

C. HERON.
TROLLEY GUARD.

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Patented May 2, 1911.

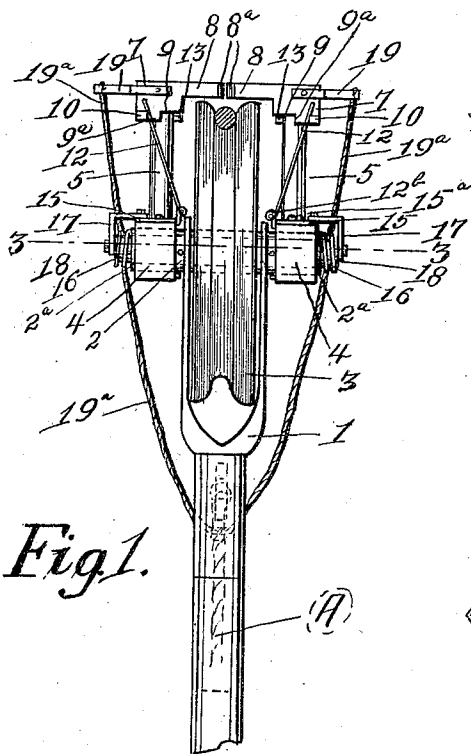


Fig. 1.

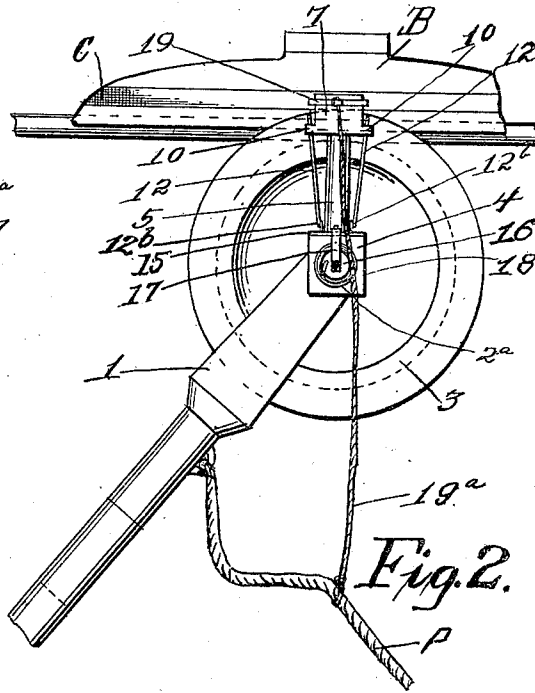


Fig. 2.

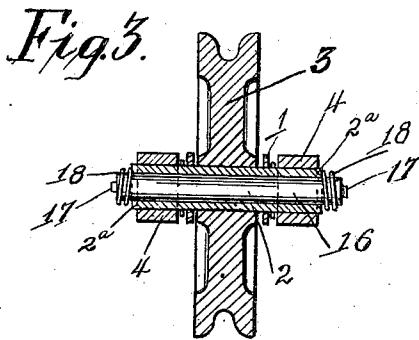


Fig. 3.

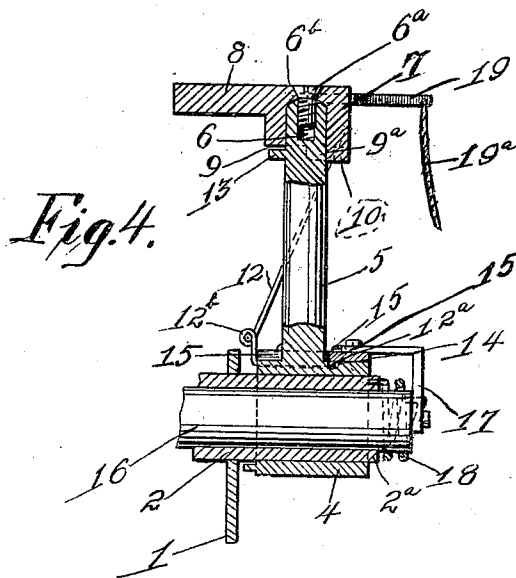


Fig. 4.

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UNITED STATES PATENT OFFICE.

CHRISTOPHER HERON, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-FOURTH TO WILLIAM C. KRAUTER AND ONE-FOURTH TO BARNEY COFFEY, BOTH OF CHICAGO, ILLINOIS.

TROLLEY-GUARD.

990,870.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, CHRISTOPHER HERON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Trolley-Guards, of which the following is a specification.

My invention relates to trolley guards and more particularly to a device of that character having means which will effectually prevent the line-wire or conductor from leaving the trolley wheel, except when it is so desired, as for instance when the car reaches the end of its route.

The primary object of my invention is to provide a device of the above character in which the conductor retaining means, or guard members are so connected to the trolley that they will both move together thereby insuring the efficient operation of the device at all times.

A further object of my invention comprehends the production of a device of this kind in which the guard members are yieldably connected at their lower ends so that when their upper ends come in contact with the conductor hangers the members are permitted to make a slight rearward movement thus preventing the sudden impact of the hangers on their upper ends from breaking the same.

In the drawings forming a part of this specification and in which like reference numerals indicate corresponding parts throughout the several views—Figure 1 is a front elevation of the upper portion of a trolley pole showing the application of my invention thereto; Fig. 2 is a side elevation thereof; Fig. 3 is a sectional view taken on the line 3—3 of Fig. 1, and Fig. 4 is a vertical sectional view taken through one of the guard members.

