(No Model.) 3 Sheets—Sheet 1.

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TRUCK FOR STREET CARS.

No. 493,770. Patented Mar. 21, 1893.

Fig. 1.

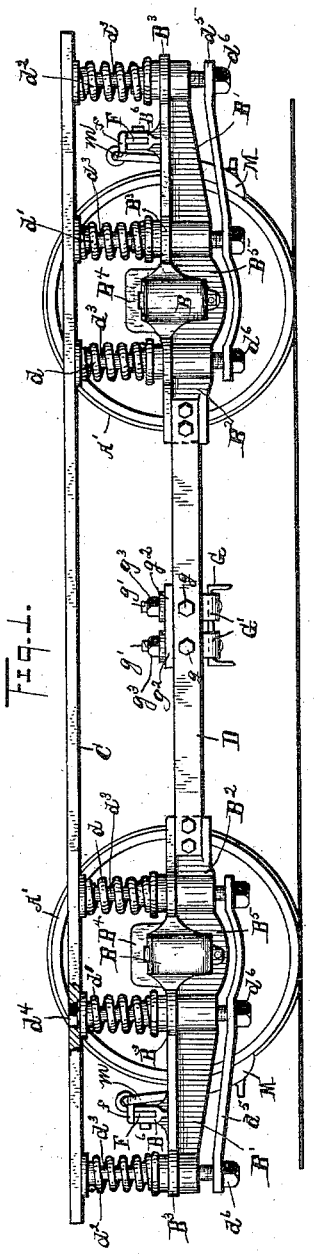
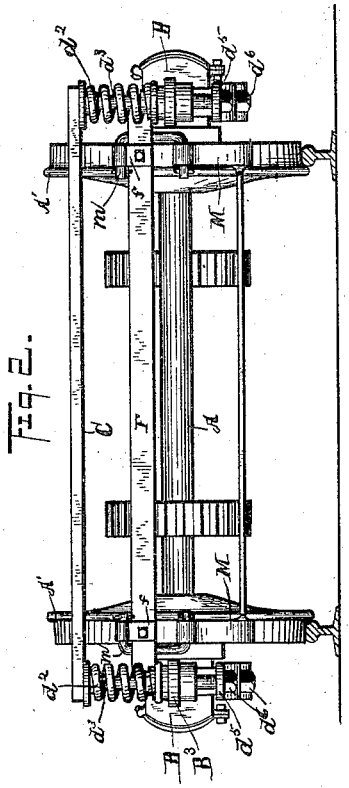


Fig. 2.



