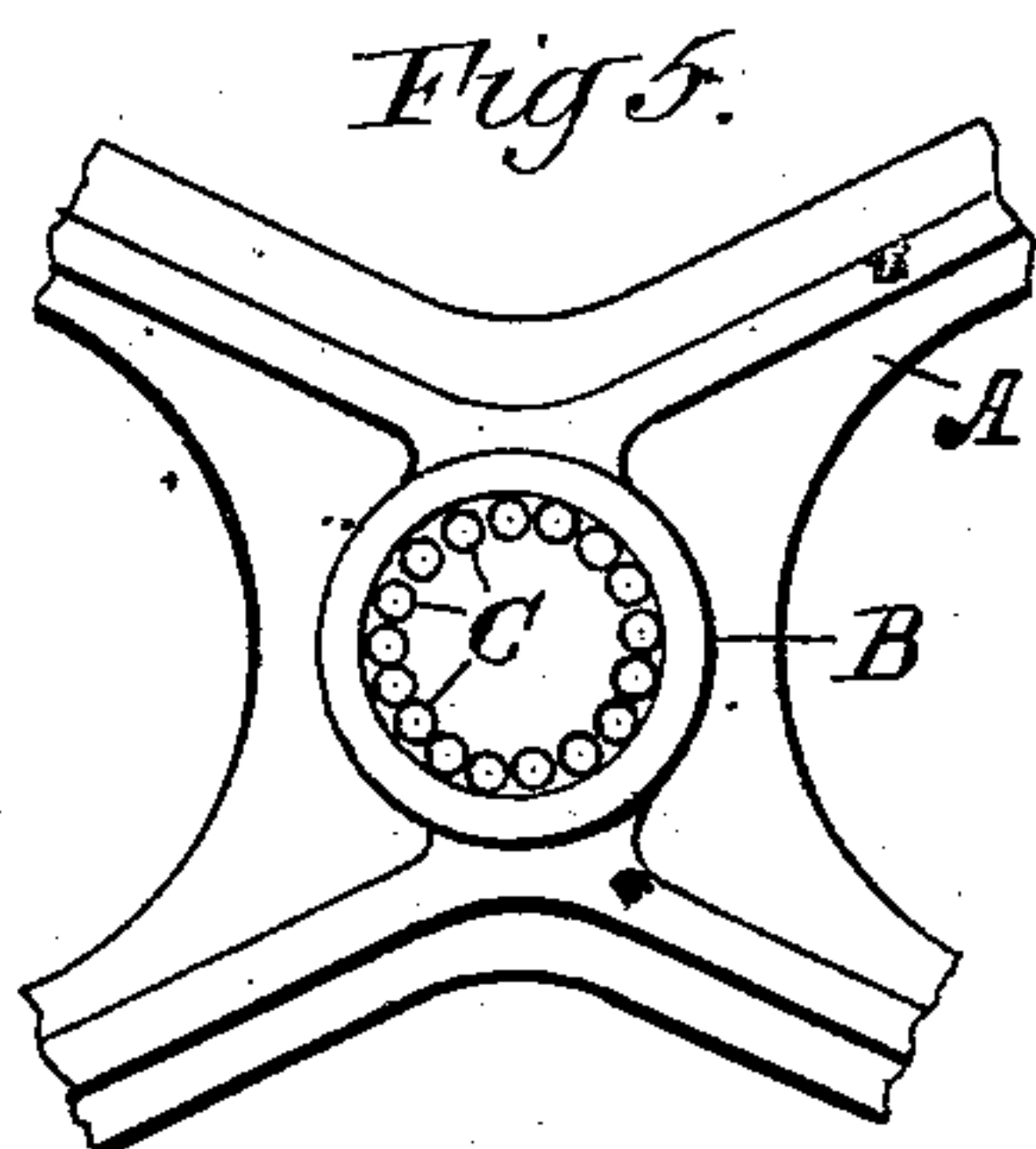
