

(No Model.)

2 Sheets—Sheet 1.

P. D. MILLOY.
TROLLEY CATCHER.

No. 531,380.

Patented Dec. 25, 1894.

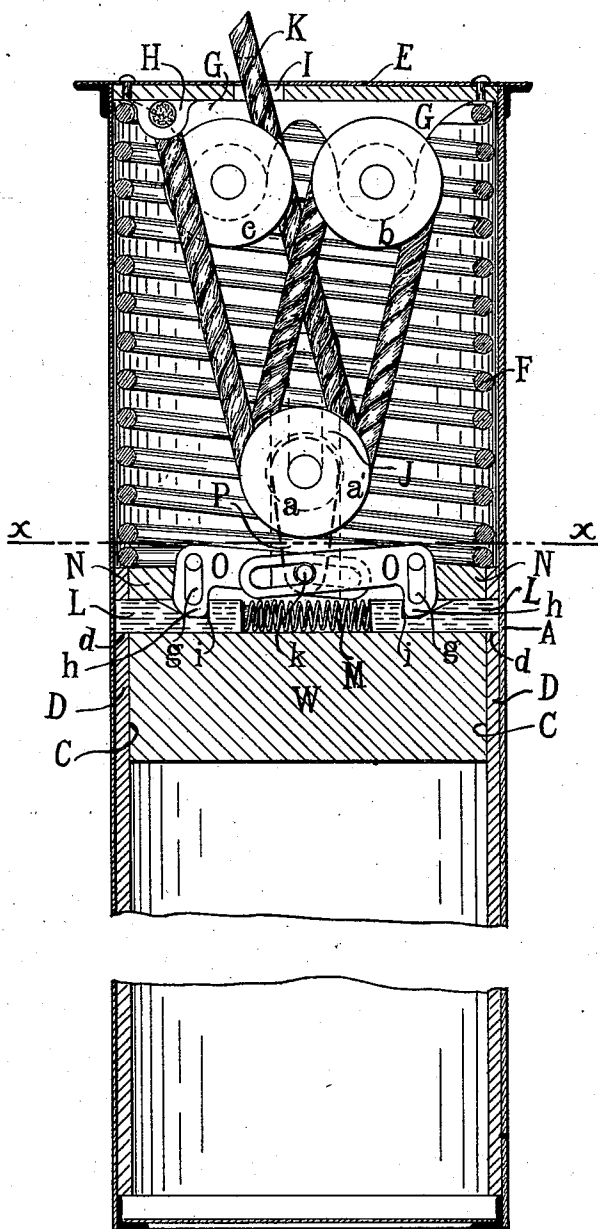


Fig 1

WITNESSES:

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F. W. TANKIN

Peter D. Milloy

INVENTOR

BY

William Macomber

ATTORNEY.

(No Model.)

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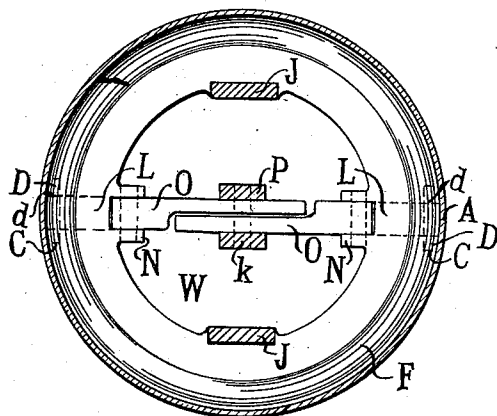


Fig II

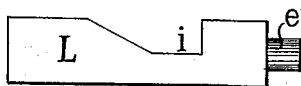


Fig III

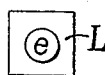


Fig IV

WITNESSES:

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UNITED STATES PATENT OFFICE.

PETER D. MILLOY, OF BUFFALO, NEW YORK.

TROLLEY-CATCHER.

SPECIFICATION forming part of Letters Patent No. 531,380, dated December 25, 1894.

Application filed April 2, 1894. Serial No. 506,088. (No model.)

To all whom it may concern:

Be it known that I, PETER D. MILLOY, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Trolley-Catchers, of which the following is a full, clear, and exact description.