WITNESSES

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A. S. Lowrie

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By Geo. H. King. ATTORNEY

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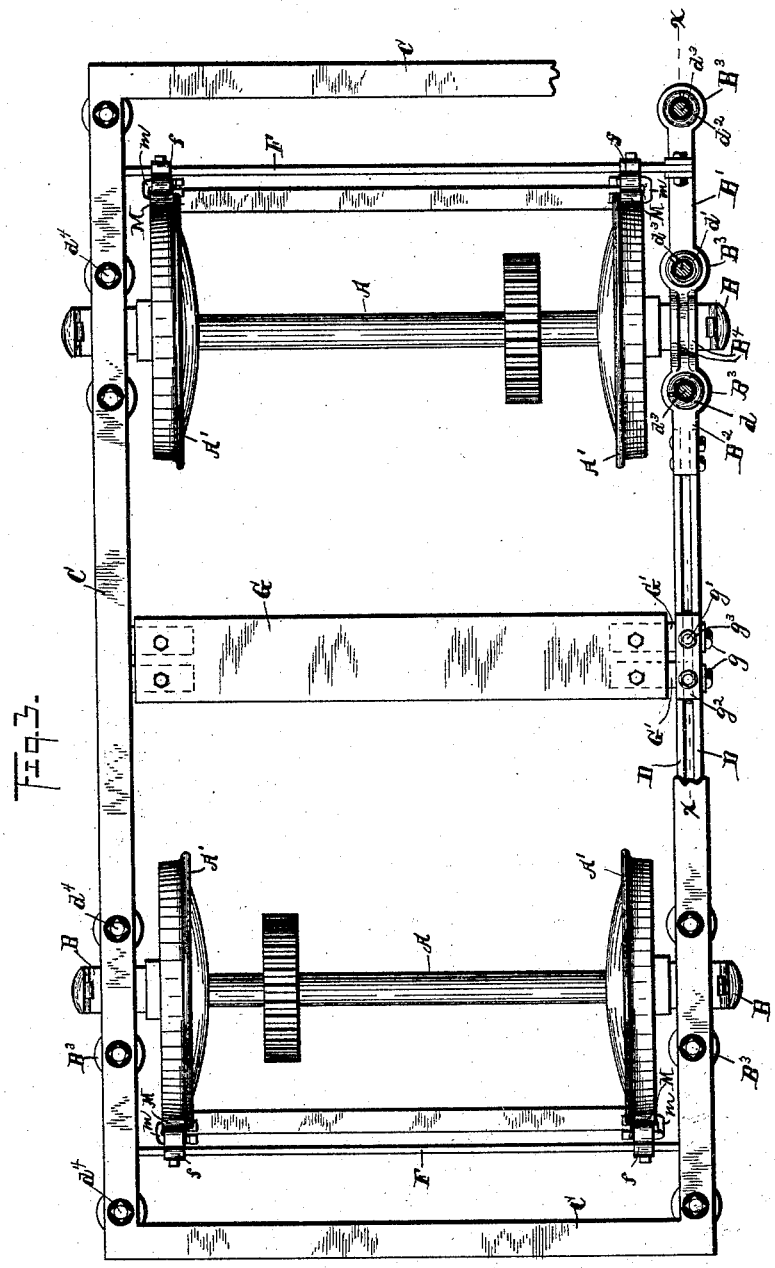

Fig. 3.

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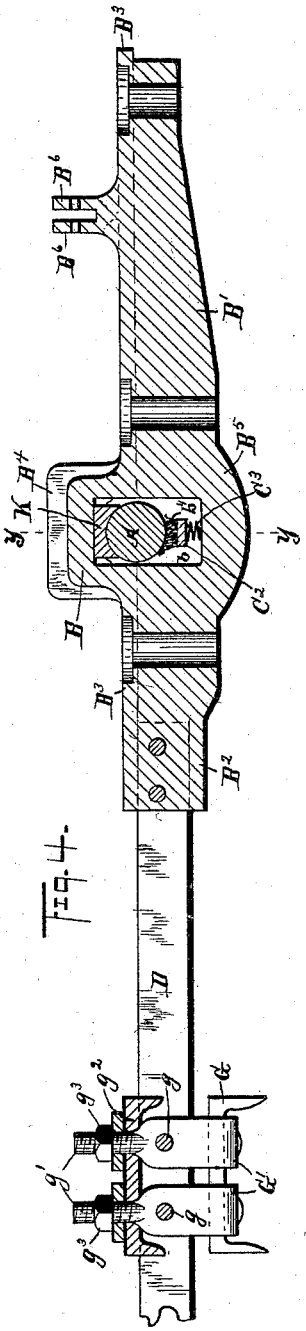

FIG. 4.

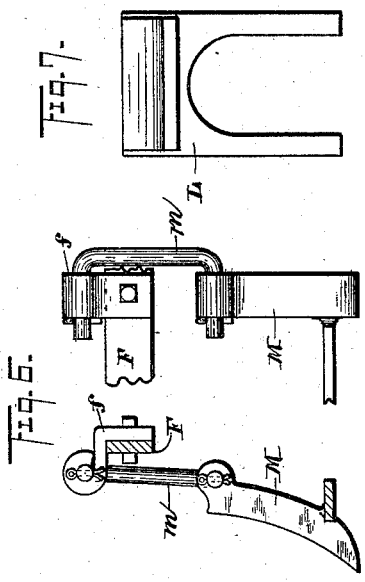

FIG. 6.

