

(No Model.)

J. L. WALKER.

TROLLEY POLE FOR OVERHEAD ELECTRIC RAILWAYS.

No. 599,274.

Patented Feb. 15, 1898.

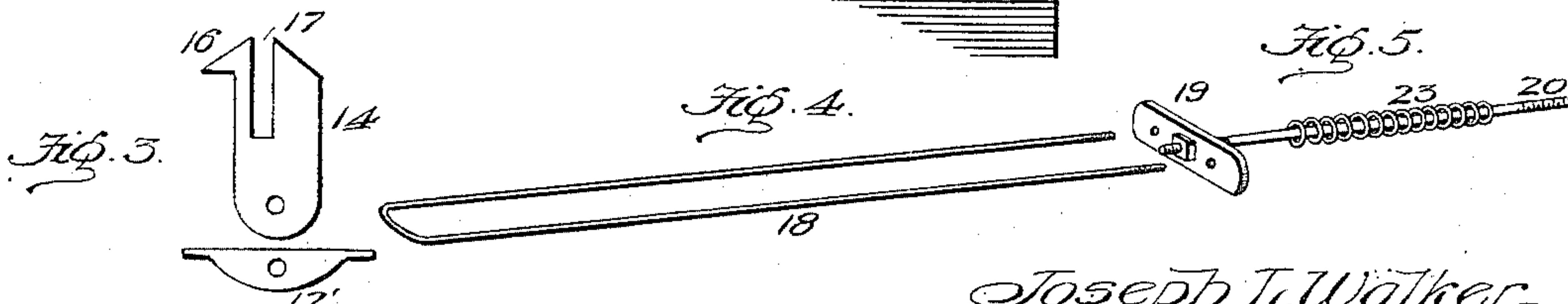
