

No. 647,193.

Patented Apr. 10, 1900.

J. B. LYNCH, G. B. GRIFFIN & J. A. SIMPSON.

TROLLEY.

(Application filed Sept. 2, 1899.)

(No Model.)

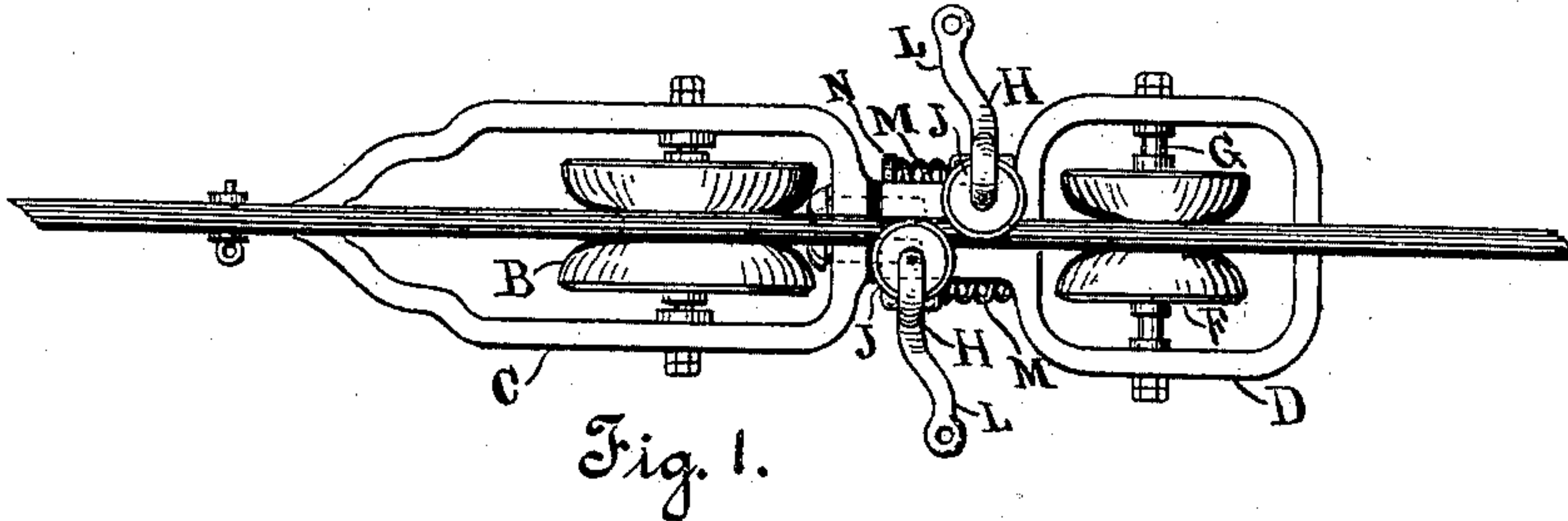


Fig. 1.

