No. 714,672. Patented Dec. 2, 1902.

E. CLIFF.

PASSENGER CAR TRUCK

(Application filed Mar. 27, 1902.)

(No Model.) 3 Sheets—Sheet 1.

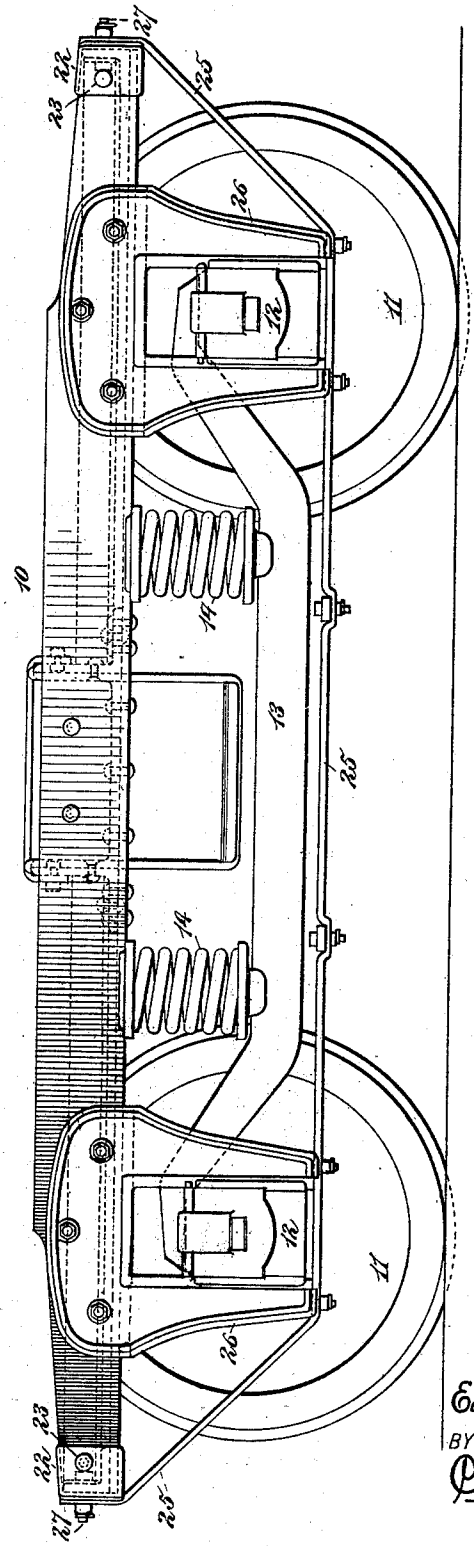

Fig. 1.

