

No. 614,321.

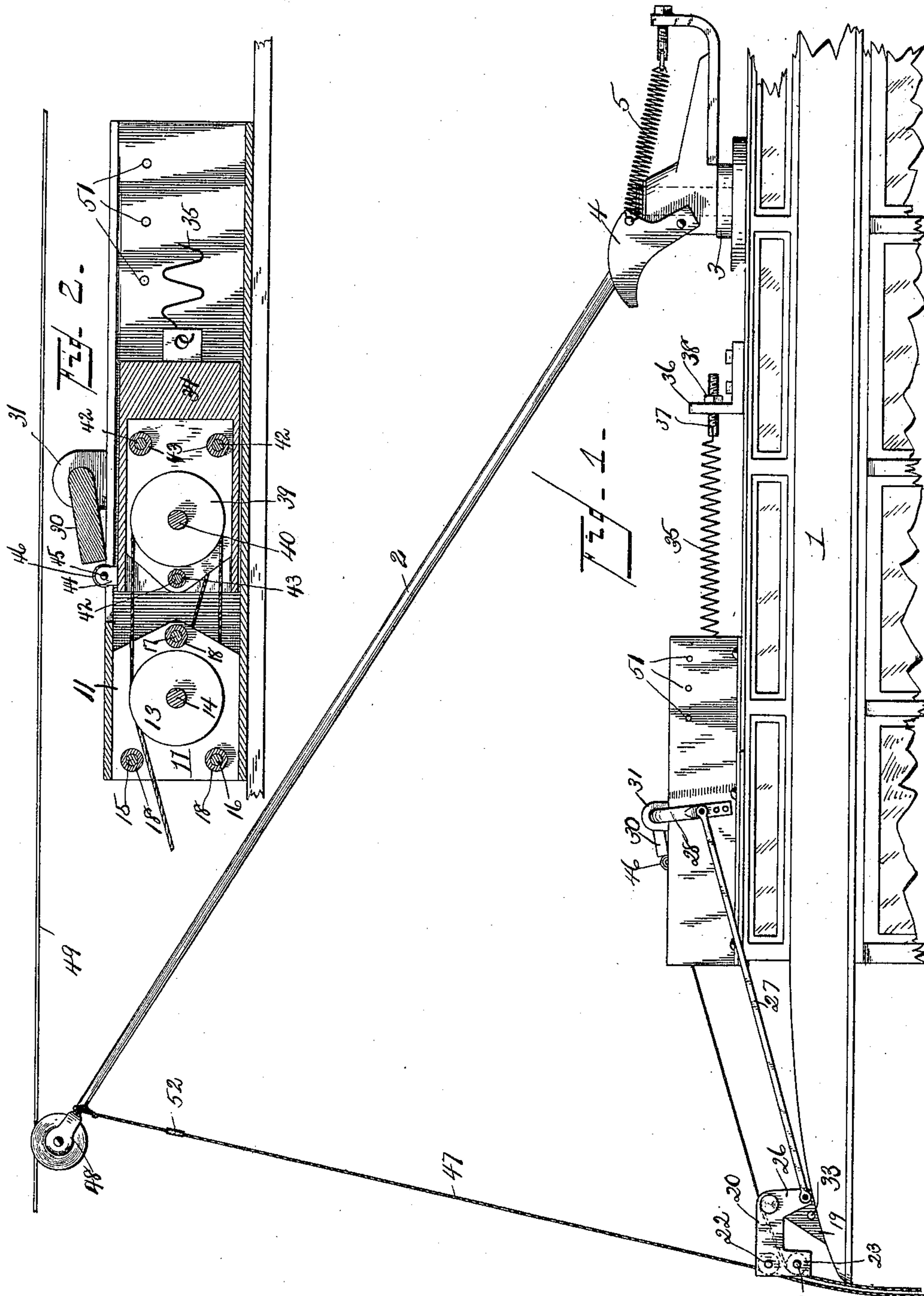
Patented Nov. 15, 1898.

J. DOLAN.
TROLLEY CONTROLLER.

(Application filed Apr. 23, 1898.)

(No Model.)

2 Sheets—Sheet 1.



Attest.

