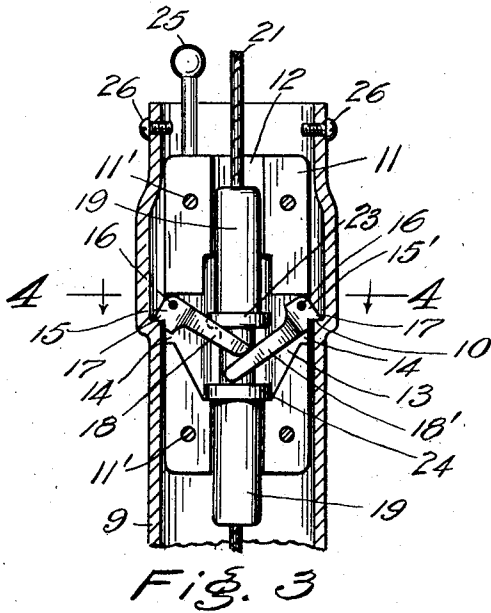
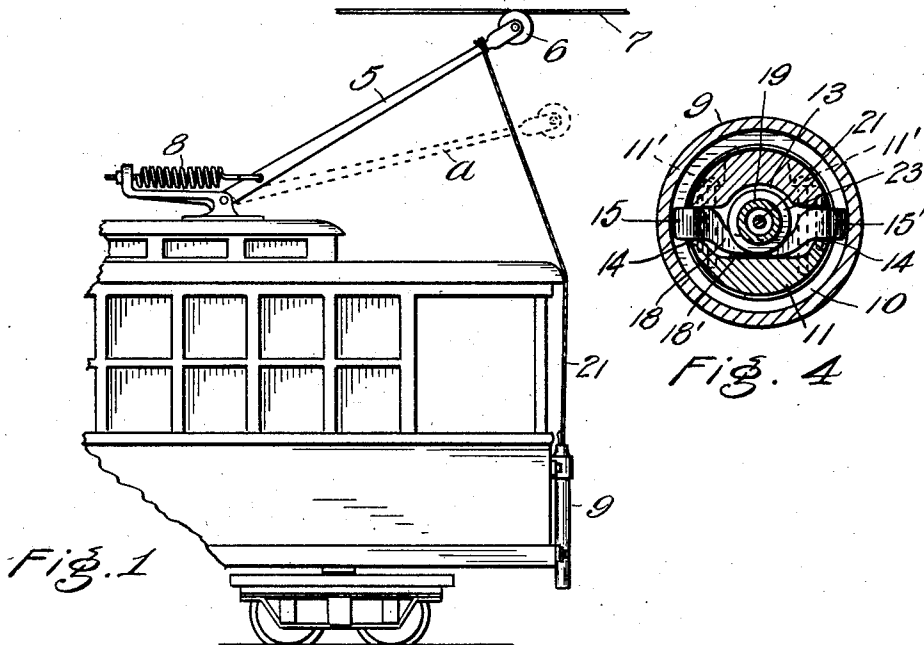


R. S. LILICO.
TROLLEY POLE ARRESTER.
APPLICATION FILED OCT. 17, 1910.

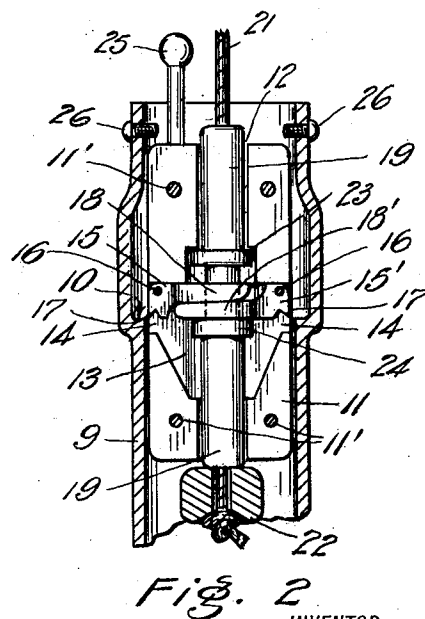
1,010,651.

Patented Dec. 5, 1911.



WITNESSES:

H. Barnes
E. Peterson



INVENTOR

Reginald S Lilico

BY

Pierre Barnes
ATTORNEY

UNITED STATES PATENT OFFICE.

REGINALD S. LILICO, OF SEATTLE, WASHINGTON.