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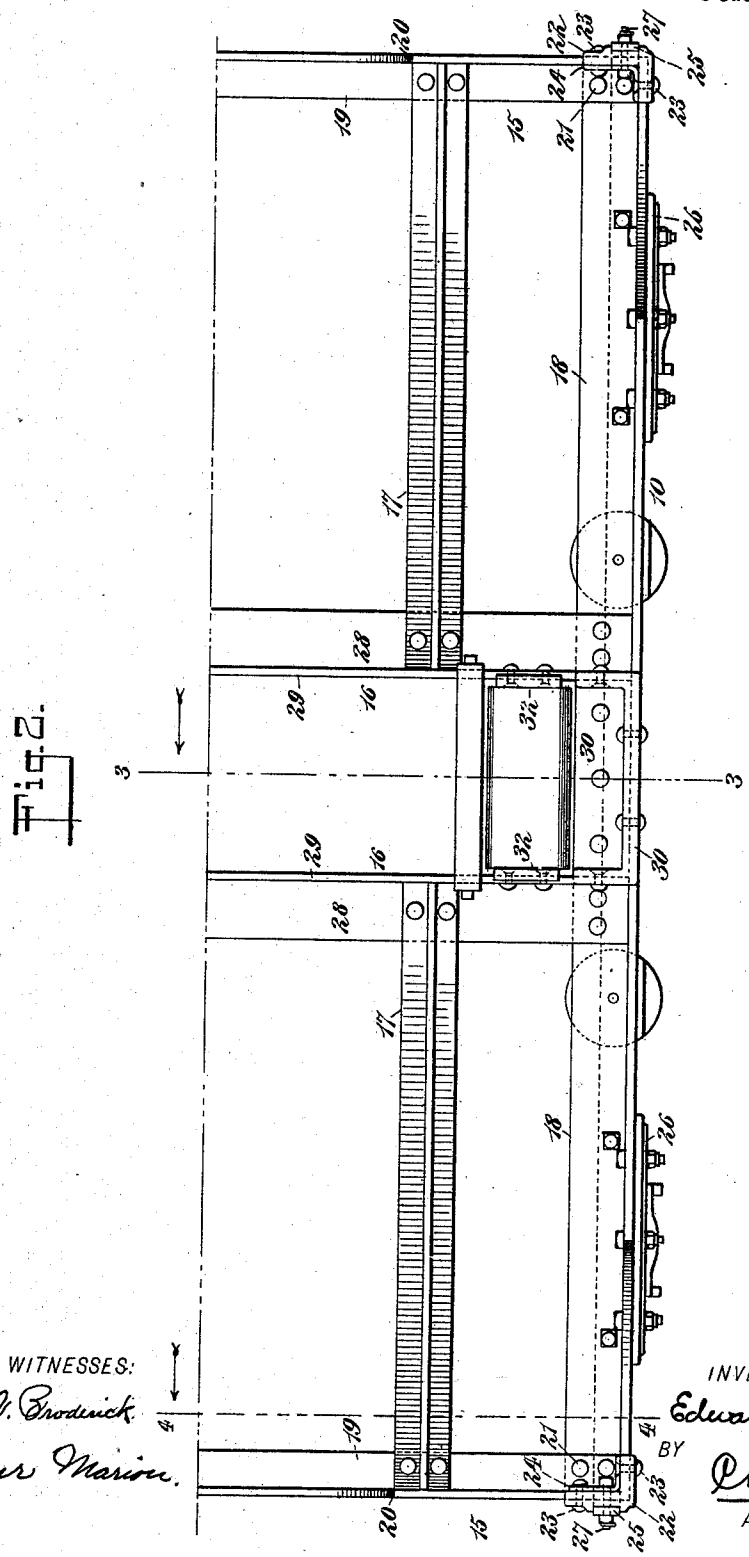

Fig. 2.

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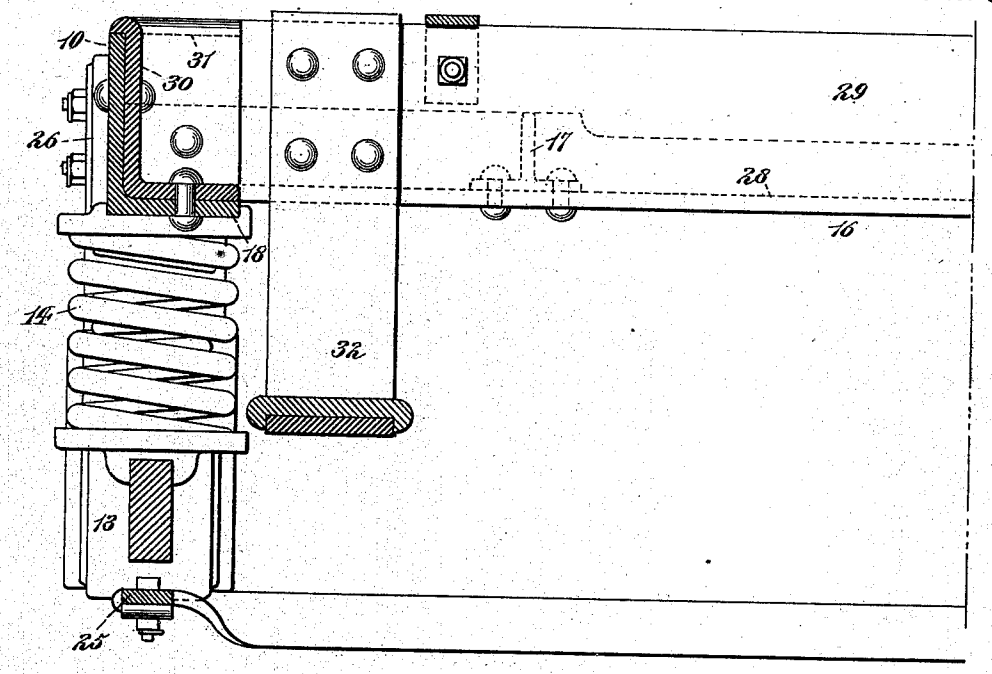

Fig. 3.