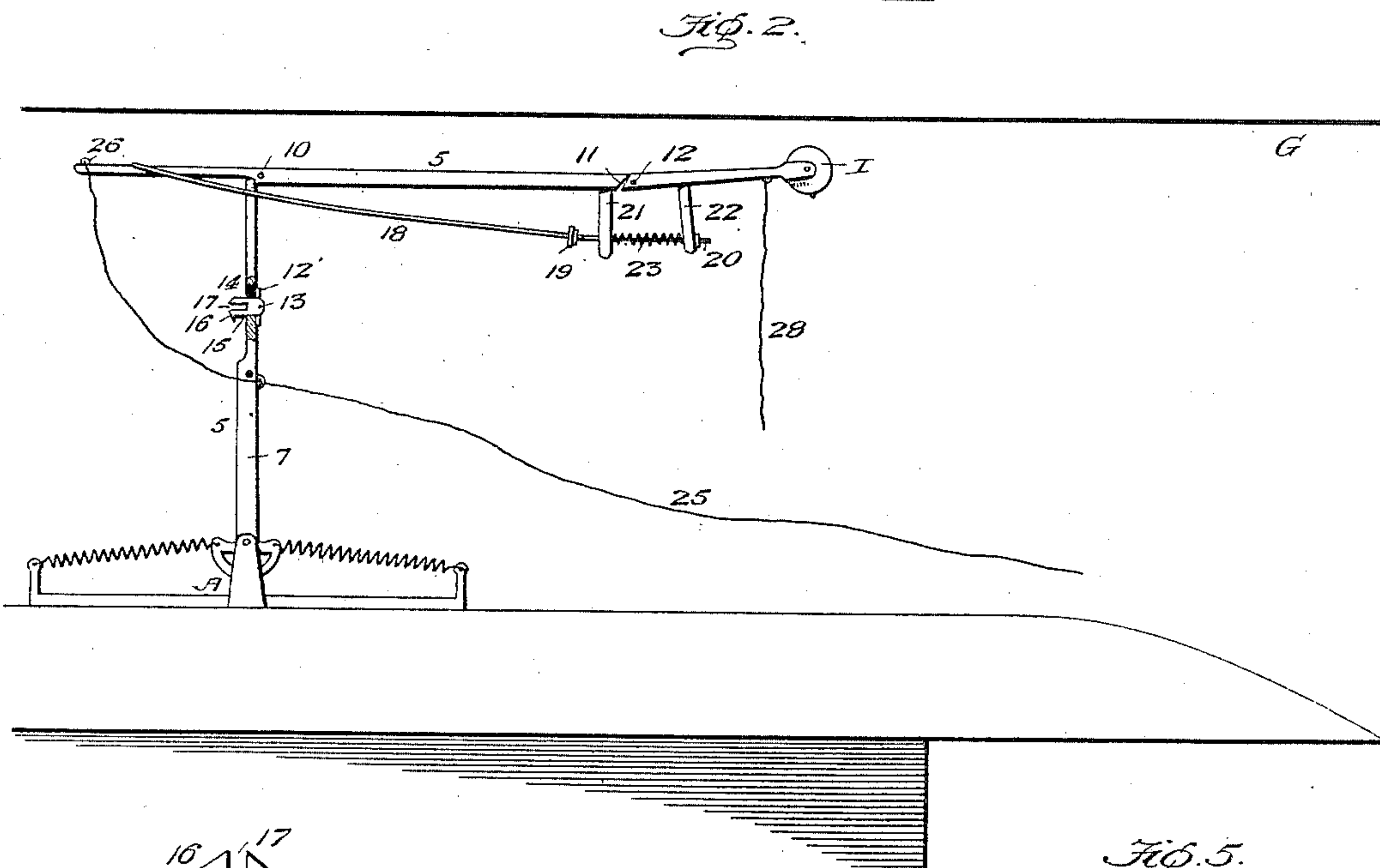
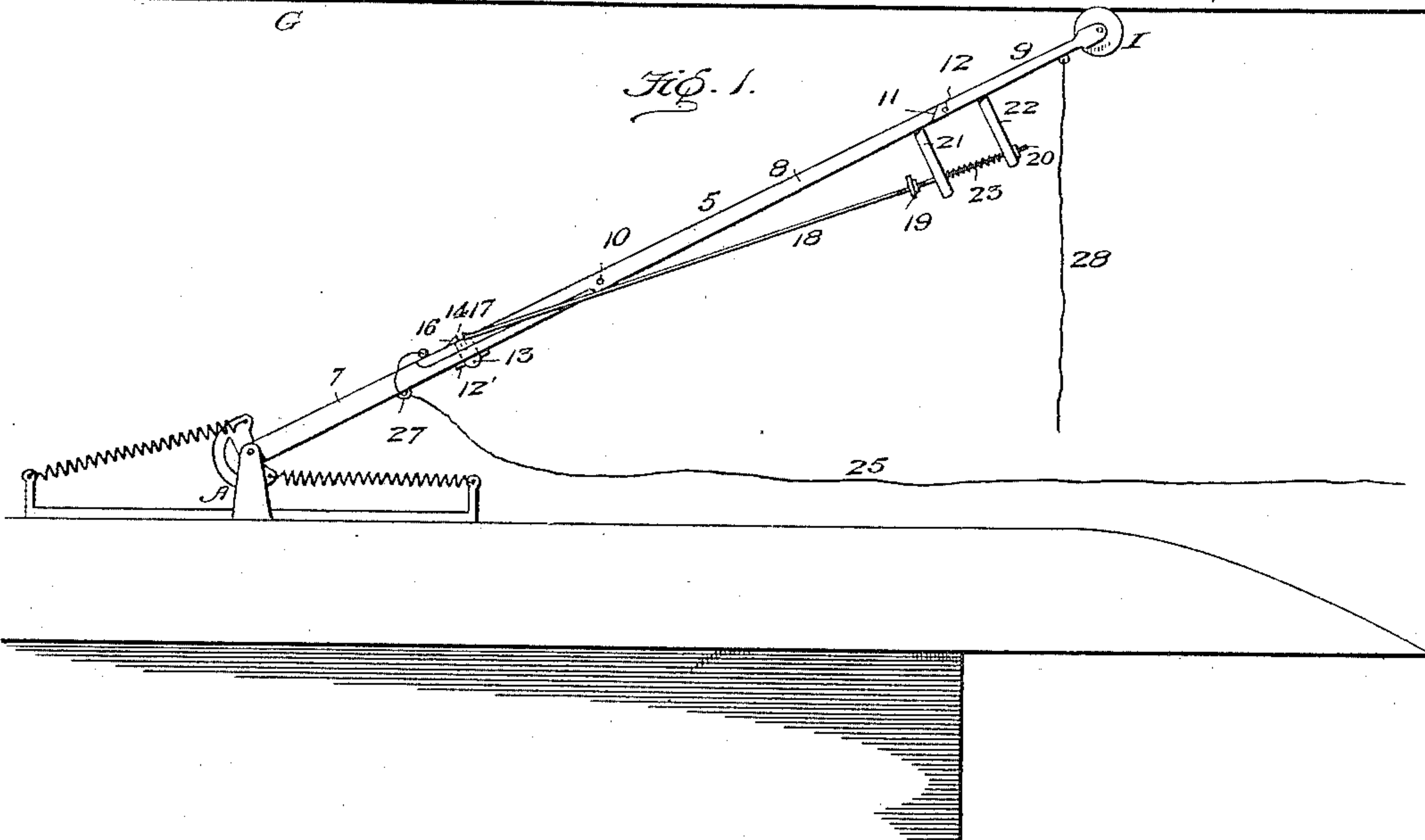
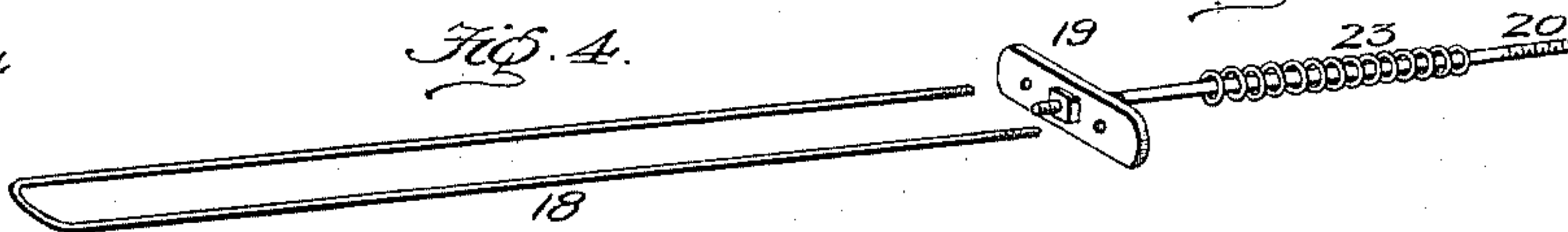


