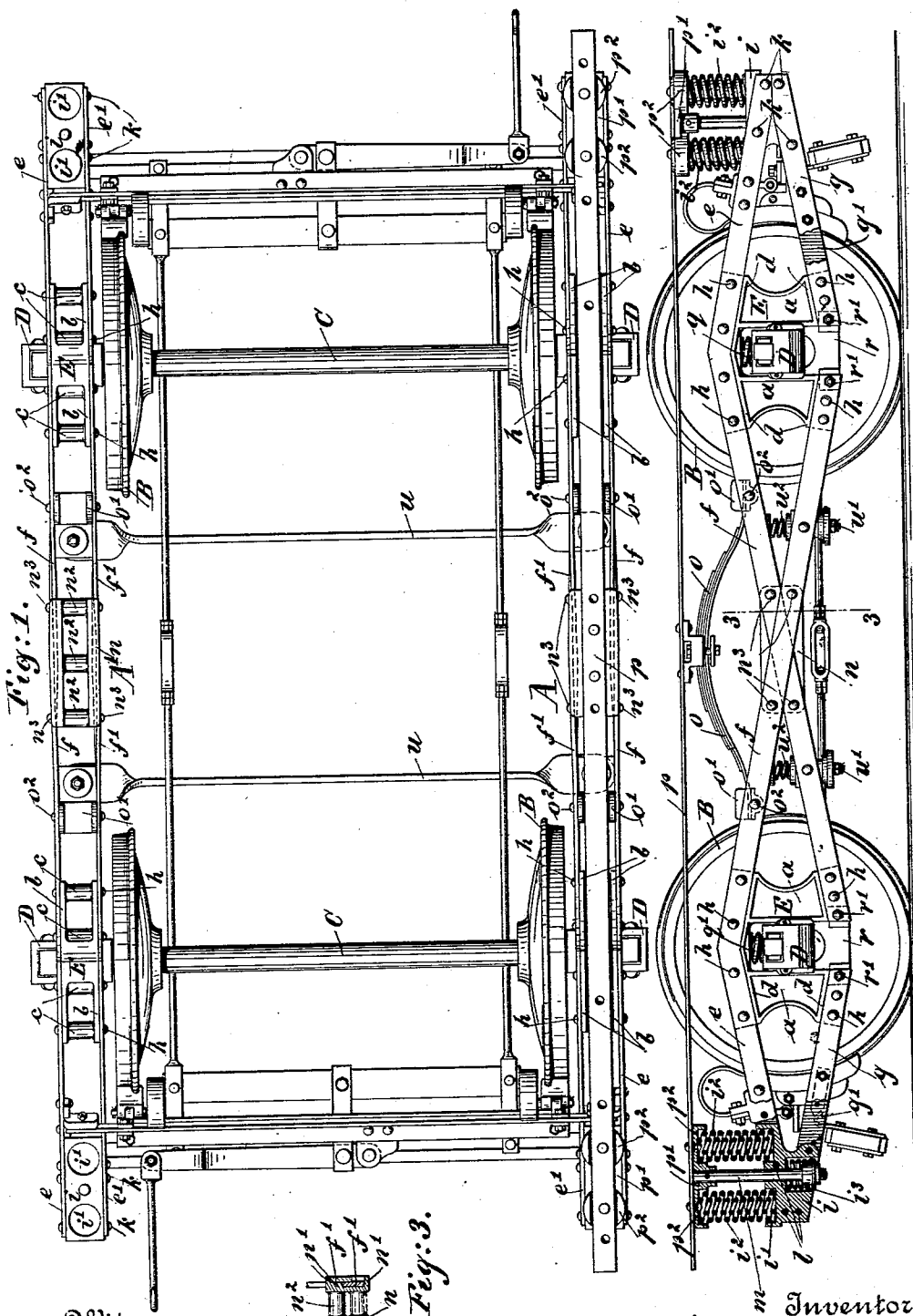


(No Model.)

G. W. LACY.
CAR TRUCK.

No. 563,188.

Patented June 30, 1896.



Witnesses
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UNITED STATES PATENT OFFICE.

GEORGE W. LACY, OF KINGSTON, NEW YORK.

CAR-TRUCK.

SPECIFICATION forming part of Letters Patent No. 563,188, dated June 30, 1896.

Application filed February 29, 1896. Serial No. 581,231. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. LACY, a citizen of the United States, residing at Kingston, in the county of Ulster and State of New York, have invented certain new and useful Improvements in Car-Trucks, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to improvements in that class of trucks especially designed for use on cars which are driven by their own motors, and it constitutes an improvement on the car-trucks for which Letters Patent No. 503,092 were granted to me under date of August 8, 1893.