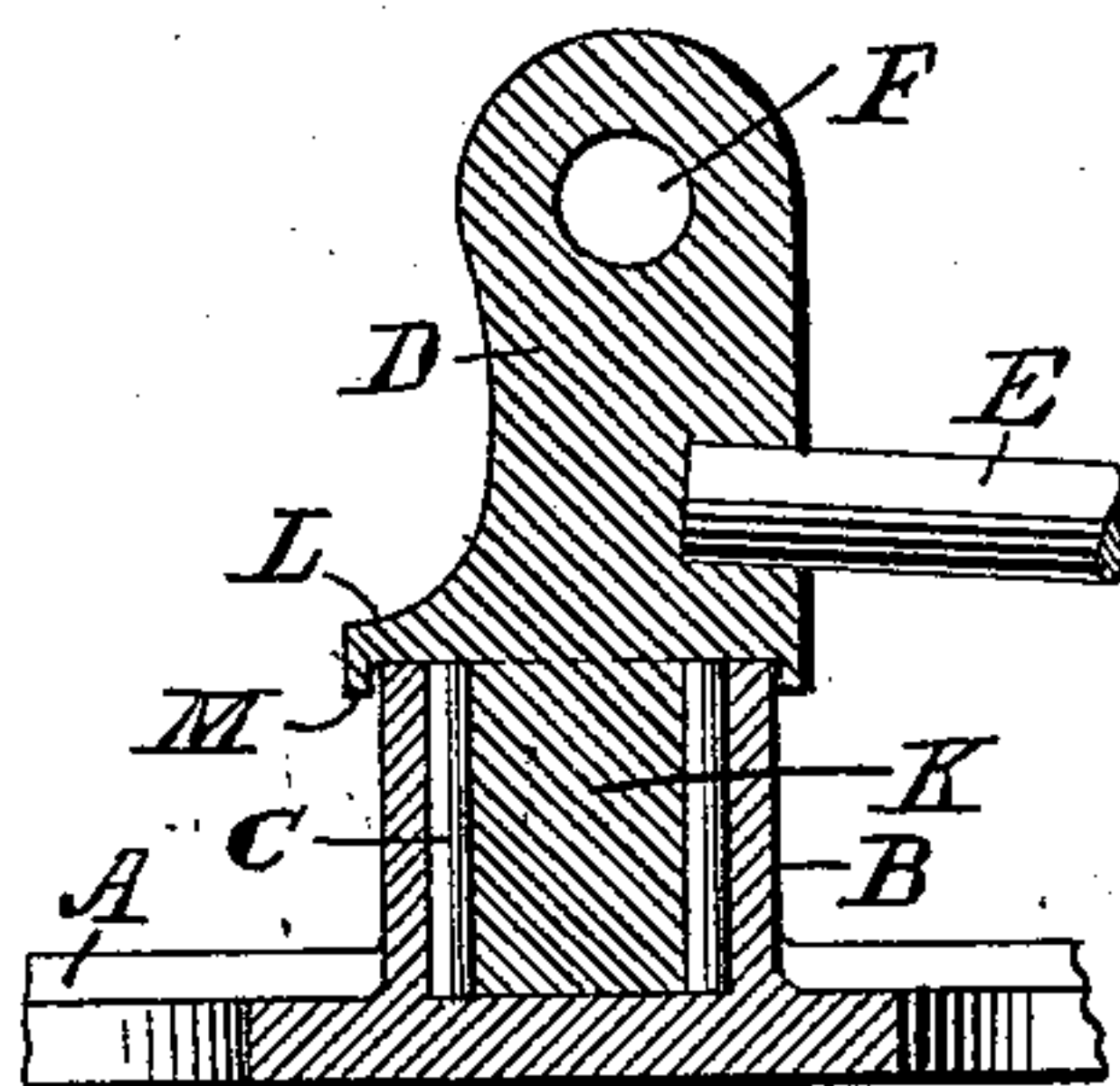
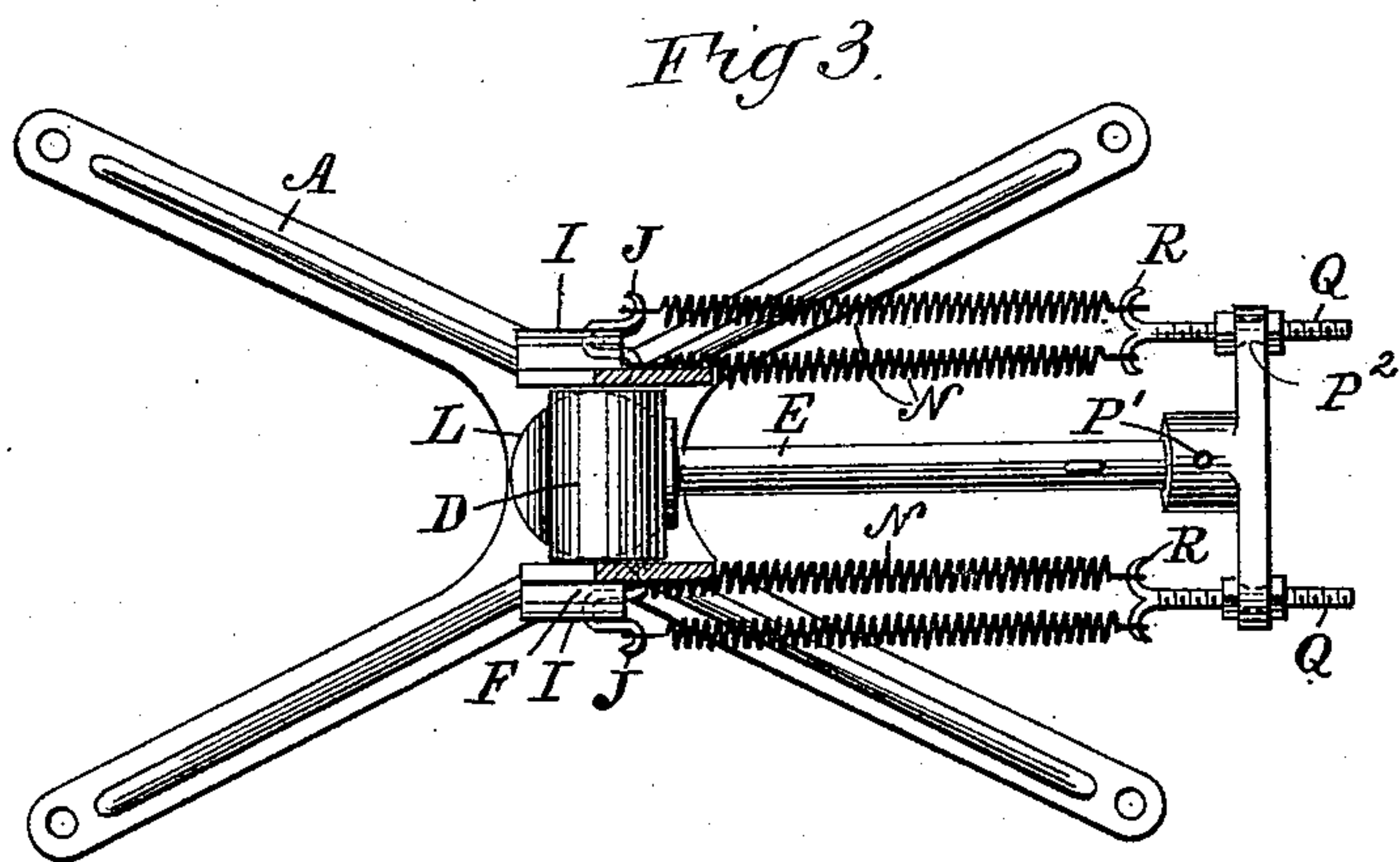
