

No. 756,547.

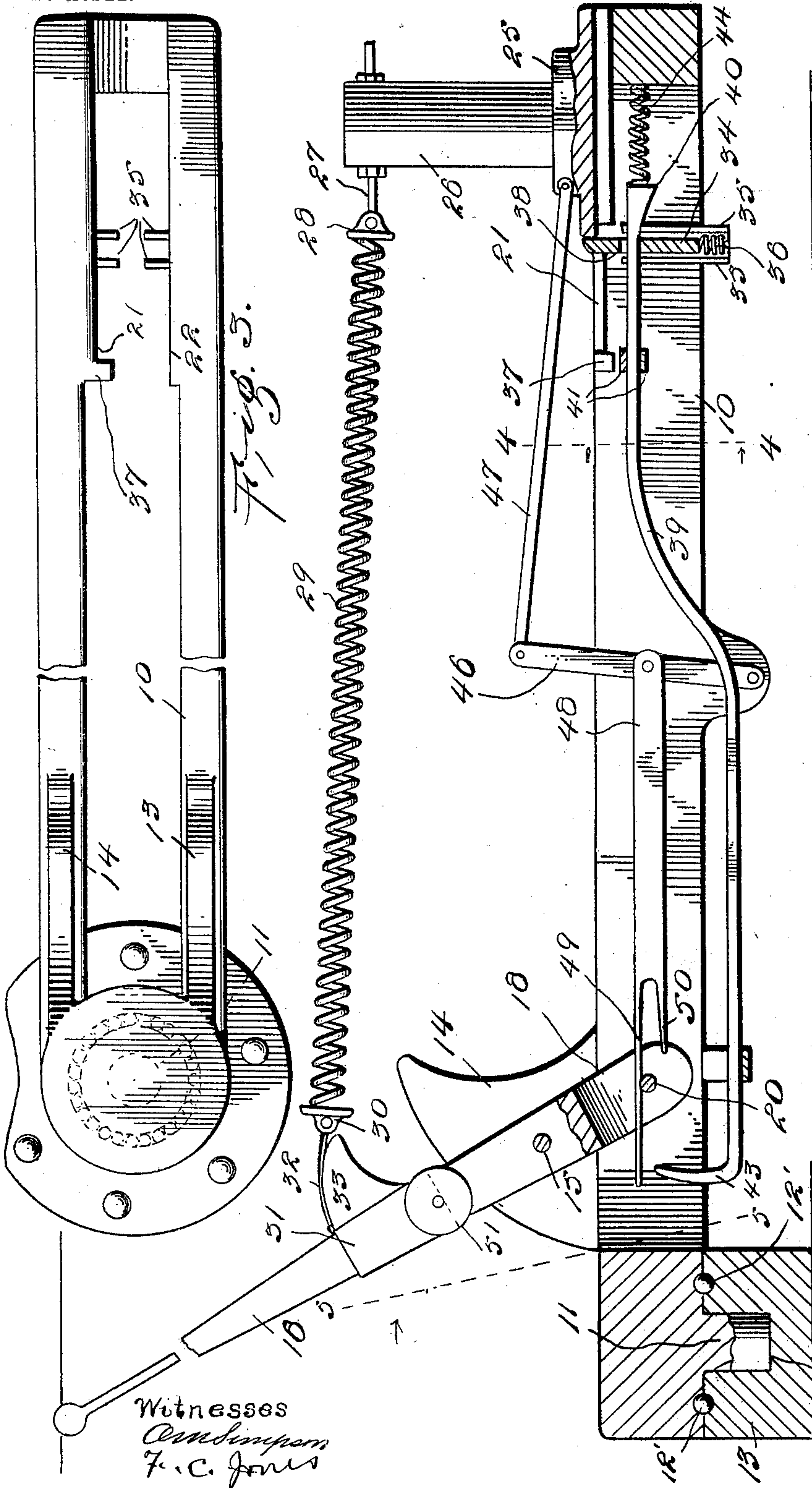
PATENTED APR. 5, 1904.

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TROLLEY POLE.

