(No Model.) 2 Sheets—Sheet 1.

G. M. BRILL.

TRUCK FOR ELECTRIC MOTORS.

No. 457,599. Patented Aug. 11, 1891.

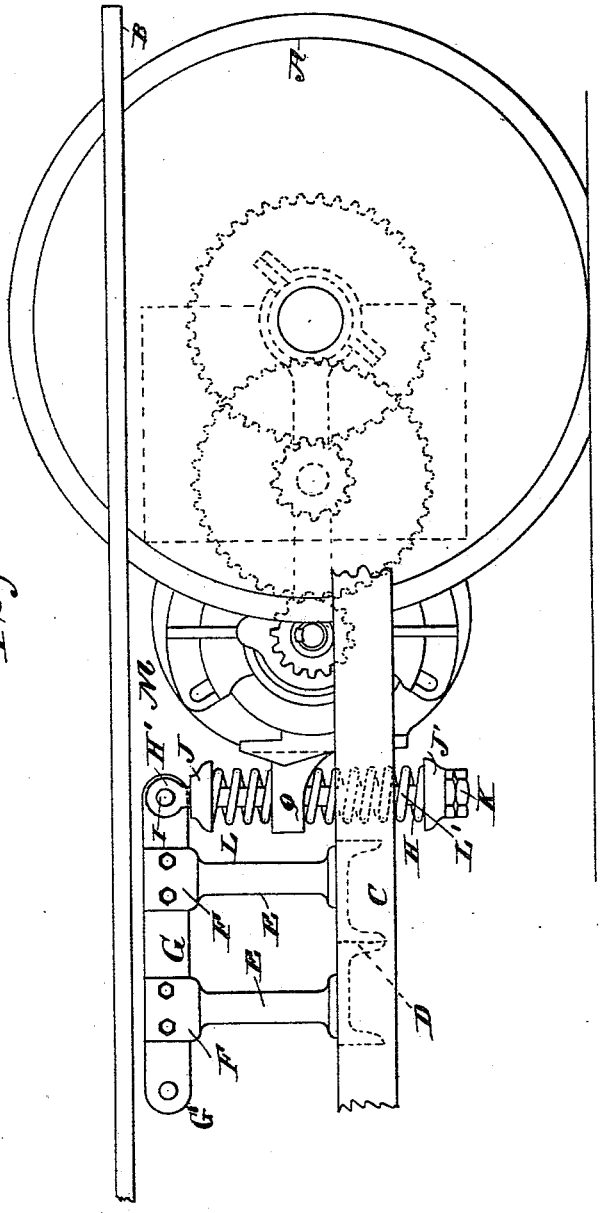

Fig. 1.

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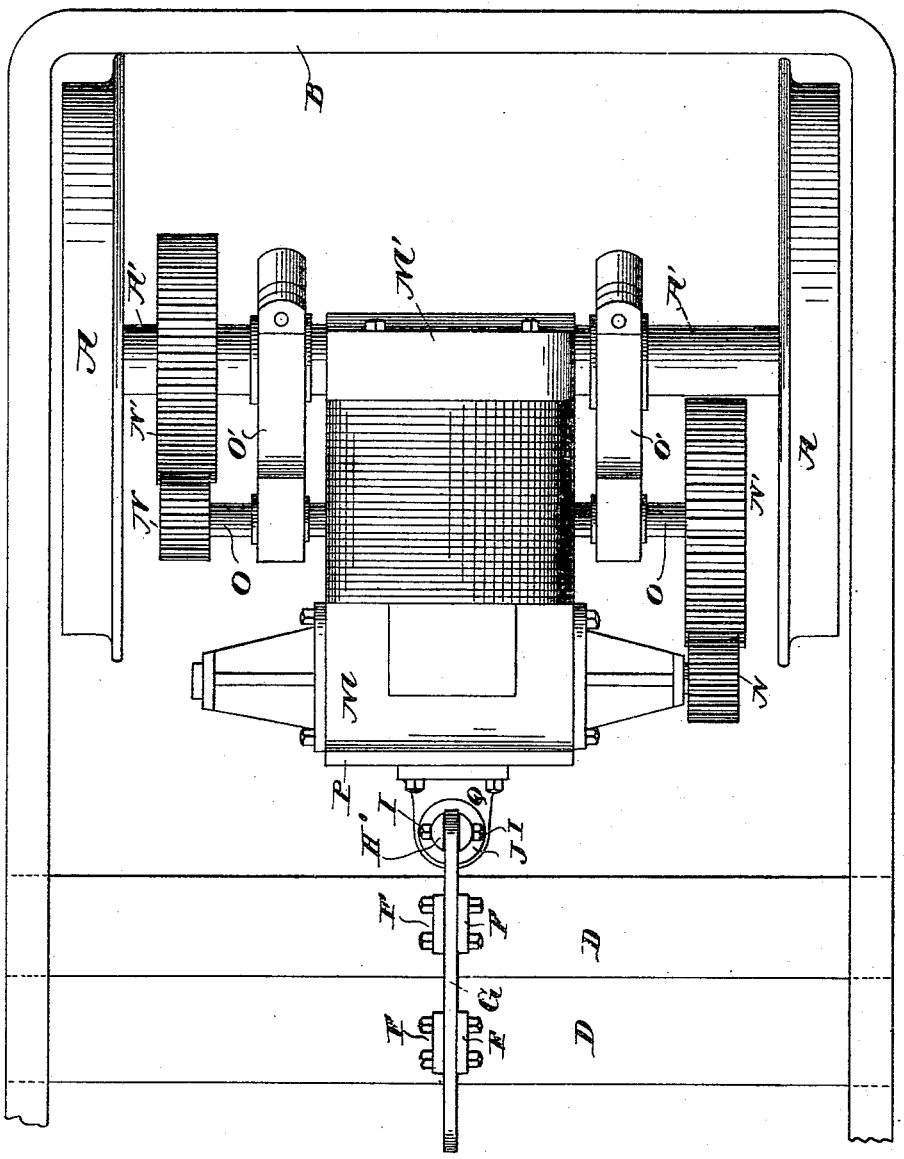
Fig. 2.



