

L. T. PYOTT.  
RUNNING-GEAR FOR CARS.

No. 188,672.

Patented March 20, 1877.

Fig. 1.

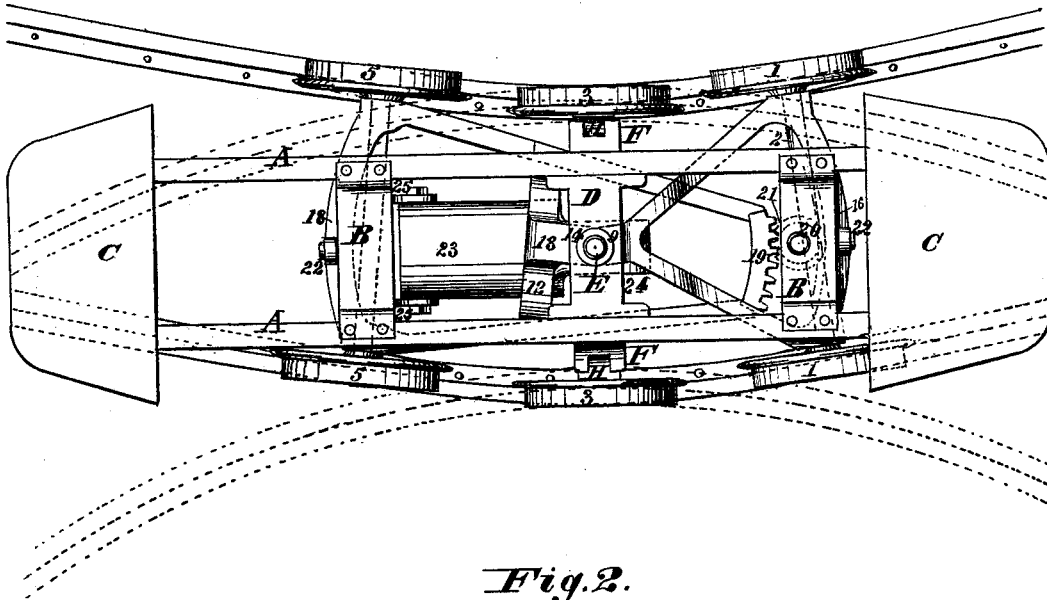


Fig. 2.

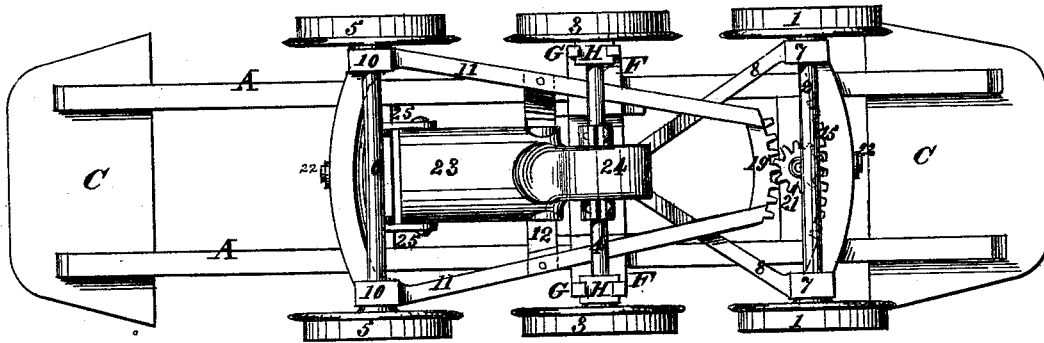
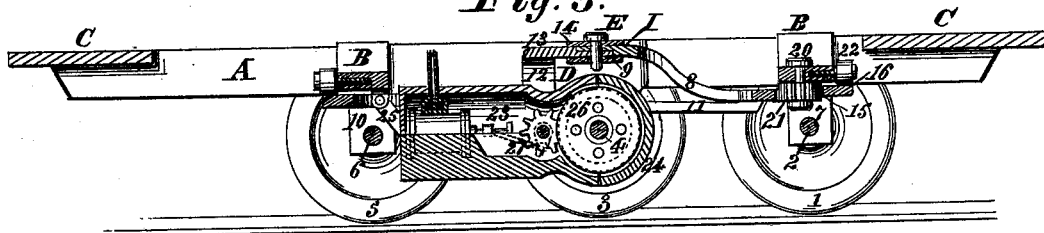


Fig. 3.



