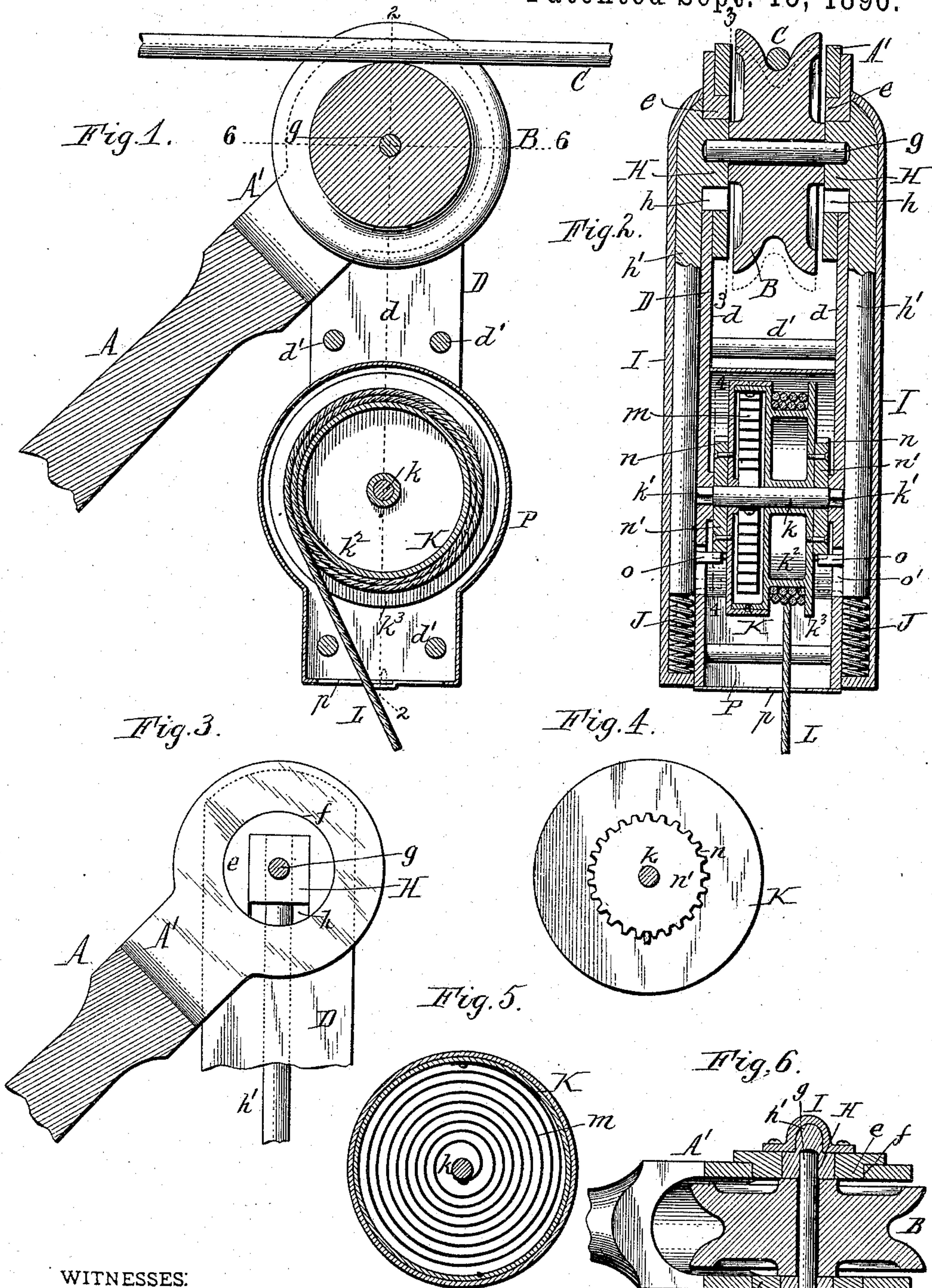


(No Model.)

O. R. SACKETT.
TROLLEY CATCHER.

No. 567,690.

Patented Sept. 15, 1896.



WITNESSES:

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UNITED STATES PATENT OFFICE.

ORVILLE R. SACKETT, OF NIAGARA FALLS, NEW YORK, ASSIGNOR OF
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TROLLEY-CATCHER.

SPECIFICATION forming part of Letters Patent No. 567,690, dated September 15, 1896.

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To all whom it may concern:

Be it known that I, ORVILLE R. SACKETT, a citizen of the United States, residing at Niagara Falls, in the county of Niagara and State of New York, have invented new and useful Improvements in Trolley-Catchers, of which the following is a specification.

This invention relates to the trolley-controlling devices employed in connection with overhead trolley systems for automatically checking the assent of the trolley-pole above the wire or conductor when the trolley-wheel leaves the latter, so as to prevent the pole from breaking the usual cross-wires of the system or becoming entangled therewith and being torn from the top of the car.