My invention relates to trolley catchers, and to that particular class which automatically disengage the trolley pole from contact with the overhead wires when the trolley flies from the wire. In this class of devices it is essential that the construction shall be simple, positive and automatic in action, and also readily set. It is also essential that the entire device shall be neither bulky nor heavy.

Referring to the drawings herewith, consisting of two sheets: Figure I is a vertical cross section of my invention. Fig. II is a view partly in plan and partly in cross section upon the line $x-x$, Fig. I. Fig. III is a detail side view of one of the locking bolts. Fig. IV is an end view of the same.

Like letters refer to like parts throughout the drawings.

A is a cylindrical metal barrel, within and upon which my mechanism is mounted. The bottom of the barrel is closed by a metal disk which may be riveted to the barrel, A, or secured by a flange. Within the barrel is mounted a cylindrical weight, W, which is free to slide like a piston head within the barrel. Upon the cylindrical face of the weight, W, I provide two slots or grooves, C, C, diametrically opposite each other; and I mount rigidly within the barrel in position corresponding to these grooves, the vertical guides, D, D, which fit within the grooves freely and which keep the weight, W, from any rotation upon its axis. Upon the upper end of the barrel I place a lid, E, removably secured to the barrel. Within the space above the weight, W, and below the lid, E, I place a spiral compression spring, F, which bears against the lid and the weight, and which tends to force the weight, W, downward in the barrel. Upon the under side of the lid, E, I mount brackets, G, G, and an eye, H. There is an opening, I, in the lid through which the rope passes. A bracket, J, is se-

cured to the upper central portion of the weight, W. Pivoted to the brackets G, G, and J, are pulleys, a, a', b , and c . The rope, K, which passes to the trolley pole, is secured first to the eye, H. It then passes downward about the pulley a , upward and over the pulley b , downward and about the pulley a' , and thence upward to the pulley c , and out through the opening, I. It will be seen that the pulleys a, a' , and b , constitute a set of compounding pulleys, of which the pulley c is not a part, said pulley, c , serving merely to reduce the friction in setting up the mechanism as hereinafter described.

Upon the upper flat surface of the weight, W, are secured two bolts, L, L, the outer ends of which engage in mortises or slots, d, d , in the vertical guides, D, D, and hold up the weight when in place. The inner ends of the bolts, L, L, are made cylindrical, as is clearly shown at e , Fig. III. A common compression spring, M, is fitted over the cylindrical ends of the bolts and tends to force the bolts outward.

Upon the upper surface of the weight, W, are also brackets, N, N, to which are pivoted a pair of bell crank levers, O, O. These levers have slotted openings g, g , in their shorter arms through which the pivots of the brackets, N, N, pass. The ends of the shorter arms of the levers, O, O, have beveled points, as shown at h, h , which are calculated to engage within notches, i, i , in the bolts L, L. The inner and longer arms of the levers, O, O, also have longer slotted openings, which, in common, take over a pin k of the pulley block, P. This pulley block, P, carrying the pulleys a and a' , the pulley a' being upon the same axis and directly behind the pulley a as shown in Fig. I, is mounted in vertical slots in the bracket J, thus giving the pulleys and the pulley block a vertical movement within the limits of the slot.

Having now pointed out the essential parts of my invention, I will next explain its operation.

The device is shown "set" in Fig. I; *i. e.*, it is in the position ready for use with the weight, W, raised and the spring, F, compressed. If the rope, K, is drawn upward, as by the force of the trolley pole, the pulleys a and a' and

