(No Model.)

E. LUNDQVIST.

ELECTRIC CAR TRUCK.

No. 556,893. Patented Mar. 24, 1896.

Fig. 1.

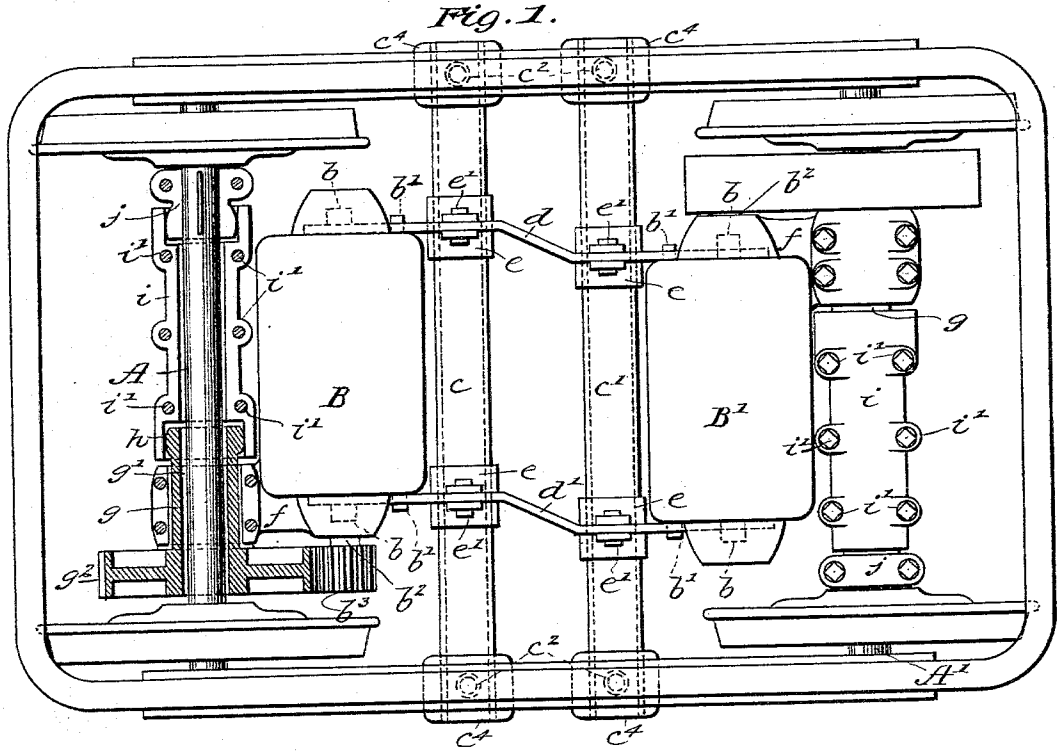
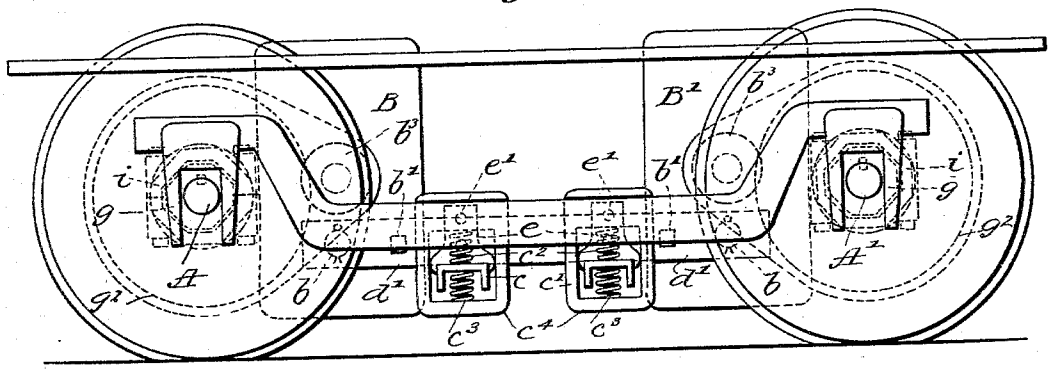


Fig. 2.



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ELECTRIC-CAR TRUCK.

SPECIFICATION forming part of Letters Patent No. 556,893, dated March 24, 1896.

Application filed July 31, 1895. Serial No. 557,700. (No model.)