APPLICATION FILED DEC. 18, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



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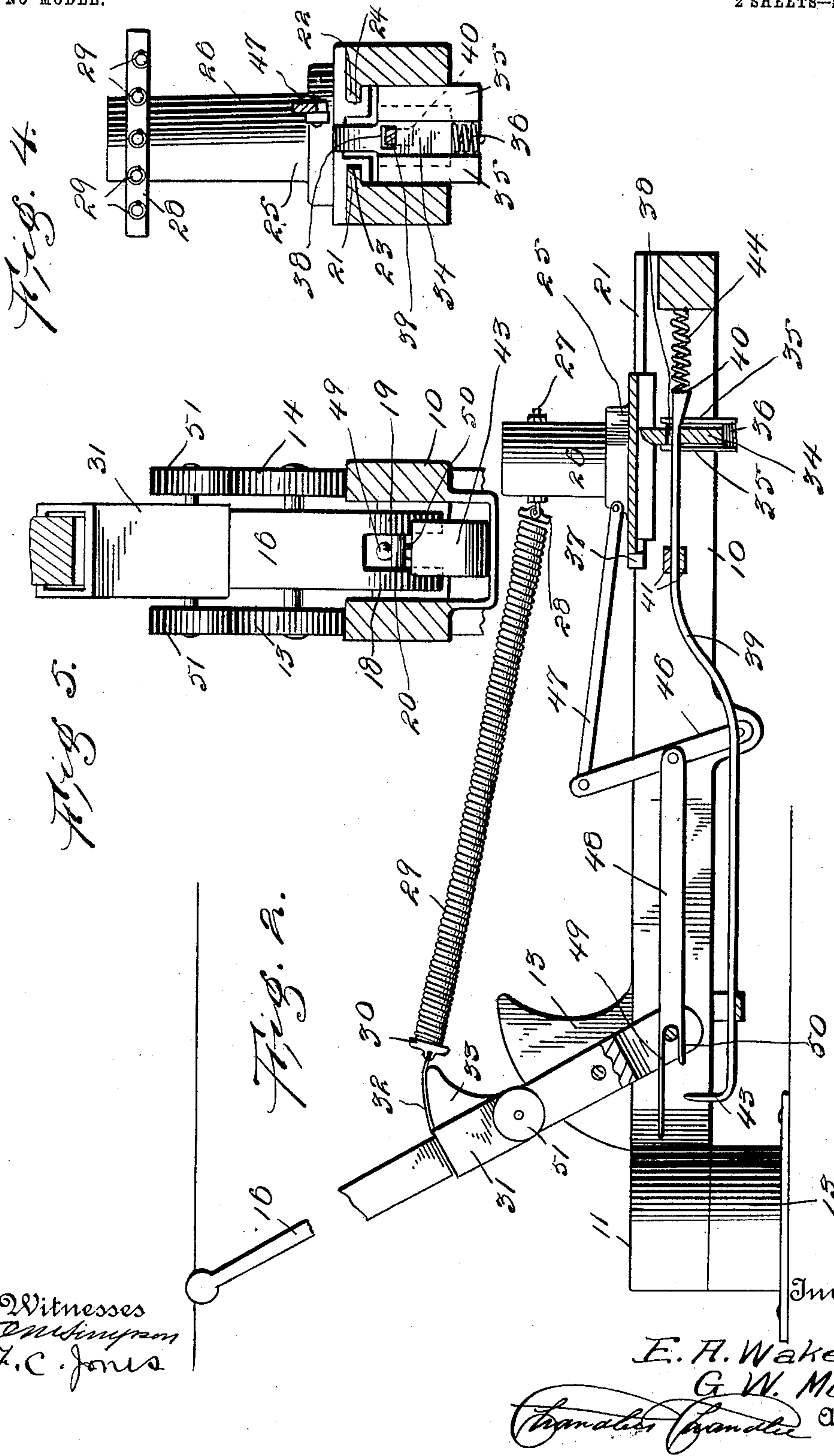
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UNITED STATES PATENT OFFICE.

EDWIN AELPHUES WAKEFIELD AND GEORGE WELLINGTON MORSE, OF
MECHANIC FALLS, MAINE.

TROLLEY-POLE.

SPECIFICATION forming part of Letters Patent No. 756,547, dated April 5, 1904.

Application filed December 18, 1903. Serial No. 185,703. (No model.)

