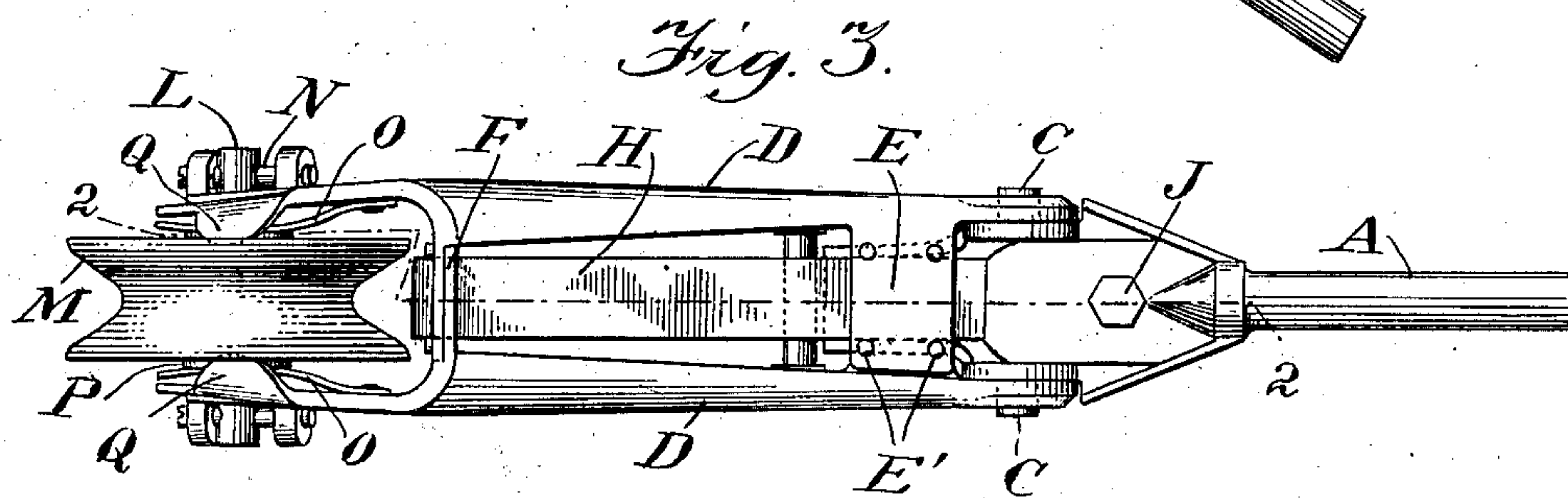
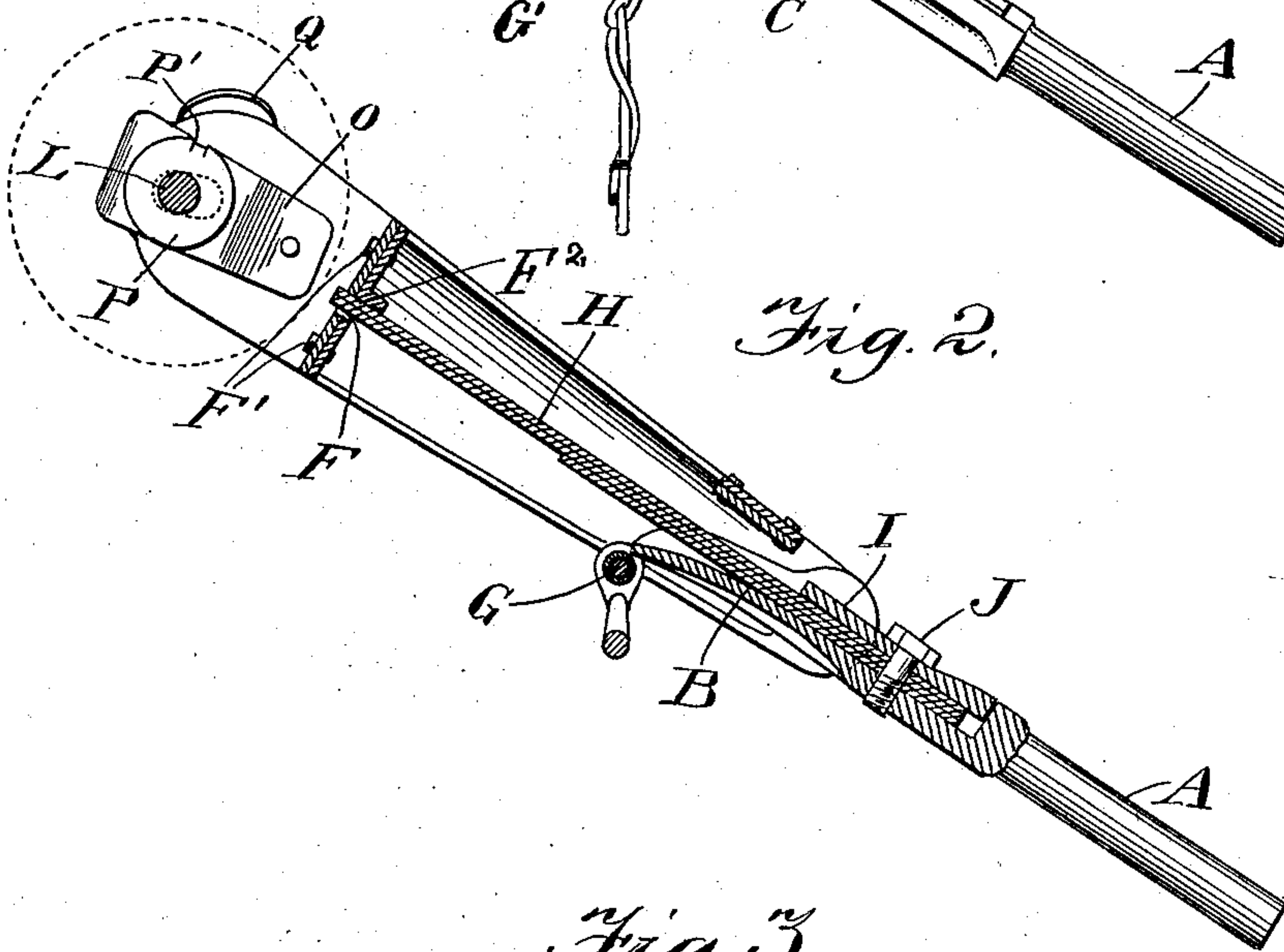
