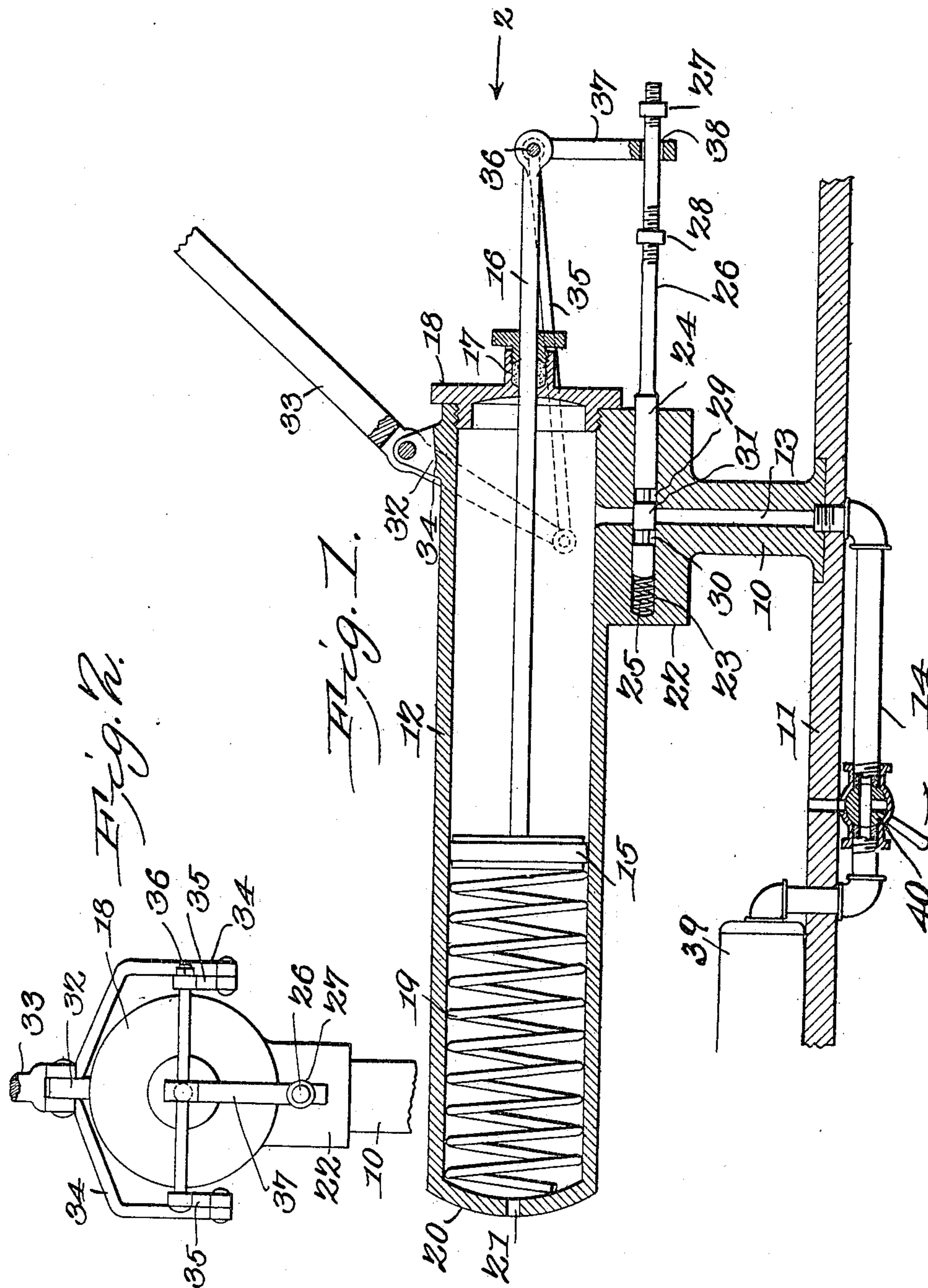


No. 831,530.

PATENTED SEPT. 25, 1906.

J. F. BOGGS.  
TROLLEY POLE CONTROLLER.  
APPLICATION FILED SEPT. 21, 1905.



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# UNITED STATES PATENT OFFICE.

JAMES F. BOGGS, OF NEEDLES, CALIFORNIA.

## TROLLEY-POLE CONTROLLER.

No. 831,530.

Specification of Letters Patent.

Patented Sept. 25, 1906.

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*To all whom it may concern:*

Be it known that I, JAMES F. BOGGS, a citizen of the United States, residing at Needles, in the county of San Bernardino and State of California, have invented a new and useful Trolley-Pole Controller, of which the following is a specification.

This invention relates to trolley-pole controllers, and has for an object to provide a device of the class embodying new and improved features of convenience, durability, simplicity, and efficiency.

A further object of the invention is to provide a device of the class wherein the trolley is held in contact with the wire by a spring and in substantially the usual manner and wherein the displacement of the trolley from the wire and an upward movement of the pole admits compressed air to a cylinder to depress the pole.