the pulley block, P, are raised, and the pin, *k*, raises the inner arms of the levers, O, O, swinging the shorter arms upon their pivots in the brackets N, N. The beveled ends, *h*, *h*, of the levers engaging in the notches, *i*, *i*, of the bolts, L, L, force the bolts inward and out of engagement with the guides, D, D. The weight, W, by the combined action of gravity and thrust of the spring, F, will descend in the barrel, the pulley block, P, will be carried to the extreme limit of the slotted bracket, J, and thence will descend with the weight. The consequent action will be that one end of the rope, K, being secured to the eye, H, the compound pulleys will draw down the rope rapidly and depress the trolley and pole out of the plane of contact with the overhead wires. In this operation, the pulley-block, P, will be carried to the full limit of the vertical slots in the bracket, J. By such action the shorter arms of the levers, O, O, will be swung inward until the beveled points, *h*, *h*, are freed from engagement with the notches, *i*, *i*, in the bolts, L, L. The compression spring, *k*, will then force the bolts, L, L, outward against the guides ready for engagement in the guides, D, D, when the weight is raised and the spring compressed. In the reverse operation, or setting up the mechanism, the operator grasps the rope, K, and pulls it up against the action of the weight and spring. When the bolts, L, L, reach the slots, *d*, *d*, in the guides, D, D, they fly out to place by the action of the spring, *k*. The operator then releases the rope, and the pulley block, P, will descend by gravity in the slot of the bracket, J, carrying down the inner arms of the levers, O, O. The slots, *g*, *g*, in the short arms of the levers, O, O, will allow the beveled ends, *h*, *h*, to pass outwardly upon the inner, upper surfaces of the bolts L, L, as the longer arms of the levers are carried downward, until the beveled points reach the notches, *i*, *i*, when the slots, *g*, *g*, will allow said beveled ends, *h*, *h*, to drop into the notches, *i*, *i*, of the bolts, L, L, and then the device is set.

Mention should be made of the use of a weight and spring as herein shown. The combination is important, since it reduces the weight, causes the weight to act quickly, overcoming the common tendency to stick, and at the same time prevents the sudden strain upon the rope where a spring alone is used.

Having thus described my invention and its operation, what I claim is—

1. A trolley catcher consisting of a cylindrical barrel having a weight and a compression spring acting conjointly to draw down the rope when the bolts are released, substantially as shown.

2. The combination of a cylindrical barrel carrying a weight and spring acting conjointly, with a set of compounding pulleys for multiplying the action of the weight and spring, substantially as shown.

3. A cylindrical barrel having a weight, W,

and a spring, F, the weight being held against axial rotation by means of guides, D, D, which fit freely into grooves upon the face of the weight, substantially as shown.

4. A trolley catcher consisting of a cylindrical barrel carrying a weight and compression spring acting conjointly, a set of compounding pulleys for compounding the action of the weight and spring, and an automatic releasing mechanism, consisting of bolts secured to the weight and engaging in the guides, D, D, compression spring, *k*, and lever arms, O, O, which withdraw the bolts and which are actuated by the vertical action of the pulley block, P, within the bracket secured to the weight, substantially as described.

5. In a trolley catcher, the combination of a cylindrical barrel carrying a weight and compression spring acting conjointly as described, and a set of compounding pulleys, with an automatic locking and unlocking mechanism consisting of a pulley block having a vertical action within a bracket secured to the weight, the vertical action of said pulley block being produced by the tension of the rope and by gravity, said pulley block having a pivot engaging within slotted openings in the longer arms of the levers, O, O, and said levers having beveled points engaging in notches in the bolts, L, L, said levers being pivoted to the weight through slotted openings on the shorter arms, substantially as and for the purposes set forth.

6. A trolley catcher consisting of a cylindrical barrel carrying a weight and spring acting conjointly, a pulley-block mounted in brackets rigidly secured to said weight, a trolley rope, bell crank levers pivoted to said weight through slotted openings in the shorter arms of said levers, the inner and longer arms having slots taking over a pin in said pulley-block, bolts mounted upon said weight, a spring acting upon said bolts and guides within said cylindrical barrel to engage with said bolts, the action of releasing said weight and spring being produced by the vertical action of said pulley-block actuating the arms of said levers which release said bolts, and the action of setting up said spring and weight being produced by the vertical action of the pulley-block actuated by the strain upon said trolley rope carrying the weight upward by means of said slotted brackets until said bolts are driven to place by said spring and into engagement with said guides, and then said lever arms being carried into engagement with said bolts by the downward movement of said pulley-block by gravity, substantially as set forth.

In testimony that I claim the invention above set forth I affix my signature in presence of two witnesses.

PETER D. MILLOY.

Witnesses:

J. C. ALMENDINGER,
GUS C. SCHERER, Jr.