(No Model.)

H. SKINNER.

MOTOR TRUCK FOR CARS.

No. 377,122. Patented Jan. 31, 1888.

Fig. 1.

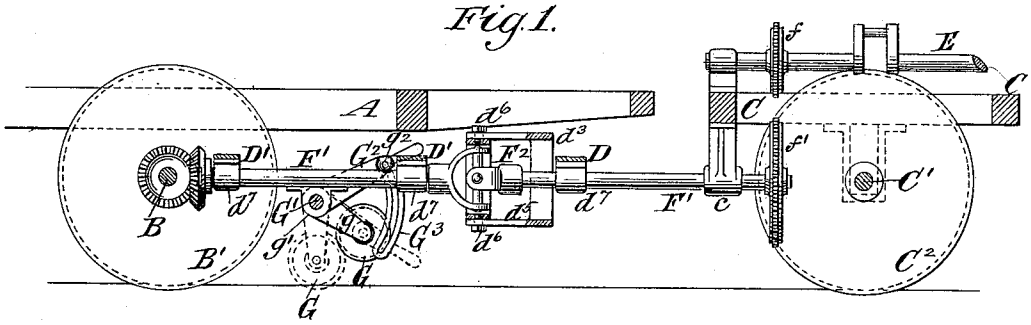


Fig. 2.

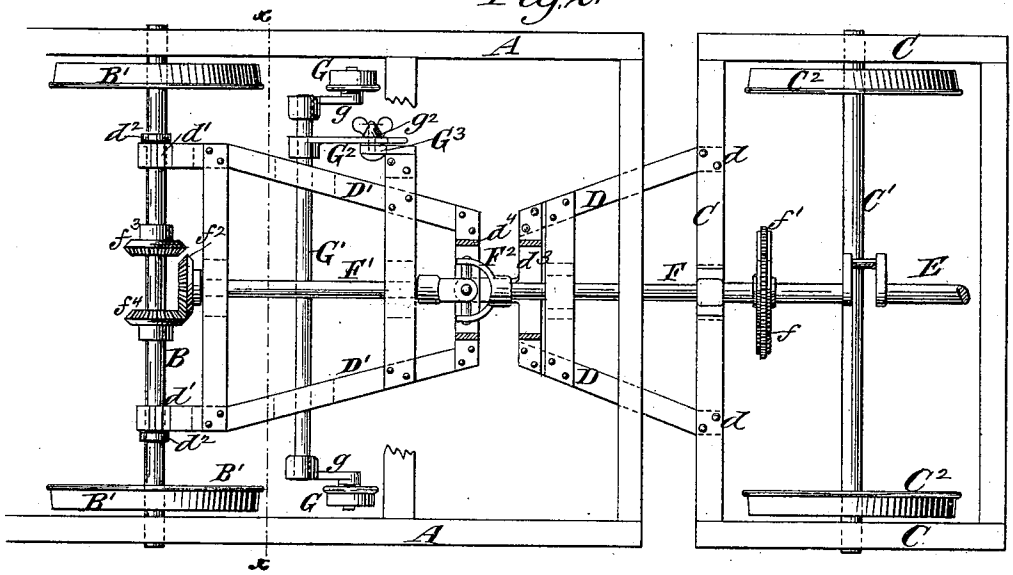


Fig. 3.

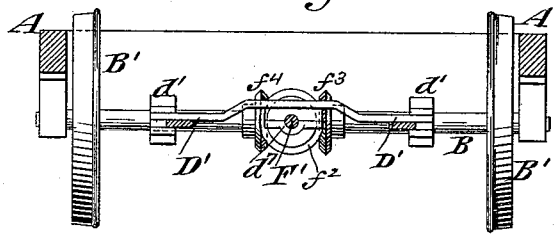


Fig. 4.

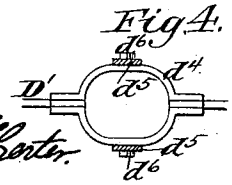


Fig. 5.

