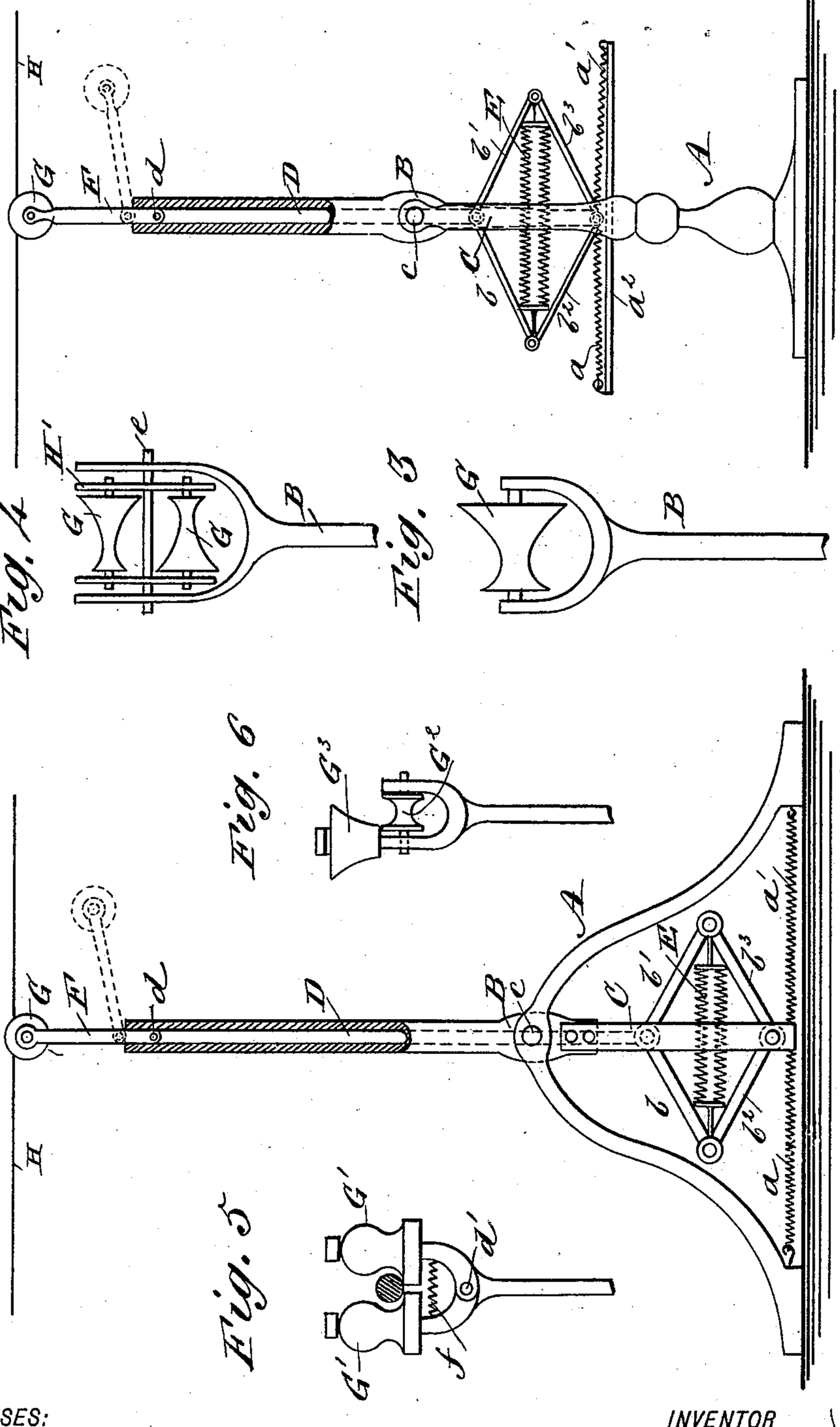
(No Model.)

W. VAN BENTHUYSEN.

ELECTRIC RAILWAY TROLLEY.

No. 512,923. Patented Jan. 16, 1894.



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ELECTRIC-RAILWAY TROLLEY.

SPECIFICATION forming part of Letters Patent No. 512,923, dated January 16, 1894.

Application filed March 24, 1893. Serial No. 467,500. (No model.)