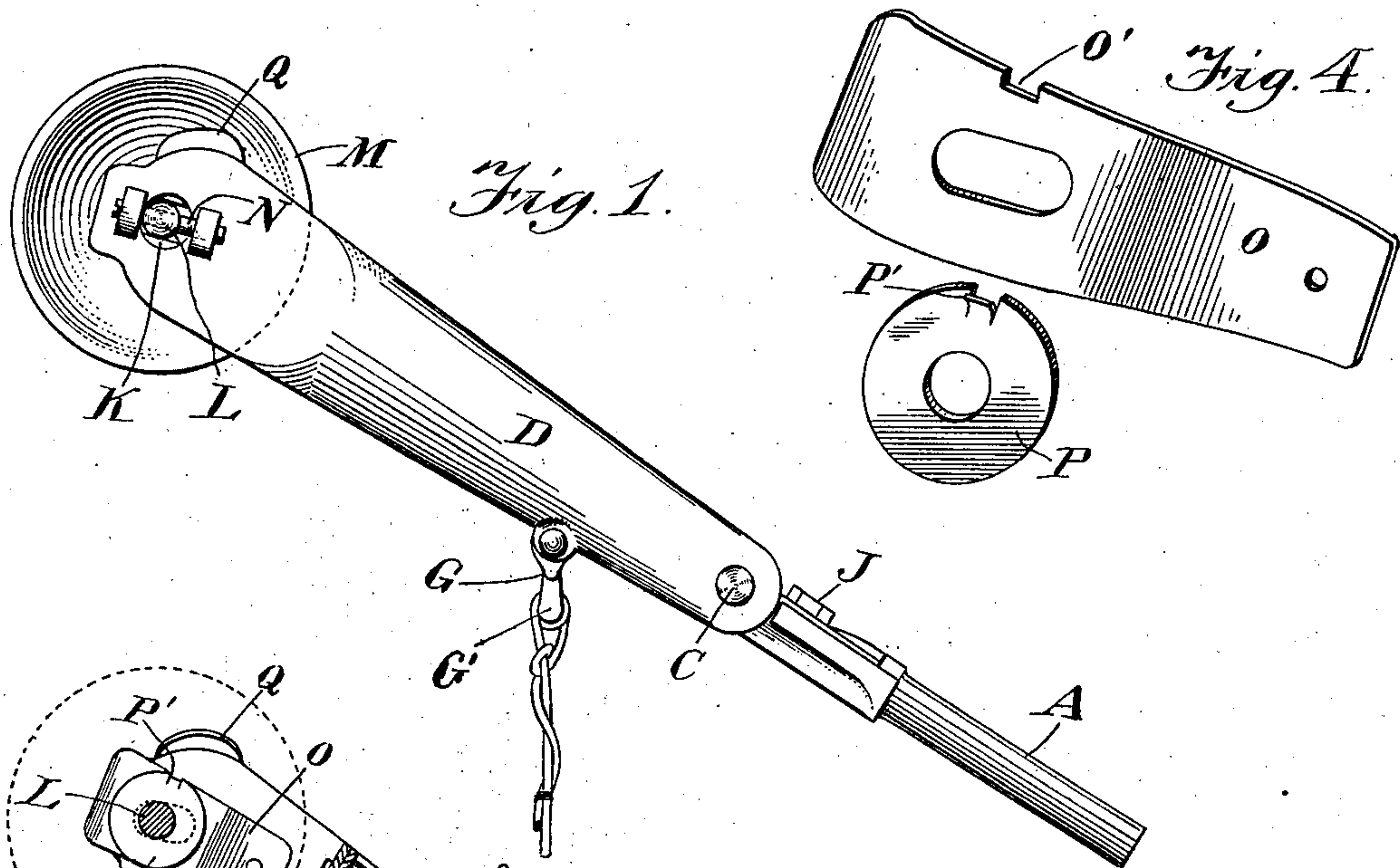