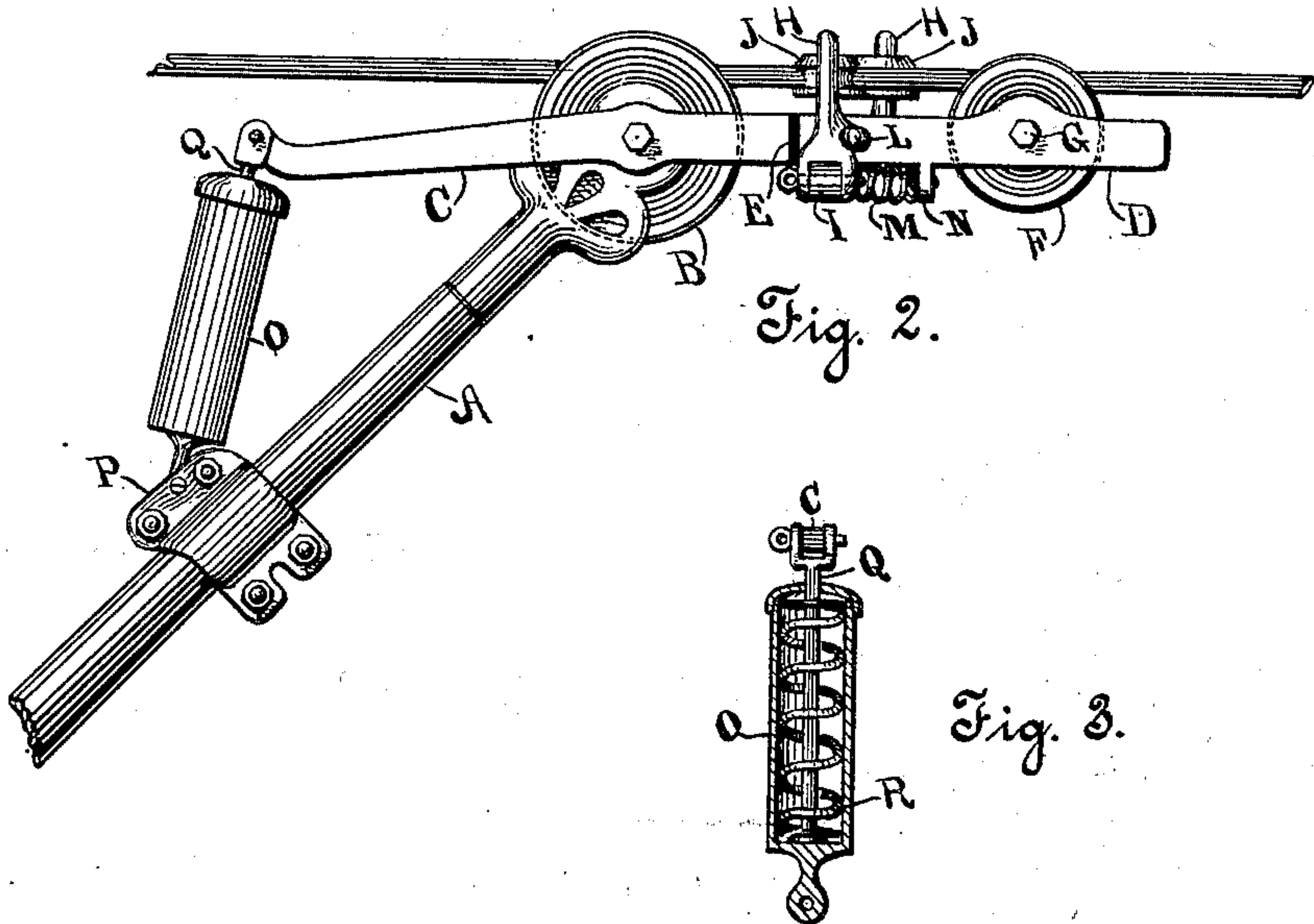


Fig. 2.

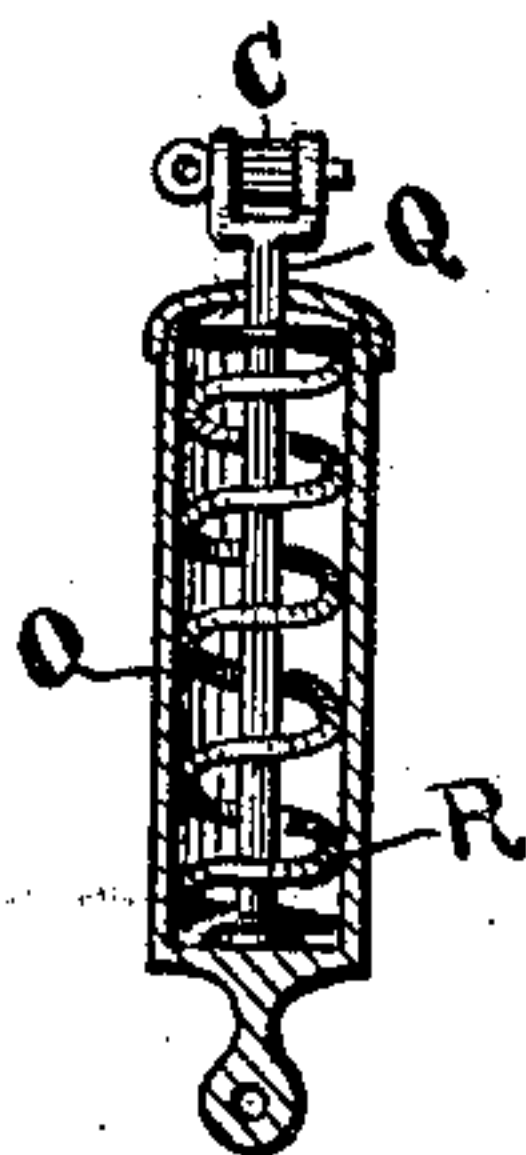


Fig. 3.

