

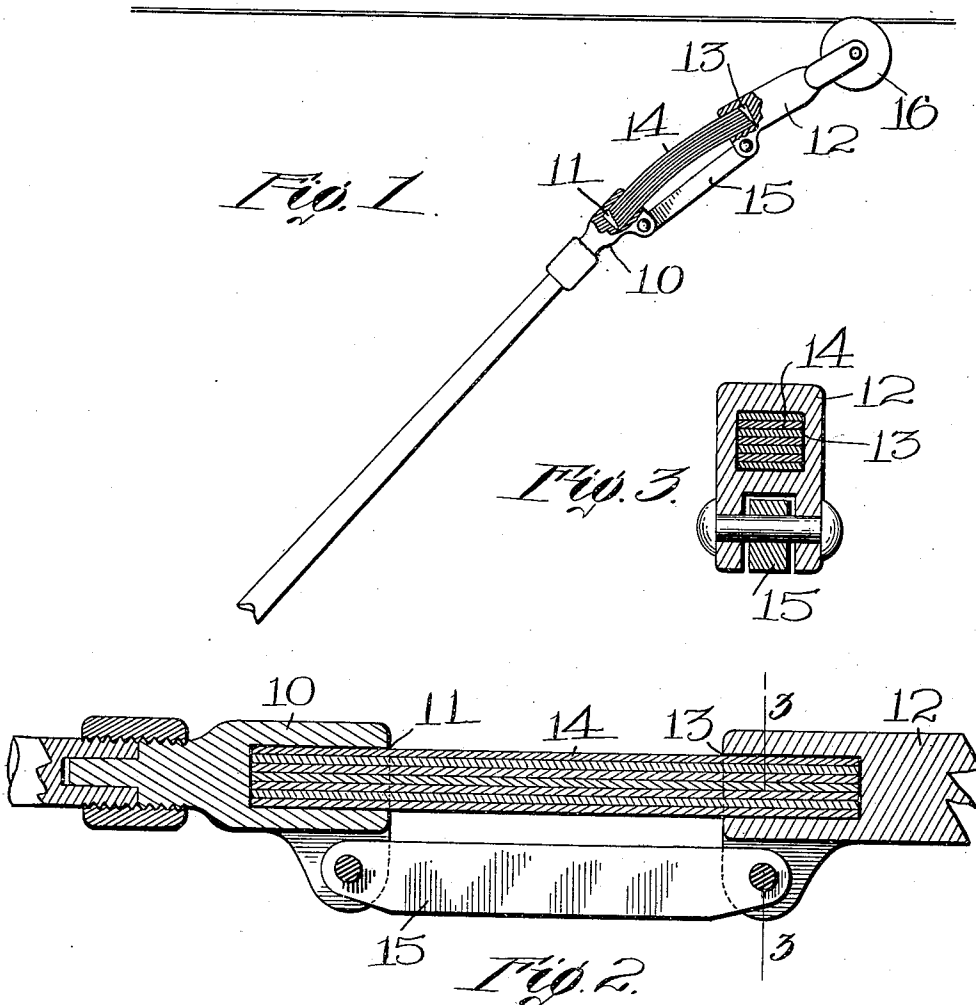
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TROLLEY POLE.

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UNITED STATES PATENT OFFICE.

ROBERT F. ROBINSON AND HENRY A. OWEN, OF WHITINSVILLE, MASSACHUSETTS.

TROLLEY-POLE.

977,224.

Specification of Letters Patent.

Patented Nov. 29, 1910.

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To all whom it may concern:

Be it known that we, ROBERT F. ROBINSON and HENRY A. OWEN, citizens of the United States, both residing at Whitinsville, in the county of Worcester and State of Massachusetts, have invented a new and useful Trolley-Pole, of which the following is a specification.

This invention relates to a trolley pole for electric cars.

The principal objects of the invention are to provide efficient strong yielding means located near the trolley wheel in such position and of such construction that when the wheel meets an obstruction instead of bounding and leaving the wire it will yield slightly and readily so that it will not be disengaged from the wire, thus preventing sparking, short-circuiting, and the loss of time required in replacing the trolley.

Another object of the invention is to provide improvements in the details of construction of the trolley spring.

Further objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawings, in which

Figure 1 is a side view of a portion of a trolley pole constructed in accordance with this invention; Fig. 2 is a longitudinal sectional view of a portion of the same on enlarged scale showing parts in side elevation and in unflexed condition; and Fig. 3 is a sectional view on the line 3—3 of Fig. 2.

