(No Model.)

2 Sheets—Sheet 1.

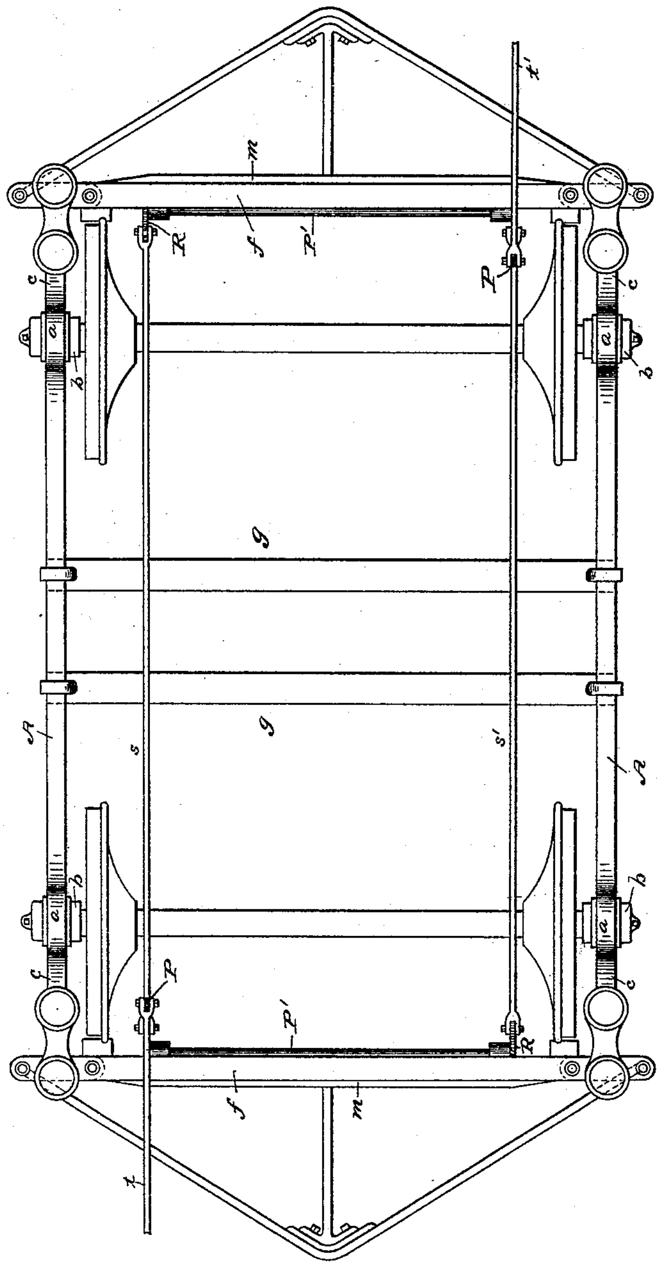
M. G. HUBBARD.

CAR TRUCK.

No. 487,740.

Patented Dec. 13, 1892.

Fig. 1.



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(No Model.) 2 Sheets—Sheet 2.

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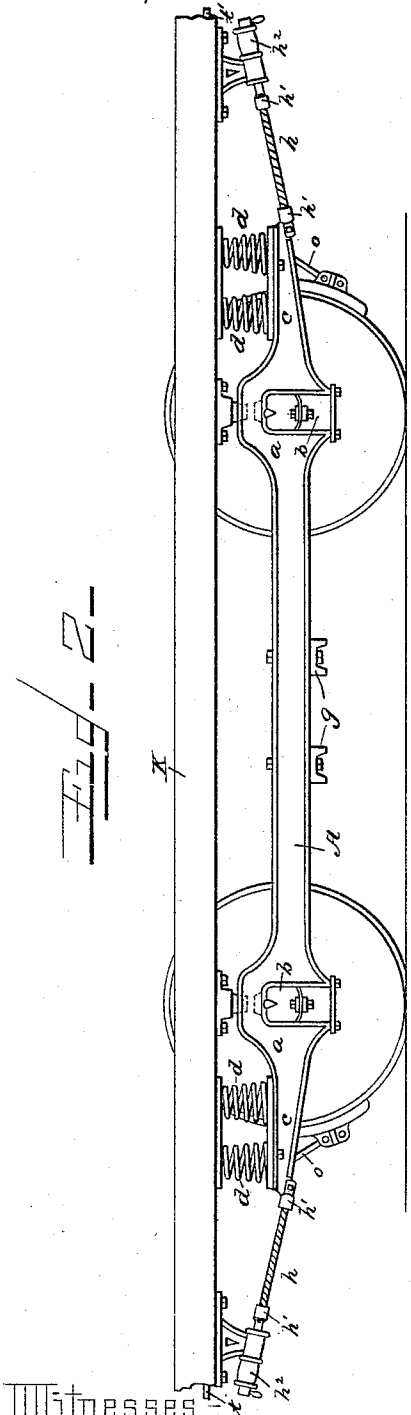

Fig. 2.