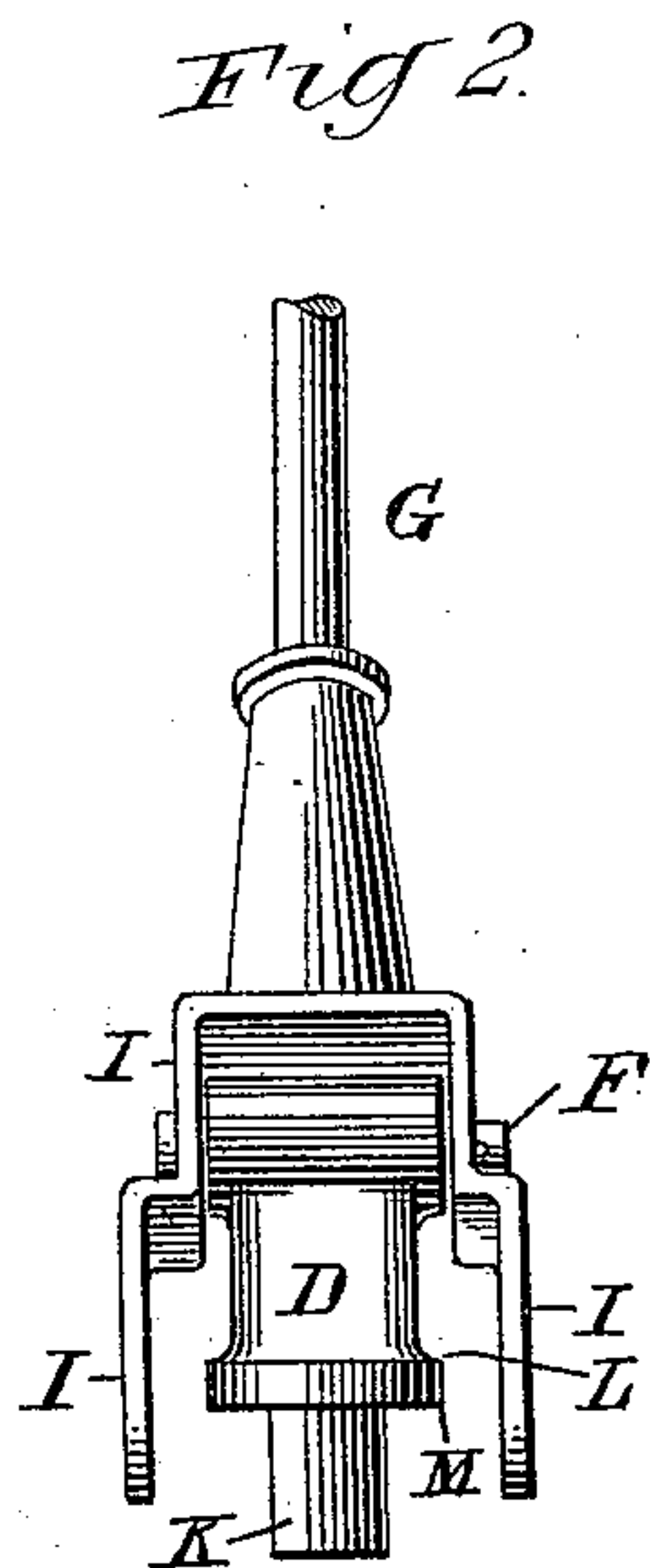
