(No Model.)

J. G. McLAUGHLIN.

TROLLEY CONNECTION FOR ELECTRIC CARS.

No. 605,326. Patented June 7, 1898.

Fig. 1.

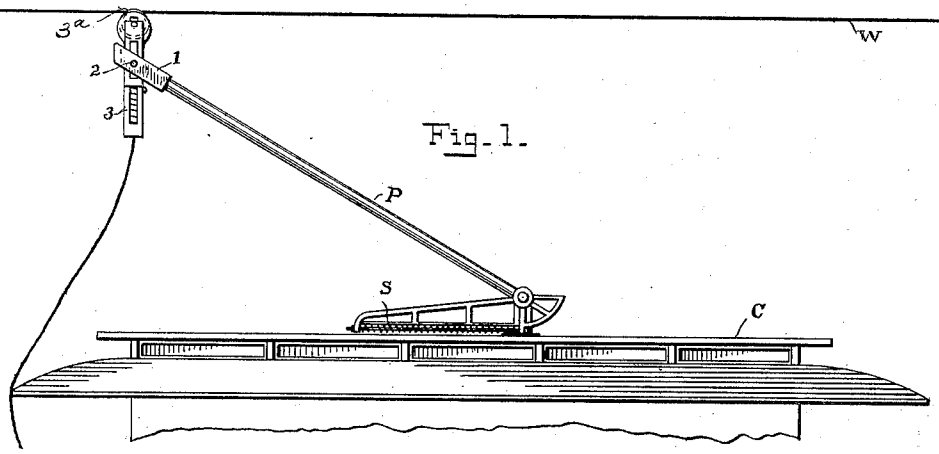


Fig. 2.

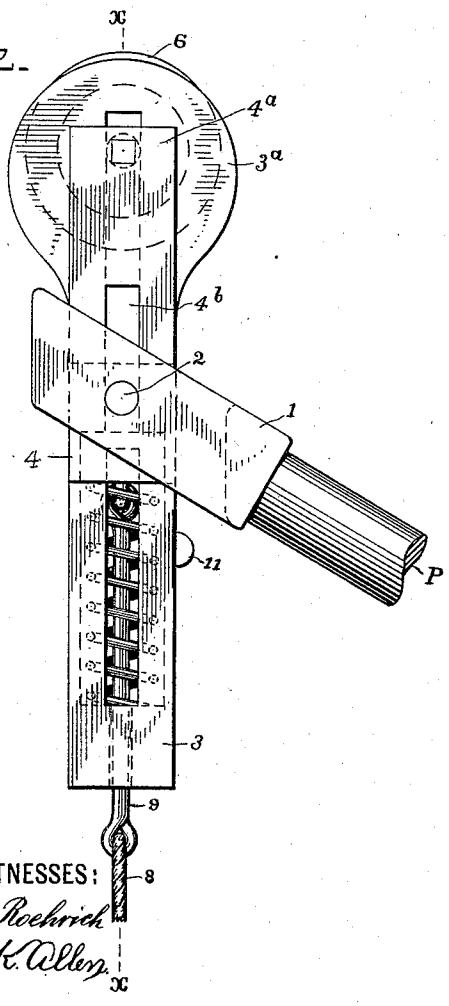
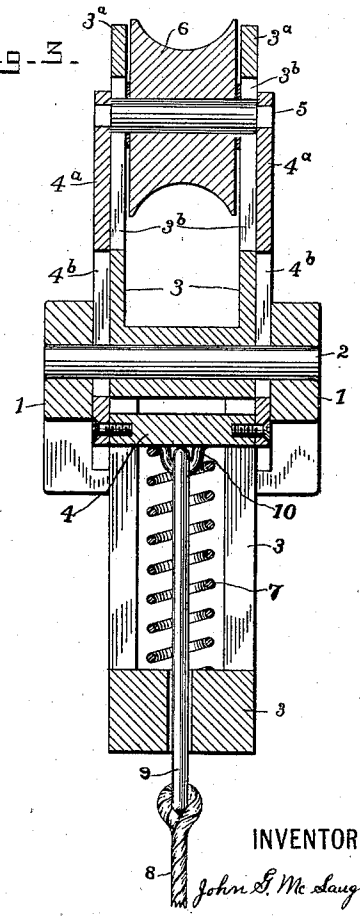


Fig. 3.



WITNESSES:
F. A. Roehrich
Edw. K. Allen.

INVENTOR
John G. McLaughlin
BY
Octavius Knight
ATTORNEY

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOHN G. McLAUGHLIN, OF BROOKLYN, NEW YORK, ASSIGNOR OF ONE-HALF TO ROBERT W. GLEASON, OF SAME PLACE.

TROLLEY CONNECTION FOR ELECTRIC CARS.

SPECIFICATION forming part of Letters Patent No. 605,326, dated June 7, 1898.

Application filed December 28, 1897. Serial No. 663,916. (No model.)

To all whom it may concern:

Be it known that I, JOHN G. McLAUGHLIN, a citizen of the United States, and a resident of Brooklyn, Kings county, New York, have invented a new and useful Improvement in Trolley Connections for Cars, of which the following is a specification.

The object of my invention is to obviate the difficulty which commonly arises from the irregular movement of the trolley-pole with relation to the wire. To this end I mount the trolley-wheel in an independent frame sliding vertically in a guide-frame pivoted between forks or cheeks in the extremity of the trolley-pole and weighted at its lower end so as to maintain it normally in vertical position. The trolley-wheel frame, which slides in the pivoted frame, is pressed upward by a spring, and to the said sliding frame is attached, through the medium of a rod or link, the rope by which the trolley-pole is drawn down in setting the trolley on the wire.

