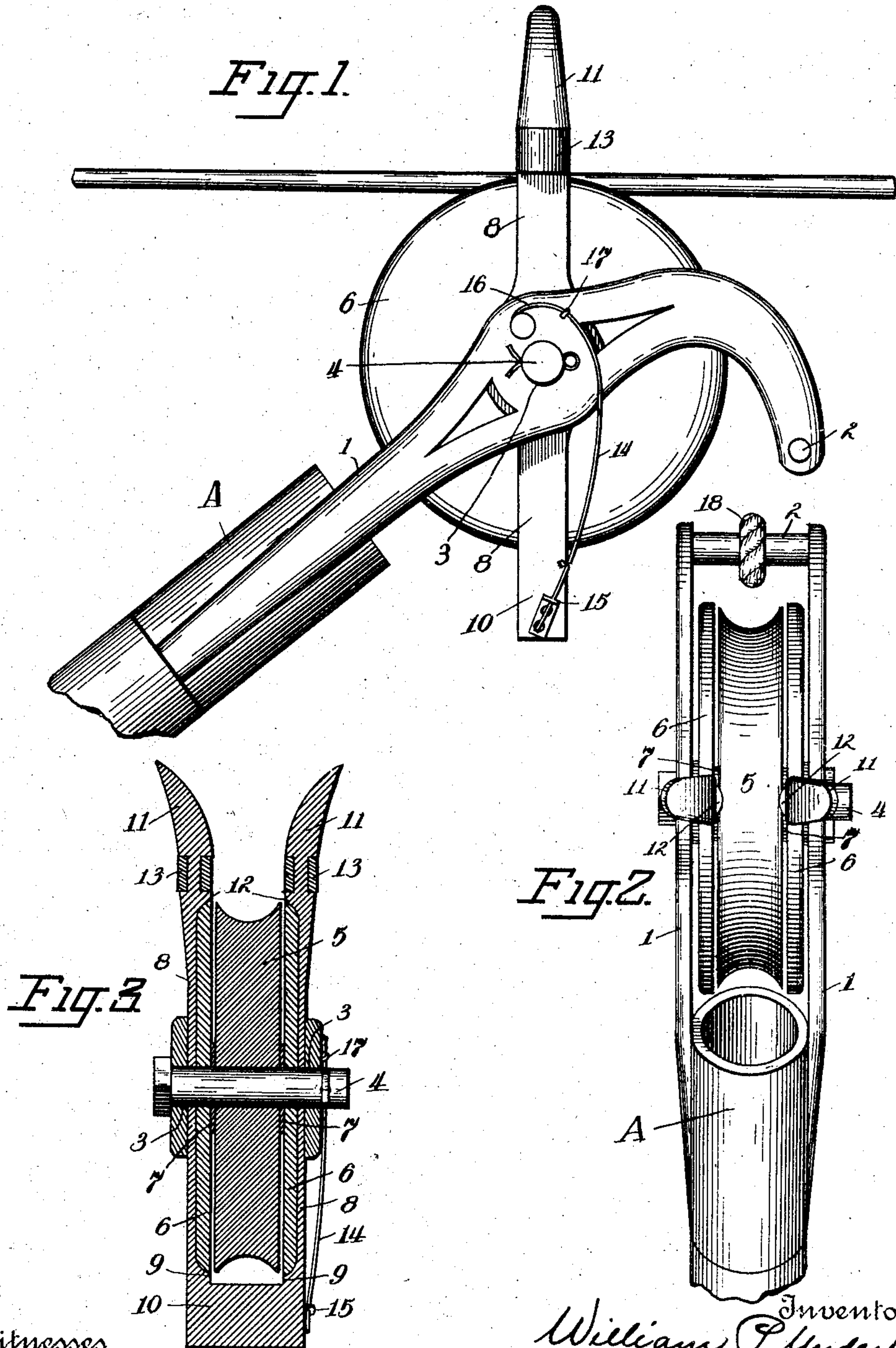


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PATENTED JAN. 31, 1905.

W. P. UNDERHILL.
GUARD AND FINDER FOR TROLLEY POLES.
APPLICATION FILED MAY 21, 1904.



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UNITED STATES PATENT OFFICE.

WILLIAM P. UNDERHILL, OF BROOKLYN, NEW YORK.

GUARD AND FINDER FOR TROLLEY-POLES.

SPECIFICATION forming part of Letters Patent No. 781,316, dated January 31, 1905.

Application filed May 21, 1904. Serial No. 209,050.

To all whom it may concern:

Be it known that I, WILLIAM P. UNDERHILL, a citizen of the United States, and a resident of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in Guards and Finders for Trolley-Poles, of which the following is a specification.

My invention relates to an improvement in guards and finders for trolley-poles; and the object thereof is to provide a neat and efficient device of this character which is capable of protecting the trolley-wheel and also to return the wheel to the wire after passing any obstruction, as a cross-wire or switch, or when the wheel has jumped the wire for any cause.

To this end my invention consists of a trolley-pole head comprising means for securing the head to the upper end of the trolley-pole and means on which the wheel and finders are journaled.

My invention further consists in certain novel details of construction and combinations of parts, such as will be more fully described hereinafter and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in side elevation. Fig. 2 is a top plan view, and Fig. 3 is a view in vertical section of my device.

