

(No Model.)

G. W. MACKENZIE.
ELECTRIC RAILWAY TROLLEY.

No. 513,023.

Patented Jan. 16, 1894.

Fig.1.

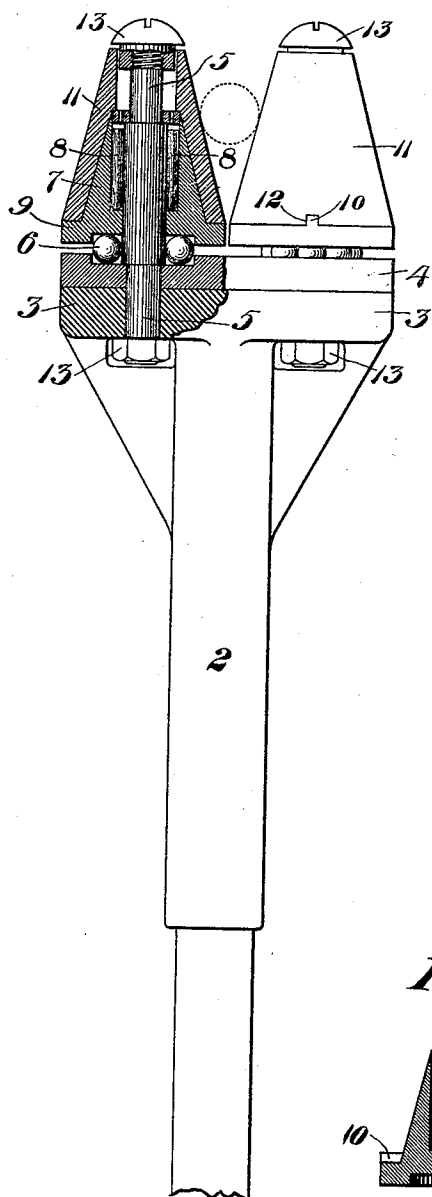


Fig.2.

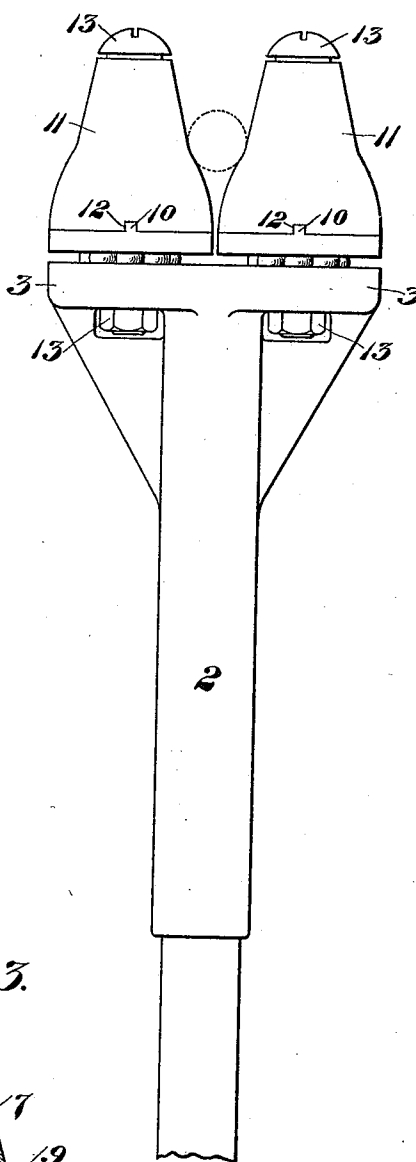
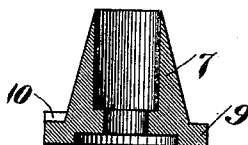


Fig.3.



WITNESSES

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INVENTOR

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UNITED STATES PATENT OFFICE.

GEORGE W. MACKENZIE, OF BEAVER, PENNSYLVANIA, ASSIGNOR OF TWO-THIRDS TO MOSES B. SLOAN AND THOMAS C. SLOANE, OF SAME PLACE.

