

(No Model.)

3 Sheets—Sheet 1.

C. C. MOORE.
CAR TRUCK.

No. 578,042.

Patented Mar. 2, 1897.

Fig. 1.

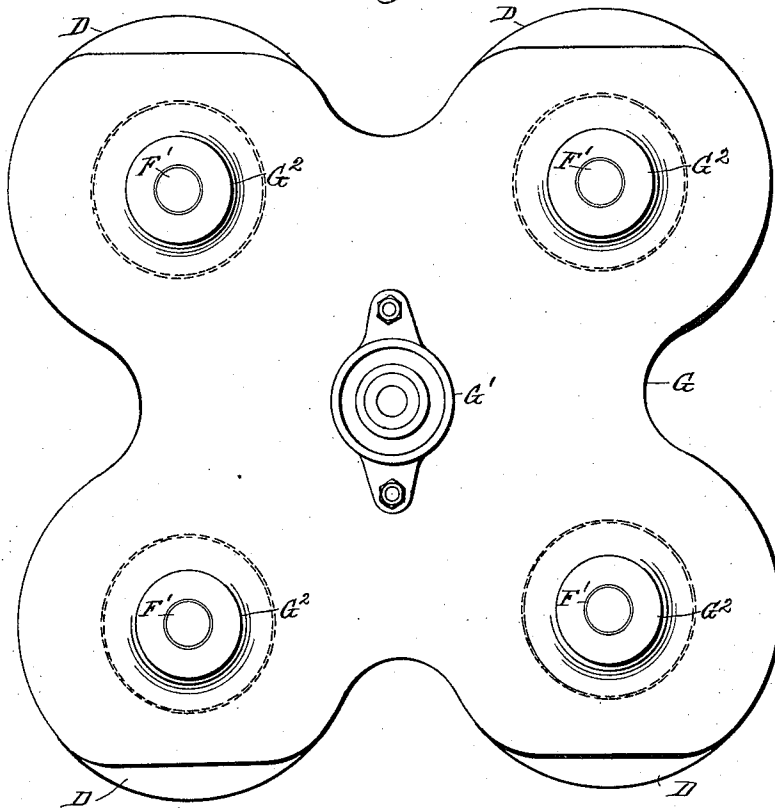
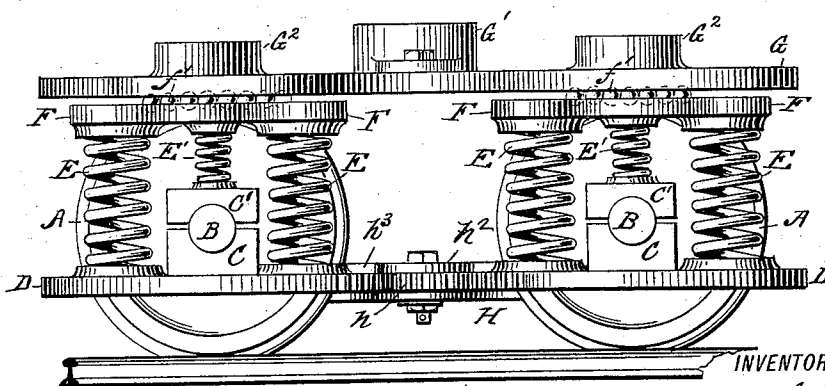


Fig. 2.



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Fig. 3.