A indicates a sleeve or socket adapted to be received upon and secured to the upper end of the trolley-pole in any approved manner, the sleeve consisting of a cylindrical member to which are secured the supporting-arms 1 1, the supporting-arms being curved sharply at their outer ends, the latter being connected, by means of a rod 2, for strengthening and bracing the arms against lateral movement. Intermediate the sleeve and the outer ends the arms may be broadened transversely and provided with apertures 3 3 for the reception of the axle 4, on which the grooved wheel 5 is journaled. Journaled on the axle on either side of the wheel are the circular guard-plates 6 6, the peripheries of which extend very slightly beyond the outer and higher edges of the periphery of the wheel 5 to protect the latter from contact with any obstructions

on the line. Wearing-plates 7 7 may be interposed between the rotating wheel 5 and the normally stationary guard-plates 6 6. The outer surfaces of the guard-plates 6 6 are received in recesses or grooves formed in the finders, which latter comprise a pair of arms 8 8, extending diametrically across the guard-plates and beyond the peripheries thereof. The lower ends of the finders are shouldered, as at 9 9, to extend across the thickness of the guard-plates, and these lower ends are connected by means of a weighted bar 10, the purpose of which is to normally retain the guard-plates against rotation by friction and to retain the fingers next referred to in position astride the wire.

The fingers 11 11 are located oppositely to the weighted end of the finder, the fingers being shouldered, as at 12 12, to rest upon the width of the guard-plates and slightly diverging from one another, as shown, the upper ends of the fingers being tapered. Rollers 13 13 are journaled on the fingers opposite to one another and serve to removably retain the wire in the groove in the wheel as well as reducing the friction engendered by the passage of the wire between the fingers in replacing the wheel upon the wire when the car or vehicle is moving. The guard-plates serve to protect wheel 5 against lateral blows as well as incasing the wheel, and they further operate to brace the upper end of the finders 8 8 and prevent them from binding on the wheel should they be injured or bent. As an additional means for retaining the finder in position with the fingers astride the wire I provide a spring 14, one end of which is secured to one of the supporting-arms 1 1 and the opposite end of which is loosely received within an eye 15, secured to the finder near the weighted bar, the movement of the fingers when engaging a cross-wire, for instance, operating to place the spring under tension, so that as soon as the fingers have passed the cross-wire the spring will return to them in normal position astride the conductor. The spring may be coiled at its upper end, as at 16, and retained in position by means of a staple 17 or other securing means.

The usual rope 18, by means of which the conductor adjusts and controls the trolley-pole and wheel, is secured to the cross-rod 2.

The operation of my device will be readily understood from the foregoing. The wheel runs loosely on the axle 4 and between the normally stationary guard-plates 6 6, the fingers extending upwardly on each side of the conductor-wire to return the wheel thereto when it drops beneath or is jolted off of the wire. When a cross-wire or switch is reached, the fingers contact therewith and swing rearwardly, together with the guard-plates, which latter may be engaged by the cross-wire or other obstruction to take the impact instead of the wheel, thus preventing the marring or injuring of the wheel. The rearward movement of the fingers places the spring under tension and raises the weight, so that when the fingers escape from the cross-wire they are automatically and instantaneously returned to normal position astride the conductor-wire.

It is evident that many changes might be made in the form and arrangement of the several parts described without departing from the spirit and scope of my invention, and hence I do not wish to limit myself to the exact construction herein set forth; but,

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

1. A trolley-head consisting of a suitable support, a trolley-wheel journaled therein, guard-plates loosely mounted on each side of the trolley-wheel, recessed finders extending transversely of the guard-plates, the latter received in the recesses formed in the finders, and means for automatically retaining the finders in a normally vertical position.

2. A trolley-head comprising a suitable support, a trolley-wheel carried thereby, and finders pivotally located on either side of the wheel, the finders normally extending above the wheel and being tapered at their ends, means mounted on the support and engaging the

finders for automatically returning the finders to normal vertical position, and gravity-operated means carried by the finders for assisting this return movement.

3. A trolley-head comprising a sleeve, supporting-arms projecting therefrom, an axle carried by the arms, a trolley-wheel mounted on the axle, guard-plates located on either side of the wheel, finders located adjacent the guard-plates, the finders and guard-plates normally stationary and pivotally mounted on the axle and means engaging the finders to return them to normal vertical position after displacement.

4. A trolley-head provided with supporting-arms, a trolley-wheel journaled in the arms, finders loosely mounted on each side of the trolley-wheel, the finders extending diametrically across the wheel, means connecting the finders at their lower ends, a spring, one end of the spring secured to one of the arms, and means carried by one of the finders with which the free end of the spring is loosely engaged, the spring normally lying in a flexed position.

5. A trolley-head comprising a sleeve, supporting-arms projecting therefrom, the outer ends of the arms connected by means of a strengthening-bar, a controlling-cord secured to the bar, a trolley-wheel journaled in the arms, guard-plates loosely mounted on each side of the wheel and finders located adjacent the guard-plates, the finders extending beyond the guard-plates at either end, means connecting the finders at one end thereof, rollers mounted transversely of the finders on their free ends, and means for returning the finders and guard-plates to normal position after displacement.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

WILLIAM P. UNDERHILL.

Witnesses:

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SAMUEL H. ANDREWS.