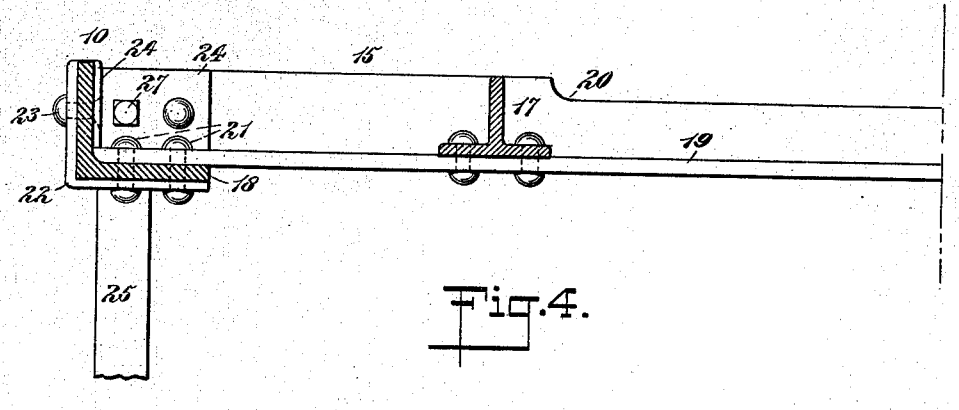

Fig. 4.

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UNITED STATES PATENT OFFICE.

EDWARD CLIFF, OF NEWARK, NEW JERSEY.

PASSENGER-CAR TRUCK.

SPECIFICATION forming part of Letters Patent No. 714,672, dated December 2, 1902.

Application filed March 27, 1902. Serial No. 100,189. (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 car-trucks; and it consists in the novel features of construction and combinations of parts hereinafter described and particularly pointed out in the claims.

The object of the invention is to produce a car-truck frame more especially, though not exclusively, for passenger-car trucks which shall be of increased durability and efficiency and capable of being manufactured rapidly and comparatively inexpensively.

The invention and satisfactory means for carrying the same into effect 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 constructed in accordance with and embodying the invention. Fig. 2 is a top view of one longitudinal half of same. Fig. 3 is an enlarged vertical transverse section through the truck-frame on the dotted line 3 3 of Fig. 2, and Fig. 4 is a like section through a portion of same on the dotted line 4 4 of Fig. 2.

In the drawings I illustrate as much of the passenger-car truck as is sufficient to clearly disclose my invention, the opposite sides of the truck-frame being duplicates of each other and one side of the frame being fully illustrated.

In the drawings, 10 designates the side frame-beams; 11, the truck-wheels; 12, the journal-boxes for the car-axles; 13, the equalizing-bar; 14, the springs intermediate said bar and the side beams; 15, the end beams of the truck-frame; 16, the transverse parallel transom-beams, and 17 longitudinal beams connecting the said transom-beams and end beams. The journal-boxes 12, equalizing-bars 13, and springs 14 are of well-known construction and not claimed herein.

The side beams 10 correspond with each other at the opposite sides of the truck-frame, and each beam 10 is in one continuous piece of angle-iron arranged so that one of its flanges 18 is disposed horizontally and extended inwardly, while its other flange extends vertically upward from the said horizontal flange 18 and presents a smooth exterior finish to the outer side of the said frames.

The end beams 15 correspond with each other, and they connect at the ends of the truck-frame the side beams 10. The end beams 15 are of angle-iron and have one of their flanges 19 extended inward horizontally, while the other flange of said end beams extends vertically upward and presents a smooth exterior surface at the ends of the truck-frame, this vertical flange of the end beams 15 being cut away, as at 20, Fig. 4, to afford adequate space for the coupling-bars. The end beams 15 are at their ends fitted upon the side beams 10 and riveted or bolted upon the horizontal flanges 18 of said side beams 10, 21 denoting rivets securing the ends of the end beams 15 upon the said horizontal flanges of the side beams 10. The ends of the end beams 15 are additionally secured to the ends of the side beams 10 by means of the metal, preferably cast metal, angular caps 22, which fit upon the corners of the truck-frame and engage the end portions of the end beams 15 and side beams 10, to which they are secured by bolts or rivets 23, the said caps 22 closely engaging the vertical flanges of the beams 15 and 10 and lapping upon the upper edges thereof. Within the angle formed by the adjoining portions of the vertical flanges of the beams 15 and 10 will preferably be applied a sheet-metal angle-plate 24, through which the rivets 23 pass and which will aid in increasing the durability of the truck-frame at its corners. The horizontal flanges of the end beams 15 are thus secured to the horizontal flanges of the side beams 10, and in addition the vertical flanges of the end beams 15 are connected with the vertical flanges of the side beams by means of the caps 22, and thereby a very durable structure is produced.