The invention has more especial reference to a trolley-catcher of this kind comprising a trolley-wheel yieldingly journaled on the trolley-pole, a spring drum or take-up device connected with the trolley-pole, a restraining cord or rope wound upon said drum and fastened to the car, and a lock for the drum which is operated by the yielding trolley-wheel.

My invention has for its object to provide a reliable device of this character which is operative in all of the various positions assumed by the trolley-pole, which can be reversed on the pole so as to be applicable to a pole capable of swinging lengthwise of the car on either side of its pivot, and which can be easily applied to the trolley-pole and readily removed and taken apart for making repairs.

In the accompanying drawings, Figure 1 is a vertical section of my improved trolley-catcher applied to a trolley-pole. Fig. 2 is a transverse vertical section thereof in line 2 2, Fig. 1. Figs. 3 and 4 are vertical sections in lines 3 3 and 4 4, Fig. 2. Fig. 5 is a vertical section of the spring-drum. Fig. 6 is a horizontal section in line 6 6, Fig. 1.

Like letters of reference refer to like parts in the several figures.

A is the trolley-pole, which may be pivotally attached to the top of the car in any well-known manner and provided with the usual spring whereby the trolley-wheel B is yieldingly pressed against the wire or conductor C.

D is a supporting-frame which is suspended

from the bifurcated head of the trolley-pole and which carries the yielding trolley-wheel and the parts of the trolley-catcher. This frame consists of a pair of upright side walls *d d*, connected by tie-bolts *d'*. These side walls are provided at or near their upper ends with short inwardly-extending trunnions *e*, which are arranged diametrically opposite each other and journaled in cylindrical openings or bearings *f* formed in the forks *A'* of the trolley-pole, as shown in Figs. 2, 3, and 6, so as to permit the head of the trolley-pole to turn on the trunnions of said frame for changing its angle with reference to the conductor in following the variations of the latter and also permit the reversal of the supporting-frame on the trolley-pole.

g is the axle of the trolley-wheel, and *H* the bearings thereof, which slide in vertical or longitudinal guide-slots *h* formed in the trunnions *e*, as shown in Figs. 2 and 3, so as to permit the trolley-wheel to move vertically in the supporting-frame D. The bearings *H* are provided, respectively, with depending rods, stems, or extensions *h'*, which slide in upright pockets or guides *I*, arranged on the outer sides of the side walls *d*, and between the lower ends of these rods and the bottom of the pockets *I* are arranged spiral springs *J*, which tend constantly to force the rods *h'* and the bearings *H* upwardly in the supporting-frame D.

K is the spring drum or take-up device, and *L* the restraining rope or cord, which is wound thereon and secured at its lower end to the car, whereby the trolley-pole and trolley are prevented from rising above the conductor when the trolley runs off the latter. This spring-drum is supported on the frame D below the trolley-wheel and turns upon a stationary axle *k*, having a cylindrical body and flat-sided ends, which latter are seated in correspondingly-shaped sockets or openings *k'*, formed in the side walls of the supporting-frame, as shown in Fig. 2.

m is the coiled spring of the drum, which is secured at one end to the fixed axle and at the other to the periphery of the drum. The restraining cord or rope *L* may be wound directly upon the periphery of the drum, but the latter is preferably provided with a reduced

lateral extension k^2 , having a flange k^3 , between which and the main portion of the spring-drum the rope is confined.

The spring-drum is provided on each side thereof with an annular row of locking teeth or projections n , and the rods or extensions h' of the movable trolley-wheel bearings are provided with inwardly-extending pins or stops o , which are adapted to interlock with the teeth of the spring-drum when the trolley-wheel rises above its normal position by leaving the conductor, as shown by full lines in Fig. 2, so as to arrest the further rotation of the drum. The locking-teeth of the spring-drum preferably consist of gear-wheels n' , secured to the sides of the drum, as shown in the drawings, although the teeth may be cast on the drum if desired. The pins or stops o of the bearing-extensions h' , pass through longitudinal slots o' formed in the side walls of the supporting-frame D, as shown in Fig. 2.

The spring-drum is preferably inclosed by a casing or housing P, which extends to the lower end of the supporting-frame D. This casing is provided in its lower end with a slot p for the passage of the restraining-cord.

In the practical operation of the device, so long as the trolley remains in contact with the conductor the upward pressure of the trolley-pole produced by its usual spring causes the trolley-wheel to be depressed, as shown by dotted lines in Fig. 2, so that its yielding bearings are lowered to about the middle of their guide-slots h . The depression of the bearings also causes the stops or pins o to be lowered out of engagement with the locking-teeth of the spring-drum, as shown by dotted lines in Fig. 2, allowing the drum to turn under the influence of its spring for taking up the slack of the restraining-rope, thus keeping the latter taut at all times, while at the same time permitting the trolley-pole to rise and fall for allowing the trolley-wheel to follow the variations of the conductor. As soon as the trolley-wheel leaves the conductor the resistance to its upward movement is removed, and the compressed springs J of the bearing-rods h' by their reaction force the bearings to the upward extremity of their guide-slots h , thereby raising the rods h' , causing the stop-pins o thereof to interlock with a pair of adjacent teeth of the spring-drum and holding the latter against turning. As the restraining-rope is taut and can no longer unwind from the drum, it prevents the trolley from rising above the conductor, thus avoiding injury to the cross-wires of the system or the pole.