Fig. 4.

Fig. 5.



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UNITED STATES PATENT OFFICE.

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TROLLEY-POLE FOR OVERHEAD ELECTRIC RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 599,274, dated February 15, 1898.

Application filed June 18, 1897. Serial No. 641,331. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH LEE WALKER, a citizen of the United States, residing at Louisville, in the county of Jefferson and State of Kentucky, have invented certain new and useful Improvements in Trolley-Poles for Overhead Electric Railways; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in trolley-poles for overhead electric railways of that class in which the pole is pivoted in a stand and normally pressed upward by the action of springs or their equivalent to hold the trolley-wheel in underrunning contact with the overhead conductor.

It has been customary to make the pivoted spring-pressed pole in a single continuous piece of metal or tubing, and, as is well known, the trolley-wheel frequently slips off the overhead conductor. When such solid continuous poles are used and the trolley-wheel becomes disengaged from the conductor, the pole is pressed by its springs with considerable force to a straight upright position, and it has been demonstrated that this frequently results in breaking the overhead conductor, thus causing delay in the operation of the railway system and expense in repairing the injury to the conductor.

The object of my invention is to provide a pole of simple construction which in the event of the trolley-wheel slipping off the conductor will insure collapsing and folding of the pole automatically, so as to remain normally below the horizontal line of the conductor and thus obviate liability of damage thereto by the pole being forcibly impelled to an upright position.

With these ends in view my invention consists in the employment of a sectional pivoted pole, the outer member of which carries the usual trolley-wheel, combined with a latch mechanism connected with and controlled by said outer member of the pole in such a manner as to maintain the members or joints of the pole in alinement with each other when the trolley-wheel is in operative engagement with the conductor; but when said wheel slips off the conductor the latch

device is operated to release the joints or members of the pole, so as to permit them to fold or collapse, the pole remaining below the conductor when unjointed. Provision is made for readily restoring the pole to its proper working condition by simply pulling a rope or equivalent device; and the invention further consists in the novel combination of elements and in the construction and arrangement of parts, which will be herein-after fully described and claimed.

