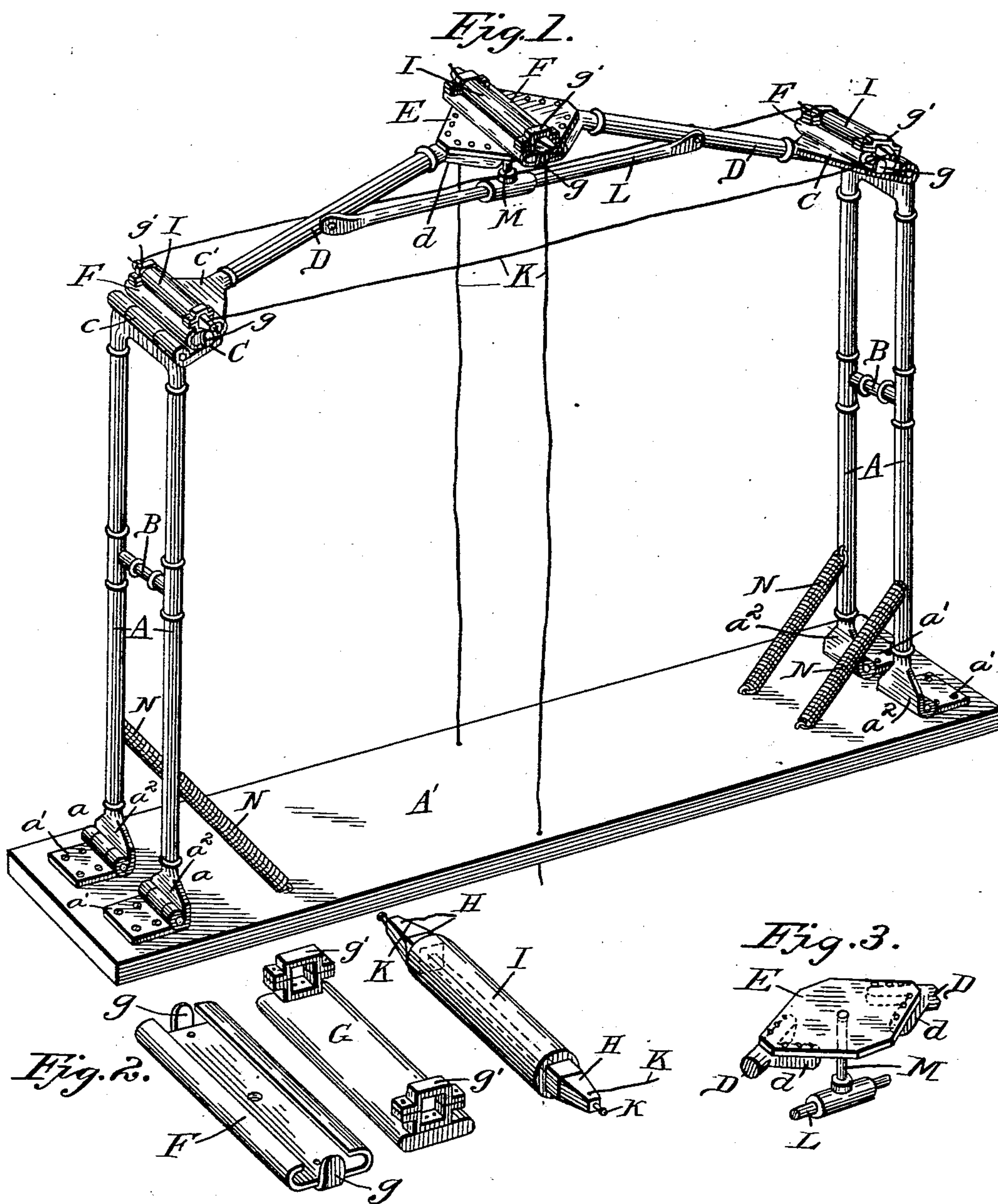


(No Model.)

C. E. POWELL.
TROLLEY.

No. 562,972.

Patented June 30, 1896.



Witnesses
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CHARLES E. POWELL, OF BRYN MAWR, PENNSYLVANIA.

TROLLEY.

SPECIFICATION forming part of Letters Patent No. 562,972, dated June 30, 1896.

Application filed September 19, 1895. Serial No. 563,020. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. POWELL, a citizen of the United States, residing at Bryn Mawr, in the county of Montgomery and State of Pennsylvania, have invented certain new and useful Improvements in Trolleys; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates generally to electric railways, and particularly to an improved construction of overhead trolley.