A further object of the invention is to provide a device wherein a trolley-pole is depressed by the action of compressed air and wherein the depression of the pole to such a position as not to strike objects above the car closes the valve and a further depression exercised by the usual rope opens the valve to permit the escape of the air.

It is well known that the compression of air necessitates the expenditure of power; and it is an object of this invention to economize in the use of the compressed air, to which end the pole is held in contact with the wire by a spring, while the compressed air is always available to depress the pole when the trolley is displaced and wherein the use of the air is automatically discontinued as soon as the pole has been depressed out of danger of damage.

With these and other objects in view the present invention consists in the combination and arrangement of parts, as will be hereinafter fully described, shown in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that changes in the form, proportion, size, and minor details may be made without departing from the spirit or sacrificing any of the advantages of this invention.

In the drawings, Figure 1 is a longitudinal sectional view of the improved trolley-pole controller. Fig. 2 is a view of the trolley-pole controller in end elevation, as indicated by arrow 2.

Like characters of reference indicate corre-

sponding parts in both of the figures of the drawings.

In its preferred embodiment the improved trolley-pole controller forming the subject-matter of this application comprises a standard 10, mounted upon the roof of a car (shown diagrammatically at 11) and carries rigidly upon its upper end a cylinder 12. Through the standard 10 extends a duct 13, communicating with the cylinder and connected with any convenient and usual compressed-air-storage receptacle 39 in any approved manner, as by the pipe 14. Within the cylinder is mounted a piston 15, carrying a piston-rod 16, extending outward through a gland 17 in the head 18. Also within the cylinder and opposite the piston-rod a spring 19 is disposed within the cylinder and bearing against and arranged to force the piston toward the head 18, the head 20 being provided with an opening 21 to permit the ingress and egress of air, but of a size to produce within the cylinder an air-cushion to prevent the too sudden movement of the piston.

Within the enlarged portion 22 of the standard is formed a passage 23 at right angles to and transsecting the duct 13 and wherein is mounted a slide-valve 24. Within the passage is disposed a spring 25, bearing against the valve 24, and the valve is provided with a stem 26, extending substantially parallel with the top of the car and provided with spaced nuts 27 and 28. Within the passage the valve is provided with spaced annular grooves 29 and 30, with a section (designated as 31) therebetween and capable of closing the duct 13.

Upon an ear 32 and the top of the cylinder is pivoted the trolley-pole 33, having diverging arms 34, extending upon opposite sides of the cylinder and connected to the outer end of the piston-rod through the medium of links 35 and the cross-head 36. From the end of the piston-rod depends a tappet 37, having any approved form of aperture, as 38, embracing the valve-stem 26.

Normally the air in each end of the cylinder will be under atmospheric pressure and the trolley and pole 33 will be held in contact with the wire by spring 19, acting through piston-rod 16, links 35, and arms 34. When the trolley is displaced from the wire, the spring will force the piston-rod outwardly and the pole upwardly. The outward movement of the piston-rod will bring the tappet 37



into contact with the nut 27 and move the valve 24 so that the groove 30 opens communication in the duct 13 and admits air under tension to the cylinder and to force the piston against the tension of the spring 19 and to depress the pole. When the pole has been depressed sufficiently to avoid obstruction, the tappet 37 contacts with the nut 28 and moves the valve until the section 31 of the valve closes the duct and imprisons the air within the cylinder and holds the pole in the depressed position until it receives attention from the operatives.

At any convenient point in the pipe 14 a three-way valve 40 of usual construction is introduced, and when the trolley is to be reset the three-way valve is operated to close the pipe from the reservoir and open it from the cylinder, whereupon a further depression of the pole in the usual manner, as by a rope, brings the groove 29 into register with the duct 13 and to permit the escape of the air. When the air is exhausted from the cylinder, the trolley may be replaced in the usual manner, whereupon the pressure of the tappet 37 upon the nut 28 being relieved the spring 25 will return the valve to a closed position, as in Fig. 1, and by the proper manipulation of the three-way valve the device is again in operative condition.

Having thus described the invention, what is claimed is—

1. A trolley-pole controller comprising a

cylinder, a piston within the cylinder, a piston-rod extending without the cylinder, a trolley-pole pivotally connected with the cylinder and the piston-rod, a spring within the cylinder arranged to force the piston in one direction and hold the trolley normally in contact with the wire, a pipe conducting a compressed fluid to the cylinder and to force the piston against the tension of the spring and means whereby an upward movement of the trolley-pole opens the valve to admit fluid to depress the pole and means whereby a depression of the pole closes the valve and a further depression opens the valve to permit the escape of the fluid.

2. A trolley-pole controller comprising a cylinder having an inlet, a spring-pressed piston therein, a trolley-pole pivoted to the cylinder, diverging arms extending from the pole, a cross-head movable with the piston, links connecting the cross-head and arms, a normally closed slide-valve within the cylinder-inlet, and a tappet movable with the cross-head for actuating the valve in either direction to open the same.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JAMES F. BOGGS.

Witnesses:

P. AYLESWORTH,  
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