

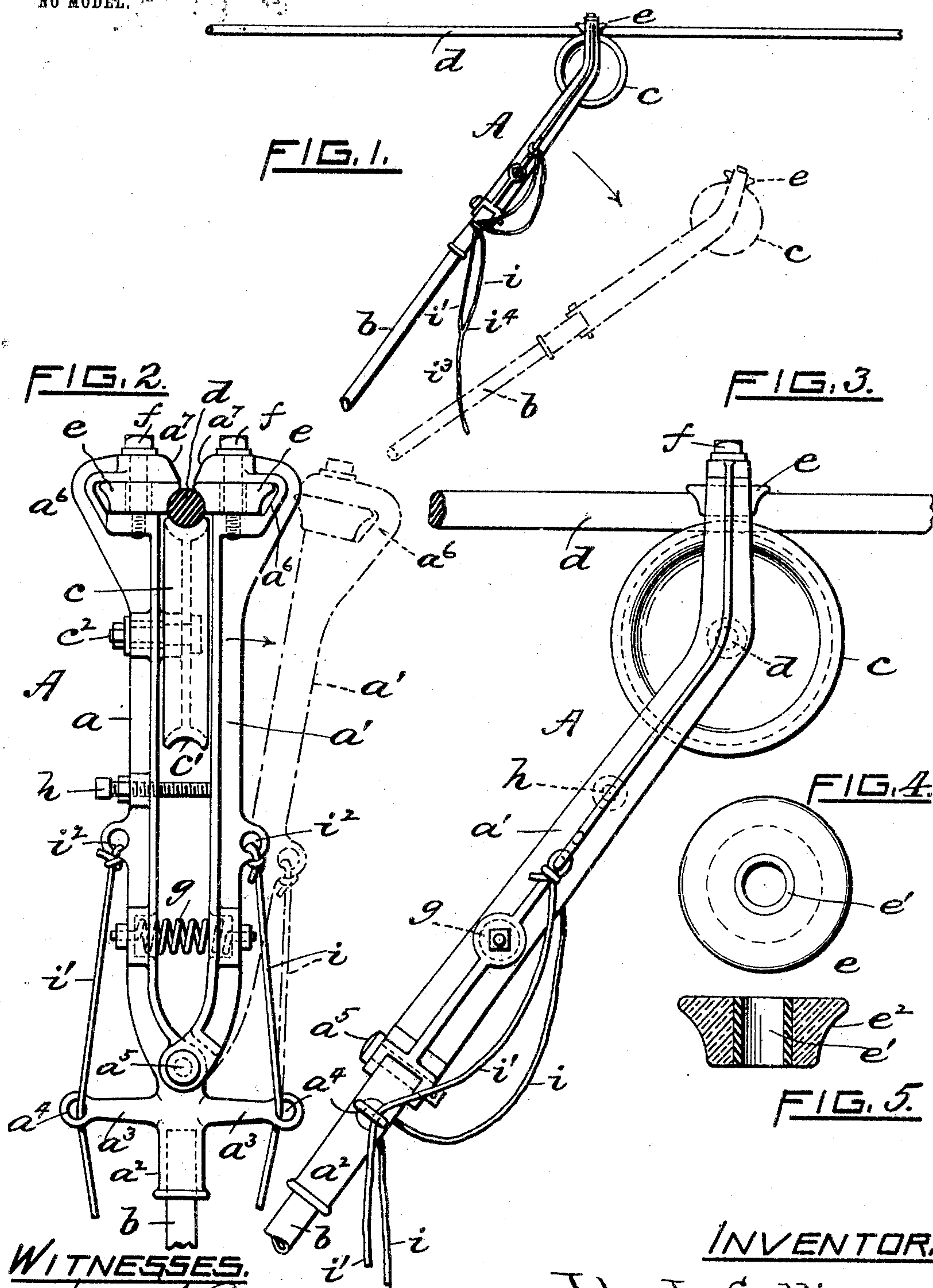
No. 777,049.

PATENTED DEC. 6, 1904.

