

No. 807,653.

PATENTED DEC. 19, 1905.

W. J. BARRON.
TROLLEY FOR ELECTRIC RAILWAYS.
APPLICATION FILED JUNE 6, 1900.

Fig. 2.

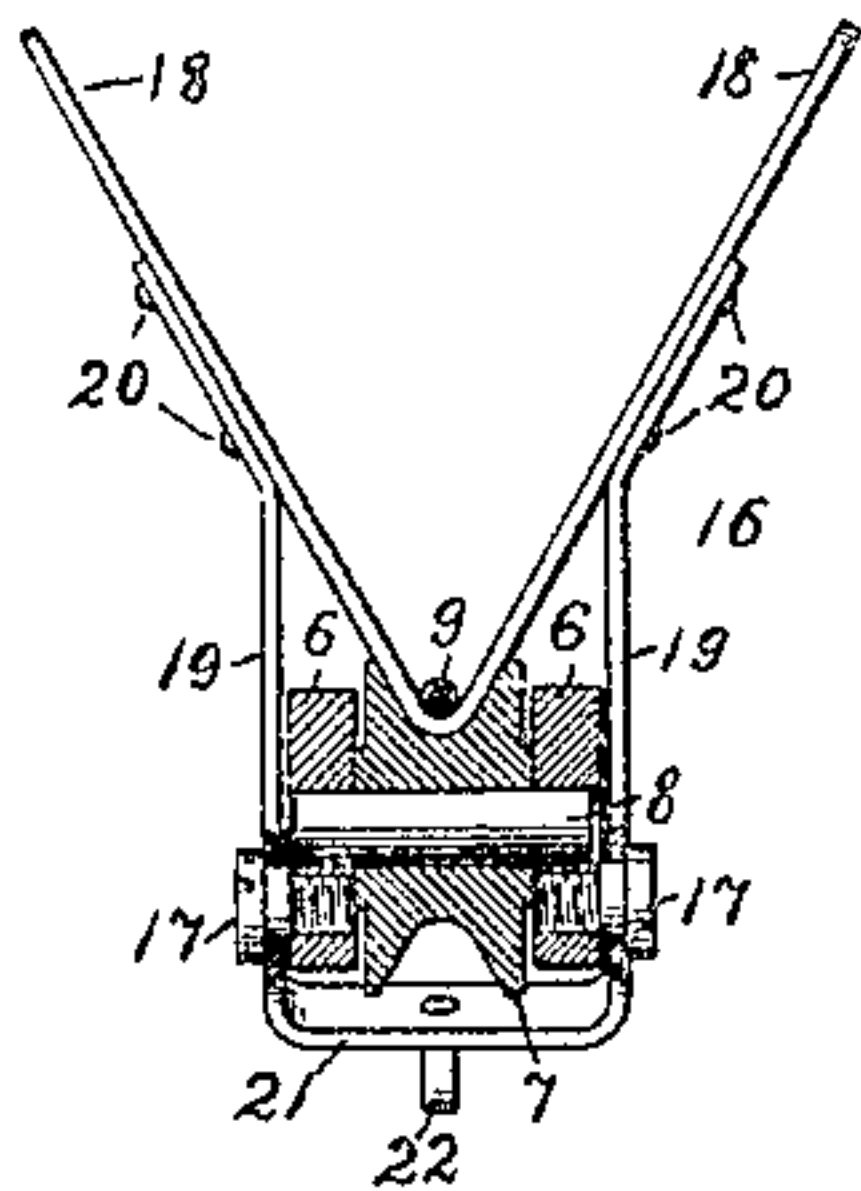


Fig. 1.