The object of my invention is to provide a trolley which will be safe at all times and will not swing to either side and cause the roller to jump the wire.

Another object is to construct a trolley which will not have to be reversed every time the motion of the car is reversed, and a still further object is to provide a trolley which can readily accommodate itself to passages beneath bridges, through tunnels, and the like.

With these objects in view, and such others as may hereinafter appear, my invention consists in the peculiar construction of the various parts and their novel combination, which will be fully described, and pointed out in the claims.

In the drawings forming a part of this specification, Figure 1 is a perspective view of my improved trolley. Figs. 2 and 3 show details of construction.

In carrying out my invention I employ a frame attached to the top of the car and carrying a trolley-wheel, said frame being hinged to the top of the car, and has all its joints hinged so it can be pressed down in either direction whenever desired, said frame being normally held in an upright position by suitable springs. In constructing this frame I employ four standards A, which are secured one at each corner of a board A', attached to the top of the car, and in order to pivotally connect said standards and board I provide the hinge-couplings a, composed of the fixed member a' and the swinging member a², the standards A being connected with members a² by a screw-joint. These standards are ar-

ranged in parallel pairs, and between the forward and rear pairs I arrange brace-rods B B, connected by suitable screw-joints. The forward standards are connected at their upper ends to a hinge-coupling C, and the rear standards are connected with a similar one, said couplings comprising the members c and c', and connected to each member c' is a rod D, extending toward each other, and bifurcated at their inner ends, as shown at d, and connecting said ends is a plate E, having a guide F upon its upper face, and seated in said guide is the journal-bearing G, held against movement by means of plates or flanges g at each end. The bearing G has seats at each end, as at g', and resting therein are the squared ends of the trolley-journal H, upon which the trolley I revolves, and to the ends of this journal H are attached the conductor-wires K, by means of suitable binding-posts k.

Connecting the rods D from beneath is the truss-rod L, carrying a post M, upon which the plate E rests, the purpose of said truss-rod and post being to prevent the trolley being pushed down toward the center of car.

The rods D D are inclined slightly upward, so that the trolley is supported about eighteen inches or two feet above the ends of frame.

Each standard A has a spring N connected therewith in order to hold the frame in an upright position. When it is desired to remove the trolley from the wire, the frame can be moved in either direction, and as the main joints are hinged said frame will swing down and leave the wire. This folding frame also permits the trolley passing under a bridge or through a tunnel, and at each end of the frame, preferably upon the coupling C, I mount a trolley I, as shown in Fig. 1, which is similar in all respects to the trolley I hereinbefore described, and mounted at the adjacent ends of the rods D, the plates F supporting these couplings being mounted upon the coupling-plates C in the same manner that the before-mentioned trolley-supporting plate F is mounted upon the central plate E. These trolleys, it will thus be seen, serve also the additional function of antifriction-rollers, so that when the frame comes to a tunnel or

bridge the folding or compression will be gradual, and the bridge will not strike the frame proper.

5 All of the parts are so united that any of them could be quickly removed and replaced in case of accident.

Wherein the claims I mention the "frame" I wish to be understood as referring to the standards and the rods extending from the
10 upper ends thereof to support the operating parts.

Having thus described my invention, what I claim is—

1. In a trolley, the combination with the
15 standards, of the hinge-couplings at their upper and lower ends, the connecting rods and plate, and the trolley carried on said plate, and the antifriction-rollers at the upper ends of said standards, substantially as shown and
20 described.

2. The combination with the standards hinged to a board on the top of car, the hinge-couplings and connecting-rods, the connecting-plate having a guide, the journal-bearing
25 and journal, and the trolleys at the center and ends of the top portion, all arranged substantially as shown and described.

3. The combination with a trolley, of the journal having extended ends carrying bind-

ing-posts, a journal-bearing, a plate in which
30 said bearing is fastened, a guide carried by said plate, and the foldable frame supporting said plate and guide, substantially as described.

4. The combination with the frame and
35 guide, of the truss-rod and post and the plate resting upon said post and carrying the trolley, all arranged substantially as shown and described.

5. The combination with the hinged frame,
40 the truss-rod, the post, the plate mounted on said post and the trolley adjustably supported upon said plate, of antifriction-rollers at each end of said frame, substantially as shown and described.

6. The combination with the hinged frame,
45 of the spring holding the same in normal position, the trolley-wheel and journal, the truss-rod and post, and the antifriction-rollers, all arranged substantially as shown and de-
50 scribed.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

CHARLES E. POWELL.

Witnesses:

LOUIS G. RANDALL,

WM. L. FORD.