J. L. SULLIVAN.
TROLLEY WHEEL GUARD FOR ELECTRIC WIRES.

APPLICATION FILED APR. 19, 1904.

NO MODEL.



WITNESSES.

Albert W. Brown.

Henry M. C. Hubbard.

INVENTOR.

John L. Sullivan.

By Charles P. Hannigan,
Attorney.

UNITED STATES PATENT OFFICE.

REISSUED

JOHN L. SULLIVAN, OF WARREN, RHODE ISLAND, ASSIGNOR OF ONE-HALF TO JOSEPH HARRIS, OF WARREN, RHODE ISLAND.

TROLLEY-WHEEL GUARD FOR ELECTRIC WIRES.

SPECIFICATION forming part of Letters Patent No. 777,049, dated December 6, 1904.

Application filed April 19, 1904. Serial No. 203,898. (No model.)

To all whom it may concern:

Be it known that I, JOHN L. SULLIVAN, a citizen of the United States, residing at the town of Warren, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Trolley-Wheel Guards for Electric Wires, of which the following is a specification.

This invention relates to improvements on the guard for a trolley-wheel which is mounted on the pole or shaft of electric cars; and the object of my invention is to provide means for preventing accidental displacement of the trolley-wheel from contact with the overhead electric wire and at the same time having means whereby the wheel-guard may be readily withdrawn from or acted upon to permit of engagement with said wire.

The invention consists of the novel construction and combination of parts, as hereinafter described and specifically set forth in the claims.

In the accompanying sheet of drawings, Figure 1 represents a side elevation of a trolley-wheel guard as mounted on the swinging pole or shaft of an electric car and in contact with the electric wire and also showing in dotted broken lines one position the wheel-guard assumes when free of the wire. Fig. 2 is an enlarged front elevation view of the wheel-guard, showing the relative position of parts embodying my improvements, as when the wheel-guard is in engagement with the wire, and also showing in dotted broken lines the other position the wheel-guard assumes when free of the wire. Fig. 3 is a side elevation of Fig. 1, showing the normal position of the wheel-guard as in contact with the wire. Fig. 4 is a top plan view of one of the rollers for the wheel-guard, and Fig. 5 is a diametrical sectional view of said roller.

Like letters of reference indicate like parts.

Referring to Fig. 2, A designates my improved wheel-guard as a whole having a frame comprising two arms a and a' . The lower portion of the arm a has a hub a^2 , within which is rigidly secured the end of the ordinary pole or shaft b of the electric car. The arm a has two opposite integral extensions

a^3 a^3 situated on its hub a^2 and provided each with an opening, as at a^4 a^4 , for the passage of pull-cord connections, explained presently. The lower portion of the arm a' is bifurcated to receive a pin connection a^5 with the hub of the arm a , and said arms a and a' have laterally-arranged U-shaped upper portions exposed opposite of each other, as at a^6 a^6 .

c is the main trolley-wheel, which is provided with a shallow groove c' in its periphery and forming a bearing-surface arranged to contact upon the bottom portion of the trolley electric wire d . This wheel c is situated between the aforesaid frame and pivotally mounted on a stud c^2 of its arm a , and said wheel is properly insulated upon the frame in any well-known manner to receive the current from the main wire d .

$e e$ are two rollers situated in the upper U-shaped extremities of the arms a and a' and are pivotally mounted on bolts $f f$, which are fixedly secured in a vertical position in this portion of the frame. These rollers $e e$ are made of hardened material, such as rawhide, and have metallic bushings driven in centrally, as at e' in Fig. 5, to take the wear when mounted on the bolts $f f$, and said rollers are of this non-electric conductor material in order to prevent the frame from being charged by the current at this portion thereof. Said rollers $e e$ are provided with curved or grooved peripheral surfaces e^2 e^2 , arranged to extend over and upon the sides of the electric wire d in the manner shown in Fig. 2.

g is a pull-spring whose ends are connected to the arms a and a' , comprising the frame, and said pull-spring is adapted to hold the swinging arm a' in its closed or normal position, whereby the rollers $e e$ are brought in contact with the wire d .

h is a set-screw mounted in a screw-threaded opening formed in the arm a , and said screw is arranged to have its inner end bear against the opposite swinging arm a' and forming a stop to prevent the rollers $e e$ from making too great a frictional contact upon the wire d .