WITNESSES

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INVENTOR

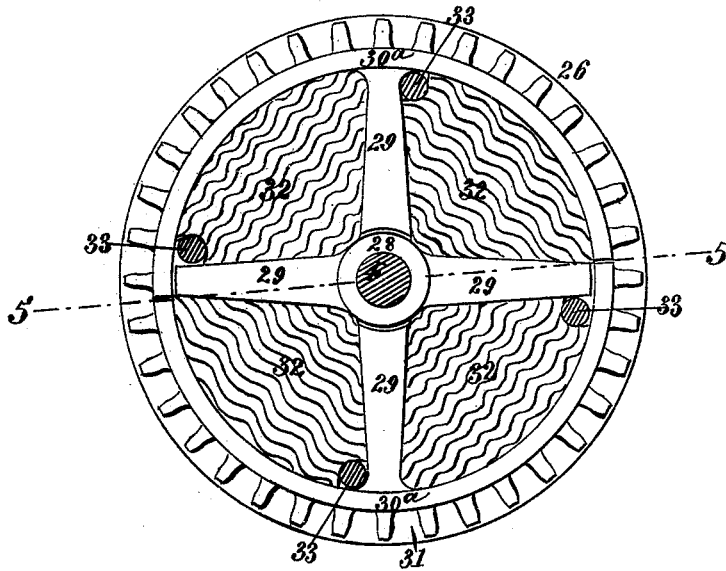
Louis T. Pyott  
By *Knights Bros* Attorneys

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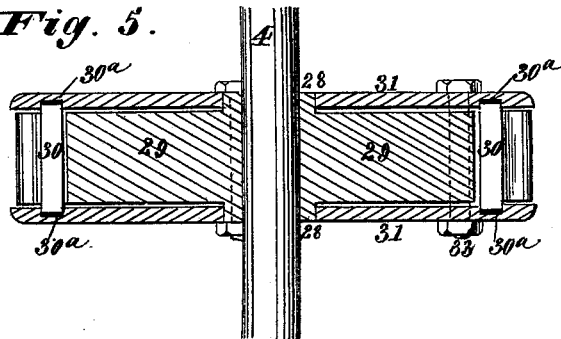
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*Fig. 4.*



*Fig. 5.*



WITNESSES

*Walter Allen*  
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# UNITED STATES PATENT OFFICE

LOUIS T. PYOTT, OF PHILADELPHIA, PENNSYLVANIA.

## IMPROVEMENT IN RUNNING-GEAR FOR CARS.

Specification forming part of Letters Patent No. 188,672, dated March 20, 1877; application filed September 4, 1876.

*To all whom it may concern:*

Be it known that I, LOUIS T. PYOTT, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented new and useful Improvements in Running-Gear for Railway-Cars, of which the following is a specification:

My invention relates to the running-gear of those railway-cars which are propelled by steam, air, or other motor.

One object of the invention is to provide a car with an improved base or truck, adapted to run easily and freely over curves, so as to diminish friction and keep the body of the car even, especially on a rough way. This part of the improvement consists in connecting the front and rear axles of a six-wheel truck or base to the center-pin of the truck by means of two frames provided with rack-segments, which mesh with a pinion at the forward end of the truck.

Another object of the invention is to provide improved means for bracing the car-bed to the middle or driving axle, so as to keep the car parallel to the general line of rail, while permitting the front and rear axles to assume a position radial to the middle axle. This part of the improvement consists in a central cross-tie of peculiar form, having shoulders, on which the longitudinal bars of the car-bed rest, and beneath the shoulders provided with pedestals adapted to receive vertically-sliding journal-boxes.

Another object of the invention is to provide improved means for deadening the noise of the gearing between the engine or motor and the driving-axle, by which all backlash and clatter is avoided, and shocks from sudden reversing or starting of the engine are rendered imperceptible. This part of the improvement consists in a gear-wheel provided with gum cushions or springs between its arms, and a rim projecting on both sides below the cogs, adapted to fit grooves in side plates. The rim of the wheel is divided, and its arms are separated from the hub and rim alternately. The spring is compressed between the arms and side plates by means of adjustable bolts.

Another object of the invention is to provide improved means for securing the engine

or motor beneath the car-bed independently of the front and rear wheels and a radially-moving frame. This part of the improvement consists in supporting the engine or other motor from the driving-axle at one end, and at the opposite end by links attached to the car-bed.

In the accompanying drawing, Figure 1 is a top view of the improved truck or base, showing the position the wheels assume when passing over a curve. Fig. 2 is an under-side view of the truck or base. Fig. 3 is a vertical longitudinal section. Fig. 4 is a vertical section on a larger scale of the gear-wheel. Fig. 5 is a section of the gear-wheel on the line 5 5, Fig. 4.

