(No Model.)

6 Sheets—Sheet 1.

P. F. O'SHAUGHNESSY.

ELECTRIC RAILWAY TROLLEY.

No. 498,403. Patented May 30, 1893.

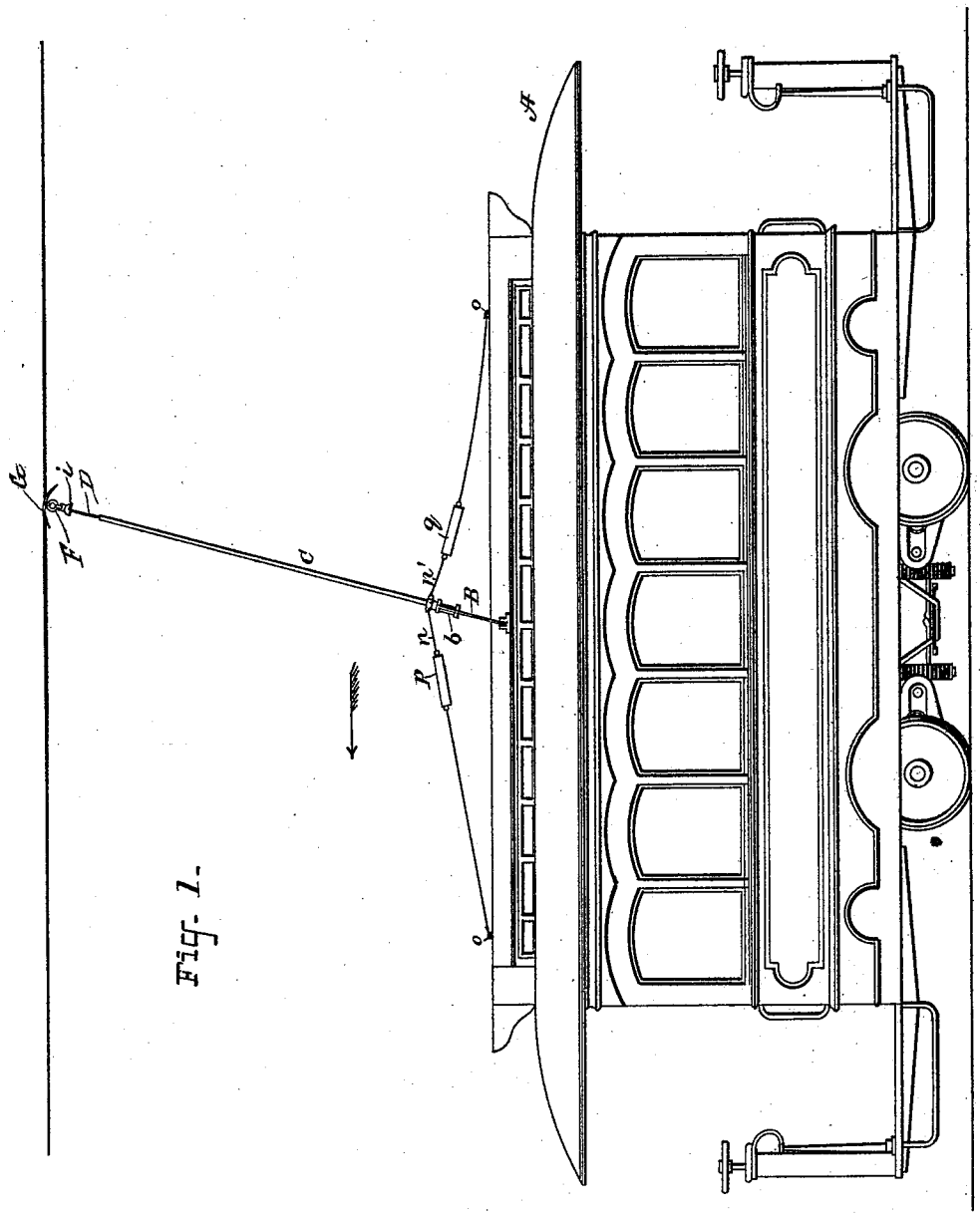

Fig. 1.

