

No. 820,440.

PATENTED MAY 15, 1906.

R. P. REVER.
TROLLEY POLE.

APPLICATION FILED FEB. 18, 1905.

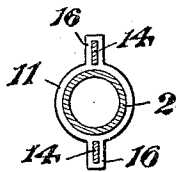


Fig. 3.

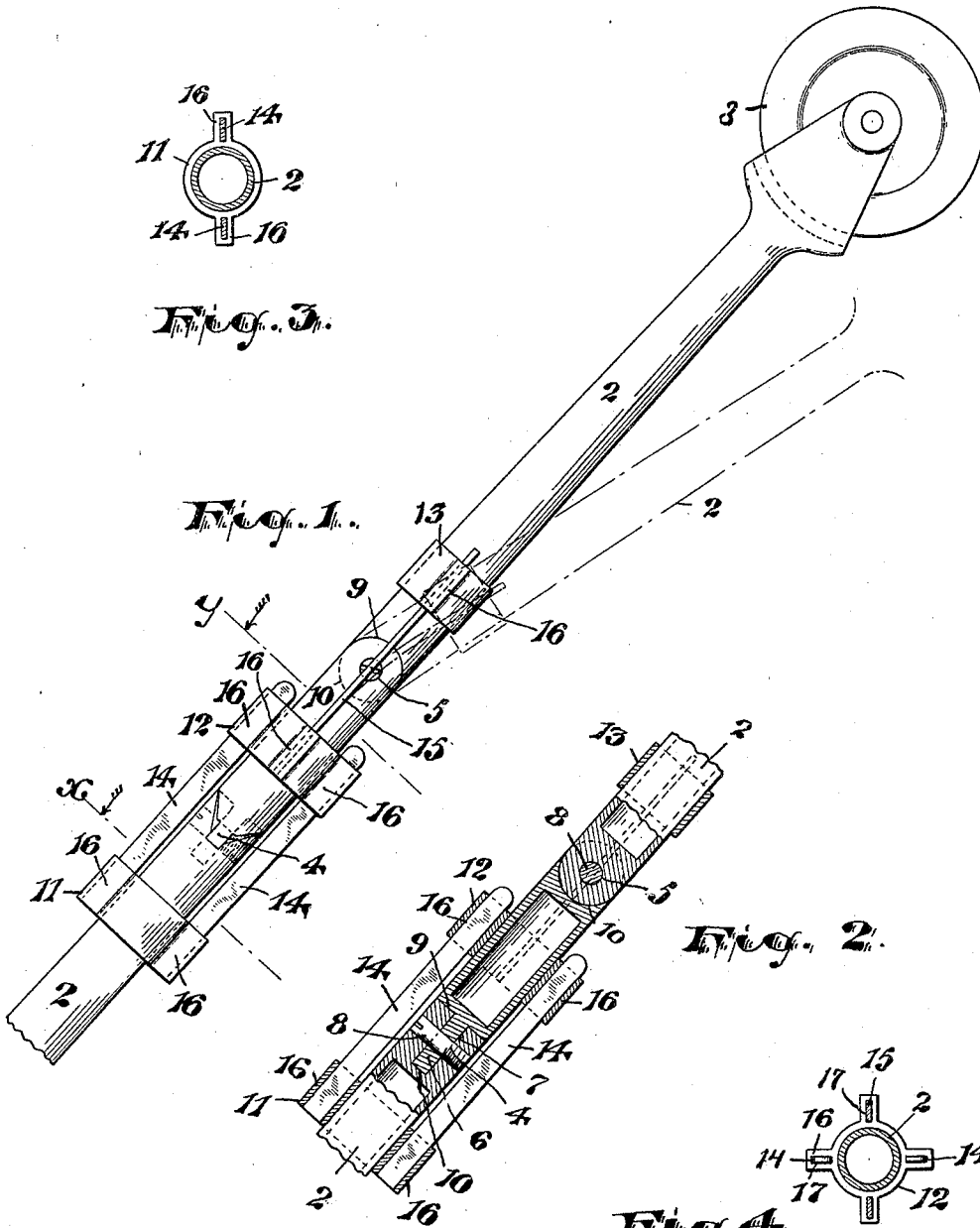


Fig. 1.

Fig. 2.

