

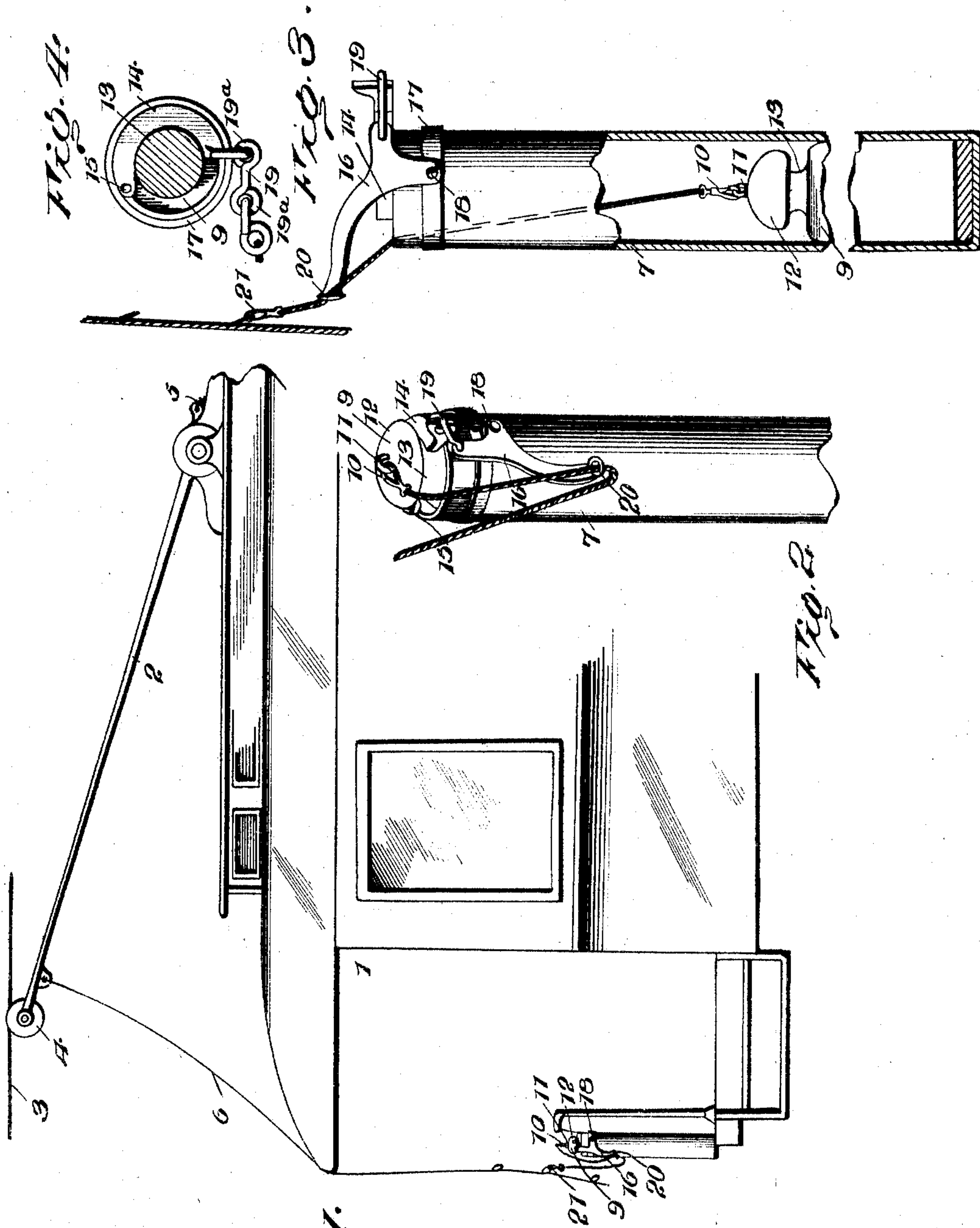
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CONTROLLER FOR TROLLEY POLES.

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NO MODEL.