In the form of the invention illustrated the trolley pole is shown as provided with a head 10 having an open-ended socket 11 therein. In line with this is a head 12 having a similar open-socket 13. These sockets preferably are of the same shape and face each other. Extending into these sockets is a resilient member shown as made up of a plurality of parallel springs 14. These springs preferably are free to move longitudinally with respect to each other. They are made up into a bundle of the shape of the cross-section of the two sockets and extend substantially to the bottoms of these sockets when there is no force upon the trolley wheel to bend or flex the springs. In the form illustrated the sockets are square in cross section and the springs are flat, each extending clear across the socket so that they serve to hold the sockets and the heads in which they are located against turning and no other guide is required for that purpose.

At one or both ends the springs are entirely free from the sockets so that when the trolley is on the wire and any force is applied to bend the springs they can slide in one or both of the sockets. In this way the full resiliency of each separate spring is in active operation at all times when required and there is never any time when some of the springs are working against others. They all exert their energy in the same direction.

In order to hold the two members apart, a link 15 is shown pivoted to one or both of the members and located on the side toward which the trolley head is adapted to be turned when the trolley wheel 16 mounted thereon meets resistance.

With a construction of this character the above mentioned advantages are obtained. In addition thereto the lower springs for holding the trolley pole up can be made lighter than they can with rigid constructions of poles. This is because while the springs 14 keep the pole straight under ordinary conditions they yield when an obstruction is encountered so as to assist the springs below. They also keep the trolley on the wire with less force applied to the trolley pole than would be the case otherwise.

While we have illustrated and described a preferred embodiment of the invention, we are aware that many modifications can be made therein by any person skilled in the art without departing from the scope of the invention as expressed in the claims. Therefore we do not wish to be limited to all the details of construction herein shown and described, but what we do claim is:—

1. As an article of manufacture, a trolley pole having located in the length thereof a plurality of parallel springs, a trolley head connected with the upper ends of said springs, said springs being parallel with the pole and free to move individually on the pole, and a link connecting the upper part of the pole with said head.

2. In a trolley pole, the combination with a supporting pole having a socket at the end thereof, a plurality of parallel springs inserted in and filling said socket and projecting therefrom, a trolley head having a socket for receiving the ends of said springs, a link connecting said sockets and a trolley wheel on the head, each of said springs being free to move longitudinally with respect to the others.

3. In a trolley pole, the combination with a supporting pole having a socket at the end thereof, a plurality of parallel springs inserted in and filling said socket and projecting therefrom, a trolley head having a socket for receiving the ends of said springs, a link connecting said sockets and a trolley wheel on the head, each of said springs being free to move in the socket into which its end projects.

4. In a trolley pole, the combination with a supporting pole having a socket at the end thereof, a plurality of parallel springs inserted in and filling said socket and projecting therefrom, a trolley head having a socket for receiving the ends of said springs, a trolley wheel on the head, each of said springs being free to move in the socket into which its end projects, and a link connecting the supporting pole with said head and located parallel with said springs and on the lower side thereof.

5. In a device of the character described, the combination of a trolley pole, a head thereon having an open-ended socket at the end thereof, a link pivotally connected with said head near the upper end and on the lower side thereof, a trolley head pivotally connected with the upper end of said link and having an open-ended socket in the bottom parallel with the first named socket, and a series of springs each having its ends in said socket for separating the head from the pole.

6. In a device of the character described, the combination of a trolley pole, a head thereon having an open-ended socket at the end thereof, a link pivotally connected with said head near the upper end and on the lower side thereof, a trolley head pivotally connected with the upper end of said link and having an open-ended socket in the bottom parallel with the first named socket, and a series of parallel flat springs each having its ends in said socket for separating the head from the poles, said sockets each being rectangular in cross section, said springs extending entirely across said sockets, whereby the sockets are prevented from turning with respect to each other.

7. In a device of the character described, the combination of a trolley pole, a head thereon, a link at one side of the pole pivotally connected with said head and extending from the head substantially parallel with the pole, a trolley head pivotally connected with the upper end of said link, and a spring alongside the link connecting the head of the pole with the trolley head and in axial alinement with both.

In testimony whereof we have hereunto set our hands, in the presence of two subscribing witnesses.

ROBERT F. ROBINSON.
HENRY A. OWEN.

Witnesses:

JAS. A. YOUNG,
E. W. MEEK.