(No Model.)

R. N. ALLEN.

ELECTRICALLY PROPELLED VEHICLE.

No. 409,815. Patented Aug. 27, 1889.

Fig. 1.

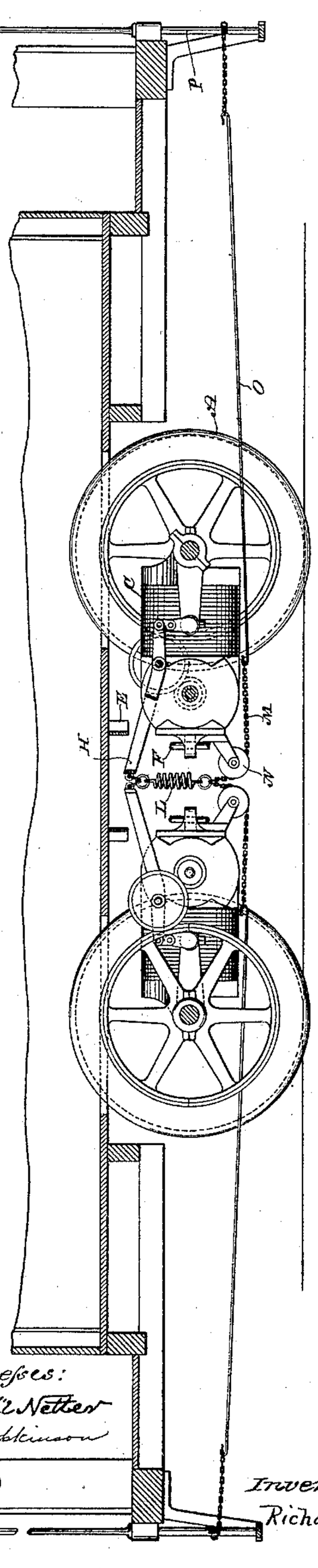
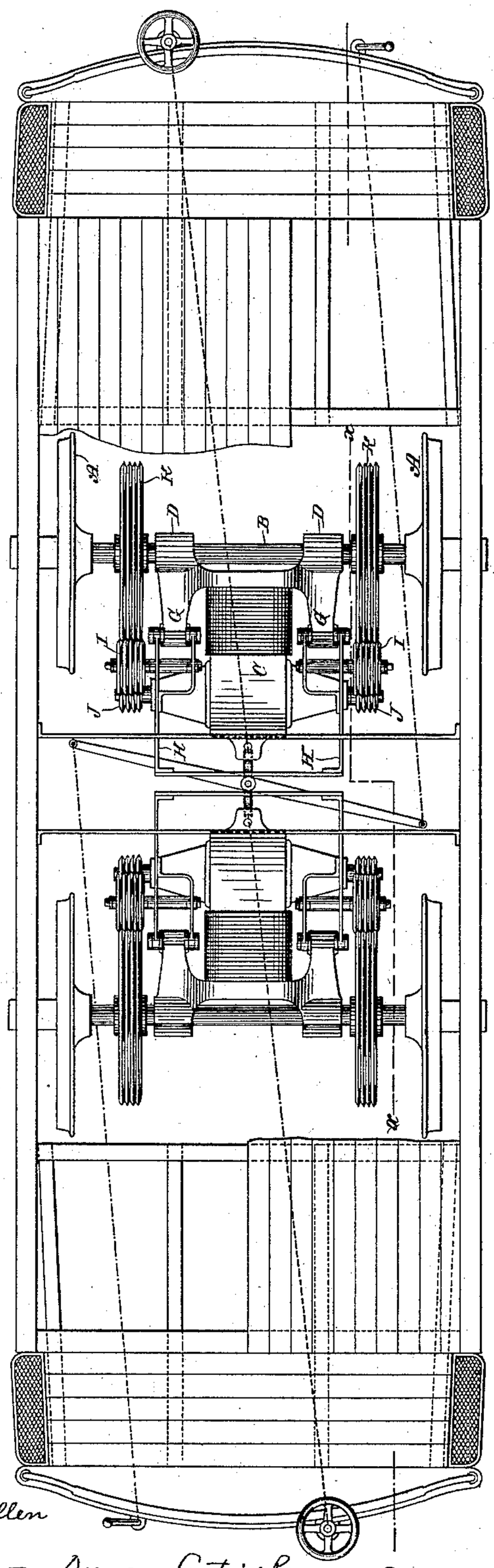


Fig. 2.