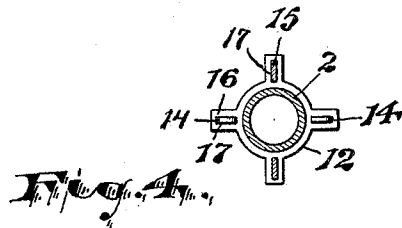


Fig. 4.

WITNESSES:

Ralph Lancaster

Russell M. Everett.

INVENTOR:

Robert P. Rever,

BY

Charles H. Bell,

ATTORNEY.

UNITED STATES PATENT OFFICE.

ROBERT P. REVER, OF NEWARK, NEW JERSEY, ASSIGNOR OF ONE-HALF
TO EVERETT IRVING REVER, OF NEWARK, NEW JERSEY.

TROLLEY-POLE.

No. 820,440.

Specification of Letters Patent.

Patented May 15, 1906.

Application filed February 18, 1905. Serial No. 246,351.

To all whom it may concern:

Be it known that I, ROBERT P. REVER, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Trolley-Poles; 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, reference being had to the accompanying drawings, and to figures of reference marked thereon, which form a part of this specification.

This invention relates to the trolley-poles which are used to establish connection between moving trolley-cars and the overhead wire, as is common; and the objects of the invention are to secure greater flexibility and resiliency of the pole, so as to take up the vibrations of the car and not transmit the same to the trolley-wheel to dislodge the latter from the overhead wire; to secure such resiliency at another point in the pole in addition to the usual spring at its base, whereby the two may act in opposite directions, and thus more effectually retain the trolley-wheel in place; to provide a sidewise resiliency of the pole which shall come into play in rounding curves and the like; to thus enable the trolley-wheel to stand at all times parallel with the direction of the track, even under the most abnormal conditions, such as placing it on the overhead wire of the opposite track; to secure an inexpensive and simple construction, and to obtain other advantages and results, some of which may be hereinafter referred to in connection with the description of the working parts.

The invention consists in the improved trolley-pole and in the arrangements and combinations of parts of the same, all substantially as will be hereinafter set forth, and finally embraced in the clauses of the claim.

Referring to the accompanying drawings, in which like figures of reference indicate corresponding parts in each of the several figures, Figure 1 is a side elevation of the upper end of a trolley-pole of my improved construction. Fig. 2 is a longitudinal section of the jointed portion thereof, taken in the plane of the trolley-wheel; and Figs. 3 and 4 are cross-sections upon lines *x* and *y*, respectively, of Fig. 1 looking in the directions indicated by the arrows.

In said drawings, 2 indicates the trolley-

pole, carrying at its upper extremity the usual trolley-wheel 3. In carrying out my invention the said trolley-pole is provided near its upper end or near said trolley-wheel with two hinge-joints 4 and 5, arranged, preferably, in planes at substantially right angles to each other, one of said joints being in a vertical plane or plane coincident with the trolley-wheel.

In the drawings I have shown the upper hinge-joint 5 as being in such a vertical plane and the lower one 4 at right angles thereto; but it will be understood that in practice this order may be reversed, if desired. The joints might also be varied in number or the angular relation of their planes might be varied to suit varying conditions, all without departing from the spirit and scope of the invention. In their detail construction said joints are preferably formed by reducing one of the meeting ends of the pole-sections to a flat tongue 6, which enters a transverse groove or slot 7 in the end of the adjacent section, a pivotal pin 8 being then passed through said interlocking parts and the shoulders or abutting portions of said ends being rounded, as at 9 10, respectively, to form a neat joint. These hinge-joints might obviously be formed in any other suitable manner, however. Above and below each of the said hinge-joints are fixed collars 11 12, (or 12 13,) between which extend flexion-springs 14, (or 15,) arranged in a plane at right angles to the plane of bending of said joint. The said springs 14 (or 15) are preferably leaf-springs arranged flatwise in the said plane at right angles to the plane of bending of the joint and fixed at their ends in said collars, although they may be held fast at only one end and be slidable at the other. Furthermore, two of said springs are employed for each joint, arranged diametrically opposite to each other with respect to the trolley-pole, although they may be varied as to size, strength, or form. Said springs may be secured to the collars in any suitable manner; but I prefer and have shown in the drawings radial extensions 16 of the collar having slots 17 to receive the said springs. It will be understood that the said springs normally hold the trolley-pole sections at opposite sides of the hinge-joint in alinement, but at the same time permit an angular departure from said alinement under pressure or force.

