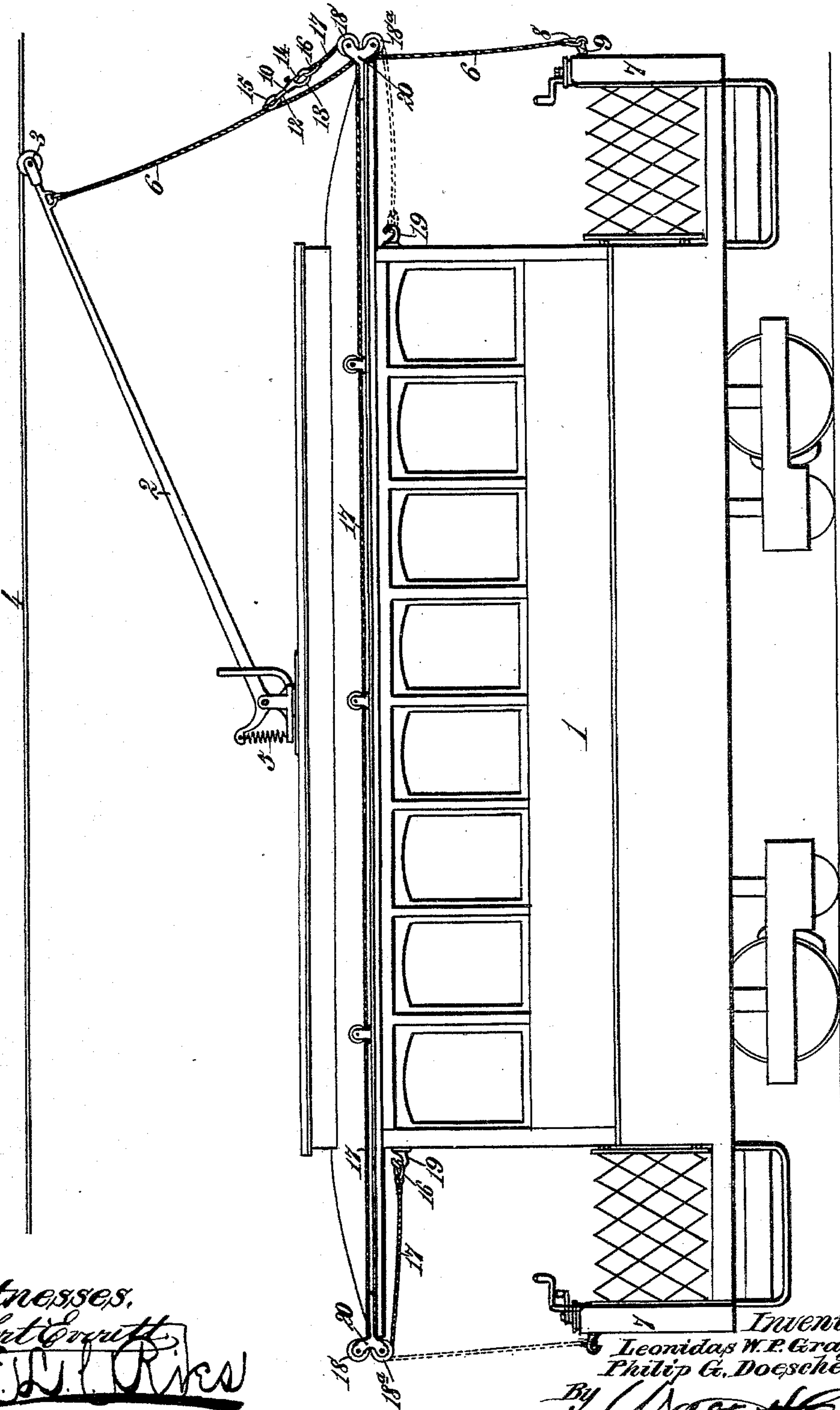


(No Model.)