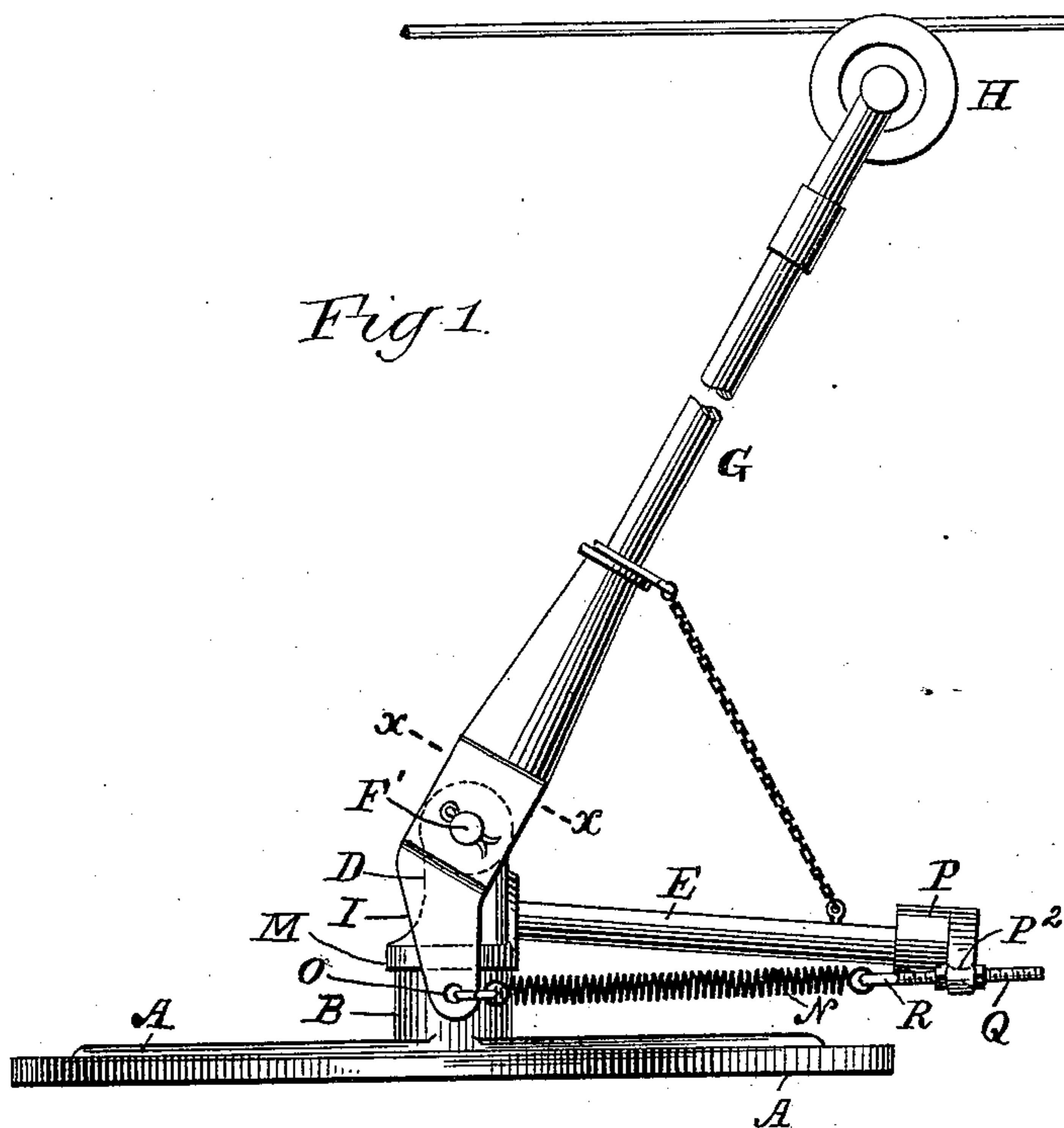