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UNITED STATES PATENT OFFICE.

RICHARD N. ALLEN, OF CLEVELAND, OHIO.

ELECTRICALLY-PROPELLED VEHICLE.

SPECIFICATION forming part of Letters Patent No. 409,815, dated August 27, 1889.

Application filed May 22, 1889. Serial No. 311,656. (No model.)

To all whom it may concern:

Be it known that I, RICHARD N. ALLEN, of the city of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Electrically-Propelled Vehicles, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

This invention relates to vehicles propelled by electric motors, in which the electric motor, mounted upon the car or the truck thereof, is connected with the axles of the wheels of the car for driving them by friction-wheels applied by a yielding pressure to the axles of the car-wheels and to the motor-shafts, or to parts attached to such axles and such shafts.

The present invention relates particularly to improvements upon the devices shown in my pending application, Serial No. 302,794, filed March 11, 1889, which devices embody the form of electrically-driven cars above alluded to.

The object of these improvements is to relieve the motor and driving mechanism from the effects of shocks due to irregularities of the rails, or to obstructions on the track, or to sudden stoppages or starts; and the present invention consists of means whereby the pressure of the yielding friction-wheels between the axles of the car and the shafts of the motor may be constantly under the easy control of and regulated by the conductor of the car.

In the drawings, Figure 1 is an elevation view of the truck parts and lower part of the body, partially sectional on plane *x x* of Fig. 2, of a car embodying my improvements. Fig. 2 is a plan view of the same, the body of the car being removed.

Referring to these views in detail, A represents the wheels of a car, and B the axles of the same. These axles will be journaled in any suitable frame or like structure connecting them and the car-body. Upon one of these axles is hung the electric motor C by the journal-shoulders D D of the motor-frame, the front end of this motor-frame being attached to the frame-work of the truck or to one of the cross-bars E by the rod F, (broken away in the drawings,) or by any other rigid or elastic connection.

On the arms G of the motor-frame is pivotally hung, by link-connections, the friction-disk frame H, which carries the friction-disks I. On each end of the armature-shaft of the motor are friction-disks J, and upon the axles are like disks K, and these disks J and K are arranged so as to mesh with the disks I. The motor may be of any suitable construction, and may have its wires arranged to take a current from a track-line or from a source of electricity carried on the car.

To the front end of the friction-disk frame H is attached a spring L, and to this spring a chain M, which passes over a pulley N on the motor-frame, and is attached to a rod O, which at its other end is provided with a chain adapted to be wound up on the hand-wheel shaft P, extending to a position at the end of the car convenient to the conductor. The weight of the yielding friction-disk frame is such that normally the axles of the car are in operable connection with the armature-shaft. If, however, a sudden resistance is encountered by the car-wheels, the frame under the action of the armature-shaft may rise a little, when the loose disks thereon will slip on the disks of the axles; but it is highly desirable that this yielding capacity of this frame be under the control of the conductor of the car, since, for variation in the grade of the track or to overcome unusual resistance to the car-wheels, it may be necessary to apply the yielding friction-disks with more than their normal pressure; and, furthermore, it is equally essential to the best working that the pressure be always elastic or yielding, and accordingly a spring is introduced, as shown, between the frames and the conductor's hand-wheel.

I have shown in the drawings two motor, one for each of two axles, and the yielding friction-roll frames connected to the same spring, from which run hand-operating rods to each end of the car; but manifestly this arrangement may be variously modified. The two axles might be worked from one motor, or the motors for each axle be entirely disconnected and separately governed.

What is claimed as new is—

1. In an electric-motor car, the combination, with one of the car-axles provided with a friction-disk, of a motor the armature-shaft of which is provided with a friction-disk, a yielding frame carrying a friction-disk arranged to operably connect the disks of the car-axle and the motor-shaft, and connections between said frame and the car-body by which the disk of the frame may be applied to the other disks with the desired pressure.

2. In combination with the car-axles and the motor-shaft, each carrying friction-disks, the movable frame and its friction-disk, and an elastic or yielding connection between said frame and a hand-wheel shaft extending to the car-conductor's position.

3. In combination with the car-axles and motor armature-shaft, each carrying friction-disks, the movable frame H and its friction-disk I, the spring L, attached to the frame, and the connection with the hand-wheel shaft P.

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