Referring specifically to the drawings 1 indicates the upper portion of a trolley pole of the usual construction, through the fork of which is passed a hollow stationary shaft 2 on which is mounted the trolley wheel 3, between the arms of the fork. As will be seen in Fig. 4 said shaft 2 projects a short distance beyond each side of the fork, as at 2^a. Loosely mounted on each of the projecting portions 2^a is a block 4 which forms the lower ends of the guard members. Formed integral with each of these blocks 4 and pro-

jecting upwardly from near the inner wall thereof is a circular stem or standard 5 in the upper end of which is formed the vertically extending threaded bore 6. Each of the stems 5 have rotatably mounted on the upper ends thereof a head block 7 which is securely held in place thereon by means of a screw 6^a introduced through a countersunk opening 6^b formed in the upper end of the head block 7, and engaged by the threads of the bore 6. Extending inwardly from each of the head blocks 7 is a guard arm 8 which, when in normal position, extend transversely across the periphery of the trolley wheel and nearly engage one another at their inner ends, which ends are rounded as at 8^a so as to allow the said arms to easily pass the conductor hangers. The lower ends of the head blocks 7 are cut away as at 9, the remaining portion 9^a being provided with ears or projections 10 having their inner faces provided with a vertical groove for the reception of the upper ends of the springs 12, to be hereinafter referred to.

To prevent the head blocks 7 from turning too far when the guard arms are engaged by the conductor hangers, I provide each of the stems 5 with a stop 13 located on a line with the travel of the edges of the portions 9^a so that as said head blocks are turned one of the edges of the portion 9^a will engage the side of the stop 13 and thereby limit the movement of the head blocks.

To return the head blocks and their guard arms to normal position immediately after passing the conductor hangers I provide each of the members with a spring 12, above referred to, which has its lower end provided with a loop 12^a adapted to rest in a groove 14 formed in the upper end of the block 4 around the stem 5, and is securely held therein by a clamping plate 15 secured to the upper end of the block 4 by screws 15^a. One arm of the spring 12 extends upwardly on each side of the stem 5 and bears against the ear 10 at its upper end. To give the spring the proper tension a coil 12^b is formed in each of the arms thereof.

Passing through the hollow stationary shaft 2 is a spindle 16 to which the blocks 4 of the guard members are fastened, by means of an angular piece 17, one arm thereof being fixed to the end of the spindle 16 and the other arm fixed to the clamping

plate 15. As will be seen in Fig. 4 of the drawings the spindle 16 is of greater length than the shaft 2 and the portions which extend beyond the ends of said shaft 2 are each provided with a coiled spring 18, one end of which is fastened to the spindle and the other end to the shaft. The tensile strength of the springs 18 is greater than that of the springs 12 so that when the guard arms 8 are struck by the conductor hangers the springs 12 will yield first and allow the head blocks 7 to turn, but the springs 18 will serve the purpose of absorbing the shock caused by the impact and also serve to hold the guard members in a vertical line above the shaft 2.

To provide for the ready removal of the trolley wheel from the conductor, as is necessary to reverse the pole when the car reaches a terminal, I connect to each of the head blocks 7, by any suitable means, a forked member 19 the free end of which is provided with an eye in which is fastened one end of a rope 19^a, which extends at an angle therefrom and may be fastened to the ordinary trolley rope A in such a manner that when said rope A is pulled in a direction substantially at right angles to the trolley pole to lower the same, the head blocks 7 are first turned to allow the conductor or line-wire to pass between them.

As shown in Fig. 2 I provide the conductor hangers B with a shoulder C extending longitudinally along both sides thereof. The inner ends of the guard arms 8 are adapted to ride along the upper surface of these shoulders C to prevent the trolley from leaving the hangers in going around curves. On straight lines the hangers need not be provided with the shoulders C.

From the foregoing it will be seen that I provide a trolley guard which, while it may be easily and cheaply manufactured, is

strong and durable and will effectually serve the purpose for which it is intended.

While the accompanying drawings illustrate the preferred embodiment of my invention I do not wish to be limited to the exact construction shown therein but to make such changes as will not depart from the scope of the appended claims.

I claim—

1. In combination with a trolley pole, having a hollow shaft rigidly mounted in its fork and projecting beyond both sides thereof, a spindle passing through said shaft, guard members loosely mounted on the projecting portions of said shaft and rigidly connected to said spindle.

2. In combination with a trolley pole, a hollow shaft rigidly mounted in the fork thereof, a spindle passing through said shaft and projecting beyond the ends thereof, guard members mounted on said shaft and rigidly connected to the ends of the spindle, springs connected to the ends of the shaft and spindle for holding the guard members in a vertical position.

3. The combination with a trolley pole of a hollow shaft rigidly mounted in the fork of said pole, a spindle extending loosely through said shaft, a wheel mounted upon said shaft, uprights connected rigidly to the ends of said spindle and extending upwardly at the sides of the wheel, head blocks swingingly connected to said uprights and opposing one another transversely above said wheel, and spring means to control movement of said spindle and uprights, and said head blocks.

In testimony whereof I affix my signature, in presence of two witnesses.

CHRISTOPHER HERON.

Witnesses:

CHARLES HERBERT COFFEY,
J. M. BENTON.