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ELECTRIC RAILWAY TROLLEY.

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Fig. 2.

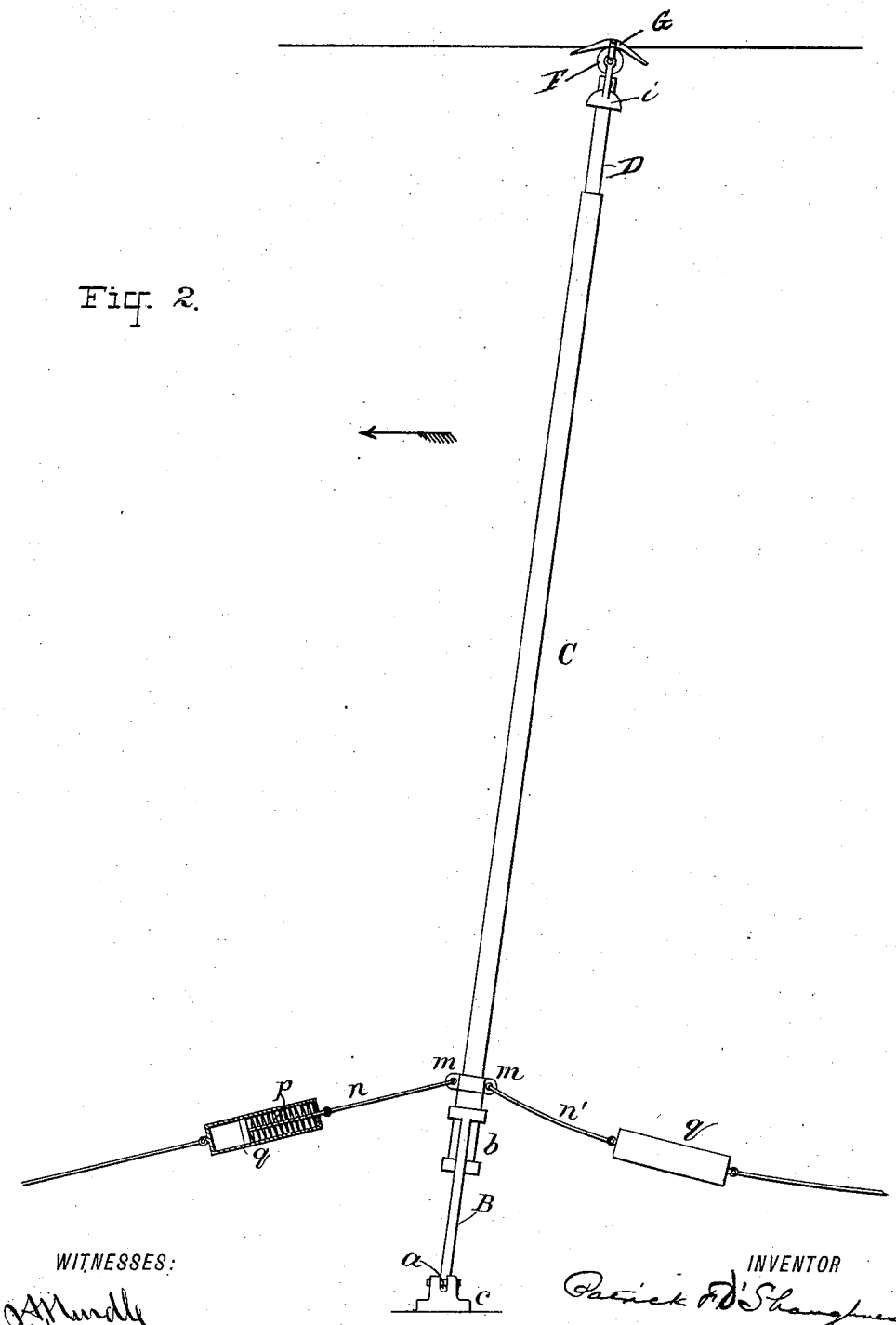

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Fig. 3.