The object of my invention is to provide a car-truck in which the side frames will be of great strength and at the same time be comparatively light in weight, and one in which the side frames will have greater powers of resisting and enduring both lateral and vertical strains than the side frames heretofore used.

My invention consists of the novel features of construction hereinafter set forth and described, and more particularly pointed out in the claims hereto appended.

Referring to the drawings, Figure 1 is a plan view of a car-truck embodying my invention with the bolster-plate and load-bearing springs supporting said plate removed from one side of the truck. Fig. 2 is a side elevation of said truck, partly in section at one end and partly broken away at the other end. Fig. 3 is a section of the middle tie-plate, taken on the line 3 3 of Fig. 2.

Like letters refer to like parts throughout the several views.

In the drawings, A represents one of the side frames of the truck, and A' the side frame on the opposite side of the truck. Each of these side frames is a duplicate of the other, being composed of parts similar in form, construction, and arrangement. A description of one of the said frames, with its connecting parts, will therefore be sufficient.

B B are the wheels, C C the axles, and D D the housings of the journals of said axles.

E E are the pedestals which hold the journal-housings in place. These pedestals are each made of metal, preferably of malleable

iron, and cast in one piece and in the shape of a double yoke, which slides down over the journal-housings to hold them in position.

The pedestals are provided with webs *a a* and flanges *b b*, made integral with them. *c c* denote rivet-receiving sleeves between said flanges, and *d d* ribs on said pedestal.

Each side frame is composed of the parts *e e f f g g* and *e' e' f' f' g' g'*, connected by the pedestals E E and the middle and end tie-plates, or castings, and stay or "repair" pieces, as hereinafter more fully described.

The parts *e e f f g g*, which form a part of the outer portion of the side frame, are similar in form, construction, and arrangement to the corresponding parts *e' e' f' f' g' g'*, which form a part of the inner portion of the frame, and may be made of any suitable bar steel or iron; but they are preferably made of flat bar-steel about three inches in width and from about one-fourth of an inch to one-half of an inch in thickness, or more or less according to the weight to be carried or to the service in which the truck is to be employed. When they are made of flat steel bars, they are so arranged that their side surfaces lie in substantially the same vertical plane. These parts *e e f f g g* and *e' e' f' f' g' g'* are about five inches apart, that is to say, a distance apart nearly equal to the width of the pedestal from its inner to its outer side, and are secured to their respective pedestals by rivets *h h*, driven and headed, preferably when red-hot.

i i denote castings to which the outer ends of the side frames are secured by means of rivets *k k*, passing through said outer ends and the bolt-holes *l l* in said castings, said rivets being driven and headed, preferably when red-hot. These castings may properly be called the "end" tie-plates above referred to, as they serve to securely bind together the outer ends of the side frame. In each of these castings are located spring-seats *i' i'* suitable for receiving the coiled springs *i² i²*. *m* is a vertical spring check-bolt passing through the casting *i* and provided with a lug or shoulder *m'*, upon which the coiled spring *i²*, located in a chamber in the under side of each casting *i*, is seated. The function of this spring-bolt *m* is to counteract to

a certain extent the upward tension of the springs $i^2 i^2$, and at the same time tends to relieve the springs, located between the bolster-plate and the side frame, from all strain from the push and thrust of the frame of the truck.

The outer and inner parts of the side frame where the parts $f f$ and $f' f'$, respectively, cross each other, as illustrated in the drawings, are connected by suitable metal pieces n about midway between the pedestals. These pieces may be properly called the "middle" tie-pieces above referred to. These tie-plates are formed, preferably, of one piece of casting, having shoulders $n' n'$ and rivet-sleeves $n^2 n^2$ made integral with it and secured to the bars of the outer and inner side of the side frame by means of rivets $n^3 n^3$, driven and headed, preferably when red-hot; the said shoulders $n' n'$ being so arranged and set apart at a distance sufficient to receive the bars forming the inner and outer sides of the frame and to rest against the edges of said bars, to relieve the rivets from a shearing strain.

$o o$ denote elliptical equalizing-springs having their ends seated in the spring-seats $o' o'$. These spring-seats $o' o'$ may serve as tie-pieces between the outer and inner sides of the side frames to prevent them from bending, and are secured to said side frames by means of rivets $o^2 o^2$, driven and headed, preferably when red-hot.

