

UNITED STATES PATENT OFFICE.

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TROLLEY.

SPECIFICATION forming part of Letters Patent No. 793,430, dated June 27, 1905.

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To all whom it may concern:

Be it known that we, DAVID C. EVANS and OLIVER Q. PATTERSON, citizens of the United States of America, residing at Uniontown, in the county of Fayette and State of Pennsylvania, have invented certain new and useful Improvements in Trolleys, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to certain new and useful improvements in trolleys, and has for its object to provide a novel attachment for trolley-poles which will prevent a trolley-wheel carried by the pole from being displaced
15 from a trolley-wire upon which it travels.

Our invention aims to dispense with the displacing of the trolley-wheels incurred by vehicles or cars carrying the same when traveling at considerable rapidity or passing
20 around a curve.

A trolley-wheel has a tendency when encountering irregularities formed upon a trolley-wire or when passing beneath overhead work, such as guide-wires, to become displaced and in some instances causing the car or vehicle to retard its speed until the trolley-wheel has again been placed upon the wire. With the above facts in view we have devised an attachment which can be readily secured
25 to a trolley-pole and operated in conjunction therewith which will dispense with the trouble experienced in trolley-wheels becoming displaced during the movement of a car or vehicle carrying the same.

30 With the above and other objects in view the invention consists in the novel construction, combination, and arrangement of parts, which will be hereinafter more fully described and then specifically pointed out in the claims,
35 and referring to the drawings accompanying this application like numerals of reference designate corresponding parts throughout the several views, in which—

45 Figure 1 is a side elevation of our improved attachment as applied to a trolley-pole, a portion of the same being broken away. Fig. 2 is an end view of a trolley-harp provided with our improved attachment. Fig. 3 is a top

plan view of shields employed in connection with our improved attachment, and Fig. 4 is 50 a bottom plan view of one of the shields illustrated in Fig. 3 of the drawings.

In order that our invention may be fully understood, we have illustrated our improved attachment in Fig. 1 of the drawings as being 55 applied to a trolley-pole 1 of a conventional and well-known type. The pole 1 is maintained in an elevated position by the spring-actuated pivotal connection 2, that is commonly used in connection with street-cars and 60 the like electrical vehicles. The pole also carries a conventional form of harp 3, in which is journaled a trolley-wheel 4.

Our invention resides in a clamp 5, curved spring-arms 6 6, and shields 7 7, which are 65 arranged to embrace the trolley-harp 3, wheel 4, and trolley-wire 8 to prevent the wheel 4 from becoming displaced from the wire 8. The clamp 5 is adapted to embrace the shank portion 9 of the harp 3 and is secured thereon 70 by any suitable means, such as a nut and bolt 10. The clamp carries outwardly-extending lugs 11 11, to which are secured the curved spring-arms 6 6. These arms extend upwardly a short distance above the trolley-wheel 4 and 75 the wire 8, and swiveled to the upper ends of the arms 6 6 are the shields 7 7. The swiveled connection which we have employed consists merely in providing the upper ends of the arms 6 6 with apertures 12 12 of a greater 80 diameter than the screws 14, which pass through said apertures and engage in the body portion of the shield 7. The arms 6 6 are provided with eyelets 15 15, to which a suitable trolley-rope 16 may be connected, 85 whereby the arms 6 6 can be sprung outwardly when it is desired to remove the trolley-wheel 4 from the trolley-wire 8.

In Figs. 3 and 4 of the drawings we have illustrated the detail construction of our im- 90 proved shields, and it will be observed that our improved shields have inwardly-extending curved faces 17 17, which are adapted to engage one another, forming a bridge over the trolley-wire 8, as clearly illustrated in 95 Fig. 2 of the drawings. Each shield has its

lower innermost edge provided with a groove 18, the diameter of which corresponds to that of the trolley-wire 8. The one end of each shield is provided with a pierced lug 19, and
 5 secured to said lugs by pins 20 20 is a substantially Y-shaped strap or yoke 21, the lower end of which is pierced, as indicated at 22, and in said pierced end we secure the one end of a rod 23. By referring to Fig. 1 of the
 10 drawings it will be observed that the rod 23 is supported and retained in close proximity to the pole 1 by brackets 24 24, clamped to the pole 1, and that the lower end of the rod 23 is connected by a pin 25 to a lug 26, carried by the lower end of the trolley-pole.

In operation the spring-arms 6 6 are adapted to normally retain the shields 7 7 in engagement with one another, whereby should the trolley-wheel become displaced from a wire
 20 the wire will engage the shields, receding into either one of the grooves 18 of the shields. This construction prevents the trolley-wheel 4 from becoming entirely disengaged from the wire 8, and when the wire has receded from
 25 the wheel the spring-actuated pivotal connection of the pole will raise the trolley-wheel sufficiently to enable it to again engage the wire 8. We employ the rod 23 and strap or yoke 21 to normally retain the shields 7 7 in a plane
 30 parallel to the wire 8, and the rod 23 can at any time be adjusted by removing the pin 25 and placing it in one of the apertures 27, formed in the lower end of the rod.

The attachment as constructed by us does
 35 not necessitate the reconstruction of the present type of trolley poles, harps, and wheels used, but can be easily and quickly applied and operated in connection with trolley-poles. The construction of the attachment permits
 40 of the same being manufactured at a comparatively small cost, at the same time maintaining a construction which will be strong and durable and withstand the rough usage to which devices of this type are generally sub-
 45 jected.

While we have herein described the preferred manner of constructing our improved attachment, it is obvious that various changes may be made in the details of construction
 50 without departing from the general spirit and scope of the invention.

What we claim, and desire to secure by Letters Patent, is—

1. In an attachment of the character described, the combination with a trolley-pole, 55 a harp and wheel, of spring-arms connected to said harp, shields swiveled to the upper ends of said arms and adapted to overlie said wheel, a rod mounted upon said pole and connected to said shields, the lower end of said rod being adjustably connected at the base of said pole, substantially as described. 60

2. In an attachment of the character described, the combination with a trolley pole, harp and wheel, of spring-arms connected to 65 said harp and extending above said wheel, shields pivotally connected to the upper ends of said arms by horizontal pivots and adapted to swing in vertical planes and adapted to overlie said wheel, said shields having grooves 70 formed therein, and means to normally maintain said shields in a plane parallel to the trolley-wire.

3. In an attachment for trolleys, the combination with a trolley pole, wheel, and trolley-wire, of spring-arms carried by said pole 75 and extending above said wheel, shields carried by said arms and overlying said wheel and said wire and pivoted on horizontal pivots so as to swing in vertical planes, and means 80 mounted upon said pole to normally retain said shields in a plane parallel to said wire.

4. In an attachment of the character described, the combination with a trolley pole, harp, wheel and trolley-wire, of spring-arms 85 carried by said harp, shields carried by said arms and adapted to overlie said wheel and said wire, a rod carried by said pole and connected to said shields, and adapted to normally retain said shields in a plane parallel to said 90 wire, the lower end of said rod being adjustably secured near the base of said pole, a trolley-rope attached to said arms, substantially as described.

In testimony whereof we affix our signatures 95 in the presence of two witnesses.

DAVID C. EVANS.
 OLIVER Q. PATTERSON.

Witnesses:

GEORGE A. KREMER,
 SPRINGER M. WHITE