The caps 22 at the corners of the truck-frame are recessed or grooved in their outer vertical faces to receive the upper ends of the tie-rods 25, which extend lengthwise below the side beams 10 and pedestal-frames 26 and are carried upward along the vertical end

surfaces of the aforesaid caps 22, the upper vertical ends of the tie-rods 25 being set within the grooves or recesses formed in the cap 22 to receive the same and being there secured by means of the bolts 27, which pass horizontally and longitudinally of the truck-frame through the upper vertical ends of the tie-rods 25 and through the caps 22, vertical flanges of the end beams 15, and angle-iron plates 24, the bolts 27 being thus horizontally disposed and the tie-rods being rendered more effective by reason of their connection with the vertical faces of the ends of the truck-frame. The tie-rods 25, except as to the construction and arrangement of their end portions, are of the usual character, and likewise the pedestal members 26 are of the usual character, and in the present instance they are secured by bolts to the side beams 10.

The parallel transom-beams 16 16 are of angle-iron and have their horizontal flanges 28 extended outward toward the ends of the truck-frame and their vertical flanges 29 facing each other and extending upwardly from the said horizontal flanges 28. The ends of the transom-beams 16 16 rest upon and are secured by bolts or rivets to the horizontal flanges 18 of the side beams 10, and the said beams 16 afford adequate space between them for the usual car-truck bolster. (Not shown.) The ends of the transom-beams 16 are further secured in proper relation to each other and to the side beams 10 by means of the cast-metal frames or caps 30, which around their upper edge fit upon the upper edges of the transom-beams 16 and side beam 10 and thence extend downwardly along the inner face of the side beam 10 and the facing sides of the transom-beams 16 and fit against the upper horizontal surface of the flange 18 of the beam 10, as shown in Figs. 2 and 3. The cap or frame 30 is securely riveted to the vertical flanges of the beams 10 and 16 and to the horizontal flange 18 of the beam 10, as shown, and the said caps or frames 30 materially increase the strength and durability of the truck-frame and afford a convenient and effective means for aiding in securing the ends of the transom-beams to the side beams. The upper edges of the vertical flanges 29 of the transom-beams 16 are throughout the greater portion of their length about on a level with the upper edges of the caps or frames 30, as shown in Fig. 3, the end portions of said flanges 29 being cut away, as denoted at the dotted line 31 in Fig. 3, to about a level with the upper edges of the vertical flanges of the side beams 10 and enabling thereby the upper edges of the caps or frames 30 to engage the upper edges of the side beams 10 and transom-beams 16 without projecting unduly above the main level of the upper edges of said transom-beams.

The transom-beams 16 receive between them the usual bolster, (not shown,) which will be mounted upon the customary springs and bearings, (not shown,) a hanger 32 being suspended by the said transom-beams 16 to afford a seat for the bolster-springs, this hanger 32 being in the form of a box-loop secured to and suspended from the vertical flanges of the transom-beams 16.

The transom-beams 16 and end beams 15 are at each side of the center of the truck connected by the inverted-T beams 17, the upper edge of the vertical flange of the beams 17 being about on a level with the upper edge of the end beams 15 and the horizontal web or flange of the beams 17 being fitted upon and riveted or bolted to the horizontal flanges of the beams 16 15, as clearly illustrated in the drawings. The beams 17 materially increase the strength and durability of the car-truck and in addition afford means for suspending the usual car-axle guards and other incidental parts. (Not shown.)

The side beams 10 and transom-beams 16 are, as has been described above, of angle-iron, and it is a feature of importance that the beams 10 and 16 have their vertical flanges extended upward and that the ends of the beams 16 abut against the vertical flanges of the beams 10, since thereby a very durable and efficient structure capable of rapid manufacture is produced. The end beams 15 are also of angle-iron shape and have their vertical flanges extended upward, the ends of the beams 15 abutting the inner faces of the end portions of the vertical flanges of the beams 10, whereby the truck-frame at its ends is rendered entirely durable and efficient. The connection of the transom-beams 16 and end beams 15 by means of the beams 17 of inverted-T shape is also a desirable feature, since the broad horizontal flanges of the beams 17 can be conveniently and securely riveted or bolted to the horizontal flanges of the beams 15 16, and, in addition, the ends of the beams 17 abut against the facing surfaces of the vertical flanges of the said beams 15 16, thereby increasing the strength and durability of the truck-frame. The truck-frame as a whole is of great durability and simplicity and capable of being rapidly manufactured at comparatively small expense, the beams being of well-known commercial shapes and requiring but little cutting to adapt them for the purposes intended.