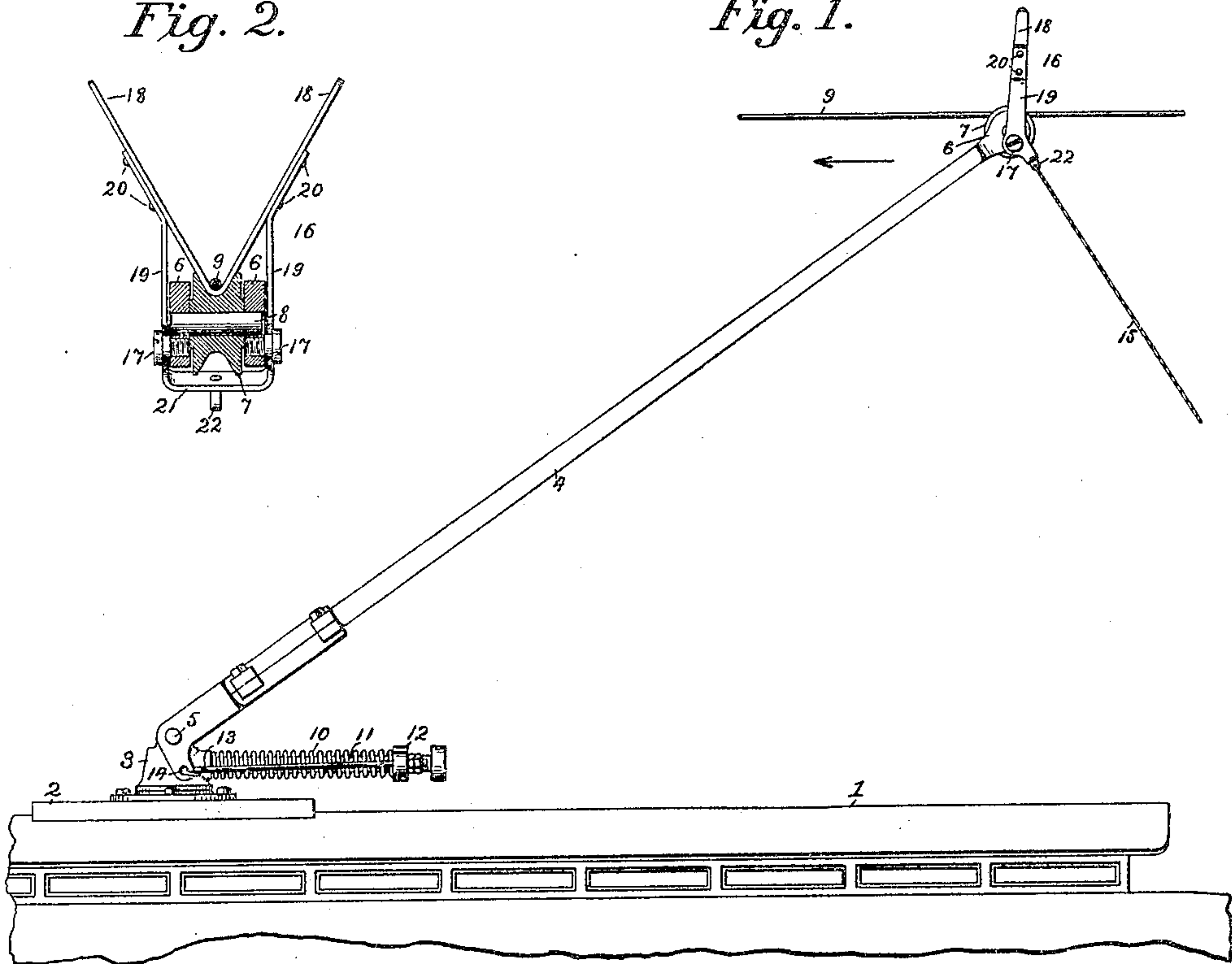


Fig. 4.