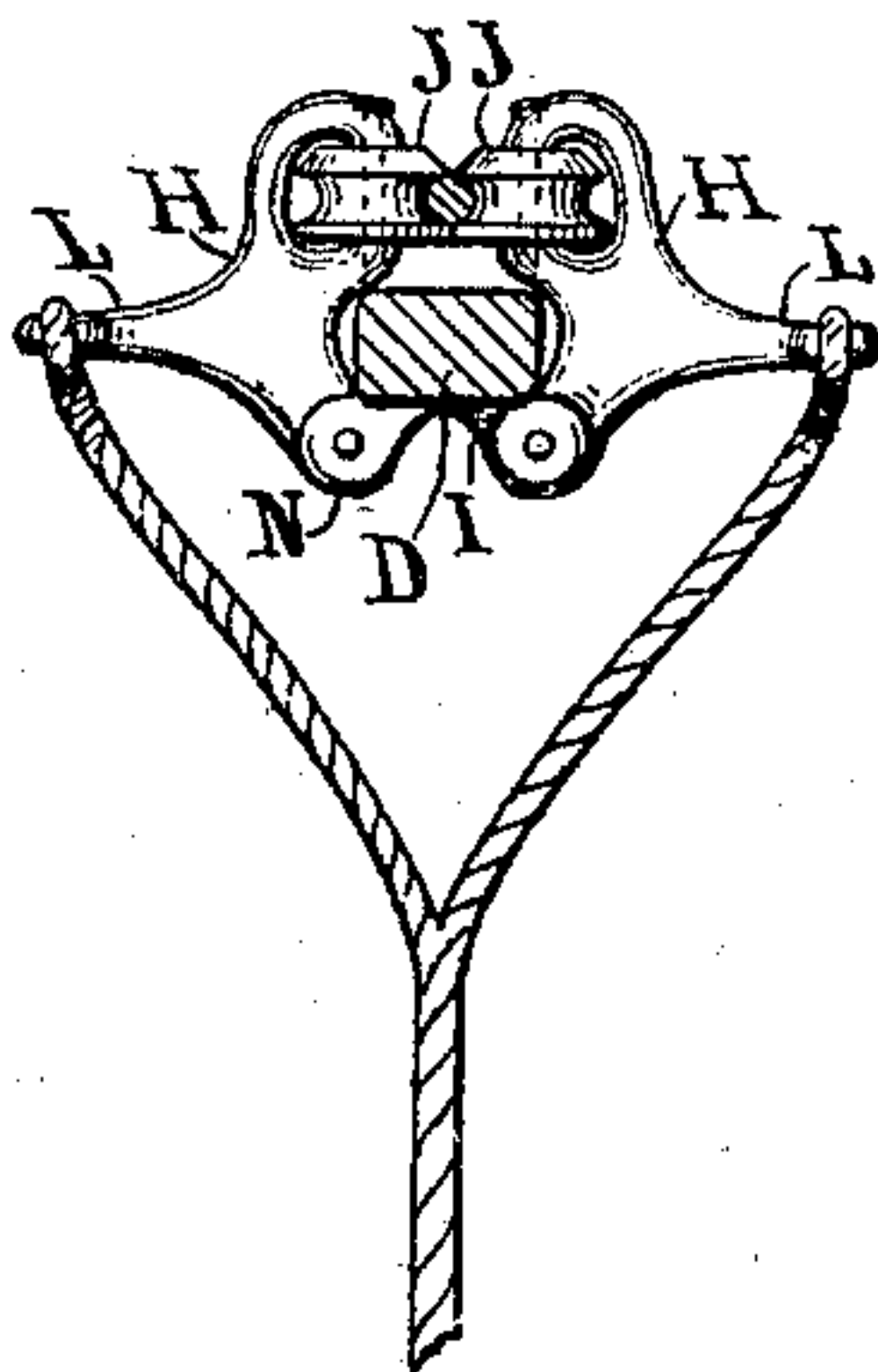


Fig. 4.

WITNESSES:

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# UNITED STATES PATENT OFFICE.

JAMES B. LYNCH, OF WAVERLY, AND GEORGE B. GRIFFIN AND JOHN A. SIMPSON, OF ELMIRA, NEW YORK.

## TROLLEY.

SPECIFICATION forming part of Letters Patent No. 647,193, dated April 10, 1900.

Application filed September 2, 1899. Serial No. 729,340. (No model.)

*To all whom it may concern:*

Be it known that we, JAMES B. LYNCH, a citizen of the United States, residing at Waverly, in the county of Tioga, and GEORGE B. GRIFFIN, a citizen of the United States, and JOHN A. SIMPSON, a citizen of the Dominion of Canada, both residing at Elmira, in the county of Chemung, State of New York, have invented new and useful Improvements in Trolleys, of which the following is a specification.

This invention relates to trolleys for electric-railway cars, and has for one object to provide improved means for securing the trolley-wheel against displacement from the line-wire while the car is running.

A further object is to provide a device of this character which can be readily attached to the trolley-poles as now in ordinary use without the requirement of structural alteration.