To enable others to understand my invention, I have illustrated the preferred embodiment thereof in the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a view in elevation showing my trolley-pole in operative position with relation to the overhead conductor. Fig. 2 is a view illustrating the pole in its unjointed or collapsed condition, as when the trolley-wheel becomes disengaged from the conductor. Fig. 3 is a detail view of the latch or trigger and the plate to which it is pivoted. Figs. 4 and 5 are detail views of the latch-loop, the draw-bolt, and the spring.

Like letters and numerals of reference denote corresponding parts in all the figures of the drawings, referring to which—

A designates the trolley-stand, erected, as usual, on the roof of a railway-car, and G is the overhead conductor or wire.

My improved trolley-pole 5 is represented in the drawings as consisting of three members or joints 7, 8, and 9, although the number of the joints used is not material. The lower member 7 of the pole is pivoted in the stand A in the usual or any preferred way, and to it are connected the springs or other devices that operate to press the pole upwardly and to cause the trolley-wheel 1 to have the proper underrunning contact with said overhead conductor G. The trolley-wheel is journaled in or carried by the outer member or joint 9 of the pole in any suitable way.

The member or joint 8 of the trolley-pole is pivoted at an intermediate point of its length to the end of the member 7, which is pivotally supported in the stand A, the pivot which unites the members 7 8 being indicated at 10. The lower end of the member 8 is adapted to lap or lie over, for a distance equal

to the length thereof between its lower extremity and the pivot 10, the lower member 7, and to enable the lapping parts of the members 7 8 to fit snugly together and to lie practically in alinement with each other when the pole is in condition for service I bevel the opposing faces of the members 7 8, as shown in the drawings. The upper extremity of the intermediate member 8 has a short bevel 11, against which may abut the correspondingly-beveled end of the outer member 9 of the pole, said members 8 9 being pivoted together, as at 12, and the beveled ends of said members so arranged as to enable the outer wheel-carrying member 9 to have a limited tilting movement relative to the intermediate member 8.

I will now describe a simple form of the latch mechanism shown in the drawings as one embodiment of the invention. On the pole member 7 at a suitable distance below the pivot 10 is fastened a bracket or plate 12', and to said bracket is pivoted, as at 13, a latch or trigger 14, which passes through a hole in the pole member 7 and is adapted to pass through a mortise or slot 15 in the pole member 8 when the two members 7 8 are brought into alinement. The free end of this latch or trigger has an offstanding nose 16, adapted to take over and bear on the pole member 8, and said latch or trigger is also provided with a notch or open-ended slot 17, into which the closed or loop-shaped end of the connector wire or rod 18 is adapted to fit. This connector wire or rod 18 extends loosely along the pole from the latch or trigger nearly up to the pivot 12, and the end or ends of said connector wire or loop 18 are threaded and passed through openings in a cross-head 19 to receive a fastening nut or nuts. The connector wire or rod fits loosely on or around the pole, or it may be guided on the pole member 8, any suitable means being provided for holding the connector-wire in place in case it is desired or found necessary to confine the connector-wire on the pole; but such guiding or confining means must not interfere with endwise movement of said connector wire or loop. Attached centrally to the cross-head 19 is a draw-bolt 20, which passes loosely through openings or slots provided in the lugs or arms 21 22, and on threaded ends of the draw-bolt are screwed nuts, one of which bears against the cross-head 19, while the other bears against an arm or lug 22. One arm or lug, 21, is fastened rigidly to the intermediate pole member 8, but the other arm or lug, 22, is fastened rigidly to the wheel-carrying member 9 of the pole, so that the lugs are on opposite sides of the pivot. Loosely fitted on the draw-bolt is coiled a spring 23, which is arranged to bear or press at its ends against the lugs or arms 21 22.

The pole as an entirety, consisting of the members 7 8 9, is of a length proper to span the space between the stand and the overhead conductor, but the length of the lower pole member 7 is less than the vertical distance

between the stand and the overhead conductor. The sections 7 8 of the pole may be brought into alinement with each other by pulling on the rope or cord 25, one end of which is attached to an eye 26, fastened on the pole member 8 near its lower end, said cord 25 passing through a guide 27, attached to the pole-section 7. The trolley-wheel is adjusted to catch the wire by the usual cord or rope 28.