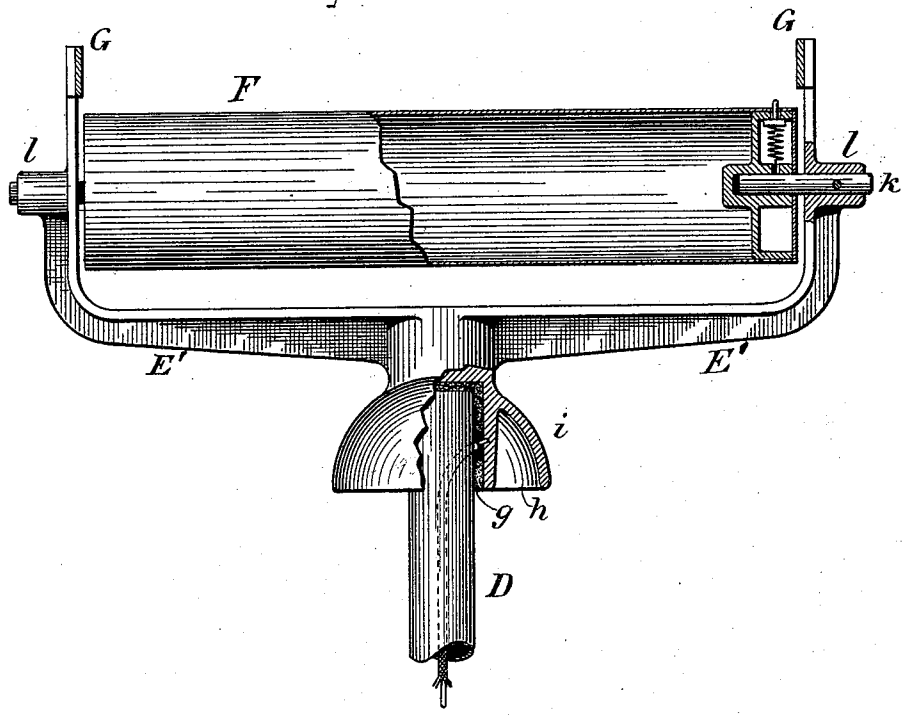
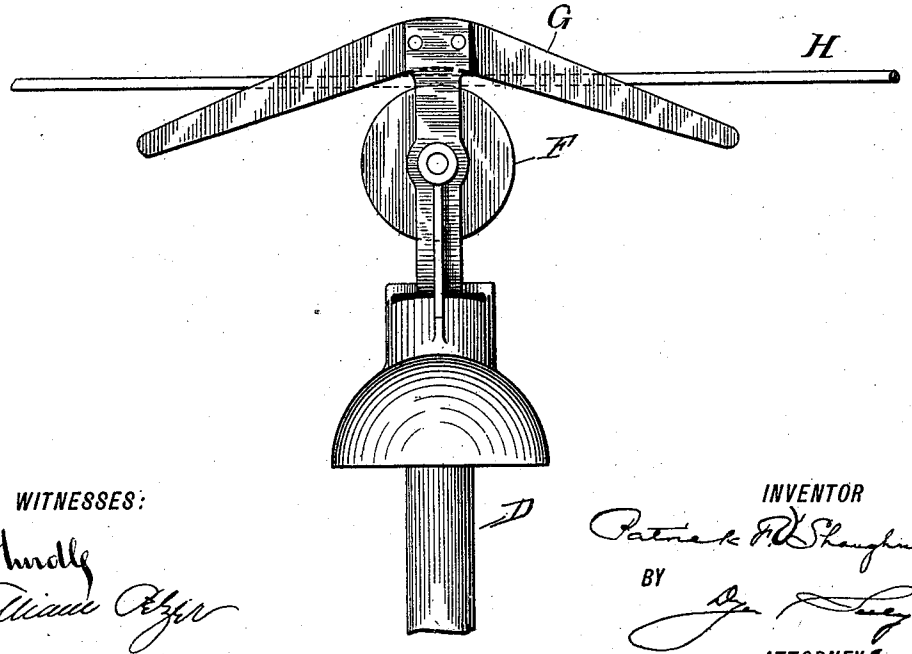