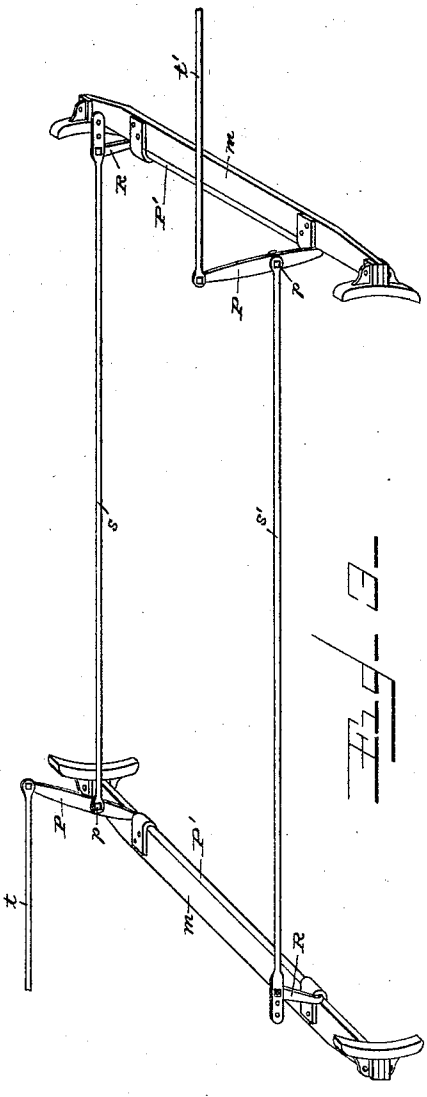

Fig. 3.

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UNITED STATES PATENT OFFICE.

MOSES G. HUBBARD, OF CHICAGO, ILLINOIS.

CAR-TRUCK.

SPECIFICATION forming part of Letters Patent No. 487,740, dated December 13, 1892.

Application filed February 12, 1891. Serial No. 381,169. (No model.)

To all whom it may concern:

Be it known that I, MOSES G. HUBBARD, a citizen of the United States, and a resident of Chicago, county of Cook, and State of Illinois, have invented a new and useful Improvement in Car-Trucks, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification.

My invention relates to certain improvements in four-wheeled motor-trucks, and more especially to the construction of the side sills thereof and to an improved construction and arrangement of the brake-levers and their connections, and to an improved construction of the draft-links, on which Letters Patent were granted to me September 22, 1885, No. 326,652, to adapt them more fully to the motor-truck, all as hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a plan view of my improved truck. Fig. 2 is a side elevation of a truck with my improved side sills and draft-links applied. Fig. 3 is a perspective view of my improved brake arrangement detached.

In the construction of my four-wheeled motor-cars I have found it desirable to make the wheel-base as short as practicable in order to facilitate the turning of the car at street-corners, &c.; but this style of car being longer than the ordinary street-car will rock disagreeably if the spring-base is not proportionately extended beyond the wheel-base. To obtain such desired extension of the spring-base, I form the pedestals each with a spring-base extension on its outer end, as more fully described in my application, Serial No. 341,675, and to still further simplify the construction and obtain the greatest practicable degree of strength and reliability I form the wheel-piece, the two pedestals connected therewith, and the spring-base extensions projecting from the outer ends of said pedestals all in one piece, whereby I avoid all joints and rivets or bolts for connecting these several parts of the side sill and form one continuous truck-frame side sill that will accomplish all of the results desired—viz., connecting the wheels by the wheel-pieces and holding them in position by the yoke-pedestals adapted to embrace and hold the journal-boxes, which are made removable from the lower ends of the yokes, and supporting the car-body on springs mounted on the extended spring-base arms in a manner which avoids the annoyances referred to, and all danger, due to the great leverage of the spring-base arms, of the working or jarring loose of the parts such as frequently happen where the parts are formed separately and bolted or otherwise fastened together.