In carrying out my invention, A may represent the longitudinal bars, B cross-ties, and C the platforms, of a street-railway car-bed.

1 may represent the front pair of wheels, and 2 the axle; 3, the middle pair of wheels, and 4 the axle; and 5, the rear pair of wheels, and 6 the axle, of a six-wheel truck or base.

8 is a frame, whose forward end is provided with blocks 7, in which the front axle 2 has journal-bearings and a rack-segment, 15. The rear end of this frame is provided with an eye, 9, engaging with the center-pin E in the central cross-tie D through slot I.

11 is another frame, whose rear end is provided with blocks 10, which furnish journal-bearings for the rear axle 6. This frame extends forward of the middle axle to the front end of the truck or base, and is constructed with a rack-segment, 19, cross-bar 12, arm 13, and eye 14, also adapted to engage with the center-pin E through slot I in the central cross-tie D.

The front cross-tie of the car-bed forms vertical journal-bearings for a pin, 20, of a pinion, 21, with which mesh the two rack-segments 15 19 of the frames 8 11.

The frame 11 is adapted by its peculiar construction to be moved radially on the center-pin E by the front wheels, so as to compel the rear wheels of the truck to conform to the curve over which the front wheels are passing, while the middle wheels, car-bed, and engine keep to the general line of the rails over which the truck is passing.

The central cross-tie D is constructed with

shoulders F, upon which the longitudinal bars of the car-bed rest. Below the shoulders are pedestals G for the reception of vertically-sliding boxes H, in which the axle 4 has journal-bearings.

The car is supported at each end by means of rollers or travelers 22, journaled in the end cross-ties B. These rollers have bearings on the flat surfaces 16 18 of the frames 8 11.

The gear-wheel 26 is constructed with a rim, 30, which projects on both sides, as shown at 30<sup>a</sup>, below the cogs, so as to fit grooves in side plates 31. The side plates are secured adjustably to the wheel by means of screw-bolts 33, adapted to draw the plates together to compress a gum cushion or spring, 32, located between the arms of the wheel. The hub 28 of the wheel is rigidly secured to the axle 4, and the arms 29 are separated from the rim and hub alternately. In the illustration two opposite arms are attached to the hub and separated from the rim, and two opposite arms attached to the rim and separated from the hub. The rim is divided so that motion is imparted to the driving-axle 4 through the gum cushion or spring 32, the arms attached to the rim forcing the cushion against the arms attached to the hub.

By the construction of gear-wheel shown, having the provision of gum cushions, I am enabled to deaden the noise and clatter of the revolving parts, while shock from sudden reversing or starting of the engine or motor is rendered imperceptible.

This gear-wheel is equally applicable to steam-carriages.

The engine or motor 23 is supported beneath the car-bed on the axle 4 by a casing, 24, surrounding the gear-wheel, and by links 25 depending from the car-bed.

The ordinary street-car is in weight about two tons, and the application of any driving-power to a car will at least double the weight. By my construction of truck I provide two additional bearings to carry the increased load.

When either pair of wheels are passing over cross-rails or switches, the general bearing of

the car is level, the radial or lateral movement which takes place between the front and rear wheels when striking a curve causing the axles to assume almost perfect radial lines to any curve, large or small. The body of the car is also kept in a line parallel or tangent to the general line of railway.

The engine that I prefer to use is of double-gear locomotive style, and is incased in circular-formed bed-plate.

The engine as applied can be detached and replaced conveniently and in a short space of time.

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

1. The frame 11, pivoted to a cross-tie, D, by the center-pin E, and adapted to be moved radially by the front wheels, as and for the purpose set forth.

2. The combination, with the radially-moving frame 11, of the front frame 8, rack-segments 15 19, and the pinion 21, as and for the purpose set forth.

3. The cross-tie D, having shoulders F and pedestals G, for the vertically-sliding journal-boxes H, as and for the purpose set forth.

4. The combination, with the gear-wheel 26, having projecting rim 30 30<sup>a</sup>, of the grooved side plates 31 and cushion 32, as and for the purpose set forth.

5. The combination, with the gear-wheel, having projecting rim, grooved side plates, and cushion, of the screw-bolts 33, as and for the purpose set forth.

6. The gear-wheel, having divided rim and arms detached from the hub, in combination with the hub having arms detached from rim, cushion 32, and side plates 31, as and for the purpose set forth.

7. The engine or motor supported wholly by the driving-axle, and links depending from the car-bed, as set forth.

LOUIS T. PYOTT.

Witnesses:

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