

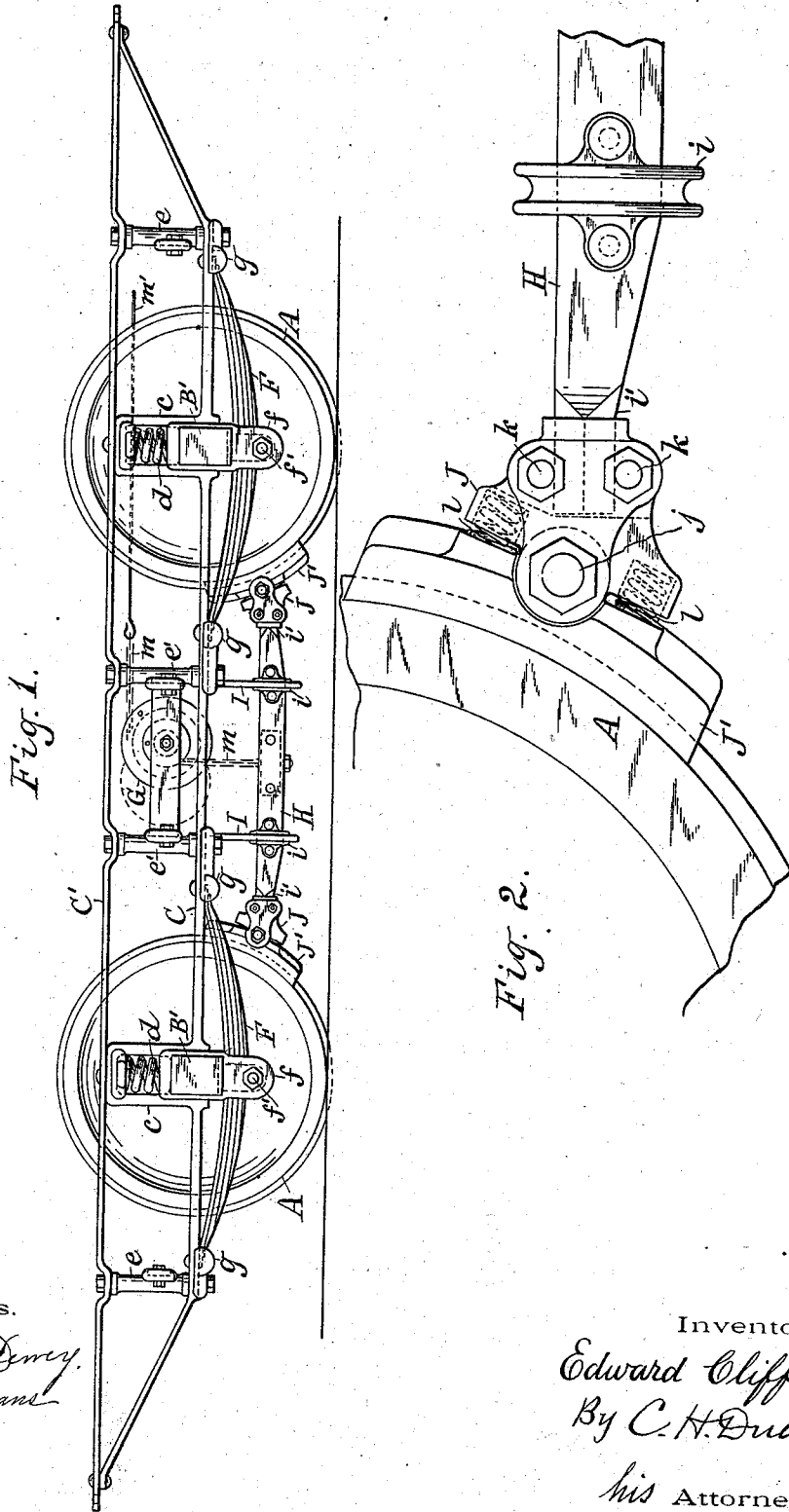
(No Model.)

2 Sheets—Sheet 1.

E. CLIFF.
CAR TRUCK.

No. 562,579.

Patented June 23, 1896.



Witnesses.

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Inventor.

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By *C. H. Duell*
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Fig. 3.