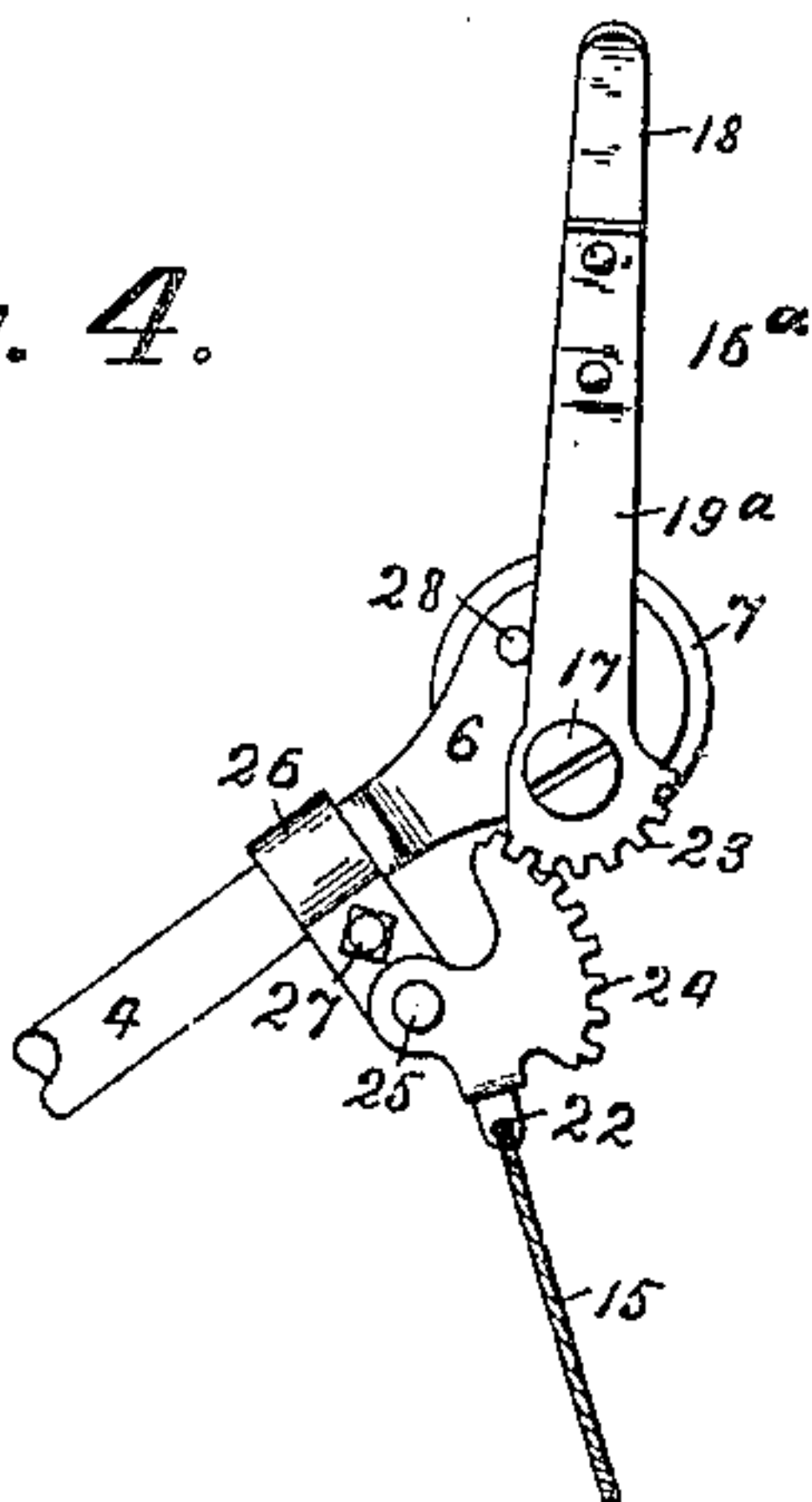
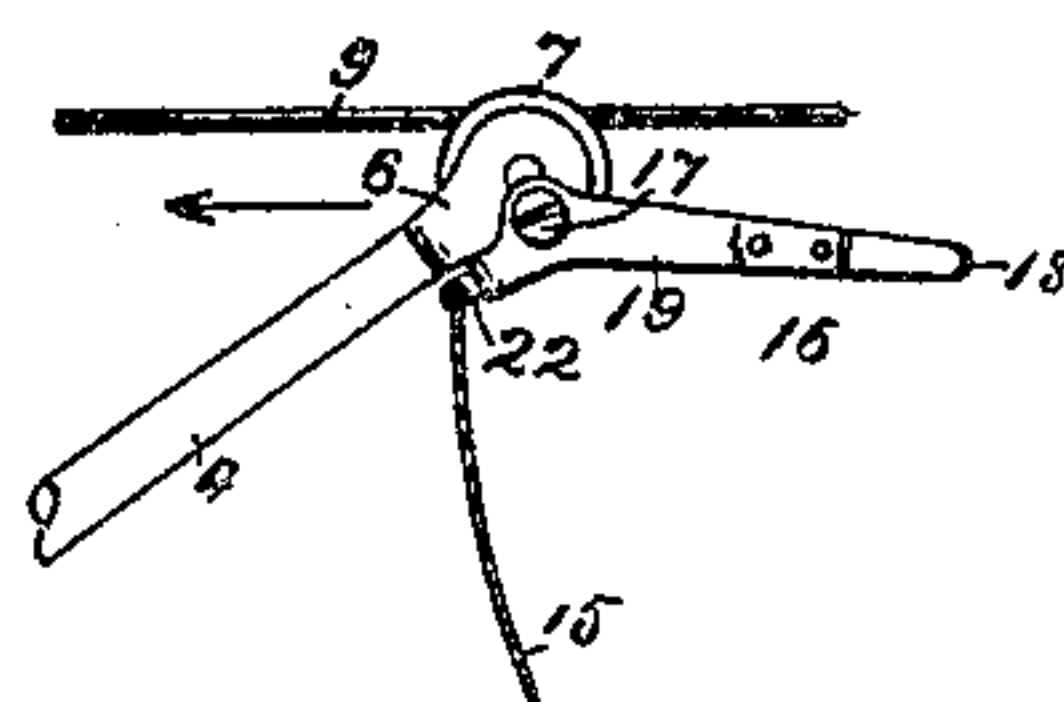