ELECTRIC-RAILWAY TROLLEY.

SPECIFICATION forming part of Letters Patent No. 513,023, dated January 16, 1894.

Application filed April 5, 1893. Serial No. 469,156. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. MACKENZIE, of Beaver, in the county of Beaver and State of Pennsylvania, have invented a new and useful Improvement in Trolleys, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

10 Figure 1 is a front elevation, partly in section, of my improved trolley. Fig. 2 is a front view of a modification; and Fig. 3 is a detail view of the wearing collar.

15 My invention relates to the trolleys or contact devices employed in electric railways in connection with overhead wires, and its object is to attain a trolley which will not leave the wire accidentally, as well as to attain a construction which is cheaper and more easily replaced.

20 To that end it consists in two independent vertical rollers, having inclined faces, so that a downwardly tapering groove is formed between them for the reception of the wire, as well as in the construction and arrangement of the parts as hereinafter more fully described and set forth in the claims.

25 In the drawings, 2 indicates the upper portion of the trolley-pole, having the horizontal extensions 3, 3, to which a plate 4 is secured. Through these extensions pass the vertical pins or bolts 5, 5, forming spindles around which the rollers revolve, and in annular recesses in the plate 4 surrounding the pins are 30 series of balls 6. Upon each series of these balls rests a collar 7, a circular recess in its lower face being provided for their reception, and in deep annular recess extending from its upper face are a series of rollers 8 which 40 surround the bearing-pin 5. The exterior surface of the collar is of general frusto-conical shape, an annular shoulder or offset 9 being provided at its lower end from whose face project lugs 10. Upon this collar is slipped 45 the wearing sleeve 11 of a tubular frusto-conical shape, provided at its lower end with recesses 12 for the reception of the lugs 10 upon the collar 7. The parts are held together by the nuts 13 upon the ends of the

bolts, the upper nuts being preferably of 50 screw-head form as shown. In place of the uniformly tapering collars of Fig. 1, I prefer to employ the tapering collars with enlarged bulb-like lower ends, as shown in Fig. 2. When the outer sleeves are worn out, the upper 55 nut is unscrewed, the sleeve removed, and a new sleeve being slipped into place the nut is replaced. The action of the device is clear. The rollers project upon either side of the wire and may be made of sufficient 60 height to prevent their displacement from the same. In passing curves, the wire presses upon one of the rollers and there is no tendency to ride off the wire, such as caused by the wedging of the trolley wheels now employed. 65 The rollers have very little frictional resistance, and the wire pressing upon their surfaces, moves the trolley pole as ordinarily. The advantages of the apparatus result from the non-liability of the trolley leaving the 70 wire, and the cheapness and easy replacing of the soft metal collars. The inclination of the sides of the rollers may be uniform as in Fig. 1, or may change as in Fig. 2.

75 Many changes may be made in the form and arrangement of the parts without departure from my invention, which I consider as lying broadly in the use of the two rollers with a tapering opening between them for the reception of the wire. 80

I claim—

1. A trolley having independent rollers with inclined downwardly-converging surfaces.

2. A trolley having two independent rollers with substantially frusto-conical surfaces arranged to receive the wire between them; as 85 set forth.

3. A trolley having independent rollers with a tapering opening between the same, said rollers having removable wearing-surfaces; 90 substantially as described.

4. A trolley having independent rollers with a tapering opening between the same for the reception of the wire, said rollers having anti-friction bearings; substantially as described. 95

5. A trolley having independent rollers with a tapering opening between the same for the reception of the wire, said rollers having anti-

friction bearings at the base; substantially as described.

6. A trolley having independent rollers with
a tapering opening between the same for the
5 reception of the wire, said rollers having anti-
friction bearings in their interior journals;
substantially as described.

In testimony whereof I have hereunto set
my hand.

GEORGE W. MACKENZIE.

Witnesses:

THOMAS W. BAKEWELL,
W. B. CORWIN.