Witnesses

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*Fig. 1.*

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# UNITED STATES PATENT OFFICE.

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## CONTROLLER FOR TROLLEY-POLES.

SPECIFICATION forming part of Letters Patent No. 766,935, dated August 9, 1904.

Application filed May 25, 1904. Serial No. 209,786. (No model.)

*To all whom it may concern:*

Be it known that we, HERMAN R. DE LONG and RECTOR SEYMOUR, citizens of the United States, residing at Warren, in the county of Warren and State of Pennsylvania, have invented certain new and useful Improvements in Controllers for Trolley-Poles, of which the following is a specification.

As is well known, under certain abnormal conditions of service the trolley-wheels of trolley-poles are caused to ride from the trolley-wire, and since trolley-poles are ordinarily forced upward by positive means, so as to establish an electrical connection with the trolley-wire, as soon as the trolley-wheel leaves the wire the upper portion of the pole, moving upwardly, is liable to break cross supporting-wires unless provision is made against the above. Springs or similar devices are usually the means for holding the trolley-poles in electrical contact with the trolley-wire; and it is the object of our invention to provide peculiar means for operating a weight to overcome the force of the springs or similar devices above mentioned, whereby the trolley-pole will be pulled downwardly as soon as its trolley leaves the wire.

The invention consists of special trip means for throwing a weight into action, so as to draw or pull the pole downwardly immediately the wheel thereof leaves the wire, said means being operated automatically in a manner which will appear more fully as the description proceeds.

For a full description of the invention and the merits thereof and also to acquire a knowledge of the details of construction of the means for effecting the result reference is to be had to the following description and accompanying drawings.

While the essential and characteristic features of the invention are susceptible of modification, still the preferred embodiment of the invention is illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation showing a por-

tion of a trolley-car having the invention applied thereto. Fig. 2 is a perspective view, partially broken away, bringing out more clearly the trip means coöperating with the weight. Fig. 3 is a side elevation, partially in section, showing the position of the weight after the same has been thrown into coöperation with the trolley-pole as the wheel of the latter leaves the wire. Fig. 4 is a horizontal sectional view.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

In carrying out the invention the same is illustrated in its adaptation to a trolley-car 1, the latter being provided with the usual pivoted trolley-pole 2, mounted upon the roof thereof. The trolley-wire is designated 3, and the pole 2 is normally held with its wheel 4 in contact with the wire 3 by means of a spring or springs engaging the pole adjacent the point of support thereof. The form of the trolley-pole is immaterial in the contemplation of the invention, and same is positioned by means of the operating-cord 6 customarily used.

At each end of the car 1 preferably is located a tubular casing 7, which is secured in any suitable manner, being shown attached to the dasher-board 8 at the end of the car-platform. The casing 7 is designed to receive the counterbalance means, which has been before premised upon, and this counterbalance means consists of a weight 9, disposed within the casing 7. The weight 9 is connected with the operating-cord 6, said cord being provided at its lower end with a snap-hook 10 or similar engaging device adapted to secure the same to the weight. The snap-hook 10 engages an eye 11, carried by the head 12, formed at the upper end of the weight, the head 12 being integral with the weight and connected therewith by means of a neck or annularly-reduced portion 13. The normal position of the weight 9 is at the upper por-



tion of the casing 7, and the said weight is held in this position by means of an engaging or clutch member 14, which latter is adapted to embrace the neck or reduced portion 13 and by engagement of the head 12 of the weight 9 support the said weight in its uppermost position. The clutch member 14 is pivoted at one end of the casing 7, as shown at 15, and the opposite end of the clutch member is operatively connected with trip means in the form of a trip-lever 16. The trip-lever 16 is pivoted to a band or ring 17, applied to the upper portion of the casing 7, the point of pivotal connection of the trip-lever 16 being between its ends, as shown at 18. A link 19 connects the trip-lever 16 flexibly with the actually - moving end of the clutch member 14, said link having pivotal connection with the trip-lever 16 at the upper end of the latter. The lower end of the lever 16 is formed with a ring 20, and the operating-cord 6 passes through the ring 20 of the lever 16, thereby engaging the said lever to form operative connection therewith.