Fig. 3.



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TROLLEY FOR ELECTRIC RAILWAYS.

No. 807,653.

Specification of Letters Patent.

Patented Dec. 19, 1905.

Application filed June 6, 1900. Serial No. 19,219.

To all whom it may concern:

Be it known that I, WALTER J. BARRON, a citizen of the United States, and a resident of the borough of Brooklyn, city of New York, in the county of Kings and State of New York, have invented certain new and useful Improvements in Trolleys for Electric Railways, of which the following is a specification.

My invention relates to electric street-car trolley-poles, the upper ends of which are provided with wheels which run upon the under side of the current-conductor or street-wire and are maintained in contact therewith by means of spring mechanism arranged at the lower end of the pole. Frequently the wheel runs off the wire and difficulty is experienced and time lost in replacing it thereon, because the street-wire is of small size and located some distance overhead, where it is not readily discernible, and, further, because the wheel is narrow and the trolley-pole is difficult to control or accurately position by means of the usual pendent rope. These difficulties are augmented at night, when both the wire and the upper end of the pole are nearly indistinguishable in the darkness, the motorman or conductor not even having the benefit of light radiated from the car, since the latter is in darkness when the pole is disconnected from the street-wire. If the car when stalled is standing in a dangerous position upon a grade-crossing or elsewhere, it may be of the utmost importance to quickly reconnect the pole to the street-wire, so that the car may be moved and a collision or other accident avoided. Moreover, with previous constructions there is considerable annoyance and loss of time in connecting the trolley to the line-wire at the end of the route where the direction of the car is to be reversed.

The main object of my invention is to provide means whereby the pole or trolley can be quickly connected to the street-wire and without the necessity of making repeated attempts or exercising extraordinary skill.

To this end my invention consists in a novel wire-catching device or trolley-guiding means and in certain combinations of devices and features of construction, all as will be more fully hereinafter set forth, and particularly pointed out in the concluding claims.

In the accompanying drawings, Figure 1 is a side elevation of a trolley-pole and its adjuncts and showing its connection both to the street-wire and to the top of an electric

car and also showing my improvements. Fig. 2 is a vertical transverse section, upon an enlarged scale, taken about axially of the trolley-wheel at Fig. 1. Fig. 3 is a fragmentary view showing the position assumed by my guiding device when out of use or when the car has started to move or is moving. Fig. 4 is a side elevation of a modification of the guiding device in its working position.

Throughout the several views similar parts are indicated by similar numerals of reference.