To all whom it may concern:

Be it known that we, EDWIN AELPHUES WAKEFIELD and GEORGE WELLINGTON MORSE, citizens of the United States, residing
5 at Mechanic Falls, in the county of Androscoggin, State of Maine, have invented certain new and useful Improvements in Trolley-Poles; and we do hereby declare the following to be a full, clear, and exact description of the
10 invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to trolley poles or arms; and it has for its object to provide a construction wherein the pole will be held normally under tension, so as to press the trolley-wheel upwardly against the trolley-wire, but
15 when the trolley-wheel leaves the wire, so that the pole moves with the wheel to a predetermined distance above the wire, the pole will be permitted to swing with its wheel rearwardly and downwardly below the wire to a
20 predetermined point and when drawn forcibly to a lower position will serve to reset the mechanism that held the pole in its original position with the trolley-wheel against the wire.

A further object of the invention is to provide a mechanism which will embody but few
30 parts, which will be durable, and will be efficient in its operation.

In the drawings forming a portion of this specification, and in which like numerals of reference indicate similar parts in the several
35 views, Figure 1 is a side elevation showing a trolley-arm with its base and illustrating the trolley-wheel in active position against the wire. Fig. 2 is a vertical longitudinal section through the trolley-base and the lower portion of the arm with the parts in a position
40 shown in Fig. 1, the upper portion of the trolley-arm being shown in side elevation. Fig. 3 is a top plan view of the frame. Fig. 4 is a transverse vertical section through the frame on line 4 4 of Fig. 1. Fig. 5 is a vertical
45 transverse section on line 5 5 of Fig. 1.

Referring now to the drawings, there is shown a mechanism comprising a base which is slotted longitudinally and vertically

throughout a portion of its length and at one
50 end of which there depends a spindle 11, which fits in the socket 12 upon the attaching-plate 13, which is fastened to the top of a car in the usual manner. The base is illustrated at 10, and at the rear end thereof—that is, the end
55 adjacent to the spindle 11—and at opposite sides of the longitudinal slot of the base there are formed ears 13 and 14, through which is passed a transverse pin 15, which passes also
60 through the lower end portion of the trolley-pole 16, said trolley-pole being continued downwardly and into the longitudinal slot of the base, where it is bifurcated to form arms 18 and 19, which are spaced transversely of
65 the base and through the free ends of which is engaged a pin 20, for a purpose to be presently explained.

From the sides of the longitudinal slot of the base 10 and at the upper edges thereof there project inwardly the flanges 21 and 22,
70 which engage the grooves 23 and 24 in the base of a carriage 25, said carriage including an upwardly-directed post 26, through the upper end of which is engaged an eyebolt 27. A yoke 28 is connected to one end of the eyebolt
75 27, and to this yoke are attached helical springs 29, which are attached at their opposite ends to a second yoke 30. Upon the trolley-pole is slidably mounted a sleeve 31, and the yoke 30 is connected to the upper end of this sleeve
80 31 by a metallic strap 32. A lug 33 projects from the upper portion of the sleeve 31, and it is at the base of this lug that the strap 32 is attached, the face of the lug adjacent to the strap being curved and concentric with the
85 center of oscillation of the trolley-pole, so that as the trolley-pole is drawn with its upper end downwardly the curved face of the lug will engage the strap 32, so that the pull of the springs on the pole will be always at the same angle
90 to the pole.

The carriage 25 is held normally at the forward end of the base by means of a bolt 34, which is slidably mounted in vertical guides
95 35 in the base, so that its upper end will lie in the path of movement of the carriage in the direction of the trolley-pole. The bolt is held normally and yieldably in active position by

means of a helical spring 36, which presses against the lower end thereof.

When the bolt 34 is moved downwardly, it releases the carriage, which then moves rearwardly of the base and releases the tension of the springs 29, which then permit the trolley-pole to swing rearwardly and downwardly to a point determined by the stop 37 in the path of movement of the carriage. In order that the bolt 35 may be automatically drawn downwardly when the trolley-wheel leaves the trolley-wire, a slot 38 is formed through the bolt, and in this slot lies a rod 39, having an enlarged end 40, the upper and lower faces of which converge. The rod slides between guides 41 in the base, which hold it against vertical displacement, so that when the rod is moved rearwardly the lower slanting face of the enlargement 40 of the rod presses against the lower wall of the slot 38 and forces the bolt downwardly and out of the path of the carriage 25. The rod 39 extends rearwardly through the base 10, and at its rear end is an upwardly-directed finger 43 in the path of rearward movement of the lower end of the trolley-pole. When the trolley-pole swings with the trolley-wheel above any point that the wheel reaches in active service—that is, when in contact with the trolley-wire—the lower end of the trolley-pole strikes the finger 43 and by pressing rearwardly thereagainst moves the rod 39 longitudinally with the beveled face of the enlargement 40 against the bottom of the slot 38, and the bolt is moved from in front of the carriage. The rod 39 is held normally and yieldably with its enlargement 40 out of the slot 38 by means of a helical spring 44, attached to the rod and to the forward end of the base 10.