We accomplish these objects by means of the combination and arrangement of parts illustrated in the accompanying drawings, in which—

Figure 1 represents a plan view of a trolley with our improvements attached thereto; Fig. 2, a side elevation of the same; Fig. 3, a sectional view of the spring-counterbalance, and Fig. 4 an end view showing the arrangement of the gripping device.

Similar letters refer to similar parts throughout the several views.

A and B represent the ordinary form of trolley pole and wheel. On the ends of the spindle upon which the trolley-wheel is mounted is pivoted a frame C, the attachment of this frame to the trolley requiring only the substitution of a longer spindle. Back of the frame C is a second frame D, insulated therefrom by an insulating-strip E, the two parts C and D being firmly fastened together. In the frame D is mounted a guide-wheel F, which bears against the under side of the line-wire, this guide-wheel F being allowed side play on its spindle G in order that the wheels B and F may conform in their respective positions to curves in the line-wire. Two arms H H are pivotally mounted at I I on opposite sides of the frame D, and upon these arms are carried grooved rollers J J, adapted to en-

gage the sides of the line-wire. The rollers are beveled at the top to permit them to pass switch-points and crossovers readily. Lateral arms L L project from the arms H, and to these arms are attached the bifurcated ends of the trolley-rope. Torsional springs M M, secured to lugs N N, depending from the frame D, are attached to the arms H to retain them in upright position and press the rollers J J against the line-wire. The frame C is extended forward of the trolley-wheel and has coupled to it a rod Q, which slides in a cylinder O, pivoted to the clamp P, attached to the trolley-pole. A spring R within the cylinder O exerts a downward pressure upon the rod Q, counterbalancing the weight of the frame D and attached parts and causing wheels B and F to assume a proper alinement for engaging the line-wire.

In operation the grooved rollers J J grip the sides of the line-wire and prevent the trolley-wheel from jumping away or being otherwise displaced from the line-wire. At the same time the sidewise play allowed these rollers by the spring-actuated arms H permits the rollers to spread apart sufficiently to pass the trolley-line supports, crossovers, and switch-points. When the trolley-wheel is to be removed from the line-wire, as when reversing the trolley-pole, a downward pull on the pole-rope will spread the rollers J J apart, thereby releasing the trolley-wheel from the line-wire. In replacing the trolley-wheel upon the wire the arms H H in their distended position form a guide by which the line-wire is readily found. The wheel F guides the frame D into proper position on the line-wire for the rollers J J to take hold thereof, and the side play allowed said wheel permits the device to conform to the curves in the trolley-wire.

It will be readily seen that this device can be constructed and put together as a complete attachment and applied to any ordinary construction of trolley-support, requiring, as it does, only the substitution of a longer wheel-spindle and the attachment to the pole of the clamp P. By insulating the guide-wheel and gripping-rollers excessive sparking is avoided when throwing the trolley into and out of engagement with the line-wire.



Having thus described our improvements, what we claim as our invention, and desire to secure by Letters Patent, is—

1. The combination, with a trolley pole and wheel, of a frame mounted on the wheel-support, vertically - swinging spring - actuated arms pivotally mounted upon opposite sides of the frame, grooved rollers carried by said arms and operated by them to engage the sides of the line-wire, and lateral projections on said arms to receive a bifurcated trolley-cord, whereby said arms are spread apart to disengage the rollers from the line-wire.

2. The combination, with a trolley pole and wheel, of a frame pivoted upon the wheel-spindle, a guide-wheel in the rear portion of the frame to engage the under side of the line-wire, a counterbalance attached to the frame forward of the trolley-wheel, vertically-swinging spring-actuated arms pivotally mounted between the trolley-wheel and guide-wheel on opposite sides of the frame, grooved rollers carried by said arms and operated by them to engage the sides of the line-wire, and lateral projections on said arms to receive a bifurcated trolley-cord whereby said arms are spread apart to disengage the rollers from the line-wire.

3. The combination, with a trolley pole and

wheel, of a frame pivoted upon the wheel-spindle, a guide-wheel mounted with side play in the rear portion of the frame to engage the under side of the line-wire, a spring-actuated counterbalance secured between the pole and the forward portion of the frame, spring-actuated arms pivotally mounted between the trolley-wheel and guide-wheel on opposite sides of the frame, grooved rollers carried by said arms and operated by them to engage the sides of the line-wire, and means for spreading the arms to disengage the rollers from the line-wire.

4. The combination, with a trolley pole and wheel, of a frame mounted on the wheel-support, a guide-wheel and grooved rollers mounted on the frame to grip the line-wire, said wheel and rollers being insulated from the trolley-pole and means for throwing said rollers into and out of engagement with the line-wire.

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

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JOHN A. SIMPSON.

Witnesses:

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