To all whom it may concern:

Be it known that I, EMIL LUNDQVIST, a subject of the King of Sweden and Norway, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Electric-Car Trucks, of which the following is a full, clear, and exact description.

This invention relates to electric locomotive and car trucks, the object being to provide a method of mounting the propelling motor or motors which will prevent injury to them and to the gearing connecting the same with the axle or axles due to constant hammering and vibration from running over the rail-joints or any obstruction which may be in the way.

I propose to support the motor or motors and the gearing, including the wheel, which is usually carried directly upon the axle, entirely upon the truck-frame and provide a flexible joint between the axle and the gearing of such construction that a movement in any direction of the axle caused by jolting or hammering upon the rails will not be communicated to the gearing or motors.

The invention will be described in detail with reference to the accompanying drawings, in which—

Figure 1 is a plan of a car or locomotive truck, showing two motors mounted thereon and geared respectively to two axles. Fig. 2 is a side elevation of the same.

Referring to the drawings by letter, A A' represent the two axles, to which are respectively geared two electric motors B B'. I mount these motors solely upon the truck-frame in any desired manner. The way shown in the drawings consists in providing the truck-frame C with two cross-beams c c', respectively, located between the axles and at their ends resting between springs c^2 and c^3 placed above and below and located in boxes c^4 attached to the truck-frame, as shown. Upon these cross-beams rest two bars d and d', being secured thereto by means of brackets e having openings through which the bars pass and in which they are secured by means of pins e'. These bars are placed a distance apart about equal to the width of the motor, and each end of the bars is provided with two holes which pass over two pins or lugs b and b' fixed or formed in the ends or heads of the motor-frames. Each motor is therefore confined between the ends of the two bars, and it is rigidly supported in place by reason of the engagement of the pins and holes. The motors are supported with their armature-shafts b^2 parallel to the axles. The motor-frame has cast upon or otherwise attached to it the bracket f, containing a bearing for a sleeve g. The sleeve surrounds the axle, but its internal diameter is considerably greater than the diameter of the axle, so that a cylindrical space g' will remain between the axle and the sleeve. On the end of the sleeve is cast or otherwise attached a gear-wheel g^2, which meshes with the pinion b^3 on the armature-shaft. From this construction it will be observed that the rotary motion of the armature is transmitted to the sleeve, and the latter turns in the bearing f without contact with the axle. The end of the sleeve opposite the gear-wheel is made square or of other polygonal shape exteriorly and the faces are made convex in the direction of the length of the sleeve, as shown at h. This end of the sleeve passes into the end of another sleeve, i, which has a polygonal opening or socket, corresponding in shape to the end of sleeve g, but its faces are made plain instead of curved. This second sleeve is also made of greater diameter than the axle, and for convenience of construction it is made in two parts secured together by bolts i'. The other end of sleeve i is also formed with a polygonal-shaped socket to fit over a corresponding-shaped collar j keyed securely upon the axle. The collar has the same curved surface before described, and it also is made in two parts bolted together, as shown. This construction provides a flexible joint between the collar and sleeve i and another between sleeve i and sleeve g, permitting of considerable movement of the axle in any direction without altering the position of the motor or gearing and without exerting any strain upon either of them. At the same time the rotary motion of the gearing is positively transmitted to the axle by reason of the polygonal shape of the flexible joint.

When one motor is used or when the motors are mounted independently of each other, the bars d d' rest on cross-pieces on each side of the axle and pass above the axle. The

method of mounting two motors herein illustrated is a good one, because they are balanced one against the other and the weight of both is evenly distributed, making the traction the same on both axles. The bars *d* and *d'* constitute a frame supported between its extremities upon the truck-frame and carrying a motor at each end.

Having thus described my invention, I claim—

In an electric locomotive, the combination of a motor solely supported on the truck-frame, a gear-wheel rotatively mounted in a bearing in the motor-frame and in mesh with a pinion on the motor-shaft, an axle connected with the gear through a flexible joint consisting of a loose sleeve surrounding the axle, one end of which is flexibly coupled to the gear-wheel and the other similarly coupled to the axle, the gear and sleeve having a clearance all around the axle, sufficient to allow the axle to move freely in all directions.

In testimony whereof I subscribe my signature in presence of two witnesses.

EMIL LUNDQVIST.

Witnesses:

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