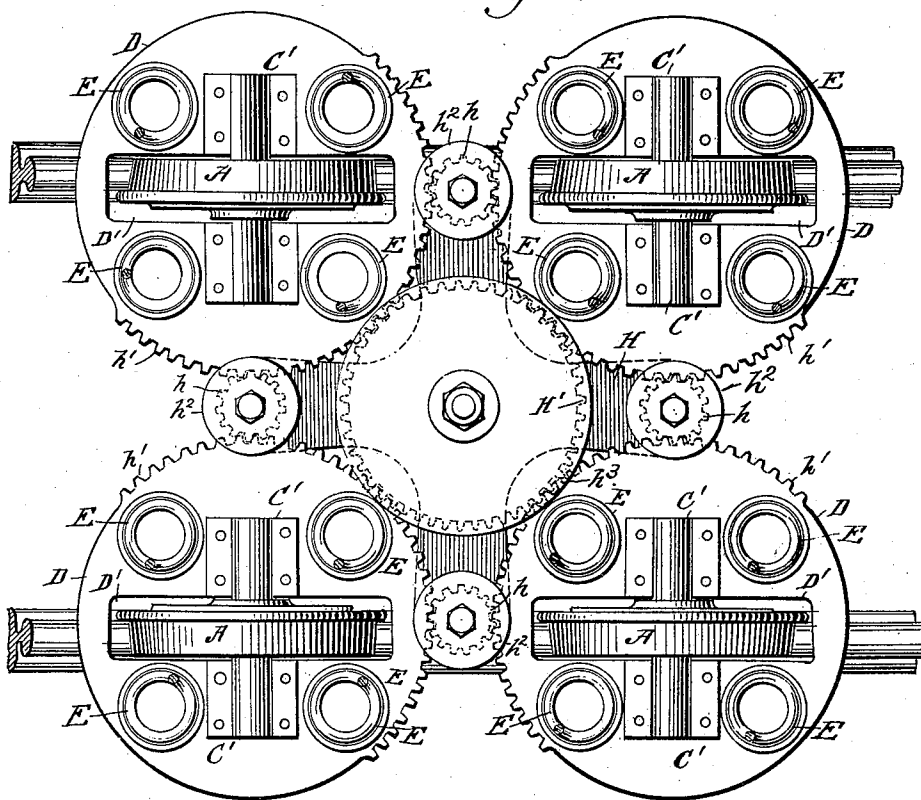
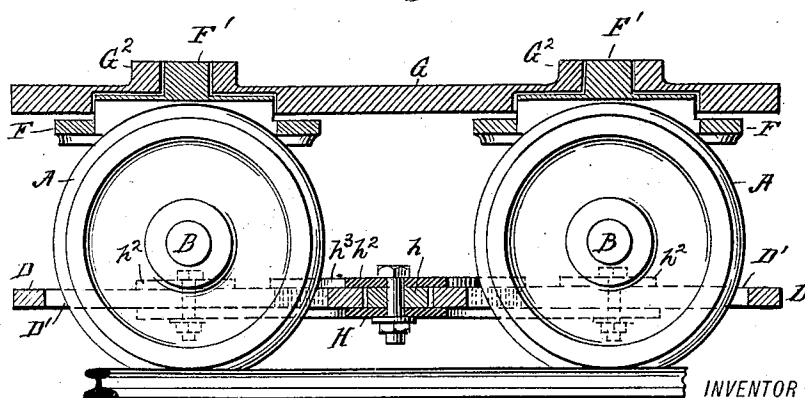


Fig. 4.



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(No Model.)

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Fig 5.

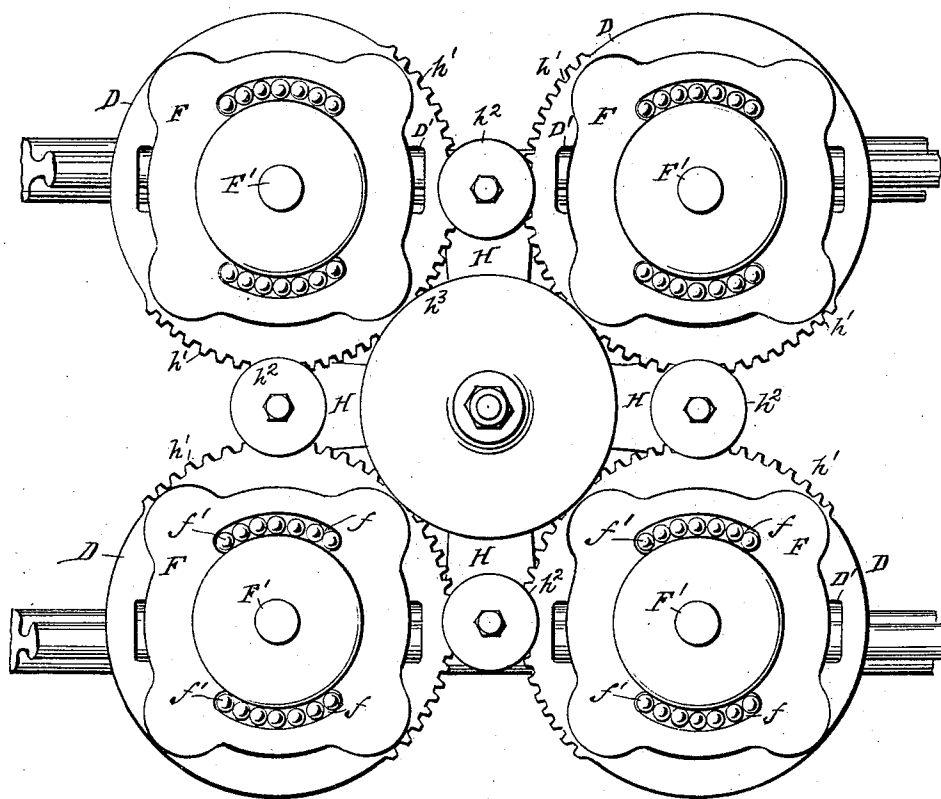


Fig 6.