To all whom it may concern:

Be it known that I, WALTER VAN BENTHUYSEN, of New Orleans, in the parish of Orleans and State of Louisiana, have invented a new and Improved Trolley for Electric Railways, of which the following is a specification, reference being had to the annexed drawings, forming a part thereof, in which—

Figure 1 is a side elevation of my improved trolley. Fig. 2 is a side elevation of a modified form. Fig. 3 is a detail side elevation of one form of trolley wheel. Fig. 4 is a detail side elevation of a double trolley wheel for a right or left hand switch; and Figs. 5 and 6 represent further modifications of my improvement.

Similar letters of reference indicate corresponding parts in all the views.

The object of my invention is to construct a trolley which is not liable to leave the wire, but which in case it jumps the wire will arrange itself automatically in a safe position so that it cannot be injured by striking against the supports of the wire.

My invention consists in a trolley pole formed of a hollow arm held normally in a vertical position by spiral springs, and a rod inserted in the arm and provided with a jointed end piece projecting beyond the end of the hollow arm and carrying a conical trolley wheel, all as will be hereinafter more fully described.

To the frame A, which is attached to the top of the car, is pivoted the tubular arm B, to the lower end of which is secured, a bar C, the lower extremity of which is attached to springs $a\ a'$, secured to the frame A. In the tubular arm B is placed a rod D, having its lower end jointed to the bars $b\ b'$, the said bars being pivotally connected with the bars $b^2\ b^3$, which are pivoted to the bar C, by a common pivotal pin. The diagonally opposite joints of the bars $b\ b'\ b^2\ b^3$, are connected by spiral springs E, which tend to draw the bars $b\ b'\ b^2\ b^3$ toward each other, and thus force the rod D upwardly in the tubular arm B.

To the upper end of the rod D is jointed a forked arm F, in such relation to the rod D that a portion of the forked arm F normally remains in the tubular arm B. In the fork of the arm F, is journaled the trolley wheel G, which rolls upon the wire H. When the device is working normally the joint *d*, connecting the fork F and rod D, remains within the tubular arm B, and all the parts act together as a single lever, swinging on the pivot *c*, but should the trolley wheel G, through the oscillation of the car or from any other cause leave the wire, the contraction of the spring E will force the rod D upwardly, pushing the joint *d* beyond the end of the tubular arm B, when the forked arm F falls over, as indicated in dotted lines, thus carrying the wheel out of the way of the wire supports or other obstructions that may be in the vicinity of the wire, preventing the breaking of the trolley wheel and its support, and also preventing the breaking of the trolley wire and its supports.

The trolley wheel G is made in conical form, with a concaved flange at its smaller end. A wheel of this form will follow a curve without danger of leaving the wire, the larger diameter of the wheel being upon the outer side of the curve.

In the form shown in Fig. 4, two trolley wheels G are oppositely arranged with respect to each other, and journaled in a frame H′, which turns on a fixed pivot *e* in the fork of the arm B. Either of the said trolley wheels may be placed in position for engaging the wire by turning the frame H′, one wheel being used for a right hand switch or curve and the other for a left hand switch or curve. After the trolley wheel has left the wire, as indicated in dotted lines in Fig. 1, it may be replaced by drawing down the rod D, by means of a cord attached to it, then swinging the tubular arm B by means of a cord attached to its free extremity, and replacing the trolley wheel on the wire in the usual way.

In the form shown in Fig. 2, the springs $a\ a'$ are attached to a cross bar a^2 secured to the support of the trolley arm; in other respects this form is the same as that already described.

The trolley shown in Fig. 5, is provided with trolley wheels G′, revolving on the arms of the fork. One arm of the fork is stationary, and the other arm of the fork, which is movable, is connected with the stationary arm by means of the pivotal joint *d*′, and the movable arm is drawn toward the stationary arm by a spiral spring *f*.

In the form shown in Fig. 6, one of the arms of the fork in which the trolley wheel G^2 is journaled, is provided with a conical auxiliary wheel G^3, the smaller end of which adjoins one end of the trolley wheel G^2. The said auxiliary trolley wheel G^3 is supported above the wire on the outside of switches and curves, so that should the wire tend to leave the trolley wheel G^2, it will be retained by the conical wheel G^3.

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

1. In a trolley for electric railways, the combination, with the tubular swinging arm B, of the sliding jointed rod D, the trolley wheel G carried thereby, and springs for holding the tubular arm B in a central position and for projecting the rod D, substantially as specified.

2. A trolley wheel, made in the form of a cone, with a concave flange of smaller diameter than the cone formed on its smaller end, substantially as specified.

3. In a trolley for electric railways, a pair of conical trolley wheels mounted in a swinging frame and oppositely arranged with respect to each other, substantially as specified.

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Witnesses:

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