No. 753,552.

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W. A. DAGGETT.  
TROLLEY FOR ELECTRIC CARS.  
APPLICATION FILED SEPT. 3, 1903.

NO MODEL.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

WILLIAM A. DAGGETT, OF VINELAND, NEW JERSEY.

## TROLLEY FOR ELECTRIC CARS.

SPECIFICATION forming part of Letters Patent No. 753,552, dated March 1, 1904.

Application filed September 3, 1903. Serial No. 171,773. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM A. DAGGETT, a citizen of the United States, residing at Vineland, county of Cumberland, and State of New Jersey, have invented a certain new and useful Improvement in Trolleys for Electric Cars, of which the following is a specification.

My invention relates to a new and useful improvement in trolleys for electric cars, and has for its object to provide a trolley which will have a yielding connection independent of the trolley-pole connection with the car, thereby doing away with the usual pounding or jumping, and thus preventing the trolley from being disconnected with the wire.

With these ends in view this invention consists in the details of construction and combination of elements hereinafter set forth and then specifically designated by the claims.

In order that those skilled in the art to which this invention appertains may understand how to make and use the same, the construction and operation will now be described in detail, referring to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a side elevation of the trolley-fork. Fig. 2 is a longitudinal section taken on the line 2 2 of Fig. 3; Fig. 3, a plan view of the trolley-fork; Fig. 4, a detail perspective view of one of the washers and the end of one of the side springs.

This invention is intended as an improvement over patents issued to me September 18, 1900, and January 6, 1903, for trolleys, numbered, respectively, 658,243 and 717,821; and the particular improvement over these patents consists mainly in the construction of the harp and in other details of construction, but in no way altering the principle, only making a very practical device.

A represents a shank to which is adapted to be secured the trolley-pole, and formed with this shank and extending upward from the same is an arm B, and extending outward from each side of this arm are studs C, which pass through the lower end of the prongs D, forming the trolley-fork.

In order to journal the studs C in the trol-

ley-fork and also to journal the axle of the trolley-wheel in said fork, I make the trolley-fork in two parts, each prong D being separate. Each of the prongs D are provided with inwardly-extending lugs E near their rearward ends, the lugs upon one prong fitting underneath the lug upon the opposite prong, and these two lugs being riveted or otherwise secured, as represented at E'. To further secure the prongs together, I provide on the forward end of the same, just rearward of the periphery of the trolley-wheel, the lugs F, one lug upon each prong, said lugs extending inward and overlapping one another, these lugs being riveted or otherwise secured, as represented at F'. The manner of constructing this fork or harp and of securing the two parts together forms the principal feature of my invention. Each prong of the fork is formed concaved except at the forward end, where the trolley-wheel is journaled, so as to strengthen the parts.

G is a bolt passing through both prongs of the fork, and around this bolt in between the prongs is a sleeve which helps to hold the two prongs of the fork at equal distances apart upon this sleeve. Against the bolt or rivet G rests the forward end of the arm B, and secured to this bolt or rivet G is an eyelet G', to which the trolley-rope is secured.

H is a flat spring preferably made of a number of leaves, and the lower end of this spring is clamped to the arm B by means of a plate I, placed over the spring, so as to confine the spring between this plate and the arm B. Then a bolt J is passed through the plate and spring and threaded in the arm B. The arm B is curved upon the upper face to allow the spring to bend around it when the trolley-wheel is depressed. The upper end of the spring H extends through a slot F<sup>2</sup>, formed through both lugs F of the prongs D.

At the upper end of the harp, which forms the fork proper, the prongs D are bent inward toward one another, as shown in Fig. 3, and through both of these prongs are formed holes K, and through these holes pass the spindle of the trolley-wheel M. This spindle L is somewhat smaller in diameter than the



holes K, and passing through each end of the spindle outside of the prongs are pins N, which pins are passed through a lug upon each side of the opening N and then through an opening formed in the spindle, the pins being secured in the lugs. The openings through the spindle through which the pins extend are horizontally oblong. Thus a slight amount of horizontal swivel motion is allowed the spindle relative to said pins. The trolley-wheel M will thus be allowed to turn slightly to accommodate itself to curves or irregularities in the trolley-wire. This feature is fully set forth in my former patent, No. 717,821, before mentioned.