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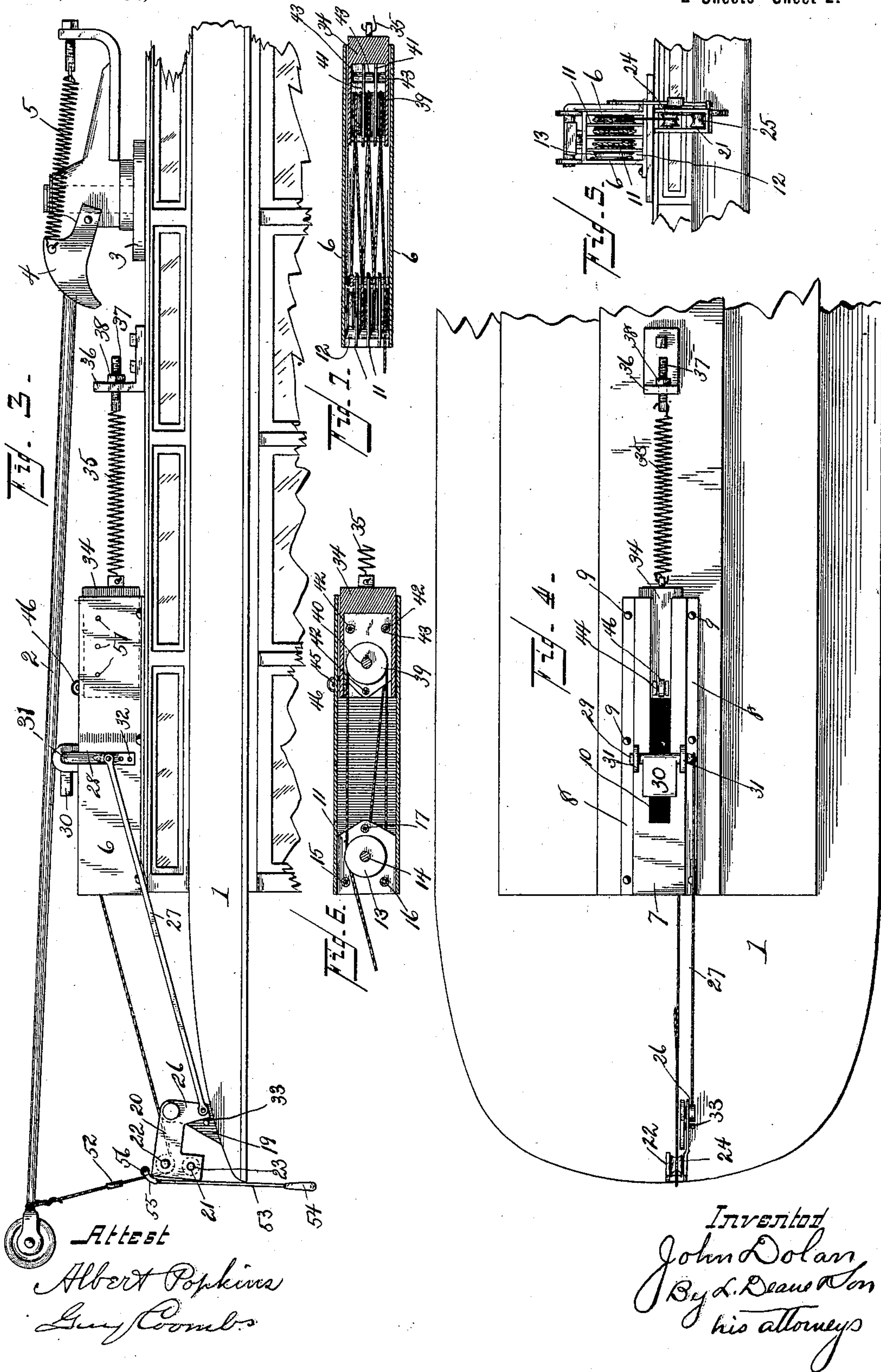
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UNITED STATES PATENT OFFICE.

JOHN DOLAN, OF DAYTON, OHIO.

TROLLEY-CONTROLLER.

SPECIFICATION forming part of Letters Patent No. 614,321, dated November 15, 1898.

Application filed April 23, 1898. Serial No. 678,588. (No model.)

To all whom it may concern:

Be it known that I, JOHN DOLAN, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Trolley-Controllers, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to trolley-controllers, or mechanism for automatically drawing down the pole of an overhead-electric-railway trolley when the latter leaves its wire.

It is well known that the accidental displacement or "jumping" of the trolley frequently results in serious injury to the trolley, cross-wires, or supporting-arms of an overhead electric railway, entailing expense for repairs, as well as delay in travel. This is especially liable to occur on suburban lines, where the speed of the cars is greater than is ordinarily allowed within city limits and where protracted delays are likely to result owing to the distance from repair facilities.

The object of the invention is to provide improved means whereby when the trolley leaves the conductor-wire the trolley-pole will be automatically drawn down below the level of said wire and out of position to contact with cross-wires or other obstructions.