Fig. 4.



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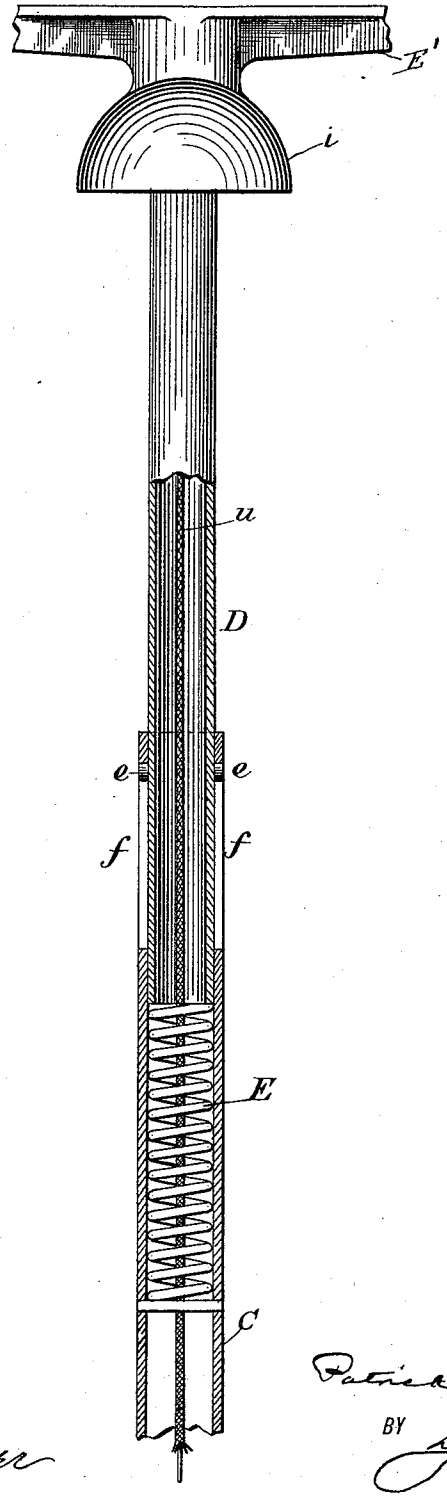
ELECTRIC RAILWAY TROLLEY.

No. 498,403. Patented May 30, 1893.

Fig. 5.