FIG. 7.

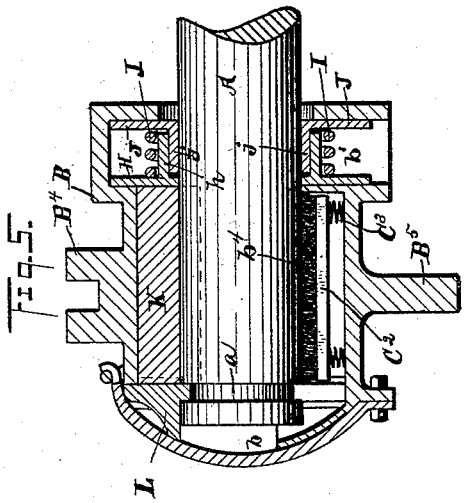

FIG. 5.

WITNESSES.

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UNITED STATES PATENT OFFICE.

SAMUEL HARRIS, OF CLEVELAND, OHIO, ASSIGNOR TO THE STEEL MOTOR COMPANY, OF SAME PLACE.

TRUCK FOR STREET-CARS.

SPECIFICATION forming part of Letters Patent No. 493,770, dated March 21, 1893.

Application filed November 14, 1892. Serial No. 451,894. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL HARRIS, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Trucks for Street-Cars; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

My invention relates to improvements in trucks for street cars, designed more especially for the electric motor cars. Heretofore trucks of this class have more recently been provided with forged side-bars, such side-bars having yokes or inverted U shaped sections that embraced the respective journal boxes, and having enlarged sections constituting seats for the different springs. Such forged side-bars were very expensive, and if the yokes thereof fitted so easily over the boxes that the latter could readily be removed, the box was likely to rattle and the lost motion would rapidly increase from wear of the parts. It is found desirable to extend the side-bars to accommodate other springs located nearer the ends of the car to prevent excessive rocking of the car body endwise, but when such forged side-bars are so extended it adds materially to the cost thereof and unless the forgings are so heavy as to be cumbersome they are not stiff enough to adequately support the extreme springs under excessive strain, and it is when excessive rocking of the car body occurs, that the extreme springs are especially of service. In view of the foregoing I have devised journal boxes having integral arms extending lengthwise the car, opposing arms having provision made for attaching coupling bars and the arms having the necessary seats for the different springs and having integral ears for attaching the cross-bars of the truck frame to the end of reducing the initial cost of the truck and rendering the side-bars stiffer and better adapted to sustain the strain brought to bear upon them.

My invention also relates to the details of construction hereinafter described and pointed out in the claims.

In the accompanying drawings: Figure 1 is a side elevation of a car truck embodying my invention. Fig. 2 is an end elevation of the same. Fig. 3 is a plan with a portion of the top frame broken away. Fig. 4 is an enlarged side elevation in detail of a portion of my improved construction of side bar. Fig. 5 is an enlarged vertical section taken on line y, y, Fig. 4. Fig. 6 shows elevations at right angles to come after in of mechanism for supporting the brake. Fig. 7 is a side elevation in detail of a check-plate.

A A represent the car axles, A′ the wheels thereof, B the journal boxes, and C a rectangular wrought metal frame that constitutes the top member of the truck and on which frame the car body is supposed to rest and to be bolted thereto. The journal boxes are cast integral with arms B′ B^2, these arms extending lengthwise the car. These arms are enlarged laterally as at B^3 to form seats for the different springs d d' d^2. The bolts d^3 that extend through the respective springs have heads d^4 countersunk in frame C and the bolts below are coupled together by metal straps d^5. Bolts d^3 as shown are of large size and with their reduced lower ends extending through holes in straps d^5 and nuts d^6 hold the studs firmly against the shoulders of these bolts, all this together with the snug fits of the bolts and heads in frame C causes these bolts to be rigidly held in position perpendicular to frame C. By this means frame C and the car body are held from swaying. The box has heavy ribs B^4 on top and a web B^5 extends under the box connecting arms B′ B^2, these parts of course being cast integral with the box and arms. The depth of metal at, and adjacent the box is such as to preclude any liability of the arms, or springs giving downward. Arms B^2 have sunken seats for receiving the opposing end portions of the coupling bars D. Bars D are heavy flat wrought metal arranged in pairs to embrace arms B^2 to which latter they are bolted through and through. Bars D require little or no fitting, except to cut them to lengths and drill the necessary bolt holes. This composite side-bar is comparatively inexpensive and at the same time is abundantly stiff and strong for the work. Arms B′ have ears B^6 arranged as shown in Fig. 4 for receiving cross or tie