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

1. In a car-truck, the angle-iron-shape straight side beams 10 having the inwardly-extending horizontal flanges and the outer vertical flanges, and beams connecting said side beams 10 at their ends, combined with the angle-iron transverse parallel transom-beams 16 having the outwardly-extending horizontal flanges and facing vertical flanges extending upwardly from said horizontal flanges, the pedestal-frames secured to said side beams, and the tie-bars 25 extending lengthwise of said side beams below and secured to said pedestal-frames and at their end portions extended upwardly and secured

to the ends of the truck-frame; substantially as set forth.

2. In a car-truck, the angle-iron-shape side beams 10 having the inwardly-extending horizontal flanges and the outer vertical flanges extending upward from said horizontal flanges, and beams connecting said side beams 10 at their ends, combined with the transverse parallel transom-beams 16 having the outwardly-extending horizontal flanges and the facing vertical flanges extending upward from said horizontal flanges, and the caps or frames 30 engaging the horizontal flanges of said side beams intermediate said transom-beams and also engaging the adjoining surfaces of the vertical flanges of said transom-beams and side beam and being secured to the vertical and horizontal flanges of the side beams and the vertical flanges of said transom-beams; substantially as set forth.

3. In a car-truck, the angle-iron-shape side beams 10 having the inwardly-extending horizontal flanges and the outer vertical flanges extending upward from said horizontal flanges, and the angle-iron-shape end beams 15 connecting said side beams 10 at their ends, the said end beams having their horizontal flanges extending inwardly and secured upon the horizontal flanges of said side beams, combined with the transverse parallel transom-beams 16 having the outwardly-extending horizontal flanges and the facing vertical flanges extending upward from said horizontal flanges, and beams 17 at each side of the longitudinal center of the truck connecting said transom-beams and end beams and secured thereto, the ends of said transom-beams being fitted upon and secured to the horizontal flanges of said side beams; and said beams 17 having their ends secured upon the inwardly-extending flanges of said transom-beams and said end beams 15 substantially as set forth.

4. In a car-truck, the angle-iron-shape side beams 10 having the inwardly-extending horizontal flanges and the outer vertical flanges extending upward from said horizontal flanges, and the angle-iron-shape end beams 15 connecting said side beams at their ends, the horizontal flanges of said end beams being extended inward and secured upon the horizontal flanges of said side beams, combined with the transverse parallel transom-beams 16 having the outwardly-extending horizontal flanges and the facing vertical flanges extending upward from said horizontal flanges, and the inverted-T beams 17 connecting said transom-beams and end beams and secured at their ends upon the horizontal flanges of said tramsom-beams and end beams, the ends of said transom-beams being fitted upon and secured to the horizontal flanges of said side beams; substantially as set forth.

5. In a car-truck, the angle-iron-shape side beams 10 having the inwardly-extending horizontal flanges and the outer vertical flanges extending upward from said horizontal flanges, the beams connecting said side beams 10 at their ends, the caps 22 applied upon the corners of the truck-frame and engaging said side beams and end beams and being securely fastened thereto, and the tie-bars 25 extending below the pedestal-frames and at their ends passing vertically upward against the vertical surfaces of said caps 22 to which they are securely fastened, combined with the transverse parallel transom-beams 16 having the outwardly-extending horizontal flanges and the facing vertical flanges extending upward from said horizontal flanges, the ends of said transom-beams being fitted upon and secured to said side beams; substantially as set forth.

6. In a car-truck, the angle-iron-shape side beams 10, the pedestal-frames applied thereto, the beams connecting said side beams at their ends, the tie-bars 25 extending below the pedestal-frames and at their outer ends passing vertically upward against the vertical surfaces at the ends of said side beams, and the horizontal bolts extending longitudinally of the truck-frame securing said vertical ends of said tie-bars, combined with the parallel transom-beams connecting and secured to said side beams; substantially as set forth.

Signed at New York, in the county of New York and State of New York, this 26th day of March, A. D. 1902.

EDWARD CLIFF.

Witnesses:
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ARTHUR MARION.