In actual use a slight slack may be provided in the operating-cord 6 between the point of connection of the same with the trolley-pole 2 and the weight 9, and the normal position of the trip-lever 16 is down, as shown most clearly in Fig. 2 of the drawings. It will be readily seen that in operation should the wheel 4 of the trolley-pole 2 leave the wire 3 the spring 5, which normally holds the trolley-pole in engagement with the wire 3, will suddenly force the trolley-pole upwardly. The sudden movement upwardly of the trolley-pole as the wheel leaves the wire makes the operating-rope taut and exercises a sharp pull thereon. The movement of the operating-cord 6 under the actuation of the pole 2 throws the trip-lever 16 upwardly in a manner which will be clearly seen, and the link connection between the lever 16 and the clutch member 14 disengages the said clutch member by a pivotal movement thereof from the head of the clutch. The disengagement of the clutch member from the weight 9 causes the weight to be dropped within the casing 7, and this weight now exercises a pulling force upon the operating-cord to draw the pole downwardly against the tension means, which normally hold the said pole in electrical contact with the trolley-wire. The action of the weight prevents the pole 2 from striking cross-wires or other attachments which might otherwise be in its line of movement as soon as the wheel leaves the wire, and the action of the weight, further, is immediate and automatic. As soon as the motorman becomes aware of the fact that the wheel of the pole has left the wire said wheel may be properly restored to its normal position in contact with the wire, and in doing this the weight 9 is

lifted and again placed in clutched engagement with the member 14, above described.

In order that the operating-cord 6 may be readily detached from the weight 9 when it is desired to reverse the position of the trolley-pole from one end of the car to the other, a snap-hook or similar detachable connection 21 may be interposed in the length of said operating-cord, as shown in the drawings.

The clutch member 14, which engages the annularly-reduced portion 13 of the weight, is of particular advantage in that by its engaging coöperation the weight is prevented from the slightest movement upwardly or downwardly as the car is in motion. In other words, the weight is not affected by the vibration or jar consequent to the movement of the car carrying same, said weight being rigidly held in place in such conditions of service. The link member 19 is of peculiar formation, having the end loops 19<sup>a</sup> situated in approximately the same horizontal plane and affording virtually a universal connection between the clutch member and the trip-lever 16, this being necessary because of the movement of the clutch member when actuated.

The operating-cord is preferably provided with a plurality of rings or similar devices, so as to admit of adjustment thereof to permit use of the invention when the height of the trolley-pole is varied, due to different heights of trolley-wires.

Having thus described the invention, what is claimed as new is—

1. In combination with a trolley-pole, means for normally holding said trolley-pole in contact with the trolley-wire, a weight provided with an annularly-reduced portion, a clutch member engaging the annularly-reduced portion of the weight, a trip-lever connected with the clutch member for operation thereof, and an operating-cord connecting the weight and the trolley-pole and operably connected with the trip-lever.

2. In combination with a trolley-pole, means for normally holding said pole in contact with the trolley-wire, a casing, a weight mounted in said casing and provided at its upper end with a head, an operating-cord connecting the pole and the weight, a horizontally-movable clutch member pivoted to the upper end of the casing and engaging the head of the weight, a trip-lever pivoted to the casing and connected with the operating-cord, and a link connecting the upper end of the trip-lever with the clutch member.

3. In combination with a trolley-pole, means for normally holding said pole in contact with the trolley-wire, a casing a weight mounted in said casing and provided in its upper end with an annularly-reduced portion forming a head, a clutch member pivoted to the upper end of the casing and adapted to embrace and

engage in the annularly-reduced portion of the weight, a trip-lever pivoted at a point between its ends to the casing, a link connecting the upper end of the trip-lever with the clutch member, a ring projected from the lower end of the trip-lever, and an operating-cord connecting the trolley-pole with the weight and passing through the ring of the trip-lever.

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

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Witnesses:

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