The characteristic features of the invention, as well as its novel details of construction, will be fully described hereinafter and illustrated in the accompanying drawings, in which—

Figure 1 illustrates a side elevation of the device applied to the rear end of a car, a portion of a conductor-wire being also shown, with the trolley in contact therewith. Fig. 2 is a central longitudinal vertical section of the guideway and movable pulley-block of the controller. Fig. 3 is a side elevation of a portion of a car provided with my improvement, the parts being in the position which they assume when the trolley-pole is pulled down. Fig. 4 is a plan view of a portion of a car equipped with the controller, the trolley being omitted. Fig. 5 is an end elevation of the device. Fig. 6 is a longitudinal vertical section of the guideway and movable pulley-block, with the latch removed; and Fig. 7 is a horizontal section of the guideway and block.

The reference-numeral 1 designates one end

of a car, upon the roof of which the controlling device is located in line with the trolley-pole 2.

The bracket 3, pivoted yoke 4, and springs 5 for supporting the trolley-pole constitute no part of the present invention, and any suitable or preferred means for securing the trolley-pole upon the car may be employed.

Upon the car-roof is located a guideway comprising a box or housing consisting of parallel sides 6 and a top or cover 7. The lower edges of the sides 6 are bent outwardly to form horizontal flanges 8, through which pass the screws 9 for securing the guideway upon the car. The top 7 is formed with a central longitudinal slot 10, open at its inner end, for a purpose hereinafter explained.

Within the guideway, at its rear end, are arranged one or more vertical partitions 11, dividing the rear end of the guideway into separate compartments 12, within each of which is a pulley 13, all of said pulleys being mounted loosely upon a shaft 14, fixed in bearings in the sides 6. Other shafts 15, 16, and 17 are fixed in bearings of the sides 6 of the guideway to secure the sides together, and upon these shafts are mounted spacing-sleeves 18.

Near the edge of the rear end of the roof 1 of the car is secured a bracket 19, upon which is fulcrumed a bell-crank lever 20, the long arm of which is provided with an extension which depends from the end of the lever and is bent laterally to form a yoke 21, within which are journaled, upon shafts 22 and 23, two antifriction-rollers 24 and 25. The short arm 26 of the lever 20 is connected by a rod 27 to an arm 28, depending from a rock-shaft 29, which shaft is provided with a latch 30. The rock-shaft is supported in bearings formed in brackets 31, projecting upwardly from the sides 6 of the guideway. The depending arm 28 is provided with a series of openings 32 to permit of the adjustment of the rod 27 thereon. The bracket 19 is provided with a lug or stop-pin 33 to limit the movement of the lever 20.

34 designates a sliding block arranged within the front end of the guideway and connected at its forward end to a spiral spring 35, the opposite end of which is adjustably secured to a bracket 36, rising from the car-

roof, by means of a screw 37 and nut 38. The block 34 is hollowed out to accommodate one or more pulleys 39, mounted upon a shaft 40, fixed in bearings in the sides of the block, and separated (if more than one pulley 39 are employed) by vertical partitions 41. The block 34 is also provided with parallel shafts 42, upon which are mounted spacing-sleeves 43.

44 indicates a bracket projecting upwardly from the rear end of the block 34, and within this bracket is mounted, upon a shaft 45, a roller 46. The bracket 44 and its roller 46 project above the top 7 of the guideway through the slot 10 in the latter and constitute a catch device.

The trolley-rope 47 is secured at one end in the usual manner to the upper end of the trolley-pole 2, and the other end is passed between the rollers 21 and 22, and thence forwardly over one of the pulleys 13 in the guideway, (see Fig. 7,) thence around the corresponding pulley 39 in the block. It is then brought rearward around the next pulley 13 of the guideway, thence passed around the next pulley in the block, and so on, passing alternately around one of the pulleys of the guideway and one in the block, as illustrated in Fig. 7, the end of the rope being finally attached to the block.

The operation of the mechanism above described is as follows: Normally the trolley-pole 2 is in the position shown in Fig. 1, with the trolley 48 in contact with the conductor-wire 49, where it is held with an upward pressure by the tension of the springs 5. The block 34 is concealed within its guideway, as shown in Figs. 1 and 2, and the latch 30 is in engagement with the roller 46 of said block. When the trolley is in this working position, there is a slackness in the rope 47, as indicated at 50 in Fig. 1. When the trolley jumps the wire, the springs 5 cause the upper end of the pole 2 to rise a distance equal to the length of the slack 50 in the rope, when the rope lifts the long arm of the bell-crank lever 20, which results in a pull upon the rod 27, drawing rearward the arm 28 and lifting the latch 30 to release it from engagement with the roller 46 of the block. The spring 35 then immediately contracts, pulling the block forward. The forward movement of the block pulls the rope and the trolley down below the wire 49, the extent of their downward movement depending upon the distance the block travels forward. This distance may be varied by providing the sides of the guideway at their front ends with registering holes 51, through which stop-pins (not shown) may be inserted.