1 designates the roof of an electric street-car having a centrally-arranged platform 2, upon which is mounted a vertically-swiveled stand or carrier 3. A trolley-pole 4 is horizontally pivoted to said carrier at 5 and extends upwardly in a diagonal direction, overhanging the rear end of the car-roof. The upper end of the pole is forked at 6, and a flanged or V-grooved trolley-wheel 7, or one having a tread or periphery that is substantially V-shaped in cross-section, is mounted on a pivot or bearing 8 in the fork and caused to bear up against the under side of a horizontal conductor or street wire 9 by means of a compression-spring 10, which is coiled around a horizontal staff 11, fixed in the carrier 3, and bears at its inner end against said carrier and at its outer end against a collar 12, which slides along the staff and is connected by a link or links 13 to the short arm of the trolley-pole at 14. The pole is pivoted at 5 to enable it to swing up and down to compensate for the varying distance between the street-wire and the roof of the car, also to enable the spring 10 to maintain an upward pressure of the wheel 7 upon the wire, so as to reduce the liability of the latter to run off the wire and also to enable the pole to be pulled down and disconnected from the street-wire at will. The carrier 3 is swiveled so as to permit the trolley-wheel to follow the street-wire, which is not always directly over the center of the car, as when turning corners, and also so as to enable the pole to be swung around to overhang the other end of the car-roof when it is desired to run the car in the reverse direction.

Usually a rope is attached to the trolley-pole at or near its upper end and hangs down over the roof of the car convenient to the conductor, who employs it to disconnect the pole from and reconnect it to the street-wire. In accordance with my invention I do not attach the rope 15 directly to the pole, but instead to a light frame, which is generally

designated as 16 and which is hinged upon the upper end of the pole by means of shouldered screws 17, which are out of alinement with the pivot 8 and engage threaded holes in the prongs of the pole-fork 6. The frame 16 is preferably made of two pieces of sheet metal, one of which is bent into U shape and embraces the fork 6 and the other of which is bent to form a V, the diverging arms 18 of which fit between the outwardly-flaring upper ends of the arms 19 of the U-piece and are united thereto by rivets 20. The cross-bar 21 of the U-piece is provided with a downwardly-extending eye 22, in which the upper end of the operating-rope 15 is caught.

When the car is in motion, the normal positions of the parts are those indicated at Fig. 3, the frame 16 lying in a horizontal position below the street-wire, where it cannot strike the cross-wires, supporting-arms, or other devices by which the street-wire is sustained. The frame preferably lies behind the trolley-pole, so that in the event of the wheel running off the wire, chance obstructions will be hit by the pole and not by the frame 16, so that the latter will not cause damage or suffer damage itself. When the trolley-wheel has become disconnected from the wire, either accidentally or purposely, and it becomes necessary to replace the same, the rope 15 is pulled down, thereby causing the frame 16 to swing upon its hinge or pivot until it assumes a substantially upright position, as at Figs. 1 and 2, in which position it remains as long as the rope 15 is under tension. This pull on the rope also causes the pole to swing downwardly until the tips of the V descend to a point below the street-wire. Then by suitable manipulation of the rope the pole is swung sidewise until the V is brought under the wire, when the rope is slackened sufficiently to permit the pole to swing upwardly under the tension of the spring 10, the sides of the V operating to guide the pole in its upward movement and direct it toward the wire, so that the wheel 7 is brought directly under the latter or so that said wire comes between the flanges of the wheel, as indicated at Fig. 2. The sides 18 of the frame 16 flare outwardly or diverge so much that their tips are greatly separated, and hence it is almost impossible for even an unskilled operator to miss the wire.

Upon release of the rope the frame 16 drops back to normal position, if loosely fitted; but if it be fitted tightly or so as to cause friction it will remain in its upright position until the car starts forward, as will presently be explained. I deem it desirable that the frame shall be frictionally held in its working position, so that in case of undue slack in the rope before the reengagement of the pole with the street-wire there will be no liability of the frame 16 returning prematurely to non-working position. To this end I preferably shape the frame 16 so that the point of the V engages

and binds tightly between the flanges of the wheel 7, as illustrated at Fig. 2, thereby producing sufficient resistance to overcome the tendency of the frame to swing back. The bottom notch in the V engages the street-wire, and the friction between said notch and the wire during the initial forward motion of the car causes the frame to turn backwardly upon its hinge or pivot 17 to normal or horizontal position. Other frictional devices, however, may be employed within the scope of the invention, and I do not desire to be limited, so far as some of my claims are concerned, to the use of a V closed at the bottom for this purpose. If in any case there should be an excess of friction, so that the guiding-frame would not swing down under the friction of the street-wire, it will be knocked down upon meeting the first cross connection or line-wire support.