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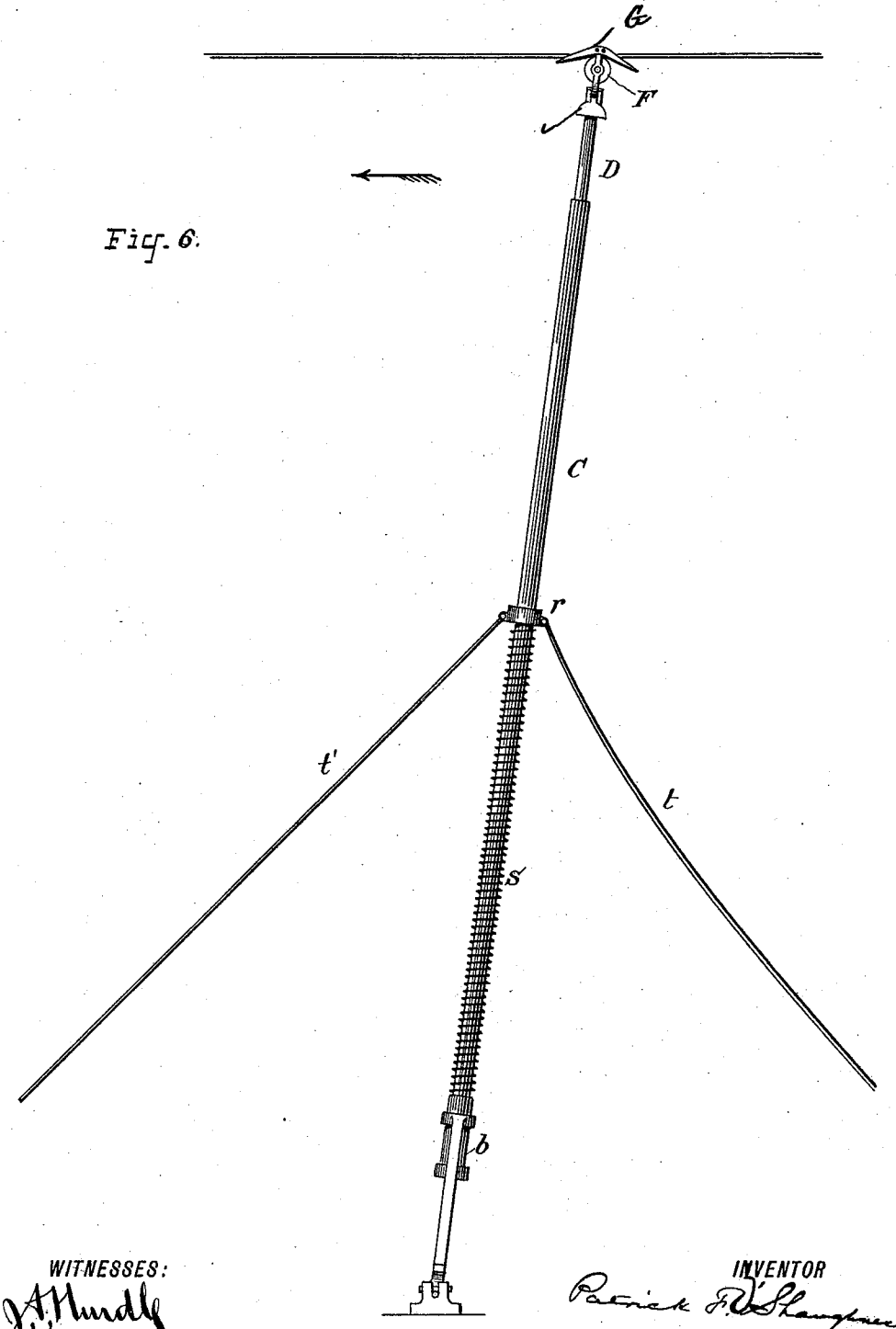
No. 498,403. Patented May 30, 1893.

Fig. 6.