L. W. P. GRAY & P. G. DOESCHER.
TROLLEY CONTROLLER FOR ELECTRIC RAILWAYS.

No. 545,358.

Patented Aug. 27, 1895.



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UNITED STATES PATENT OFFICE.

LEONIDAS W. P. GRAY AND PHILIP G. DOESCHER, OF NEW ORLEANS,
LOUISIANA.

TROLLEY-CONTROLLER FOR ELECTRIC RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 545,358, dated August 27, 1895.

Application filed May 23, 1895. Serial No. 550,431. (No model.)

To all whom it may concern:

Be it known that we, LEONIDAS W. P. GRAY and PHILIP G. DOESCHER, citizens of the United States, residing at New Orleans, in the parish of Orleans and State of Louisiana, have invented certain new and useful Improvements in Trolley-Controllers for Electric Railways; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawing, making a part of this specification, and to the figures of reference marked thereon.

Our invention has for its purpose the provision of a trolley-controller for electric railways which shall consist of simple and efficient means whereby the trolley-staff or pole upon cars driven by electricity shall be prevented from flying upward in case it should jump from the main conductor or become in any manner disengaged at a point where it ought to remain in contact with the wire, whereby the destruction of the trolley-staff and the fracture or serious injury of the wire-supports, which is always liable to be produced by such disengagement, shall be wholly avoided.

It is a further purpose of our said invention to provide means whereby the motorman shall be able to control the current passing through the trolley into the car-motor, such control being exercised in case of actual or impending accident.

Our invention consists, to these ends, in the novel combinations of mechanical parts and new features of construction hereinafter fully explained, and then particularly pointed out and defined in the claims which follow this specification.

To enable those skilled in the art to which our invention pertains to fully understand and practice said invention, we will now describe the same in detail, referring for this purpose to the accompanying drawing, in which the figure is a side elevation, partly in section, showing our invention in actual use.

The reference-numeral 1, in said drawing, indicates a railway-car of any ordinary form having a trolley-pole or staff 2 mounted centrally on the roof, the trolley 3 being adapted to engage an overhead wire 4. The trolley-

pole is pressed upward, to maintain electrical contact between the trolley and the wire, by means of a spring 5 of the ordinary form. Permanently secured to the trolley-pole, at a point near the fork in which lies the trolley 3, is a flexible connection or rope 6, having such length that when its end is secured to the dashboard of the car it will have a little slack, sufficient to permit the car to pass over all inequalities in the track without pulling the trolley 3 away from the overhead wire. The end of said rope is detachably secured to the dashboard 7 of the car by means of a ring 8, which is caught by a snap-hook 9 or other form of connection rigidly secured to the dashboard.

Permanently connected to the rope 6 at a suitable point above the car-roof is a swivel-snaffle, consisting of a shank 10 of any suitable form, provided with an eye 12 at one end and a hook 13 at the other end, said hook being provided with a spring-shot closing-bolt 14, so that a ring or loop inserted will be permanently held until the bolt is retracted. In the eye 12 lies a ring or other suitable device 15, which is permanently secured to the rope 6 at a point above the car-roof. In the lower hook 13 is a ring 16, which is permanently connected to a separate flexible connection or rope 17 at its end, said rope 17 being of such length as to pass downward to the car-roof, and, after being led around a pulley 18 at the end of the roof, extend longitudinally to the other end of said roof, passing over a second pulley 18^a, and thence carried to a hook 19 or other retaining device on the end of the car-body. The pulleys 18 and 18^a are mounted in frames 20, which are rigidly secured to the car-roof at the ends of the latter, the purpose of this construction being that the rope may pass upward at one end of the car and downward at the other end, as shown in Fig. 1. At the rear end of the car the end of the second rope 17 is carried over the upper pulley 18, as already explained, but at the forward end it runs over the lower pulley 18^a and is then led to the hook 19, so that it extends fore and aft almost directly over the head of the gripman. When the car is to run in the opposite direction the trolley-pole is shifted in the usual manner, the snap-