The trolley-wheel may be drawn down and replaced against the wire by means of the rope L, and as soon as the trolley-wheel is replaced it is depressed, as hereinbefore described, thereby again unlocking the spring-drum. The trolley-pole is preferably provided, in addition to the rope L, with the usual rope for lowering and reversing it at either terminus of the line, said rope not being shown in the drawings. When the trolley is

against the conducting-wire, the spring-drum K is unlocked and the rope L is wound thereon, and if this rope were used for drawing down the trolley-pole preparatory to reversing it, it would be necessary to wholly unwind the rope from the drum before the pole could be lowered, because the resistance of the usual trolley-pole spring is greater than that of the spring-drum K.

In my improved trolley-catcher the guide-slots of the movable trolley-wheel bearings maintain a substantially upright position, or a position about at right angles to the conductor, and the wheel will therefore operate freely regardless of the angle which the pole assumes with reference to the conductor.

As the parts of the device are all carried by the supporting-frame and the latter is suspended from the head of the trolley-pole, the device is very compact and practically self-contained, enabling the same to be readily applied to the pole, or to be removed therefrom for making repairs, if necessary. As the carrying-frame is pivotally hung from the trolley-pole, it can be reversed for bringing it on the opposite side of the pole when the car reaches either terminus of the line. This feature renders the device applicable to trolley-poles which have no swiveling connection with the top of the car, but can swing only lengthwise of the car.

All of the parts of the device are inclosed, and are thus protected from the weather.

In the drawings, two locking-pins o and two rows of locking-teeth for the drum are shown, but it is obvious that a single locking-pin and a single row of such teeth might be employed.

I claim as my invention—

1. The combination with a trolley-pole, of a supporting-frame pivoted at its upper end to the trolley-pole so as to be capable of reversal thereon, a spring-drum journaled in said frame, and a rope or cord wound upon said drum, substantially as set forth.

2. The combination with a trolley-pole, of a supporting-frame pivotally suspended from the trolley-pole, a spring-drum journaled in said frame, a restraining rope or cord wound on said drum, a trolley-wheel yieldingly journaled in said frame, and a lock or stop adapted to engage with said drum, and controlled by the movable trolley-wheel, substantially as set forth.

3. The combination with the trolley-pole having openings or bearings in its head, of a supporting-frame having trunnions journaled in said bearings, a trolley-wheel supported in yielding bearings guided on said frame, a spring-drum journaled in said frame a restraining rope or cord wound upon said drum, and a lock or stop for said drum controlled by the movable trolley-wheel, substantially as set forth.

4. The combination with a trolley-pole having openings or bearings in its head, of a supporting-frame having trunnions journaled in said bearings, and provided with guide-slots,

a trolley-wheel having bearings which slide in said slots, a spring-drum journaled in said frame and having a restraining-cord wound thereon, and a lock or stop for said drum controlled by the movable trolley-wheel, substantially as set forth.

5. The combination with a trolley-pole, and a supporting-frame attached thereto, of a trolley-wheel mounted in movable bearings guided on said frame, a spring-drum journaled in said frame below the trolley-wheel and having locking-teeth, a restraining-cord wound upon said drum, and a rod or extension connected with one of the bearings of the trolley-wheel and having a stop or projection adapted to interlock with the teeth of the spring-drum, substantially as set forth.

6. The combination with a trolley-pole and a supporting-frame attached thereto and provided in opposite sides with upright pockets, of a trolley-wheel journaled in vertically-movable bearings guided in said frame and provided with depending rods or extensions which slide in the pockets of the frame, springs arranged in said pockets and acting to raise said rods and bearings, a spring-drum journaled in said frame below the trolley-wheel

and having locking-teeth, a restraining-cord wound upon the drum, and a locking pin or stop arranged on one of said bearing rods or extensions and adapted to interlock with the teeth of said drum, substantially as set forth.

7. The combination with a trolley-pole and a supporting-frame attached thereto and provided in opposite sides with upright pockets, of a trolley-wheel journaled in vertically-movable bearings guided in said frame and provided with depending rods or extensions which slide in the pockets of the frame, springs arranged in said pockets and acting to raise said rods and bearings, a spring-drum journaled in said frame below the trolley-wheel and having locking-teeth, a restraining-cord wound upon the drum, a casing inclosing said drum and having a slot for the passage of said cord, and a locking pin or stop arranged on one of said bearing rods or extensions and adapted to interlock with the teeth of said drum, substantially as set forth.

Witness my hand this 11th day of May, 1896.
ORVILLE R. SACKETT.

Witnesses:

C. PHARES,
H. M. RIEGER.