In practice the two hinge-joints 4 5 are ar-

ranged close together, as shown in the drawings, and instead of having between them two collars for holding the flexion-springs I prefer to employ one collar 12, having upon
5 itself two sets of ears 16 to receive the springs of both the lower and upper joints. The upper and lower collars 13 11 then receive the opposite or other ends of said springs, as has been described.

10 Obviously when the pole is applied to the overhead wire the springs of that joint which lies in vertical plane are flexed or bent under the pressure, so that the upper portion of the trolley-pole assumes the position shown in
15 outline in Fig. 1. In this position of parts if by rocking or vibration of the car the usual spring on the top of the car is slackened or tightened the motion thereof is not communicated to the trolley-wheel to affect its relation to the overhead wire, but is taken by the
20 said resilient hinge-joint 5. For instance, if the main spring on the top of the car slackens the trolley-wheel does not fall away from the wire, but is held upward thereagainst by the
25 springs of the upper hinge-joint, and correspondingly if the spring on the top of the car is tightened the upward movement of the trolley-pole is taken up at the said resilient joint, so that the wheel is not unduly forced upward against the overhead wire. The other
30 resilient joint 4 comes into play when any lateral strain is brought upon the trolley-pole, as in rounding a curve or the like, and obviously the effect of this hinge-joint and its
35 springs is to prevent dislodgment of the trolley-wheel laterally from the overhead wire. Any little jerk or sudden movement, such as would tend to run the trolley-wheel off the wire, is thus taken up by the hinge-joint,
40 which permits lateral movement, and a more secure seating of the trolley-wheel upon the trolley-wire is obtained. The combined effect of the two hinge-joints is thus to enable the trolley-wheel to adapt itself with greater
45 freedom to the movements of the car and to always retain its parallel relation to the track and a firm seat upon the overhead wire. Indeed, if desirable, a trolley-car upon one track can be run very nicely with its trolley-
50 wheel engaging the overhead wire of the opposite or parallel track. Furthermore, my improved construction is applicable to all forms of trolley-poles, is simple, easy to manufacture, and not liable to get out of order.
55 Having thus described the invention, what I claim as new is—

1. A trolley-pole having sections normally lying in the same straight line with their abutting ends hinged together and adapted to
60 bend with respect to each other in a plane of the pole, a pair of leaf-springs for said joint

arranged on diametrically opposite sides of the pole and edgewise with respect thereto in substantially the plane determined by the hinge-pin and the pole, and means upon said
65 sections for securing the ends of said springs thereto on opposite sides of the said hinge-joint of the pole, while permitting said springs to slide longitudinally at one end with respect to the adjacent pole-section.

2. A trolley-pole having sections normally lying in the same straight line with their abutting ends hinged together to bend in a plane passing through the pole, collars upon said pole at opposite sides of said joint providing
75 radial extensions with seats therein at diametrically opposite sides of the pole and in a plane thereof substantially at right angles to the plane of bending of the pole-sections, and a pair of flexion-springs arranged one on each
80 side of the pole on the said seats of the extensions of the collars one end of each spring being free to slide with respect to its supporting-collar.

3. A trolley-pole having intermediate of
85 its ends a hinge-joint, collars upon said pole at opposite sides of said joint and providing radial extensions with slots therein, and leaf-springs arranged at their opposite ends in
90 said slotted extensions of the collars and lying at opposite sides of the trolley-pole in a plane substantially at right angles to the plane of bending of the joint.

4. A trolley-pole having intermediate of its ends two hinge-joints arranged in planes
95 substantially at right angles to each other, a pair of leaf-springs for each joint, the springs of each pair being arranged on opposite sides of the trolley-pole in a plane substantially at right angles to the plane of bending of said
100 joint, and means for securing said springs to the pole on opposite sides of the hinge-joint, said means permitting the springs to slide longitudinally on one side of the joint.

5. A trolley-pole having two adjacent
105 hinge-joints at substantially right angles to each other, one of them being in the plane of the trolley-wheel, collars arranged one above said joints, one below and one intermediate of said joints, and leaf-springs mounted upon
110 said collars in pairs each pair extending across a joint and lying in a plane substantially at right angles to the plane of bending of said joint with its members on opposite sides of the trolley-pole.

115 In testimony that I claim the foregoing I have hereunto set my hand this 30th day of January, 1905.

ROBERT P. REVER.

Witnesses:

CHARLES H. PELL,
RUSSELL M. EVERETT.