$p p$ are bolster-plates upon which the car-body is designed to rest and be secured, arranged longitudinally above each side frame and supported by suitable load-bearing springs, as $i^2 i^2$, and equalizing-springs, as $o o$.

$p' p'$ denote castings attached to the under side of the bolster-plates $p p$, in which castings are located the seats $p^2 p^2$ for the upper ends of the springs $i^2 i^2$ and a recess for the upper end of the spring-bolt m .

$q q$ are load-bearing springs resting upon the journal-housings $D D$ and supporting the pedestals $E E$.

$r r$ denote stay or repair pieces adapted to fit into the recess at the lower ends of the pedestals $E E$ with their ends abutting against the ends of the outer and inner sides of the frame, and secured to the flanges of the pedestals by means of the bolts $r' r'$, which fit into the bolt-holes of said repair-pieces and in the rivet-sleeves of said flanges. These repair-pieces may, by reason of such construction, be easily taken out and permit the removal of the axle with its housing from the side frame. These stay or repair pieces when securely fastened in position also serve the purpose of making the side frame continuous and unbroken, and therefore greatly increase its strength.

$u u$ denote the motor hanger-bars, with their ends secured to a vertically-movable bolt u' , the upper part of which rests upon a suitable spring u^2 , which has its seat in a casting secured between the outer and inner sides of the side frames, so that the motor may ride as easily as possible, no matter how much the

car-truck may be moved out of its normal position by the unevenness of the road-bed.

By the construction above set forth it is obvious that a side frame of great strength is obtained, the said frame being composed of two diamond truss portions T and T' , each dual in character and connected by suitable pedestals and tie devices and a double- X -form truss located in the middle portion of each frame, formed by the crossing of the parts f and $f' f'$, respectively, as described, and one by which the objects of the invention above stated may be attained.

The load-bearing springs located between the bolster-plates $p p$ and the side frames are so arranged in the length of the said frames that the weight of the load will be equally distributed upon each of the double truss portions of the frame, and at such points thereon that the middle portions of the side frame will coact with the truss portions to prevent the side frames from becoming bent from their normal position in either a lateral or a vertical direction.

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

1. In a car-truck, a side frame comprising two similar double diamond-form truss portions in combination with two pedestals, a suitable tie-plate, located between said truss portions forming a double- X -form truss, located midway between said pedestals, substantially as described.

2. In a car-truck, a side frame comprising two similar double diamond-form truss portions in combination with two pedestals, the outer and inner parts of said truss portions being secured respectively to the outer and inner flanges of said pedestals, spring-seats secured between the outer ends of said truss portions serving as ties and a double- X -form truss located midway between said pedestals, substantially as described.

3. In a car-truck, a side frame comprising two similar double diamond-form truss portions in combination with two pedestals located between said truss portions and a tie-plate n , located between said truss portions forming a double- X -form truss located midway between said pedestals, substantially as described.

4. In a car-truck, a side frame comprising two similar double diamond-form truss portions in combination with two pedestals located between said truss portions, said pedestals being each provided with a yoke adapted to slide over the journal-housings, and the outer and inner parts of said truss portions being secured respectively to the outer and inner flanges of the top and bottom of said pedestals and a double- X -form truss located midway between said pedestals, substantially as described.

5. In a car-truck, a side frame comprising two similar double diamond-form truss portions in combination with two pedestals located between said truss portions, a stay or

repair piece *r*, and a double-**X**-form truss located midway between said pedestals, substantially as described.

5 6. In a car-truck, a side frame comprising two similar double diamond-form truss portions in combination with two pedestals located between said truss portions, a bolster-plate and load-bearing springs located between said side frame and said bolster-plate
10 and a double-**X**-form truss located midway between said pedestals, substantially as described.

15 7. In a car-truck, a side frame comprising two similar double diamond-form truss portions in combination with two pedestals located between said truss portions, said pedestals being provided with webs *a* and projecting flanges *b*, a journal-housing and load-bearing spring located between said housing

and the pedestal and a double-**X**-form truss located midway between said pedestals, substantially as described.

8. In a car-truck, a side frame comprising two similar double diamond-form truss portions in combination with two pedestals located between said truss portions, a bolster-plate springs between said bolster-plate and side frames, and a double-**X**-form truss located midway between said pedestals, substantially as described.

30 In witness whereof I have hereto affixed my signature, this 25th day of February, 1896, in the presence of two witnesses.

GEO. W. LACY.

Witnesses:

N. L. FROTHINGHAM,
FRANK T. WENTWORTH.