(No Model.)

A. GREEN.
BASE FOR TROLLEY POLES.

No. 539,681.

Patented May 21, 1895.



Attest:
L. Lee.
Edw. C. Vinsey

Inventor.
Alfred Green, per
Thomas S. Crane, Atty.

UNITED STATES PATENT OFFICE.

ALFRED GREEN, OF ROCHESTER, NEW YORK.

BASE FOR TROLLEY-POLES.

SPECIFICATION forming part of Letters Patent No. 539,681, dated May 21, 1895.

Application filed September 5, 1894. Serial No. 522,157. (No model.)

To all whom it may concern:

Be it known that I, ALFRED GREEN, a citizen of the United States, residing at Rochester, county of Monroe, and State of New York, have invented certain new and useful Improvements in Bases for Trolley-Poles, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

The present invention relates to that class of trolley poles which is pivoted upon a swiveling head, and the improvements consist partly, in the construction for the head and the stand by which it is supported, and partly, to the arrangement of the springs for sustaining the pole in an elevated position, and the means for attaching and tightening the springs in pairs simultaneously.

The improvements will be understood by reference to the annexed drawings, in which—

Figure 1 is a side elevation of the apparatus with the trolley-pole broken for want of space upon the drawings. Fig. 2 is a rear elevation of the same with the step and upper part of the pole omitted. Fig. 3 is a plan of the same with the pole and its fork removed above the line $x x$ in Fig. 1. Fig. 4 is a vertical section of the step with the swiveling head, and Fig. 5 is a plan of the step.

A is the base plate by which the fixture is attached to the roof of the car. B is a socket step formed upon the same and lined with a series of vertical anti-friction rolls C.

D is the swiveling head having at the bottom a stud or arbor K fitted movably within the rolls C, and provided at the top of the stud with a horizontal flange L having at its periphery a depending collar M projected downward over the top of the step B so as to wholly exclude dust and water therefrom.

The head D has the spring tension arm E projected from one side near the flange L, and provided at the center of the top with the transverse hole F for the pole hinge F'.