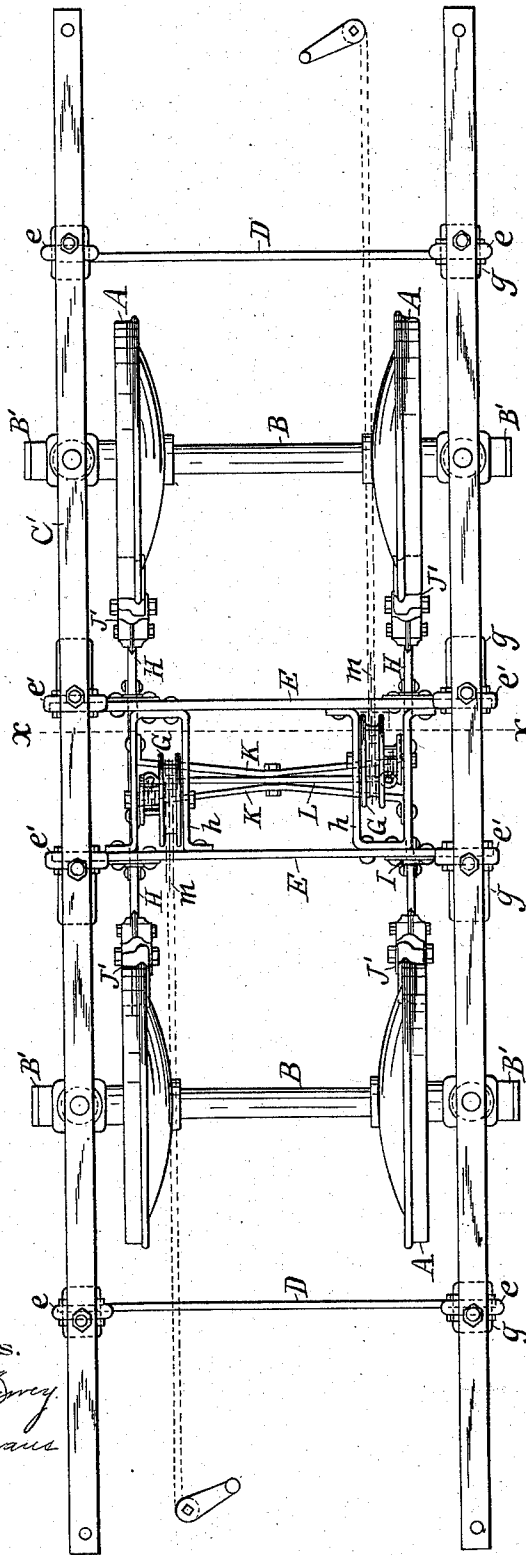
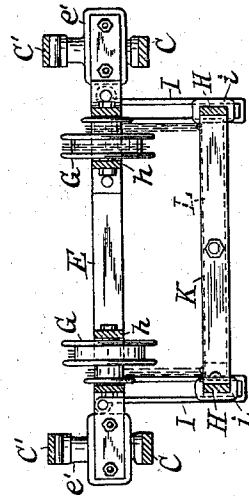


Fig. 4.



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UNITED STATES PATENT OFFICE.

EDWARD CLIFF, OF NEWARK, NEW JERSEY.

CAR-TRUCK.

SPECIFICATION forming part of Letters Patent No. 562,579, dated June 23, 1896.

Application filed March 12, 1896. Serial No. 582,844. (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 Improvements in 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, and more particularly to street-car or motor trucks, and the objects are to provide an improved construction of not only the truck-frame and its springs, but also of the brake-rigging.

To this end my invention consists in the combination, with the wheels, axles, and axle-boxes, of the side frames, each made in two parts, pedestals and struts connecting the two parts rigidly together, springs between the axle-boxes and the pedestals, and a semi-elliptic spring bearing with its center upon the lower side of an axle-box and having its ends supported by the frame.

My invention consists, further, in the combination, with the axles and wheels, of a brake-shoe made in two parts, said parts being pivoted together at their center, and a spring between the parts on each side of the pivot; 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 side elevation of a car-truck embodying my invention. Fig. 2 is an enlarged detail view of a portion of the brake beam and shoe. Fig. 3 is a top plan view of my improved car-truck, and Fig. 4 is a cross-sectional view taken on line *xx* of Fig. 3 and looking from right to left.

Referring specifically to the drawings, A A are the wheels, B B the axles, and B' B' the axle-boxes.

C is the lower portion of the side frame, and C' is the upper portion thereof. The upper portion or piece is adapted to support the body of the car, and the lower portion or piece extends, with its central portion approximately on the line of the axles when in its normal position, parallel with the upper frame directly above it, the ends of said lower frame being bent or inclined upward to meet

the ends of the upper frame, where they are rigidly secured together by rivets. Pedestals or yokes *c c* are in the lower frame for the axle-boxes to work in. These pedestals extend to the upper frame and are there bolted or riveted. Between the upper side of the box B' and the lower side of the pedestal *c* is a coiled spring *d* to aid in supporting the frame upon the axle. The two parts of the frame, or, in other words, the upper and lower frames, are separated and rigidly joined together on each side of the truck by four struts *e e e' e'*, with bolts passing through them and the frames. The struts *e e* are outside of the axles and support the ends of cross-bars D D, extending between the sides of the frame. The struts *e' e'* are between the axles and support the ends of two central cross bars E E, which not only support the brake-rigging, but the motors (not shown) of the truck.