bars F that connect the two side parts of the truck, bars F and ears B^6 being bolted through and through.

G is a cross beam for supporting the motors this beam being constructed preferably of a channel shape. Straps G′ are bolted or riveted to member G, and the straps are bent upward so as to extend up between bars D to which the straps are bolted as at *g*. Straps G terminate above in bolt ends *g′* and the latter extend through holes in caps g^2 with securing nuts g^3 above the caps. The caps and bolt ends sustain the weight of the motor, and bolts *g* clamp the parts firmly together to prevent vibration and to prevent the possibility of the cross-beam moving endwise the car.

The internal construction of the journal boxes is shown more clearly in Fig. 5 and is as follows: There is an oil chamber *b* and a vertical chamber *b′*, the latter opening downward. In chamber *b* operates the movable plate C^2, the latter being backed by spring as at C^3 and being packed above with waste wicking or other suitable absorbent as at b^4 to apply the lubricant, with which chamber *b* is supposed to be provided, to the axle. In chamber *b′* is located the "dust protector." This device comprises plates J and H, these plates having laterally projecting overlapping annular flanges *j* and *h*, the former being bored to fit easily the axle and flange *h* being bored to fit easily over flange *j*. There is a spiral spring I the convolutions whereof extend around the flange *h*, the spring engaging plates J and H and the tension of this spring keeps these plates pressed against the respective walls of the chamber thus excluding the dust and dirt. Members J and H are usually of bronze or other suitable antifriction metal and they have so little weight that the wear by contact with the axle is very slight.

K is the wearing plate, usually called a box, that sustains the weight brought to bear on the axle.

L is a check or thrust plate that engages groove *a* of the axle and thereby holds the axle endwise.

The brake shoes M are suspended from bars F by means of link *m*, and attachment *f* of the tie-bars in the manner shown in Fig. 6, on which, however, I make no claim.

What I claim is—

1. In truck for street car, journal boxes having top, bottom and side walls cast integral with each other, each journal box having integral arms extending in opposite directions lengthwise the car, such arms being provided respectively with seats for springs, opposing arms being rigidly connected by means of metal bars that are secured to the respective arms, substantially as described.

2. In truck for street cars, journal boxes having integral top, bottom and side walls and having integral arms extending lengthwise the car, such arms having seats for springs, opposing arms being rigidly connected, a frame for receiving the car body, springs interposed between such frame and the arms of the journal boxes, substantially as and for the purpose set forth.

3. In street car truck, a journal box having integral top, bottom and side walls, and having a vertical chamber opening downward, with the car axles extending through such chamber, metal plates located in such chamber and mounted on the axle, these plates having annular telescoping flanges, a spring coiled around the outer flanges and engaging the plates to press the plates against the opposing side walls of the chamber, substantially as and for the purpose set forth.

4. In street car truck, journal boxes having integral arms extending forward and rearward, coupling bars connecting next adjacent arms, a cross bar or motor support, such cross-bars having metal straps extending up between such tie-bars, such straps terminating in bolt ends engaging a cap mounted on top of the tie-bars, the straps and tie-bars being bolted through and through, substantially as and for the purpose set forth.

In testimony whereof I sign this specification, in the presence of two witnesses, this 31st day of October, 1892.

SAMUEL HARRIS.

Witnesses:
G. P. NASH,
W. H. DURKEE.