O represents flat thin springs, one upon each side of the trolley-wheel and one secured to the inside of each of the prongs. The upper or free end of the springs bear against the washers P upon each side of the trolley-wheel, and the extreme upper end or the free ends of the spring are normally out of contact with the ends of the prongs; but the trolley-wheel on sliding along the spindle to accommodate itself to curves or other irregularities will exert a tension against the springs, and when the outer end of one of the springs comes in contact with the end of the prong to which it is secured this spring will be stiffened and create greater resistance. These springs hold the trolley-wheel normally central and relieve the wheel of shock in striking curves and irregularities.

For the purpose of preventing the washers P from turning with the wheel, and thus causing wear upon the ends of the springs R, a portion of each washer is punched outward, as indicated at P', and this punched-out portion fits within the notch O', cut from the edge of the spring O.

Upon the upper end of each of the prongs D are formed ears Q, which are bent inward at an incline, and these ears are for the purpose of preventing the wire from entering between the side plates on the trolley-wheel when placing the trolley-wheel upon the wire.

Of course I do not wish to be limited to the exact construction here shown, as slight modifications could be made without departing from the spirit of my invention.

Having thus fully described my invention, what I claim as new and useful is—

1. In a trolley, a shank adapted to be secured to the trolley-pole, a curved arm extending upward from the shank, and side plates or prongs forming the trolley fork or harp pivoted at each side on studs extending outward from said arm, said prongs or side plates being formed separate from one another, each prong having an inwardly-extending lug, said lugs adapted to overlap one another and be secured together, a spring secured at its lower end to the upper face of the curved arm, a cross bolt or rivet extending

between the plates, with which the upper end of the curved arm comes in contact, the upper lugs joining the two prongs together, each being provided with a slot through which the free end of the spring extends, and a trolley mounted between the upper end of the prongs, as and for the purpose specified.

2. In a trolley, a shank adapted to be secured to the trolley-pole, a curved arm extending upward from the shank, side plates forming the trolley-fork, studs extending outward from said arm at each side upon which the lower end of the side plates are journaled, a trolley mounted between the upper end of said side plates, said side plates being made separate from one another, each side plate being provided with an inwardly-extending lug near its lower end, the plane of said lug being parallel with the trolley-pole, said lugs adapted to overlap one another and be secured together, each of said side plates being also provided with an inwardly-extending lug near their upper ends, the plane of said lugs being at right angles to the trolley-pole and overlapping one another and being secured together, a spring secured at its lower end to the upper face of the curved arm, a plate arranged above the spring, between which plate and arm the spring is adapted to be clamped, a cross bolt or rivet extending between the side plates abutting against the under side of the curved arm for the purpose of limiting the upward movement of the trolley-fork, the upper lugs extending between the side plates being provided with a slot through which the free end of the spring extends, as and for the purpose specified.

3. In a trolley, a shank adapted to be secured to the trolley-pole, a curved arm extending upward from the shank, side plates forming the trolley-fork, studs extending outward from the arm upon each side upon which the lower ends of the side plates are journaled, inwardly-extending lugs formed with the side plates, said lugs overlapping one another and being secured together after the side plates have been slipped upon the studs, a spring clamped at its lower end to the upper face of the curved arm, the upper or free end of the spring engaging the side plates, a cross bolt or rivet extending between the side plates and abutting against the under side of the curved arm, a trolley-wheel, a spindle extending through openings formed through the upper end of the side plates, said trolley-wheel journaled loosely upon said spindle, springs adapted to normally hold the trolley-wheel centrally of the fork, as and for the purpose specified.

4. In combination with a device of the character described, a trolley-fork, a trolley mounted to revolve between the prongs of said fork, a spindle extending through the prongs of the fork and held against revolu-



tion, means for allowing said spindle a certain amount of rocking or tilting movement, the trolley-wheel being journaled loosely upon said spindle, a washer arranged upon each side  
5 of the trolley and around the spindle, lugs protruding outward from each washer, anti-shock-springs arranged upon each side of the trolley, each spring being provided with an elongated opening through which the spindle  
10 extends, notches formed in said springs adapted to engage the lugs upon the washers

to hold said washers stationary while the trolley is revolving, as and for the purpose specified.

In testimony whereof I have hereunto af- 15  
fixed my signature in the presence of two subscribing witnesses.

WILLIAM A. DAGGETT.

Witnesses:

HERBERT C. BARTLETT,  
HERBERT J. MASON.