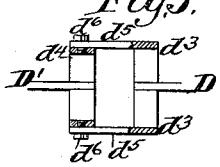
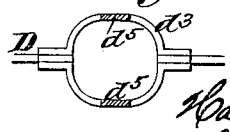


Fig. 6.



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by his Attys
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UNITED STATES PATENT OFFICE.

HALCYON SKINNER, OF YONKERS, NEW YORK.

MOTOR-TRUCK FOR CARS.

SPECIFICATION forming part of Letters Patent No. 377,122, dated January 31, 1888.

Application filed July 5, 1887. Serial No. 243,305. (No model.)

To all whom it may concern:

Be it known that I, HALCYON SKINNER, of Yonkers, in the county of Westchester and State of New York, have invented a new and useful Improvement in Motor-Trucks for Cars, of which the following is a specification.

My invention relates more particularly to means for driving or pulling street-cars.

It has been proposed to arrange a motor upon the platform of a car; but on the platform of an ordinary street-railway car there is not sufficient room, and, again, with such an arrangement it would be necessary to provide every car which was to be used at any time with a separate motor.

My invention relates to an arrangement and combination of a motor-truck and car such as is shown and described in my allowed application for Letters Patent, Serial No. 227,009, filed February 9, 1887. In that application I have shown and described a motor-truck which is independent of the car-truck, but connected therewith, a motor-shaft upon the motor-truck, and gearing for connecting the motor-shaft with one of the axles. In that application I have described an upper platform for the motor-truck, which is connected with the car-axle, so as to be maintained in parallelism with the car-axle when rounding curves.

According to my present invention I connect the motor-truck, which may have but a single axle, and the car-truck or car by a reach comprising two sections, one of which may project rigidly from the motor-truck and the other of which is for connection with the car-axle, and said reach-sections are connected together by a vertical pivot to provide for their swinging one relatively to the other. The motor-shaft, which is upon the motor-truck, is geared with the car-axle, and such gearing may comprise a transmitting-shaft which is supported in bearings on the sections of the reach, and is itself composed of sections connected by a universal coupling which is or may be concentric with the vertical pivot connecting the reach-sections. The two sections of the reach may be constructed each with a yoke, and these two yokes may be connected by arms projecting from one yoke and pivoted to the other yoke by vertical pivots arranged one above the other. When the motor-truck has but a single axle, I provide upon the reach, and at a distance from the motor-truck, trailing wheels and swinging bearings therefor, whereby said wheels may be raised out of the way when the reach is connected with the car-axle and lowered so as to support the rear end of the reach when it is unconnected with the car-axle.

In the accompanying drawings, Figure 1 represents a longitudinal section, and Fig. 2 a plan, of such portions of a car and motor truck as are necessary to illustrate my invention. Fig. 3 represents a section on about the plane of the dotted line *x x*, Fig. 2. Figs. 4 and 6 represent the yokes with which the reach-sections are provided; and Fig. 5 is a longitudinal section through these two yokes, and also showing the arms which connect them.

Similar letters of reference designate corresponding parts in all the figures.

A designates portions of the frame of an ordinary street-car, only one of the axles, B, having wheels B′, being here shown; and C designates the frame of a motor-truck, which is independent from but connected with the car, and is, as here shown, supported by but a single axle, C′, and pair of wheels C^2.

I connect the motor-truck C with the axle B of the car by a reach which will permit the lateral movement of the motor-truck C relatively to the car A. As here represented, this reach consists of two sections, D D′, connected together by a joint which will permit them to swing laterally, one relatively to the other, but which will hold them securely in a vertical direction and prevent their deflection. One section, D, of the reach, which may be suitably constructed of metal or timber, is secured at the points *d* to the motor-truck C, and the other section, D′, of the reach is constructed at the end with boxes or bearings *d′*, which fit the car-axle B and are held against lateral movement thereon by collars d^2. When the motor is to be disconnected from one car and connected with another car, it is simply necessary to disconnect the bearings or boxes *d′* from the axle B and to connect them with the axle of another car. Upon the motor-truck C is a motor-shaft or crank-shaft, E, which is connected by suitable gearing with the car-axle B.