To aid the coiled springs *d d*, &c., in supporting the frame upon the axle-boxes, I provide a semielliptic spring F below each axle-box, the center of the spring lying in a socket *f*, formed on the lower side of the box. A bolt *f'* passes through the socket below the spring. The spring is preferably the lower half of an elliptic spring without eyes at the ends. The ends of the springs F are straight and fit in sockets *g g*, which are bolted and riveted to the lower side of the frame.

It will be apparent that the above-described construction makes a very durable and easy-riding truck.

Referring to the brake-rigging, H is the brake-beam; I, the loop-hangers to retain the beam in its proper position; *i i*, castings secured to the brake-beam to guide the latter in the hangers; *i'*, the brake-beam head, which is square and fits into one of the members of the brake-shoe J, J' being the second member of the shoe, which is pivoted to the other member by a bolt *j* and bears upon the tread of the wheel A.

The brake-beam H extends between the two shoes bearing upon the inner treads of the wheels A A. Said brake-beam has square ends, which extend into the members J J of the shoes, said members being each divided vertically and provided with bolts *k k*, so that they may be adjusted to make up for wear

upon the shoe. In other words, the bolts k k may be loosened and the shoe moved toward or from the tread of the wheel. The brake-shoe being divided into two parts J and J', and swiveled or hinged together at the center by the bolt j , allows the part bearing on the wheel to rock to perfectly adapt itself to the wheel. Coil-springs ll are held in sockets in the part J on opposite sides of the bolt j and bear upon the part J' to steady it and prevent rattling.

K K are cross-bars extending between and secured rigidly to the brake-beams H H on opposite sides of the truck. L is the brake-lever between the bars K K, and pivoted to them at the center. The ends of the brake-lever L are connected by chains to pulleys G G above, said pulleys being fulcrumed in brackets h h , extending between and secured to the cross-bars E E. Each pulley is double, having a larger part to which the chain m , connected to the draw-bar m' , is attached. The draw-bars lead to opposite ends of the truck, where they are provided with suitable and well-known means for operating them. The operation of either draw-bar will revolve a pulley and raise both brake-beams to apply the brake-shoes to the treads of the wheels, and when released said beams with their shoes will drop away from the wheels. By means of the double pulleys, a greater leverage is obtained and the brake is applied with greater ease than if single pulleys were used.

The links I I prevent the brake-beams from falling too far should one of the chains be accidentally broken.

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

1. In a car-truck, the combination with the wheels, axles and axle-boxes, of the side frames, each made in two parts, pedestals and end braces integral with the lower parts, struts connecting the two parts rigidly together, springs between the axle-boxes and the pedestals, and a semielliptic spring bearing with its center upon the lower side of an axle-box and having its ends connected to the frame, as set forth.

2. In a car-truck, the combination with wheels, axles and axle-boxes, of the side frames, each made in two parts connected rigidly together, struts between the parts, pedestals formed integral with the lower part and extending to the upper part, springs between the axle-boxes and the lower side of the pedestals, cross-bars extending between the struts, and semielliptic springs bearing with their centers upon the lower side of the axle-boxes and having their ends connected to the lower side of the frame, as set forth.

3. In a car-truck, the combination with the wheels, axles and axle-boxes, of the side frames, each made in two parts connected rigidly together, struts between the parts, pedestals formed integral with the lower part and

extending to the upper part, coiled springs between the axle-boxes and the lower side of the pedestals, cross-bars secured to and extending between the struts, and the lower parts of elliptic springs bearing with their centers upon the lower side of the axle-boxes and having their ends connected to the lower side of the frame, as set forth.

4. In a car-truck, the combination with the wheels, axles and axle-boxes, of the side frames, each made in two parts connected rigidly together, struts between the parts, pedestals formed integral with the lower part and extending to the upper part, coiled springs between the axle-boxes and the lower side of the pedestals, cross-bars secured at their ends to and extending between the struts, semielliptic springs having their centers below the axle-boxes, sockets on the lower sides of said boxes to retain the springs, and sockets secured to the lower sides of the frames on the opposite sides of each of the pedestals to retain the ends of the semielliptic springs, as set forth.