In the accompanying drawings, Figure 1 is a side elevation of the upper part of a car with the trolley-pole and my improved trolley connection, showing the pole in position on the wire. Fig. 2 is a side elevation of the trolley-frame and the extremity of the pole on a larger scale. Fig. 3 is a vertical section of the line *x x* of Fig. 2.

C represents the top of the car, and P the trolley-pole, which is mounted thereon in any usual or suitable manner. The extremity of this pole is bifurcated, as shown at 1 1, and provided with a pintle 2 for the reception of the frame 3, which swings thereon, the lower end of the said frame having sufficient weight to keep in vertical position the said pivoted frame and the trolley-wheel and sliding frame 4, mounted thereon. The trolley-wheel frame 4 has a sliding play of two inches, more or less, in or upon the pivoted frame 3 and is constructed with a pair of cheeks 4^a 4^a, in which is rigidly mounted the pintle 5 of the trolley-wheel 6, which runs thereon. Beneath the lower end of the sliding trolley-frame 4 is a spring 7, bearing upward against the sliding trolley-frame and downward against the bottom of the pivoted frame 3, so as to tend to force the trolley upward in the frame 3 in the position shown. A pendent cord 8, by which the trolley-pole is drawn down in setting the trolley on the wire, is attached to a link 9, connected at its upper end by an eye 10 to the bottom of the sliding trolley-frame 4. The cheeks 3^a 3^a of the pivoted frame 3 are slotted, as shown at 3^b, to permit the vertical movement of the trolley-wheel pintle 5 with the frame 4, which carries it. The cheeks 4^a of the vertically-sliding trolley-wheel frame 4 are in like manner slotted, as shown at 4^b, to work over the pintle 2 as the sliding frame 4 moves up and down in the pivoted frame 3.

In practice the entire trolley-frame and attachments have not sufficient weight to overcome the tension of the customary trolley-pole spring S; but in operation as the pole P is pressed upward by this spring and the trolley 6 bears on the wire W in customary manner the spring 7 is compressed to some extent, causing the trolley-wheel 6 to be forced downward between the upper ends of the pivoted frame 3 3, so that the cheeks of this frame constitute an additional guide for the wire and have an important useful function in this respect.

It is well known that in the ordinary operation of trolley-cars the vibratory movement of the trolley-wire and the swaying motion of the pole do not act in unison, and in consequence considerable upward pressure is necessary to maintain the trolley-wheel on the wire, and, moreover, the wheel is occasionally displaced by sudden lurches of the car in passing around curves or from other causes. My improvement is very useful in obviating this difficulty by providing an independent frame having a swinging movement tending to hold the wheel plumb and to counteract the irregular movement of the heavy trolley-pole, thus keeping the trolley-wheel in contact with the wire with a steady and uniform pressure.

It will further be seen that under variations in the deflection of the trolley-wire, which with the ordinary construction seriously affects the position of the trolley with reference to the wire, with my improvement the pivoted frame, always keeping the trolley-wheel plumb, maintains it in proper and uniform position under any variation in the angle of the trolley-pole. The swinging frame

may have any necessary extent of angular play and in ordinary operation will hang free and independently; but in case of extreme or irregular pressure in a horizontal direction tending to deflect the pivoted frame to an unusual degree I provide a buffer-spring 11, of rubber, which will limit the deflection of the pivoted frame in the trolley-pole by contact with the lower end of the latter.

My invention possesses another great advantage in the facility afforded in setting the trolley in position on the wire. It will be apparent that the drawing down of the trolley by means of the rope 8 forces the sliding frame 4 downward in the frame 3 against the pressure of the spring 7, thus exposing the cheeks forming the upper ends of the pivoted frame 3 to a considerable distance above the trolley-wheel, so that the said cheeks form an efficient guide to assist in setting the trolley-wheel in position.

In operation effective electric conduction is provided through the trolley-wheel pintle 5 and sliding frame 4 to the fork 1 and trolley-pole P. If desired, large copper washers can be interposed between the sides of the sliding frame 4 and the inner faces of the trolley-pole fork to improve the contact.

The projection of the swinging frame 3 to a considerable distance beyond and above the extremity of the trolley-pole has an important practical effect in preventing the end of the pole overrunning the cross-wires, from which the conducting-wire is suspended, in the event of the trolley leaving the conducting-wire while backing.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. The combination of the trolley-pole P, the swinging frame 3 having cheeks 3^a extending upward above and beyond the extremity of the trolley-pole, and the wheel 6 mounted between the upwardly-projecting cheeks 3^a of the swinging frame as set forth.

2. The combination of the trolley-pole P, the swinging frame 3 pivoted to the trolley-pole near its extremity, the sliding frame 4 guided by the frame 3; and the trolley-wheel 6, mounted in the upwardly-projecting cheeks 4^a of the sliding frame, by an axis 5, at a point above the pivot 2 by which the swinging frame is connected to the pole substantially as set forth.

3. The combination of the trolley-pole P with the pivoted frame 3, sliding frame 4, trolley 6 running therein, the spring 7 and the trolley-rope 8, connected to the sliding frame 4, substantially as described.

JOHN G. McLAUGHLIN.

Witnesses:
OCTAVIUS KNIGHT,
R. W. GLEASON.