In the construction illustrated at Fig. 4 the cross-bar 21 of the frame 16^a is omitted and the lower end of one of the side arms 19^a is formed or provided with a gear 23, which meshes with a gear 24 of large diameter, pivoted at 25 upon a collar or clamp 26, which surrounds the pole and is secured thereon by means of a bolt 27. Said gear 24 is provided with an eye 22 for the rope 15, which latter when pulled down causes the gear 24 to swing downwardly about its pivot, and the frame 16^a to rise to its upright or working position, as indicated at said figure. A stop-pin 28 may be provided upon the pole end to limit the upward movement of the frame 16^a. The return of the parts to inactive position takes place in the same manner as above set forth. By this construction the movement of the frame to working position is effected by a shorter pull upon the rope 15, or in less time, owing to the difference in the diameters of the gears 23 and 24.

It will be seen that by my improvement the pole may be promptly connected to the street-wire, thus saving much time and trouble and often avoiding liability to accident. Furthermore, it will be observed that the device is of simple and inexpensive construction and may be readily applied to existing structures.

Many changes in details of construction and arrangement may be made within the scope of my invention. So far as the guiding function is concerned, it is not essential that the arms 18 meet at their converging ends.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination with a spring-pressed pivoted trolley-pole having a forked head, a flanged trolley-wheel arranged within said head, a pivot 8 therefor, a V-shaped frame having depending parallel arms 19, pivots 17 out of alinement with the pivot 8 and engaging holes in the cheek-plates of said fork, and means for swinging said arms and said frame about said pivots 17 17.

2. The combination with a trolley-pole, of a guide carried thereby and normally arranged out of working position, means for moving said guide upon said pole, and means that are brought into action when the guide is moved to the working position for frictionally holding said guide in working position.

3. The combination with a trolley-pole having a flanged wheel to engage the street-wire, of a V-frame pivoted upon said pole, and a rope for controlling said V-frame, the latter being arranged normally out of working position and being adapted to swing upwardly upon said pivot so as to engage the street-wire and guide the pole toward said wire, said frame being so constructed and pivoted that when moved to working position the point of the V engages and binds between the flanges of the trolley-wheel, whereby said frame is temporarily held in working position.

4. The combination with a trolley-pole, of a guide carried thereby and normally arranged out of working position and provided with gear-teeth, a driving-gear meshing therewith, a rope for actuating said driving-gear, and means for frictionally holding said guide in working position.

5. The combination with a trolley-pole having a flanged wheel to engage a trolley-wire, of a V-shaped frame pivoted upon said pole and provided with gear-teeth, a driving-gear meshing therewith, a rope for actuating said driving-gear to control said V-shaped frame, the latter being arranged normally out of the working position and being adapted to swing upwardly upon said pivots so as to engage the

trolley-wire and guide the pole toward said wire, and frictional means for holding the said frame in the working position.

6. The combination with a trolley-pole having a trolley-wheel, a guiding-frame movably connected to said trolley-pole and normally out of working position and adapted to contact with the trolley wire and wheel when in the working position and when the wire and trolley-wheel are in contact, so that the guiding-frame may, by a direct frictional engagement between the guiding-frame and trolley-wire, be automatically moved out of the working position and out of contact with the trolley-wheel when the car advances, and means connected to the guiding-frame for moving it to the working position.

7. The combination with a trolley-pole, a trolley-wheel journaled therein having a grooved tread that is substantially V-shaped in cross-section, a substantially V-shaped guiding-frame pivoted to said trolley-pole eccentrically of the journal or pivot of the trolley-wheel, and means for swinging said substantially V-shaped frame and causing the apex of the same to bind in the grooved tread of the trolley-wheel.

Signed at the borough of Manhattan, city of New York, in the county of New York and State of New York, this 4th day of June, A. D. 1900.

WALTER J. BARRON.

Witnesses:

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