It will be understood that the pulleys 13 and 39 and the antifriction-rollers over and around which the rope passes insure a free slipping movement of the rope and that the number of pulleys required is dependent upon the length of the rope employed. For lines where the conductor-wire is arranged at only a slight distance above the top of the car two pulleys (one in the guideway and one in the block)

might suffice, the only object in employing a series of pulleys being to take up the slack of the rope.

It is obvious that two of the controllers will be required for a car, one located at each end, so that the trolley may be controlled in both directions of travel.

To permit of the turning of the trolley from one end of the car to the other without untying the rope 47, the latter is provided with a coupling 52, which may be readily connected and disconnected.

To permit the trolley to be readily raised from the car-platform after it has been pulled down by the controller, I provide a pull-cord 53, provided at one end with a handle 54 and at its opposite end with a yoke 55, carrying a roller 56. The rope passes through the yoke 55, and a downward pull upon the handle 54 serves to draw the rope rearward until the block 34 resumes the position shown in Figs. 1 and 2, with its roller 46 in engagement with the latch 30.

The pulleys employed will preferably be provided with ball or roller bearings.

I desire it to be understood that I do not limit myself to the various details of construction herein shown and described, as many slight changes and modifications in the details might be resorted to without departing from the spirit of my invention; but I reserve the right to make all such variations in form and structure as may fall within the scope of the following claims.

To protect the guideway, block, and spring 35 from the weather and to impart a finished appearance to the device, I preferably inclose these parts in a casing or hood of any suitable construction. (Not shown.)

What I claim is—

1. In a trolley-controller, the combination with the trolley-rope, of a guideway on the car-roof arranged longitudinally of the car and provided with one or more pulleys and slotted as described, of a sliding block hollowed out to contain one or more pulleys, and having one end of the rope secured thereto, a spring secured at one end to the block and at its opposite end to a bracket on the car-roof, a catch projecting from the upper side of the block and through the slot in the guideway, a latch device supported upon the guideway to engage said catch, and means engaged by the trolley-rope and operated by an upward pull on the rope for raising said latch.

2. In a trolley-controller, the combination with the trolley-rope, of a guideway located upon the car-roof, and comprising parallel sides and a longitudinally-slotted top, one or more pulleys supported upon a shaft within said guideway, a sliding block to which said rope is secured at one end, a spring for drawing said block forward, a catch projecting from the block and through the slot in the guideway, a latch device on said guideway, a bell-crank lever fulcrumed upon a bracket near the end of the car-roof, and adapted to

be raised by the rope, and a rod connecting said bell-crank lever and latch device.

3. In a trolley-controller, the combination with the trolley-rope, of a spring-controlled sliding block, supported in a guideway, one end of said rope being secured to said block, a catch device projecting upwardly from said block, a latch device for engaging said catch, and means connected to said latch for operating it to release the block, comprising a bracket secured to the car-roof, and provided with a stop-pin, a bell-crank lever fulcrumed on said bracket, and having a yoke extension, and an antifriction-pulley supported within said yoke, around which the rope passes.

4. In a trolley-controller, the combination with the trolley-rope of a spring-controlled sliding block to which one end of the rope is secured, a guideway within which the block moves, comprising parallel sides provided with registering holes adapted to receive a cross-pin, means for securing the block in its normal position, and devices operated by an upward pull upon the rope for releasing said block.

5. In a trolley-controller, the combination

with the trolley-rope, of a sliding spring-controlled block to which one end of the rope is attached, a guideway for said block having a slot in its top, a catch projecting from said block and through said slot, a device for engaging said catch, comprising a rock-shaft supported in brackets projecting from said guideway, and having a latch thereon, and a depending arm at one end, and a device connected to said arm for operating the latch, comprising a bell-crank lever, adapted to be raised by an upward pull upon the rope.

6. In a trolley-controller, the combination with the trolley-rope, of means for pulling said rope down when the trolley jumps the wire, and a pull-cord provided at its upper end with a yoke carrying a roller, said rope passing through the yoke whereby a downward pull on said cord restores the rope to its normal position after being pulled down.

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

JOHN DOLAN.

Witnesses:

L. F. HOLTZINGER,
HARRY L. MUNGER.