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UNITED STATES PATENT OFFICE.

GEORGE MARTIN BRILL, OF PHILADELPHIA, PENNSYLVANIA.

TRUCK FOR ELECTRIC MOTORS.

SPECIFICATION forming part of Letters Patent No. 457,599, dated August 11, 1891.

Application filed June 19, 1890. Serial No. 355,953. (No model.)

To all whom it may concern:

Be it known that I, GEORGE MARTIN BRILL, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented new and useful Improvements in Car-Trucks for Electric Motors, of which the following is a specification.

My invention relates to improvements in the methods of supporting one or more motors in trucks used in electrically-propelled cars, whereby a motor is supported so as to be subjected to the least vibration possible.

In cases where a motor has been carried by a truck it has been usually supported one end upon the axle of the truck and its free end supported by springs upon the truck-frame, or the truck has been provided with side beams which are secured to the axle-boxes of the truck, and the free end of the motor was then supported upon springs carried by the side beams. It is to the latter method of suspension that my invention relates. The side beams are hung from the axle-boxes, and when joined together by means of a beam or otherwise a frame, which I term an "independent frame," is constructed, and by reason of the suspension of such frame from the axle-boxes its relation to the track will be constantly preserved and it will be free, or substantially so, from the motions of the car-body and the lateral thrust of the axle. Therefore if a motor is suspended or pivotally supported at one end upon the axle and the other end spring supported from the independent frame the motor will be constantly free from the motions of the car-body, &c.

A construction of truck-frame wherein side beams are supported on the axle-boxes is shown and described in the patents to G. M. Brill and J. A. Brill, No. 373,639, dated November 22, 1887, and J. A. Brill, No. 428,068, dated May 20, 1890, to which cross reference is here made.

The invention also relates to the suspension of the spring-supported end of the motor, the same being hung at one end in such a way that when the truck is standing over a "pit," so called, for the purpose of repairs, the motor can be released at its spring-supported end and be allowed or permitted to turn on its pivotal point about the axle and be dropped into the pit. This forms a very desirable feature in motor-trucks, enabling the motor to be expeditiously removed, and alterations or repairs can be made with very little trouble.

The construction wherein this invention resides and by means of which I am enabled to obtain the objects before described will be more fully set forth in the following description and claims.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation showing one end of a truck, all but the upper chord of the truck-frame, the axle-boxes, and the means of suspending the side beams being omitted for the sake of clearness; Fig. 2, a plan view showing simply a wheel and axle, a motor suspended upon the axle, and my device for suspending the free end of the motor, which in this case, for the sake of clearness, is not shown as supported by the side beams, a part only on the upper chord of the truck being shown.

It must be understood that my invention can be applied to and used upon trucks in which the truck-springs are placed between the truck and car or between the axle-boxes and truck.

In the drawings, A A are the truck-wheels; A′, the axle; B, the upper chord of the truck, and C one of the side beams, the method of supporting the side beams upon the axle-boxes being omitted for the sake of clearness. It must be understood that there are two side beams, one on each side of the truck.

As the particular form or construction of truck is no feature of this invention in this case, the parts are given their accepted terms, but such naming is in no way intended to define their particular structure or relation.

Rigidly fixed in any suitable manner to the side beam C is a channel-beam D, composed of one or more members and so located as to be free from contact with the free end of the motor. This bar supports two upwardly-extending pillars E, having bifurcated ends F, provided with holes for the insertion of bolts. In these ends F is rigidly secured, by means of bolts, a hanger-bar G, provided with holes

G′ at its ends for the reception of pins. From the end of the hanger-bar G depends an eyebolt H. It is bifurcated at H′ and screw-threaded on its lower end, and is pivotally suspended from the hanger-bar by means of a pin I. The eyebolt H has upper and lower spring-caps J J′, the lower spring-cap J′ being held in position by means of the nuts K. The removal of these releases the springs and disengages the motor. Encircling the eyebolt are two springs L L′, unconnected and capable of action independently of each other.

M is the motor, pivotally supported, as at M′, from the axle A′ of the truck.