TROLLEY-POLE ARRESTER.

1,010,651.

Specification of Letters Patent.

Patented Dec. 5, 1911.

Application filed October 17, 1910. Serial No. 587,642.

To all whom it may concern:

Be it known that I, REGINALD S. LILICO, a citizen of the United States, residing at Seattle, in the county of King and State of Washington, have invented certain new and useful Improvements in Trolley-Pole Arresters, of which the following is a specification.

This invention relates to electric railway appliances and, more particularly, to that class of devices which are utilized for arresting and retrieving trolleys when leaving the overhead truck-wire therefor.

The object of the present invention, generally stated, is the provision of devices for accomplishing the above mentioned service with despatch and in an effective manner.

With these ends in view, the invention consists in the novel construction, arrangement and combination of parts, as will be hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a side elevation of the rear end of an electric-car equipped with apparatus embodying my invention. Fig. 2 is a fragmentary transverse vertical section of a casing with the trolley rope controlling devices therein shown in inoperative condition. Fig. 3 is a view similar to Fig. 2 with the trolley rope controlling devices rendered operative. Fig. 4 is a cross sectional view taken through 4-4 of Fig. 3.

The reference numeral 5 designates a trolley-pole carrying at its free end a grooved wheel 6 which is normally retained in operative engagement with a trolley-wire 7 by means of a spring 8, or a plurality of such springs, and which tend to throw the pole and its wheel upwardly when the wheel becomes disconnected from the trolley wire, as in the ordinary form of construction.

Rigidly secured to the car body is a casing 9, preferably of a tubular form and arranged with its axis vertical, or nearly so. The upper end of the casing is open and at a short distance below the top there is provided within the casing a ledge 10. Fitted loosely for vertical movement within the casing is a heavy body 11 which, for convenience in manufacturing and in the assembly of parts, is desirably constructed of two parts which are joined at a plane extending, preferably, diametrically through the body and united as by bolts 11'. The weight of this body is somewhat greater than necessary to be applied to the trolley

rope 21 to overcome the power of the above mentioned spring. Said body is provided with an axial bore 12 extending from both its top and bottom ends to a medially located chamber 13. At diametrically opposite sides of said chamber are openings 14 to accommodate a pair of dogs 15 and 15' which are pivotally connected to said body by pins 16 arranged so that the upper surfaces of the dogs will at all times contact with the tops of the respective openings. Said dogs are each provided at their outer end with a bill 17 which, upon being swung into the positions in which they are represented in Figs. 3 and 4, will engage the casing ledge 10 and thereby serve as a support for the body 11. Each of said dogs is provided with an inwardly extending arm, 18 and 18' which, as represented in Fig. 4, are offset with respect to their outer ends. Within the bore 12 of said body are the ends 19 of a tube through which passes loosely the trolley-rope 21 which, as customary, is fastened from one end to the trolley-pole and has, desirably, secured to its lower, or pendent, end a weight 22 (Fig. 2) which is sufficiently heavy to prevent any slack occurring in the rope. This weight is, however, not essential to the operation of the invention, as any devices, such as a knot for example, which will prevent the rope being withdrawn from the sleeve, will suffice to cause the rope to perform its duty, though the appended weight has proved most satisfactory. Said tube, or sleeve as it will be hereinafter denominated, is provided with two spaced collars 23 and 24. Between said collars I show the sleeve as being of less diameter than the end portions thereof to afford room for the oscillatory movements of the dog-arms 18 and 18' when they are actuated by either of the collars 23 or 24. The body 11 is provided with a handle 25 of a length to extend above the casing when the body is in position whereat it may be supported by the ledge 10 through the offices of said dogs.

26 are screws extending into the casing to prevent the body being drawn from the casing.

The operation of the invention is as follows: Assuming that the body 11 is sustained by the dogs 15 and 15' being supported upon the casing ledge 10, as illustrated in Fig. 3. Under such conditions and with the trolley-wheel tracking against the