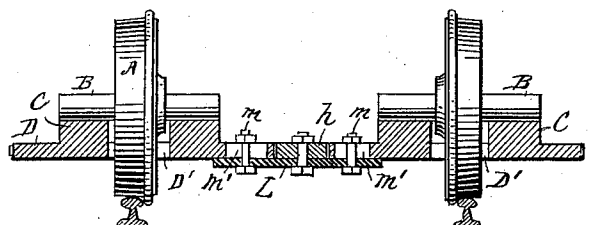
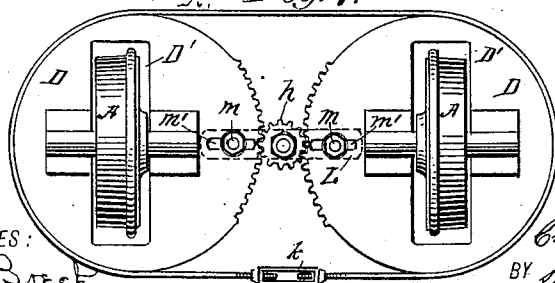


Fig 7.



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UNITED STATES PATENT OFFICE.

CHARLES C. MOORE, OF NEW YORK, N. Y.

CAR-TRUCK.

SPECIFICATION forming part of Letters Patent No. 578,042, dated March 2, 1897.

Application filed November 21, 1896. Serial No. 612,935. (No model.)

To all whom it may concern:

Be it known that I, CHARLES C. MOORE, a citizen of the United States, and a resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Car-Trucks, of which the following is a specification.

My invention relates to improvements in trucks for street, trolley, and railway cars; and the object of the invention, among other things, is to adapt each wheel of the truck to turn on a vertical axis, and also to synchronize this movement among all of the wheels, so that in rounding curves there will be no excessive friction of the wheels and flanges upon the rails.

While I have shown in the accompanying drawings sets of springs for supporting the load located between a lower platform and upper spring-equalizing plates, which latter are auxiliary to a main upper platform, and while I have also shown gearing for turning the planes of the wheel, these are but parts of my invention, the main invention consisting in providing each wheel with its own independent horizontal and vertical axle or axis arranged with relation to one another, to the track, and to the diameter of the wheels, so that when the truck is in motion on the track the point on the curve at which the front wheels are turned on their vertical axis will be reached by the rear wheels by the time they are turned by the lateral action of the front wheels.

In the accompanying drawings, to which reference is made and which form a part of this specification, Figure 1 is a plan view of a four-wheel truck embodying my invention. Fig. 2 is a side elevation of the same. Fig. 3 is a plan view with the top bolster-plate and spring-equalizing plates removed. Fig. 4 is a detailed sectional elevation. Fig. 5 is a plan view with the top bolster-plate removed. Fig. 6 is a detailed transverse sectional elevation of a two-wheel truck embodying my invention. Fig. 7 is a plan view of the same.

A A represent the wheels of the truck. These are each provided with a short horizontal axle B. These axles turn in journal-boxes C C', the lower sections or blocks C of which are secured by bolts to the upper sections or blocks C', or the said lower sections

may each be made as a part of a rotating plate D. The said rotating plates D are each formed with an opening D' for the body of the wheel, and they support the springs E E. The upper ends of the said springs are held by the spring-equalizing or bolster plates F. Between the said bolster-plates F and sections C' of the journal-boxes are placed other springs E', as shown clearly in Fig. 2.

G represents the main top plate of the truck, on the central boss G' of which the body of the car (not shown) is supported. This top plate G is formed with vertical journal boxes or bearings G², one for each wheel A, to receive the journal F' of each of the bolsters F, as shown clearly in Figs. 1 and 4.