One portion of this wheel-guard A has its frame extending parallel with the inclined

pole or shaft *b* of the car to the longitudinal center of the main trolley-wheel *c*, and from said trolley-wheel the frame projects vertically, so that the axial centers of its rollers *e e* are at a right angle to the longitudinal center of the wire *d* in the manner shown in Figs. 1, 2, and 3.

i i' are two flexible cords of different lengths and arranged to move loosely in the openings of the extensions *a³ a³* of the arms *a* and *a'*. Said cords *i i'* have one of their ends connected in openings formed in the arms *a* and *a'*, as at points *i² i²*, and their opposite ends spliced together to the usual pull-cord *i³*, as at a point *i⁴* in Fig. 1.

The operation of my device is as follows: When it is desired to remove the wheel-guard *A* from its normal position of contact with the electric wire *d*, the conductor or operator pulls upon the main cord *i³*, and which movement causes the shorter cord connection *i* to become taut first, so that the arm *a'* is made to swing outward to the dotted position indicated in Fig. 2. By the time the arm *a'* assumes the aforesaid position the longer cord connection *i'* will next become taut, so that the arm *a* is now made to swing rearward and free of the wire to the position indicated by broken lines in Fig. 1. The upper portion of the arms *a* and *a'* expose outwardly-inclined surfaces, as at *a⁷ a⁷* to receive and allow the wire *d* to find its normal position again between the rollers *e e*.

By having two independent grooved rollers pivotally mounted over the main trolley-wheel and arranged to contact upon the side and upper portion of the wire *d*, so that the said wire is almost covered throughout its circle, it is obvious that by my construction and arrangement of parts this device is capable of holding its normal position when applied to the wire and at the same time free from any accidental displacement thereon.

Having described my improvements, what I claim, and desire to secure by Letters Patent, is—

1. In a trolley-wheel guard for electric wires, the combination of a frame, comprising an arm having one end arranged to be secured to the swinging pole of an electric car and its opposite end terminating in a lateral U-shaped portion; a wheel pivotally mounted on said arm and provided with a groove in its periph-

eral surface to contact with the bottom of the electric wire; a second arm having one end pivotally connected on the first-mentioned arm and its opposite end terminating in a lateral U-shaped portion; rollers made of non-electric-conductor material and pivotally mounted in the U-shaped portions of said arms and provided with grooved peripheral surfaces arranged to contact upon the sides and upper portions of the electric wire; a pull-spring having its ends connected to said arms; a set-screw mounted in the first-mentioned arm and arranged to bear against the second-mentioned arm and forming a stop to prevent friction of said rollers upon the electric wire; and a pull-cord terminating with two branch cord connections, one of which cord connections is of a longer length and attached to the first-mentioned arm and the other of which cord connections is of shorter length and attached to the second-mentioned arm, substantially as set forth.

2. In a trolley-wheel guard for electric wires, the combination of a device, comprising a frame having two arms, one of which arms is arranged to be held in a fixed position upon the swinging pole of an electric car and the other arm pivotally mounted on the fixed arm, and each of said arms having lateral U-shaped extremities exposed opposite of each other; a grooved wheel pivotally mounted on the fixed arm of said frame and arranged to contact upon the bottom portion of the electric wire; grooved rollers made of hard non-conductor material and pivotally mounted in the U-shaped extremities of said frame and arranged to contact upon the side and upper portions of the electric wire; a pull-spring from the fixed arm of said frame to the pivotal arm thereof; means to permit adjustment of the arms of said frame whereby its grooved rollers are brought from frictional contact with the electric wire; and a pull-cord having two integral cord connections of different lengths and having their ends attached to the arms of said frame, all arranged substantially as shown and for the purpose specified.

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

JOHN L. SULLIVAN.

Witnesses:

ALBERT W. BROWN,
HENRY D. C. DUBOIS.