for the axle-boxes.

The frames A at opposite sides of the truck are duplicates of one another, and hence but one of said frames is illustrated in the drawings. Upon the upper flange B of each of said frames is secured the central plate *b*, which extends inward, as illustrated in Fig. 2. The side frames A are connected by the bolsters *c d*, which are formed of I-beams connected together at their center by the upper plate *e* and corresponding lower plate *f*, the upper plate *e* affording a suitable support for the usual central bearing and being provided with the aperture *g* for the usual king-bolt. The upper flanges of the I-beams *c d* are securely riveted to the plates *b* and abut against the inner edges of the flanges B at the upper edges of the side frames A, as shown, while the webs of said I-beams *c d* impinge the webs of the side beams A and are thereto secured by means of the angle-plates *h i*, which are securely riveted to the said I-beams *c d* and to the webs of the side frames A. The lower flanges of the I-beams *c d* extend inward to the webs of the side frames A and are riveted upon the step *j*, which is riveted to the side frames and has the inwardly-extending horizontal seats or flanges *k k*, upon which the lower flanges of the I-beams *c d* are riveted. The I-beams *c d* could, if desired, be of sufficient width to extend entirely down to the lower flanges C of the side frames A, and hence the seats *j* could be dispensed with. Sufficient strength is, however, secured when the I-beams *c d* are of the depth indicated, and hence to carry them entirely down to the lower flanges C of the side frames

A would unnecessarily increase the weight of the truck without securing any corresponding advantage as to strength or durability.

It will be observed that the side frames A are formed of commercial I-beams, into the ends of which the spaces D are cut, but which are not subjected to any bending treatment and only to the minimum amount of labor in converting them into the side frames A. The I-beams *c d* are also the usual commercial I-beams, and they also are formed and secured in place with the least possible amount of cutting and manual labor. The brackets M are cast, the pedestal-frames G are cast, and the removable and hinged frames T are cast. The truck is composed of as few parts as seem necessary, and these parts in their production involve the minimum amount of labor, and when the parts of the truck are secured together in the manner shown and described a truck of great superiority is produced with simplicity of construction and the minimum amount of labor and expense. The truck also possesses the advantages of proper weight, great durability, and entire convenience in use.

To the outer sides of the I-beams *c d*, in near relation to the inner end of the central plates *b*, will be provided the supports *m m*, of suitable construction, for the usual links which support the inside-hung brakes. (Not shown.)

The invention is not limited to the frames Q being technically detachable from the side frames, but they will be removable from the spaces D. The bolts S, securing said frames Q, could be headed or locked to prevent the frames Q from being wholly detached, but would still act as hinges for removing the frames Q outward from the spaces D.

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

1. In a car-truck, the metal frame side beams having the spaces for the axle-boxes and springs formed within their opposite ends and having the horizontal upper and lower flanges, combined with a bolster or bolsters connecting said side frames, an extension for the pedestals below the lower flange of the side frames, and removable frames closing the outer side and bottom of the pedestal-spaces and affording rubbing-surfaces for the axle-boxes, the inner side of said pedestal-spaces within the side frames and within the extension below the side frames being also provided with rubbing-surfaces for the axle-boxes; substantially as set forth.

2. In a car-truck, the connected metal sides having at their opposite ends the pedestal-spaces for the axle-boxes and their springs, said spaces being open at their outer and lower sides, combined with the frames composed of the vertical and horizontal members in a single piece and forming a single right angle for closing the outer and lower sides of said spaces, the bolt at the inner end of the lower member of said frames for securing the

latter, and the two bolts at the upper end of the vertical member of said frames, one of said two bolts being a safety-bolt and the other a hinge-bolt upon which said frames may be swung outward from said spaces; substantially as and for the purposes set forth.

3. In a car-truck, the connected side frames having the flanges at their upper edges and formed with the pedestal-spaces at their opposite ends, combined with the frames G, G, at opposite sides of each end of each of said frames and comprising the vertical flanges forming the rubbing-surface for the axle-boxes, the sections of the inverted spring-receptacle extending from said vertical flanges across the pedestal-spaces, and the smaller flanges at the outer edge of said receptacle and riveted to the said side frames, and the flanged removable outer side for the said pedestals secured to the side frames adjacent to the said inverted receptacles and said smaller flanges and affording rubbing-surfaces for the axle-boxes; substantially as set forth.

4. In a car-truck, the connected side frames having the flanges along their upper edges and formed at their ends with the spaces for the reception of the axle-boxes and their springs, combined with the castings G, G, secured upon opposite sides of each end of each of said frames and comprising the vertical flanges I for the axle-boxes, the inverted receptacle-sections J extending across said spaces, the smaller flanges K adjoining said receptacles and the horizontal flanges L meeting the upper flanges on the side frames, and the hinged and removable outer sides for said spaces, said sides affording rubbing-surfaces for the axle-boxes; substantially as set forth.

5. In a car-truck, the connected side frames having the flanges along their upper edges and formed with the pedestal-spaces for the reception of the axle-boxes and their springs, there being left above said spaces and below said upper flanges a shallow portion E of the web of the side frame, combined with the castings G, G, secured upon opposite sides of each end of each of said frames and comprising the vertical flanges H having the rubbing-flanges I, the inverted receptacle-sections J closing against said shallow portion E of the side frames, and the smaller flanges K connecting with said receptacle-sections, and the frames for the outer and lower side of said pedestal-spaces, said frames being hinged and removable and capable of being turned outward from said spaces; substantially as set forth.

6. In a car-truck, the connected side frames having formed in their ends the pedestal-spaces for the reception of the axle-boxes and their springs and flanged at their upper and lower edges, combined with the flange I upon said side frames at the inner edge of said spaces, the bracket M secured to the lower flange of said side frames and having the rubbing-flange P in line with said flange I, and removable frame for the outer and lower side of said spaces and having the rubbing-flange X

in alinement with said flanges I, P; substantially as set forth.

7. In a car-truck, the side frames having within the vertical web at their ends the pedestals for the reception of the axle-boxes and formed with the horizontal parallel flanges along their upper and lower edges, combined with the central plates secured upon the upper flanges of said side frames, and the metal beam-frames connecting said side frames and at their upper edges secured to said central plates and abutting against the inner edges of the flanges at the upper edges of said side frames, the angle-plates by which said beams

are connected to the web of the side frames, and the seat secured to said web above the lower flanges of the side frames and below the lower flanges of said beams and also secured to the lower flanges of said beams; substantially as set forth.

Signed at New York, in the county of New York and State of New York, this 11th day of July, A. D. 1896.

EDWARD CLIFF.

Witnesses:

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