underside of the trolley-wire 7, the trolley-rope 21, subject to the relatively slight pull exerted by the weight 22, is free to move up or down through the sleeve to compensate for the movements occurring to the trolley-pole as when the car is going about a curved portion of its track. In the event of the trolley-wheel leaving the trolley-wire, the power of the spring 8 asserts itself to tilt the pole 5 upwardly resulting in the trolley-rope 21 being correspondingly drawn through the sleeve until the lower end of the latter is struck by the weight 22. Through the force of the impact, the sleeve is thereby forced upwardly to deliver through the agency of the sleeve-collar 24 tilting motion to the dog arms 18 and 18' and thereby retract their bills 17 from the casing ledge 10 concurrently with a slight uplift of the body 11, when the several parts will be in the relations in which they are shown in Fig. 2. The body 11 being now unsupported exerts through its weight a downward pull upon the trolley-rope to cause the forcible lowering of the trolley-pole into the dotted line position *a* in Fig. 1 and thus accomplish the main object of the invention. To restore the devices into operative condition, the body 11 is manually raised by pulling the body upwardly through the medium of the rope 21 until the body is at about the elevation whereat it is shown in Fig. 2, whereupon the operator, while supporting the body by its handle 25 with one hand, manipulates the trolley-rope with the other hand to replace the wheel upon the trolley-wire. The rope is then released and the sleeve being thus freed, is permitted to fall with the result that the collar 23 pushes down the dog arms 18 and 18' and accordingly protrudes the bills 17 of the dogs. By then releasing the handle, the weight of the body 11 will cause the same to fall until arrested (see Fig. 3) by the interference of the casing-ledge with the protruding dog-bills.

The invention is extremely simple, involving few parts and such as are employed are unlikely to become deranged. By reason of the rapidity with which the various devices respond to the movement of the trolley-pole through the unseating of the trolley-wheel, the upward swing of the pole is quickly terminated to be immediately followed by a rapid lowering of the same, the overhead wiring which would otherwise be damaged by the uncontrolled pole is safeguarded from injury, or at least, to any appreciable extent. Furthermore, the operating parts are readily reset and offer no obstacle to the replacing of a trolley-wheel to its track-wire.

What I claim as my invention, is—

1. In apparatus of the class described, the combination of a trolley-pole and a rope

therefor provided with an enlarged end, of a casing secured to the car, a heavy body normally disconnected from the rope, dogs carried by the body arranged to protrude therebeyond and contact with the casing to suspend said body therein, and devices carried by the body and made operable by the engagement therewith of the enlarged end of said rope to retract said dogs to allow said body to fall therewith carrying said rope and trolley pole.

2. In apparatus of the class described, a trolley pole, a trolley rope secured at one of its ends to the trolley-pole and provided with an enlargement at its other end, a sleeve for said rope and provided with two spaced collars, a heavy body, a casing within which said body operates, a ledge provided within the casing, dogs carried by said body and adapted to be engaged by one of the sleeve collars for protruding the dogs into position for engaging with the casing-ledge to support said body when the sleeve is uninfluenced by the rope, said dogs being also adapted to be engaged by the other of the said ledge when the sleeve is engaged by the enlargement in said rope in the upward movement of the latter to impart upward movement to the sleeve, and permit said body to fall and pull said rope downwardly therewith.

3. In apparatus of the class described, a trolley-pole, a trolley-rope secured from one of its ends to the trolley-pole, a weight carried by the other end of the rope, a sleeve for said rope and provided with two spaced collars, a heavy body, a casing within which said body operates, a ledge provided within the casing, dogs carried by said body and adapted to be engaged by one of the sleeve collars for protruding the dogs into position for engaging with the casing-ledge to support said body when the sleeve is uninfluenced by the rope, said dogs being also adapted to be engaged by the other of the sleeve collars for retracting the dogs from said ledge when the rope is drawn upwardly through the sleeve to cause said weight engaging the latter to impart upward movements thereto, and thereupon permit said body to fall and pull said rope downwardly therewith.

4. In apparatus of the class described, the combination with a trolley-pole, a spring acting to swing said pole upwardly, a trolley-wire acting to limit the upward movement of the pole, and a rope attached from one of its ends to said pole and formed or provided with an enlargement at its other end, of a casing provided upon its inside with a ledge, a heavy body operating within the casing and normally disconnected from said rope, dogs carried by said body and adapted for engaging the casing ledge, a sleeve for said rope and adapted to control

the operation of the said dogs whereby the latter are normally caused to be in condition to engage said ledge, but when the sleeve is influenced by the engagement of
5 the enlargement upon the rope contacting with the sleeve to elevate the same, the dogs are rendered inoperative to allow said heavy

body to descend and thereby effect the downward movement of the pole in opposition to said spring.

REGINALD S. LILICO.

Witnesses:

PIERRE BARNES,
HORACE BARNES.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