H represents a supporting-plate, preferably of the form shown clearly in Figs. 3 and 5, provided with four pinions h and with a central pinion H'. The pinions h mesh with the racks or gear-teeth h', formed on the plates D, so that the turning of one wheel A in its vertical bearing G² will cause the other wheels to turn in the same direction and so that the pinions will properly brace apart the plates D. The central wheel H' also gears with the racks h' and like the pinions h serves to brace the wheels A and plates D apart and to cause all of the wheels and plates to turn with the turning of any one of them. I do not limit myself to the use of pinions and racks, as plain intermediate rolls and plain surfaces may be used, but in the latter case it is preferable to unite the plates D by a metal band K, as shown in Fig. 7. The said plate H is held up in place by the disks or flanges h² h³, formed as a part of the pinions h and wheel H', respectively, or secured to the gudgeons or shafts of the same and arranged to overlap the upper surfaces of the plates D, as shown clearly in the drawings.

f f represent recesses formed in the upper surface of the plate F to receive a series of anti-friction-balls f' to reduce friction with the main top plate G, but these may be omitted, if desired.

The vertical shafts or axles F' center at the angles of a square, as shown in the drawings, and as one of the wheels A of the truck, say the upper left-hand wheel in Fig. 3, strikes a curve in the track its plane will be gradually shifted as the truck progresses along the

track. This shifting of the wheel A will turn all of the other wheels to the same angle, and this turning of the other wheels will be done while the rear wheels of the truck are approaching the point on the track at which the first-mentioned wheel was turned, so that practically the front and rear wheels are turned laterally on their vertical shafts at the same points on the rails, and hence there is practically no friction of any of the wheels on the track except the front wheel of the truck, which takes the outside rail of the curve, and as to this wheel the friction is comparatively slight.

In the form of construction shown in Figs. 6 and 7, which illustrate two wheel-trucks, the rotating plates D are surrounded by a band K, whose ends are united by a turn-buckle *k* for adjusting the band. As above intimated, such a surrounding band may be used around all of the rotating plates D in a four-wheel truck, and in case the gear-wheels and cogs be omitted, as above intimated, the said band or other equivalent means should invariably be used for uniting the rotatory action of the said plates and for obviating any tendency of the wheels and plates D to spread and for obviating excessive lateral strain upon the vertical bearings and journals F'.

In the two-wheel truck the pinion *h* is journaled on a gudgeon at the center of a bar or plate L, which is held up by bolts *m m*, which pass through slots *m' m'*, formed in the rotating plates D D to permit the said plates, when the wheels A A are turned, to conform to a curve in the track.

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

1. A railway-truck wherein each wheel thereof is formed with a short independent horizontal axle and provided with a central vertical axle, combined with a top plate in which said vertical axles are journaled and with a rotating plate for each wheel held below each of the said horizontal axles substantially as described.

2. A railway-truck wherein each wheel thereof is formed with a short independent horizontal axle and with a central vertical axle, combined with a top plate in which said vertical axles are journaled, a rotating plate for each wheel held below each of the said horizontal axles, and a supporting-plate pro-

vided with wheels for spacing the adjacent edges of the said rotating plates substantially as described.

3. A railway-truck wherein each wheel thereof is formed with a short independent horizontal axle and with a central vertical axle, combined with a top plate in which said vertical axles are journaled a rotating plate for each wheel held below each of the said horizontal axles, and a supporting-plate provided with pinions or cog-wheels for spacing the adjacent edges of the said rotating plates the latter being formed with rack-teeth substantially as described.

4. A railway-truck wherein each wheel is formed with a short independent horizontal axle and provided with a central vertical axle a top plate on which said vertical axles are journaled, a rotary plate for each wheel held below the said horizontal axles and a supporting-plate provided with wheels for spacing the adjacent edges of the said rotating plates and flanges above said spacing-wheels which overlap the upper surfaces of the said rotating plates substantially as described.

5. A railway-truck wherein each wheel is formed with a short horizontal axle and a central vertical axle and a main top plate in which said vertical axles are journaled in combination with rotating plates held below the said horizontal axles, and equalizing-plates above said horizontal axles and springs interposed between the said rotating and equalizing plates substantially as described.

6. A railway-truck wherein each wheel is provided with a short horizontal axle and a central vertical axle in combination with the top plate G in which said vertical axles are journaled, rotating plates D provided with journal-boxes for the said horizontal axles, equalizing-plates F and springs E, E' arranged substantially as and for the purposes described.

7. In a railway-truck the rotating plates D arranged in pairs transverse to the track and in which the wheels are journaled on short horizontal axles in combination with means substantially as set forth for binding said rotating plates together to prevent lateral spreading as and for the purposes specified.

CHARLES C. MOORE.

Witnesses:

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CHARLES J. BRECK.