In the drawings, A indicates one of the side sills of the truck; *a a*, the yoke-pedestals thereof embracing and holding the removable journal-boxes *b b*, which are made removable from the lower ends of the yokes, and *c c* arms extending from the outer ends of the pedestals and forming extended spring-bases, on which the springs *d d* supporting the car-body are mounted, said yoke-pedestals and spring-base extension-arms being formed in one piece with the wheel piece or part A to form the side sill of the truck. The opposite side sill is formed in the same manner and the two are firmly united by end sills *f f* outside of the wheels, and, when electric motors are used, by cross-sills *g g* intermediate the wheels.

K represents one of the side sills of the car-body, which rests upon the upper ends of the springs *d d*, and is further secured to the truck longitudinally by draft-links *h h* in a manner described in my former application above referred to; but I find that when the said draft-links are made of rigid metallic rods they soon wear loose at the points where they are pivoted and make a rattling noise, and as all such noises are disagreeable in a street-car I have aimed in constructing all of its parts to avoid them. For this purpose I construct these draft-links of some flexible material—such as wire cable or any suitable substitute therefor—and attach their ends by a fixed instead of a pivoted connection. If wire cable is used, the ends may be secured to suitable pieces *h' h'* of malleable iron for attachment to the truck-frame and car-body to permit the vertical and lateral vibrations of either with respect to the other without pivotal working joints.

The draft-links are provided each at one

end with springs h^2 h^2, which permit them to yield slightly longitudinally, as explained in my pending application, above referred to.

My improved brake arrangement designed for this car is shown detached in Fig. 3, and consists of the usual brake-beams m and m and brake-shoes $n\,n\,n\,n$, which are suspended from the end sills of the truck-frame by pivoted links or brake-hangers $o\,o\,o\,o$ in the usual manner. P P are the long levers of each of two pairs of "levers," and R R are the short levers of each of said pairs, each pair being made from one bar bent into the form of a two-armed rock-shaft or two vertical levers and an intermediate horizontal part P′, by which each pair is hinged to the inner edge of the brake-beam, and thereby pivotally connected to the brake-shoes $n\,n\,n\,n$, which said levers actuate. The brake connection s or s' extends from a point p, forming the fulcrum of the long lever of each pair to the upper end of the short lever of the opposite pair of levers, as shown, and the brake-rods t and t' extend from the upper ends of the long levers each to the adjacent end of the car, where it is connected to the brake-wheel in the usual manner. The brake-shoes being suspended, as described, the points $p\,p$ of the long levers and the upper ends of the short levers in line with said points $p\,p$ act as the fulcrums of the long levers, and when either brake-wheel is operated to apply the brakes the brake-beams are drawn inward toward the car-wheels, forcing the brake-shoes against the wheels in the usual manner. Under the arrangement described it will be seen that but two brake-rods are required, both of which terminate at the long lever on the brake-beams without crossing the truck, and the brake connections are located on a level with or in the plane of and adjacent to the wheel-pieces and so as to leave a clear open space between them in such manner as to give free access from above and at the sides to the central machinery.

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

1. In a four-wheel car having a car-body supported on spring-base extensions of the side sills of the truck outside of the yoke-pedestals and wheel-base thereof and flexible draft-links connecting said body and spring-base extensions and provided with the springs for taking up slack and permitting a limited longitudinal extension of the links, substantially as described.

2. A flexible draft-link connection between and in combination with a car-truck and the car-body supported thereon, said flexible connection being provided with a spring permitting a limited extension of the link and operating to take up any slack therein due to the relative movements of the car body and truck in turning, substantially as described.

3. In an open-center truck, the combination of the two pairs of rigidly-connected levers pivoted to the brake-beam at their lower ends and at their fulcrums to the ends of the brake connections, and the upper ends of the longer levers pivoted to the brake-rods, which extend therefrom directly to the ends of the car without crossing the open space in the truck.

4. The combination, in a truck-frame, of the single piece, side sills, and the double-brake connections arranged in the same horizontal plane with the wheel-piece portions of the side sills to facilitate side access to central parts of the truck, substantially as described.

5. In an open-center truck, the combination of the two pairs of rigidly-connected levers pivotally connected at their lower ends with the brake-shoes, which they actuate, and pivoted at their fulcrums to the brake connections, the upper ends of the longer levers being pivoted to the brake-rods, which extend therefrom directly toward the ends of the car without crossing the central portion of the truck, substantially as described.

In testimony whereof I have hereunto set my hand this 10th day of February, A. D. 1891.

MOSES G. HUBBARD.

Witnesses:
LOUIS FORD,
M. P. CALLAN.