5. In a car-truck, the combination with the axles, wheels and frame, of a brake supported by the frame and composed of a brake-shoe, a brake-head, a bolt pivotally securing said shoe and head together, sockets formed in said head and coiled springs in said sockets at opposite sides of said bolt and bearing at their outer ends against said shoe, as set forth.

6. In a car-truck, the combination with the axles, wheels and frame, of a brake-beam extending longitudinally between said wheels, the brake-heads at the ends of said beam, a bolt pivotally securing each shoe and head together, sockets in one of the parts on opposite sides of the bolts, coiled springs in said sockets and bearing with one end upon the opposite part, and means for raising and permitting the lowering of said beam; substantially as set forth.

7. In a car-truck, the combination with the axles, wheels and frame, of brake-beams extending between the wheels and provided with adjustable shoes on their ends, links supported by the frame to guide the said beams, bars connecting the beams together, a brake-lever fulcrumed at its center between the said bars, pulleys supported by the frame, connections between the pulleys and the ends of the brake-lever, and means to operate the pulleys to apply the shoes to the wheels, as set forth.

8. In a car-truck, the combination with the axles, wheels and frame, of brake-beams extending between the wheels and provided with adjustable shoes on their ends, links supported by the frame to guide the said beams, bars connecting the beams together, a brake-lever fulcrumed at its center between the said bars, pulleys having large and small parts supported to turn in the frame of the truck, connections between the small parts of the pulleys and the ends of the brake-lever, and

connections between the large parts of the pulleys, and operating means at the opposite ends of the truck.

9. In a car-truck, the combination with the
5 axles, wheels and frame, of brake-beams extending between the wheels and provided with adjustable shoes on their ends, links supported by the frame to guide the said beams, bars connecting the beams together, a brake-
10 lever fulcrumed at its center between the said bars, brackets between the central cross-bars of the frame, pulleys fulcrumed in said brackets on opposite sides of the center of the frame, connections between the pulleys and the ends
15 of the brake-lever, and suitable connections leading from the pulleys to opposite ends of the truck, as set forth.

10. In a car-truck, the combination with the
20 wheels, axles, and axle-boxes, of the side frames, each made in two parts, pedestals and struts connecting the two parts rigidly together, springs between the axle-boxes and the pedestals, and a semielliptic spring bearing with its center upon the lower side of an
25 axle-box and having its ends connected to the frame, brake-beams extending between the wheels and provided with adjustable shoes on their ends, links supported by the frame to guide the said beams, bars connecting the
30 beams together, a brake-lever fulcrumed at its center between the said bars, pulleys supported by the frame, connections between the pulleys and the ends of the brake-lever, and means to operate the pulleys to apply the shoes
35 to the wheels, as set forth.

11. In a car-truck, the combination with the
wheels, axles, axle-boxes and coiled springs for said boxes, of the side frames, each made
40 in two parts rigidly connected together, struts between the parts, cross-bars extending between the struts, and the semielliptic springs bearing with their centers upon the lower side of the axle-boxes and having their ends bearing against the lower side of the lower part of
45 the frame, the said lower part of the frame

extending outward and upward at its ends to form the integral braces which are connected at their upper ends to the upper part of the frame, and said lower part being intermediate
50 its ends bent upward upon the angles of an oblong to form the integral three-sided oblong pedestals which are open at their lower ends to receive the axle-boxes and are rigidly connected at their upper horizontal ends with the
55 upper part of said frame, while their opposite sides serve as guides for said boxes between which and the tops of the pedestals are the said coiled springs, substantially as set forth.

12. In a car-truck, the combination with the
60 wheels, axles and axle-boxes, of the side frames each made in two parts rigidly connected together, the struts between the parts, the pedestals formed in the lower part and extending upward to the upper part and forming oblong three-sided frames open at their
65 lower ends to receive and guide the axle-boxes, the coiled springs between the axle-boxes and the lower side of the upper end of said pedestals, means securing said upper
70 ends of the pedestals to the upper part of the frame, semielliptical springs bearing with their centers upon the lower side of the axle-boxes, and having their ends bearing against the lower side of the lower part of the said
75 frames, substantially as set forth.

13. In a car-truck, the combination with the
axles, wheels and frame, of a brake-beam extending longitudinally between the wheels,
80 the brake-heads upon the ends of said beam, the brake-shoes pivotally secured to said heads in proper relation to said wheels by bolts, springs at the opposite sides of said bolts, and means for raising and permitting the lowering of said beam, substantially as set forth.

In testimony whereof I have hereunto
85 signed my name.

EDWARD CLIFF. [L. S.]

Witnesses:

M. MORAN,

W. L. SAWYER.