In the present example of my invention there is employed a transmitting-shaft com-

posed of two sections, F F′, connected together by a universal joint or coupling, F^2, and the section F of the transmitting-shaft may be geared by a chain passing over the wheels $f f'$ with the motor-shaft E, while the section F′ of the transmitting-shaft may be provided with a bevel-wheel, f^2, which, by moving the transmitting-shaft laterally, may be engaged with either of two wheels, f^3 f^4, on the car-axle B, thereby providing, without reversing the shaft F F′, for driving the axle B in either direction.

To afford provision for rounding curves, it is necessary that the two sections D D′ of the reach between the motor-truck and the car-axle be connected by a vertical pivot or pivots, which will permit their lateral deflection or swinging one relatively to the other, and will prevent their vertical deflection one relatively to the other. In the present example of my invention I have represented the reach-sections D D′ as provided, respectively, with transverse yokes or yoked cross-bars d^3 d^4, one of which, d^3, is provided with arms d^5, connected by pivots or bolts d^6 with the other yoke, d^4. The pivots d^6 are in line with each other vertically, and may therefore be considered as one pivot connecting the sections of the reach, and the pivots in the universal coupling or joint F^2 may be, and preferably are, in the same vertical plane with the pivot d^6. I have represented the shaft-sections F F′ as supported in bearings d^7 on the reach-sections, and the section F is supported by a bearing, e, upon the motor-truck C.

I have represented the motor-truck C as having but a single axle and pair of wheels, and therefore it is necessary to provide means for holding the motor-truck and the reach D D′ in substantially horizontal position when the boxes or bearings d' are disconnected from the axle B. I have here represented a pair of trailing wheels, G, which are pivoted upon arms g, extending from a cross-shaft, G′, and this cross-shaft, which is a rock-shaft, is journaled in suitable bearings, g', upon the reach-section D′. The rock-shaft G′ also has a handle arm, G^2, which by a clamping-bolt, g^2, may be secured in different positions in the arc-shaped guide G^3, also depending from the reach-section D′. When the reach-section D′ is connected with a car-axle, the trailing wheels G are, by swinging the shaft G′, maintained in the position shown by full lines in Fig. 1 and out of reach of the track-rails; but before the boxes or bearings are disconnected from the car-axle B the trailing wheels G are lowered to the position shown by dotted lines in Fig. 1 and to a bearing upon the track-rails.

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

1. The combination, with a car-truck and an independent motor-truck, of a reach comprising two sections, one of which rigidly projects from the motor-truck and the other of which is for connection with the car-axle, and which sections are connected together by a vertical pivot to provide for their swinging one relatively to the other, a motor-shaft on the motor-truck, and gearing connecting said shaft with the car-axle, substantially as herein described.

2. The combination, with the car-truck and the independent motor-truck C, of the reach composed of the sections D D′, having the rings or yokes d^3 d^4, one of which has arms secured by vertical pivots to the other, the section D rigidly projecting from the motor-truck and the section D′ having boxes fitting the car-axle, a motor-shaft on the motor-truck, and gearing connecting said shaft with the car-axle, substantially as herein described.

3. The combination, with a car-truck and an independent motor-truck, of a reach connecting them and composed of sections, one section projecting from the motor-truck and the other being connected with the car-axle, and the two said sections being connected by a vertical pivot, and a transmitting-shaft extending from the motor-truck and geared with the car-axle and composed of sections corresponding to the sections of the reach and connected together by a universal joint, substantially as herein described.

4. The combination, with a motor-truck independent of a car and having a reach for connection with a car-axle, of trailing wheels and swinging bearings therefor on the reach, whereby said wheels may be raised out of the way or lowered to support the reach when it is disconnected from a car-axle, substantially as herein described.

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