Under normal conditions of service the members of the pole are held in alinement with each other, so that the pole presents a substantially continuous appearance, because the latch or trigger 14 engages the pole member 8, and the connector wire, loop, or rod 18 engages with the notched end of the trigger, so as to draw the cross-head 19 and bolt 20 to pull the pole member 9 against the tension of the coiled spring into alinement with the pole member 8, the trolley-wheel 1 riding against the lower face of the overhead conductor. The pressure of the pole and the stand-springs holds the loop or connector-wire 18 in engagement with the notched end of the trigger. If the trolley-wheel slips off and becomes disengaged from the overhead conductor, the outer pole member 9 is lifted by the action of the coiled spring 23 against the lug or arm 22 to a position somewhat inclined at an angle to the pole member 8, and at the same time the lug or arm 22 pulls the draw-bolt 20, so as to move the connector-wire 18 endwise and pull the trigger 14 free from the pole member 8, thus releasing the pole member 8 from its locked engagement with the pole member 7. The ordinary stand-springs force the pole member 7 to an upright position, which, however, is not of sufficient length to reach the overhead conductor; but the pole members 8 9 do not stand in an upright position with the pole member 7, because the member 8 swings or turns on the pivot 10 to cause it to assume a substantially horizontal position, as shown by Fig. 2, the beveled joint between the pole members 8 9 and the lugs and draw-bolt limiting the upward displacement of the member 9 to a slightly-inclined position with relation to the member 8.

To draw the pole member 8 into alinement with the member 7, the operator pulls the rope or cord 25 to draw the free end of the member 8 downward, so that the latch or trigger 14 engages the member 8, and the looped end of the wire connector 18 engages the notched end of the latch or trigger, after which the pole is adjusted by the rope 28 to bring the trolley-wheel into engagement with the overhead conductor.

It will be observed that I have devised an improvement in trolley-poles which serves every purpose of the solid continuous pole ordinarily used in overhead railway systems; but my device is free from the serious objection of breaking and injuring the overhead conductor when the trolley-wheel slips off the conductor, because under such conditions the

pole collapses or folds automatically and does not reach up to and strike against said conductor.

I am aware that changes in the form and proportion of parts and in the details of construction herein shown and described as an embodiment of my invention may be made by a skilled mechanic without departing from the spirit or sacrificing the advantages of my invention, and I therefore reserve the right to make such modifications and alterations as fairly fall within the scope of the invention.

I would remark that the improved pole can be substituted for the ordinary pole without requiring any changes in the trolley-stand or the railway system, and that the pole may be made of metal, wood, or other appropriate material.

The latch or trigger 13 is adapted to fall by its weight or gravity into engagement with the pole member 7 when the pole is pulled downward; but, if desired, a spring may be used to press the latch into engagement when the members 7 8 are brought into alinement.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A trolley-pole having its members pivoted one to the other to lie in alinement under normal conditions, one member carrying the trolley-wheel, combined with a latch which connects two of the pole members, a draw-bolt connecting the intermediate pole member and the wheel-carrying member, and operative connections between said draw-bolt and the latch, substantially as described.

2. A trolley-pole consisting of the members 7, 8, 9, the lugs or arms on the members 8, 9,

a draw-bolt, a spring, a latch carried by the member 7 and engaging with the member 8, and a connector loop or rod between the draw-bolt and the latch, substantially as and for the purposes described.

3. In an overhead electric railway, a trolley-pole having its members 7, 8, normally held in alinement by a latch and provided at its extremity with a pivoted wheel-carrying member, combined with latch-releasing connections between the latch and the wheel-carrying pole member, substantially as described.

4. In an overhead electric railway, a three-jointed pole having its members pivoted together and provided with a trolley-wheel at its outer member, combined with a latch which holds two of the members in alinement, and trip devices operatively connected to the wheel-carrying pole member and the latch, whereby the latch is released when the trolley-wheel slips off the conductor and the pole is permitted to collapse, substantially as described.

5. In an overhead electric railway, a three-jointed pole having its outer member equipped with a trolley-wheel, a latch operatively connecting two members of the pole, and a spring-controlled draw-bolt connected at one end to the wheel-carrying pole member and fitted to the latch to retract the latter when the trolley-wheel slips off the overhead conductor, substantially as described.

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

JOSEPH LEE WALKER.

Witnesses:

WM. PETER,
ALBERT STALEY.