hook 9 being previously opened to release the ring 8 on the end of the rope 6, and the ring 16 being released from the hook 13 of the swivel-snaffle. This ring is then caught in the snap-hook on the dashboard at the other end of the car. The ring 16, released from hook 13, is then caught in the hook 19 at the forward end of the car, the ring 8 on the rope 6 is secured to the snap-hook on the rear dashboard, and the ring 16, which has been released from the hook 19 at the end, (which has now become the rearward end of the car,) is fastened in the lower hook 13 of the swivel-snaffle. By this change the arrangement of the ropes is simply shifted from one end of the car to the other in the same manner as if the car itself had been turned around end for end.

By grasping the rope 6 above his head the gripman can, at an instant's notice, draw the trolley 3 off the wire, and not only cut the entire current out of the motor, but he can also depress the trolley-pole, and thereby prevent it from flying up in case the trolley should jump the wire or in the event of an accident of any kind. Thus all danger of breaking or injuring the supports carrying the wire or of damaging the trolley is avoided. We may add that under some circumstances an accident by which the trolley was thrown off the wire might cause it to engage electrically with one or more other wires on the same supports—such, for example, as the feeders used on long lines of road—and thereby create a liability to a dangerous shock. By placing the trolley-pole under the control of the motorman in the manner shown and explained all liability to accidents or injury of the kind referred to is avoided.

The rope or cord 17, which is coupled to the rope 6 at either end of the car, may be carried either through the interior of the car, like the ordinary bell-rope, or it may be led over any path exterior to said car, as circumstances may require. Moreover, we may substitute any suitable form of fastening in place of the snap-hook 9. It should be noted, also, that the cable fastening of any form may be placed upon the rod or upon any other suitable support by which said cable may be supported.

What we claim is—

1. A trolley-controller for an electric car, consisting of a rope connected to the end of the car and to the trolley-pole and an independent rope traversing the top of the car from end to end and carried over pulleys at the ends, said rope being detachably connected at one end to the rope on the trolley-pole at the rear end of the car and carried

through the latter longitudinally, its forward end being secured in reach of the gripman at the forward end of the car, substantially as described.

2. A trolley-controller for an electric car, consisting of a flexible connection between the trolley-pole and the rear end of the car, a swivel-snaffle permanently connected to said flexible connection, an independent, flexible connection detachably secured to the swivel-snaffle and led over a pulley 18 to the forward end of the car-roof and thence carried back over the head of the gripman to the end of the car-body and secured to the latter detachably, substantially as described.

3. In an electric car, the combination with the trolley pole of a flexible connection permanently secured thereto at, or near, the trolley-supporting end, the lower end of said connection being detachably connected to a device on the rear dash-board, a swivel-snaffle permanently secured to said flexible connection above the roof of the car, and a second flexible connection traversing the car from end to end beneath suitable pulleys upon the ends of the car-roof and intermediate of the same, its ends being provided with rings or loops, the ring at the rear end of the car engaging a spring-closed hook on the swivel-snaffle, and that at the forward end being caught in a hook on the end of the car-body, substantially as described.

4. In an electric car, the combination with a trolley pole, of a flexible connection permanently secured to said trolley-pole at, or near, the trolley-fork, the other end of said connection being adapted to engage a hook on the rear dash-board, a second flexible connection traversing the car longitudinally, double pulleys at the two ends of the car-roof between the upper and lower members of which said connection passes, and a swivel-snaffle on the flexible connection secured to the trolley-pole, said snaffle having a spring-closed hook to receive a ring on the rear end of the second flexible connection, the journal end of the latter being carried over the lower member of the double pulley on the front end of the car and thence led back and secured to a hook on the end of the car-body, substantially as described.

In testimony whereof we have hereunto subscribed our names in the presence of two witnesses.

LEONIDAS W. P. GRAY.
PHILIP G. DOESCHER.

Witnesses:

R. E. L. C. RIES,
A. RICHARD.