

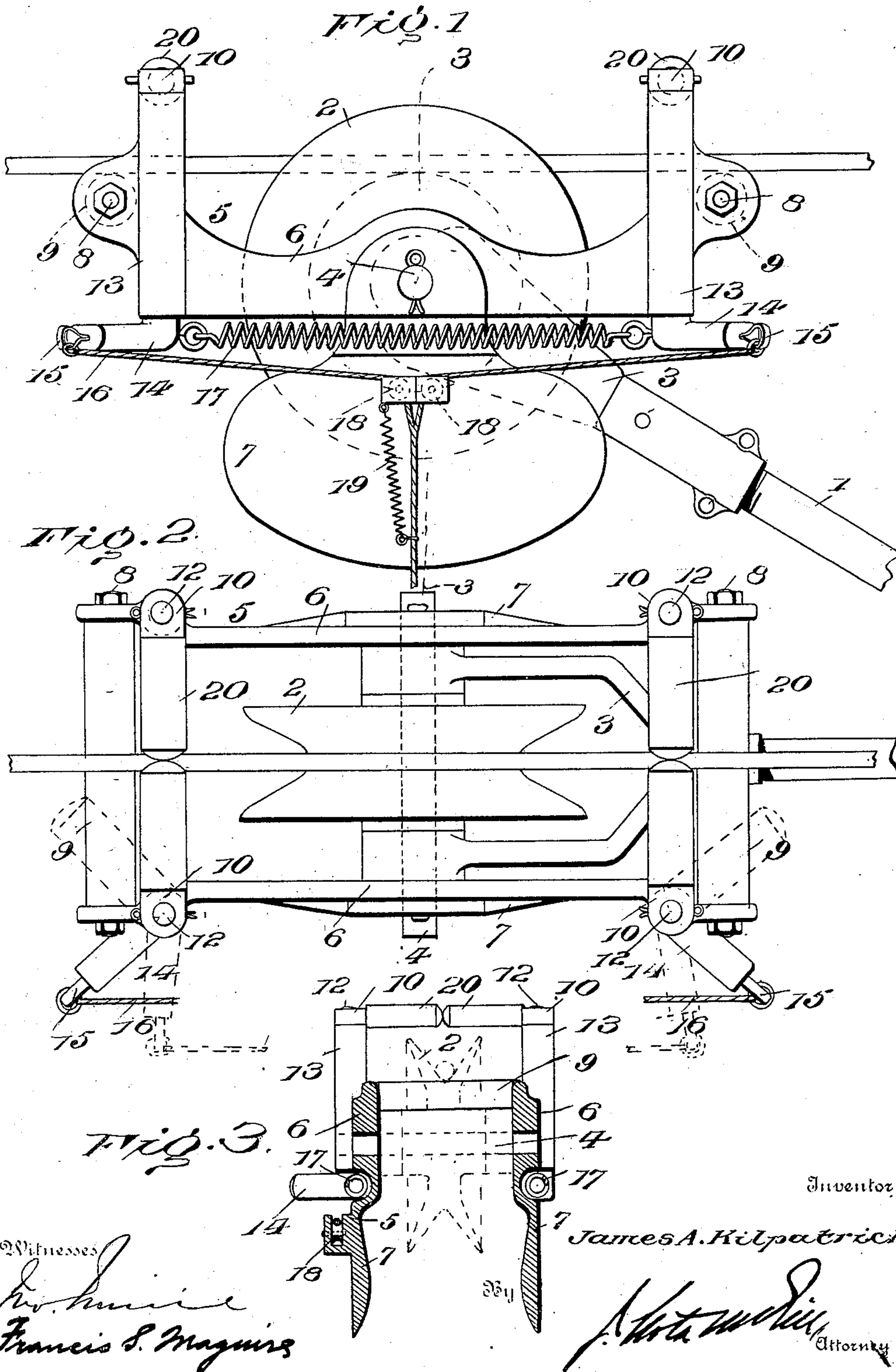
No. 754,778.

PATENTED MAR. 15, 1904.

J. A. KILPATRICK.  
TROLLEY WHEEL RETAINER.

APPLICATION FILED DEC. 19, 1903.

NO MODEL.





# UNITED STATES PATENT OFFICE.

JAMES A. KILPATRICK, OF NILES, OHIO.

## TROLLEY-WHEEL RETAINER.

SPECIFICATION forming part of Letters Patent No. 754,778, dated March 15, 1904.

Application filed December 19, 1903. Serial No. 185,823. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES A. KILPATRICK, of Niles, in the county of Trumbull and State of Ohio, have invented certain new and useful  
 5 Improvements in Trolley-Wheel Retainers; 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  
 10 same.

The primary object of this invention is to provide in a trolley-wheel retainer means for insuring the retention of a wheel against the conductor-wire regardless of the angle of the  
 15 trolley-pole or the level or inclination of the wire.

A further object is to so connect two sets of retainer-arms that when one set is opened by contact with a switch or hanger the other  
 20 set is more firmly held in position as against displacement, such arms being capable of being moved either forwardly or rearwardly.

The invention will be hereinafter fully set forth, and particularly pointed out in the  
 25 claims.

In the accompanying drawings, Figure 1 is a view in side elevation. Fig. 2 is a top plan view with parts in dotted lines. Fig. 3 is a cross-sectional view on line 3 3, Fig. 1.