N N′ O O′ are gear-wheels, shafts, and supports for the same, showing one way of connecting the armature or moving part of the motor to the truck-axle.

The construction of the motor and its method of connection to the truck-axle or the manner of supporting the same upon the truck-axle form no part of this invention, so that they may be changed or altered at pleasure, the only essential feature being that the motor shall be pivotally supported on the truck-axle and free to swing downward on the axle as a center. When the motor is so swung downward into the pit, its connections with the axle can be readily broken, and then the motor can be removed from the truck. This can all be accomplished without difficulty and by simply loosening a few bolts. The free end P of the motor is provided with an outwardly-extending lug Q, with a hole located, preferably, within the longitudinal axis of the motor, and in which the eyebolt H is located and free to move therein. The lower end of the spring L rests on the upper face of the lug Q and the upper end of the spring L′ presses against the lower face. The combination of the eyebolt H, hanger-bar G, and upper and lower springs L L′ are here, for the sake of conciseness, termed by me the "top-spring suspension," and such combination will be so termed in the claims. This arrangement of parts furnishes a yielding resistance for the upward or downward oscillation of the motor and affords a ready and efficient means for disconnecting the free end of the motor from the spring-cushion when, for the purposes before stated or any other, it is desired so to do, the same being accomplished without having the free end of the motor coming in contact with any fixed part of the truck. It is further evident that another motor could be likewise suspended from the end G′ of the hanger-bar.

Any other locking device may be used instead of the nuts K for holding the spring in position and readily disengaging them and the motor; or the pillars E E and hanger-bar G may be made integral, and but one channel-beam or other means of supporting the said pillars from the side beams C may be used instead of the two channel-beams D D shown, and various changes may be made in the device without departing from the spirit of my invention, which is the spring-suspension of the free end of the motor from above and on the side beams in such a way that the motor can be lowered into a pit or the like for repair, &c., the construction leaving a free space for that purpose.

Having thus described my invention, I claim—

1. The combination, in a wheeled vehicle having side beams carried by the axle-boxes, of a motor pivotally supported at one end on the axle of the vehicle and the free end supported from the side beams, the point of the support of the free end of the motor being above its free end, substantially as described.

2. The combination, in a wheeled vehicle having side beams carried by the axle-boxes, of a motor pivotally supported at one end on the axle of the vehicle and the other end supported from the side beams, the point of union of the side beams and said support being below the normal horizontal axis of the motor, substantially as described.

3. The combination, in a wheeled vehicle having side beams carried by its axle-boxes, of a motor pivotally supported at one end on the axle and the free end detachably and spring supported from the side beams, the point of union of the side beams and said detachable support being below the normal horizontal axis of the motor, substantially as described.

4. The combination, in a wheeled vehicle having side beams carried by the axle-boxes, of a motor pivotally supported at one end on the axle of the vehicle, the free end detachably and spring supported from the side beams, the point of support of the free end of the motor being above its free end, substantially as described.

5. The combination, in a wheeled vehicle having side beams supported on the axle-boxes, of a motor pivotally supported upon the axle of the vehicle at one end, and means for supporting the free end of the motor located above such free end and mounted on said side beams, substantially as described.

6. The combination, in a wheeled vehicle having side beams, of a motor pivotally supported upon the axle at one end, and devices for spring-supporting the free end of the motor, secured to the side beams and disposed above the free end of the motor, substantially as described.

7. In a wheeled vehicle having side beams secured to its axle-boxes, a transverse channel-beam secured to the side beams, upwardly-extending pillars secured to the channel-beams, a horizontally-disposed bar supported by the pillars, and a jaw-bolt carrying springs depending from the said bar, in combination with a motor pivotally suspended upon the axle of the vehicle at one end and its free end engaging said springs, substantially as described.

8. The combination, in a wheeled vehicle

having side beams hung from its axle-boxes, of a motor pivotally suspended at one end upon the axle of the vehicle and detachably secured at the free end to said side beams, the parts being so arranged that the motor can be rotated downward on its pivotal support clear of the truck-framing, substantially as described.

9. The combination, in a device for detachably supporting the free end of a motor, of side beams on the axle-boxes of a truck, a transverse beam connecting the side beams, an upwardly-extending support on the transverse beam, and a bolt adapted to carry springs, and locking devices for the same depending from said upwardly-extending support, substantially as described.

10. The combination, with a motor provided with a lug Q, pivotally supported on a truck, said truck having side beams C, and the hanger-bar G, carried by a pillar E, said pillar being supported on the side beams, of the jaw-bolt H, pivotally supported from the hanger-bar, and springs detachably secured on the jaw-bolt and in contact with the lug Q of the motor, substantially as described.

11. The combination, with a motor provided with a lug Q, pivotally supported on a truck, said truck having side beams C, and the hanger-bar G, carried by a pillar E, said pillar being supported on the side beams, of the jaw-bolt H, pivotally supported from the hanger-bar, springs L L′, spring-plates J J′, and means for releasing the free end of the motor carried by the jaw-bolt, substantially as described.

GEORGE MARTIN BRILL.

Witnesses:
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SAML. ROBERTS.