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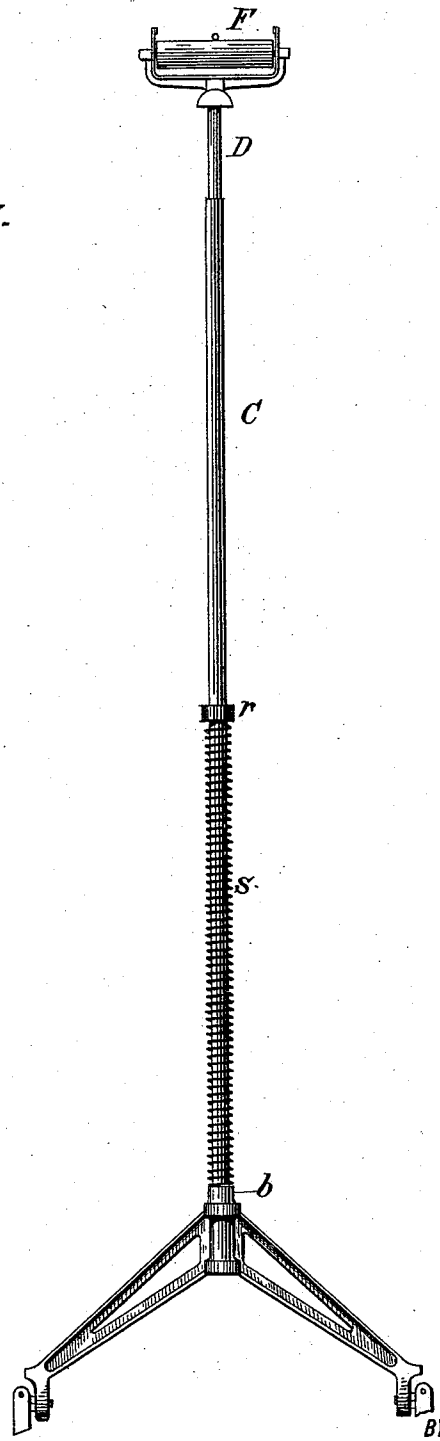
ELECTRIC RAILWAY TROLLEY.

No. 498,403. Patented May 30, 1893.

Fig. 7.



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UNITED STATES PATENT OFFICE.

PATRICK F. O'SHAUGHNESSY, OF NEW YORK, N. Y., ASSIGNOR TO THE SPRAGUE ELECTRIC RAILWAY AND MOTOR COMPANY, OF SAME PLACE.

ELECTRIC-RAILWAY TROLLEY.

SPECIFICATION forming part of Letters Patent No. 498,403, dated May 30, 1893.

Application filed September 27, 1888. Serial No. 286,542. (No model.)

To all whom it may concern:

Be it known that I, PATRICK F. O'SHAUGHNESSY, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented a certain new and useful Improvement in Electric Railways, of which the following is a specification.

My invention relates to that class of electric railways in which an overhead conductor is used and a traveling contact device carried by the car makes an underneath contact with such line, causing it to take off current for the motor which propels the car.

My object is to provide a simple and effective construction for the overhead contact and for the parts which support it, whereby the inclination of the support for the contact device is readily reversed to correspond with changes in the direction of movement of the car and whereby such contact device will be prevented from leaving the wire.

My invention is illustrated in the accompanying drawings.

Figure 1 is a view in elevation of a railway car provided with a contact device embodying the preferred form of my invention; Fig. 2, a view on a larger scale of the support for the contact device; Fig. 3, a front view and a partial section on a still larger scale of the contact device itself; Fig. 4, a side view of the same; Fig. 5, an elevation with a partial vertical section of the support for the contact device; Fig. 6, a side elevation of a modified form of support; Fig. 7, a front elevation of the same.

A is the electric railway car which it will be understood is provided with an electric motor for propelling it. Upon the roof of the car is placed a standard B consisting of two arms each of which is pivoted at *a* upon an axis extending cross wise of the car, which arms support a socket *b* preferably cast in one piece with the arms. The supports for the pivot are in suitable feet *c* on the roof of the car.