In order to return the carriage to its original position to again place the springs 29 under tension, so that they may hold the trolley-pole with the trolley-wheel against the trolley-wire, a vertical lever 46 is pivoted at its lower end in the base 10 and is connected at its upper end with the carriage by means of a rod 47, pivoted to both the lever and the carriage. A second rod 48 is pivoted at its forward end to the lever 46 above the fulcrum of the latter, and its rear end is bifurcated to form the arms 49 and 50, which lie, respectively, above and below the bar 20, so as to permit of an amount of lost motion of the trolley-pole pivotally with respect to the rod 48.

As above mentioned, the degree of drop of the trolley-pole when the carriage 25 is released is determined by the stop 37, which limits the movement of the carriage rearwardly. If the upper end of the trolley-pole, however, be drawn farther downwardly, the rod 20 will engage in the crotch at the rear end of the rod 48, and the latter will be moved forwardly to swing the lever 46 and the rod 47 and return the carriage 25 to its original position at the forward end of the base 10.

The upper end of the bolt 34 is beveled at the rear side thereof, so that when the carriage is moved forwardly it will strike the bevel and press the bolt downwardly, so that the carriage may pass beyond it, when the bolt will rise and prevent return movement of the carriage.

In order that the downward movement of the trolley-pole may not be excessively retarded by the increased tension on the springs 29 occasioned by return movement of the carriage 25, the sleeve 31 is provided with rollers or wheels 51 at opposite sides thereof which run on the arc-shaped rear faces of the ears between which the trolley-pole is mounted, the curvatures of these faces being eccentric to the pivot of the trolley-pole and said faces gradually approaching the pivot from their upper to the lower ends.

As the trolley-pole is drawn with its upper end downwardly the rollers of the sleeve travel downwardly on the faces of the ears, so that the distance between the point of connection of the springs with the sleeve and the forward end of the base is merely reduced, and hence the tension of the springs does not increase so rapidly as if this connection did not take place.

Between the base 10 and the wall of the socket 12 are arranged balls 12', which support the base and insure easy rotation of it.

What is claimed is—

1. The combination with a pivoted trolley-pole, of a slidable carriage, springs connected with the pole and carriage and adapted to hold the pole yieldably in raised position and to move it above its normally active position, means for holding the carriage against sliding movement and means operable by movement of the pole above its normally active position and connected with the holding means and adapted to move the latter from its active position.

2. The combination with a base, of a trolley-pole pivoted thereto and extending below its pivotal point, a carriage mounted in the base and slidable toward and away from the trolley-pole, springs connected with the carriage and trolley-pole and adapted to move them toward each other, a latch for holding the carriage against movement, a trip-bar connected with the latch and adapted to move the latter out of its operative position, said trip-bar being disposed for engagement and operation by the lower end of the trolley-pole when the upper end thereof rises above its normally active position, and means in the path of forward movement of the lower end of the trolley-pole for returning the carriage to its normal position.

3. The combination with a base having upwardly-directed ears, of a trolley-pole pivoted between said ears and extending above and below its pivot, a carriage mounted in the base and slidable toward and away from the

trolley-pole, a sleeve mounted upon the trolley-pole and slidable longitudinally thereof, springs connected between the sleeve and carriage, rollers mounted in the sleeve, said ears
5 having curved rear faces eccentric to the pivot of the trolley-pole and approaching the latter downwardly, means for holding the carriage against sliding movement toward the trolley-pole, means in the path of movement of the
10 lower end of the trolley-pole for disengaging said holding means; means for holding the holding means yieldably in active position,

and means in the path of opposite movement of the lower end of the trolley-arm for returning the carriage into engagement with its holding means.

In testimony whereof we affix our signatures in presence of two witnesses.

EDWIN AELPHUES WAKEFIELD,
GEORGE WELLINGTON MORSE.

Witnesses:

FRANK A. HERRICK,
FRED F. McCANN.