30 Referring to the drawings, 1 designates the trolley-pole; 2, the trolley-wheel; 3, the harp; 4, the axle-pin by which the wheel is mounted in the harp.

5 is the trolley-retainer frame, composed of  
 35 two corresponding sides 6, pivotally hung at their centers on the extended ends of the axle-pins. From the centers of these sides depend widened plates or cheeks 7, the weight whereof serves to equally balance the frame on the  
 40 axle-pin. The sides of the frame are connected at their ends by nutted rods 8, whereon are horizontal rollers 9, which together with the trolley-wheel limit the upward movement of the retainer-frame.

45 10 10 designate two sets of retainer-arms journaled at their outer ends on upright rods 12, fitted in vertical bearings 13 in the ends of the sides 6, the lower ends of the rods on one side of the frame being equipped with cranks  
 50 14, having in their outer ends eyes 15, to which

the trolley-rope 16 is secured. The arms on each side are connected by a coil-spring 17, the cheeks 7 being bulged inwardly to accommodate the two springs. Normally the arms extend transversely of the frame above the  
 55 conductor-wire and on a plane above rollers 9, the inner ends of such arms almost meeting at the longitudinal center of the frame. Being movable in either direction—that is, forwardly and rearwardly—these arms upon contacting  
 60 with a switch or hanger will turn outwardly toward the sides of the frame and instantly resume their normal positions after the switch or hanger is passed. As one set of arms is thus opened the other set is more firmly held  
 65 as against lateral turning by the increased tension on the two springs, thus insuring the retention of the trolley-wheel in contact with the conductor-wire; but such second set of  
 70 arms is free to be moved when engaged, since by that time the first set has resumed its normal position.

Branches of the trolley-rope are passed over a double pulley 18, affixed to the side of one  
 75 the cheeks 7. A coiled spring 19, connected to one of the cheeks and to the rope, takes up the weight of the latter. These cheeks by gravity tend to cause the pivoted frame to constantly seek a horizontal position, and thus  
 80 hold the retainer on the wire at all angles which the trolley-pole may assume and regardless of the inclinations of such wire. The retainer-arms may be incased in rollers 20 to avoid wear when the arms come in contact  
 85 with the conductor-wire.

In practice a downward pull on the trolley-rope overcoming spring 19 not only effects the lowering of the pole, but also the opening of the retainer-arms—that is, the lateral turning of one arm of each set of arms, as shown  
 90 in dotted lines, Fig. 2—allowing the trolley-wheel and the horizontal rollers to move upwardly beneath the conductor-wire. As soon as engagement with the latter is effected the release of the pull on the rope permits the  
 95 two arms so moved laterally to close across the wire, and thus the wheel end of the pole is locked as against accidental disengagement or displacement. Contact with a switch or  
 100 hanger will force aside one set of arms, the



other set remaining closed under an increased tension of the connecting-springs; but this latter set will also be overcome by the time the first set has resumed its normal position, and likewise the tension on the latter will be increased while the second set of arms is opened.

I claim as my invention—

1. In combination with a trolley-pole and a trolley-wheel, a pivotally-mounted retainer-frame, means tending by gravity to normally hold such frame horizontally, and retainers carried by such frame normally extended across the conductor-wire.

2. In combination with a trolley-pole and a trolley-wheel, a pivotally-mounted retainer-frame, means tending to normally hold such frame horizontally, two sets of retainer-arms carried by the frame, and means connecting the corresponding arms of each set for increasing the tension on one set of arms when the other set is opened.

3. In combination with a trolley-pole and a trolley-wheel, a pivotally-mounted retainer-frame, weight members depending from such frame, and retainer-arms carried by the latter.

4. In combination with a trolley-pole and a trolley-wheel, a retainer-frame pivotally mounted on the axle-pin of said trolley-wheel, weight members depending from such frame, and retainer-arms carried by the latter.

5. In combination with a trolley-pole and a trolley-wheel, a frame having at its ends two sets of retainer-arms, the arms of each set being movable both forwardly and rearwardly, springs for normally holding said arms transversely of the frame, and the trolley-rope secured to one arm of each set of arms, as set forth.

6. The combination with the frame, of the upright rods at the ends thereof, two sets of retainer-arms secured to such rods and extended transversely of the frame, and two springs, each spring engaging one arm of each of the two sets of arms, as set forth.

7. The combination with the frame, of the two sets of horizontally-disposed retainer-arms, upright rods therefor, one rod of each set having a cranked portion, springs connecting said rods, and the trolley-rope secured to said cranked portions, as set forth.

8. The combination with the pivotally-mounted frame having upright bearings at its ends, of two sets of rods mounted in said bearings, one rod of each set having a cranked portion, arms secured to the upper ends of said rods, rollers mounted in said frame below said arms, springs connecting corresponding arms of the two sets of arms, and the trolley-rope secured to said cranked portions, as set forth.

9. The combination with the frame and the two sets of pivoted retainer-arms, of the trolley-rope secured to one arm of each set of arms, and a spring for normally taking up the weight of the rope, as set forth.

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

JAMES A. KILPATRICK.

Witnesses:

W. H. SMILEY,  
ROBERT WEISS.