Referring now more especially to Figs. 1 to 5, a hollow support C is fixed in the socket *b*. This support or stem C extends up from the roof of the car and has inserted in it at its upper end a hollow rod D, which is constantly pressed upwardly by a spiral spring E in the hollow support C, being guided by pins *e* working in slots *f* in the stem C. The rod D carries the contact device and both these parts being of metal they are separated by insulating joints consisting of a thimble *g* of suitable insulating material placed over the end of rod D and over which is placed the metal thimble *h* which has a projecting downwardly extending flange *i* for protecting the parts beneath it from rain. From the thimble *h* and preferably made in one piece therewith, extend the arms E E which have at their ends the bearings for the contact device. This consists of a cylindrical metal roller F which is preferably hollow as shown, so as to be sufficiently light. This roller turns on spindles *k* which pass through bearing sleeves *l* at the ends of arms E′. The arms E′ extend above the sleeves *l* and each of them carries a curved or angular guard G which rises above the conducting wire H at its middle part and extends down on each side of the roller a sufficient distance to prevent the wire from passing off the roller at either end thereof. It will be seen that the roller is permitted to have a considerable movement from one side to the other without losing contact with the wire, but the guards G prevent it from slipping off altogether. At the upper end of the socket *b* are provided two lugs *m* to which are attached cords *n n′*, such cords extending lengthwise of the car and being secured to eyes *o* on the roof of the car. In each cord however is interpolated a spring *p*, each of these springs being in a cylindrical case *q* to one end of which the cord is secured where it comes from the eye *o*, while the portion of the cord which is attached to the lug *n* is connected with the farther end of the spring within the case. It will be seen that as the pole or trolley support is pivoted upon a transverse axis the movement of the car will, when the contact device is pressed against the overhead line, tend to throw the whole support backward on its pivot, as is shown in Figs. 1 and 2, the car in this case moving in the direction shown by the arrow. The movement of the pole backward however puts tension upon the spring in the cord *n* so that this tends to draw it forward against the force of the car, and the contact roller is therefore held against the wire with the support in an inclined position. The cord *n′* is

loose at this time but it will be seen that when the car runs in the opposite direction and the inclination of the pole is reversed, this will relax the spring in the cord n and put the spring in cord n' under tension so that this spring will hold the support in its new position.

In the modification of my invention illustrated in Figs. 6 and 7, a sliding collar r is placed on the hollow support C and between this collar and the socket b a spiral spring s is coiled around the support. The cords t and t' are secured to lugs on the collar r and extend lengthwise of the car, being secured to the car roof as before. It will be seen that in the position illustrated in Fig. 6 the cord t' is held taut by the upward pressure of the spring s against the collar r so that the said cord prevents the support from being pushed any farther back by the movement of the car, but when the car runs in the other direction and its movement throws the support to the other side of its center, the cord t' will be relaxed and the cord t will be tightened by the pressure of the spring, so that the support will be held in its reverse position. On account of the telescopic or extensible construction of the trolley pole, the reversal of its inclination can be readily accomplished without the trolley or contact device leaving the line.

The current is conveyed from the contact device to the motor by means of an insulated wire u, which is attached to the thimble h and passes down through the hollow supports B and C to the car.

What I claim is—

1. In an electric railway, the combination of an overhead conductor, a car, a pole flexibly attached to the car roof, and having a telescopic end section, and a contact device carried by the end section and making underneath contact with said conductor, substantially as set forth.

2. In an electric railway, the combination of an overhead conductor, a car, and a reversibly inclined pole carried by the car, and having a telescopic end section carrying a contact device making an underneath contact with said conductor, substantially as set forth.

3. In an electric railway, the combination of an overhead conductor, a car, and a reversibly inclined pole carried by the car, having a telescopic end section carrying a contact device making an underneath contact with said conductor, and a spring for projecting the telescopic section, substantially as set forth.

4. In an electric railway, the combination of an overhead conductor, a car, a pole hinged to the roof of the car on a transverse axis having a telescopic end section carrying a contact device making an underneath contact with said conductor, and a spring for projecting the telescopic end section, substantially as set forth.

5. In an electric railway, the combination of an overhead conductor, a car, a pole hinged to the roof of the car on a transverse axis having a telescopic end section carrying a contact device making an underneath contact with said conductor, and a spring for projecting the telescopic end section, and springs tending to maintain said pole in a vertical position, substantially as set forth.

This specification signed and witnessed this 22d day of September, 1888.

PATRICK F. O'SHAUGHNESSY.

Witnesses:
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A. W. KIDDLE.