G is the pole, with trolley wheel H, and is forked above the hinge so as to embrace the upper end of the head D. The fork arms I are perforated for the hinge bolt F' and extend downward from the same below the level of the tension arm E, and are provided each with a double hook J for the attachment of two springs N. Each double hook is formed

of a rod inserted through an eye O in the arm I, with its ends bent first forward and then backwardly. Such construction involves the use of a single piece only for connecting two springs with the arm, and thus furnishes a very simple, cheap, and compact device to form a double hinge for uniting the springs to the arm; as the rod, by turning in the eye of the arm, forms a horizontal joint as the arm oscillates upon the hinge bolt F'; while the hooks J and the eyes upon the springs N permit motion in other directions.

A horizontal cross head P is affixed upon the outer end of the tension arm E and is formed with holes P² at its opposite ends for tension screws Q, each of which is split at its inner end into two hooks R.

By means of the double hooks J and R, two springs N are attached to each of the fork-arms I, and the tension of each pair of springs may be adjusted simultaneously by the single screw Q. The springs operate in the usual manner to draw the fork-arms toward the cross head P, and thus press the trolley wheel H elastically upward.

In mounting the apparatus, the rolls C are placed within the step B, as shown in Fig. 5, and as the flat ends of the rolls rest upon the flat bottom of the step, they readily remain in their places; while the stud or arbor K upon the swiveling head is inserted in their middle. The head is then sustained movably by the rolls, so that the trolley pole may be turned to either end of the car at pleasure, and may swing laterally when the wheel H passes around curves.

The construction for the double hooks J and tension screws Q is exceedingly cheap and simple, and furnishes a means of attaching and detaching the springs, and of tightening the same, with the utmost facility. By making the cross head P separate from the tension arm E and affixing it thereon by suitable means, as by the pin P', the cross head may be cast with the holes P² therein, and the expense of forging a cross head upon the tension arm, and the drilling of the holes, may be avoided. The whole device thus furnishes a cheap and effective construction for the intended purpose.

I am aware of the state of the art shown in United States Patents No. 491,210, granted

February 7, 1893; No. 457,378, granted August 11, 1891; No. 437,961, granted October 7, 1890, and No. 506,617, granted October 10, 1893. These patents show that anti-friction rolls
 5 have been combined with a housing upon the lower end of a trolley pole in connection with a loose sleeve, the base in such case being provided with an upright hub or stud; but
 10 the use of the socket step B in my construction serves to retain the rolls in their desired position without any such sleeve. These patents also show that tension arms of various constructions have been attached to a swiveling head, and I do not therefore claim such
 15 head or its tension arms and springs broadly, but,

Having set forth the nature of my improvements, what I claim as my invention is—

1. The base for trolley pole herein shown
 20 and described, comprising the base plate A formed with the socket step B lined with the series of rolls C, the swiveling head D provided with arbor K fitted within such rolls, the head being provided with spring tension
 25 arm E with cross head P having the tension screws Q provided with the double hooks R, the pole G provided with fork arms I pivoted upon the head D, and the pairs of springs N connecting the tension screws and the fork
 30 arms.

2. The base for trolley pole herein shown and described, comprising the base plate A formed with socket step B lined with the series of rolls C, the swiveling head D pro-

vided with arbor K fitted within such rolls, 35 the head having the flange L with collar M depending around the top of the step, as and for the purpose set forth, the pole with fork arms I hinged upon the head, the tension arm E with cross head P carrying the double hook 40 screws Q and the double hooks upon the fork arms, with the pairs of springs connecting such double hooks with the tension screws, substantially as set forth.

3. The base for trolley pole herein shown 45 and described, comprising the base plate A formed with the socket step B lined with the series of rolls C, the swiveling head D provided with arbor K fitted within such rolls, and having the spring tension arm E with 50 the separate cross head P having holes P², and the tension screws Q with the double hooks R, the pole G provided with fork arms I having the eyes O and pivoted upon the center of the head D, the double hooks J 55 formed each of a rod bent first forward and then backward as described, and fitted to the eyes O, and the pairs of springs N connecting the double hooks J with the double hooks R, substantially as set forth. 60

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

ALFRED GREEN.

Witnesses:

W. J. MORAY,
 J. A. GAVIN.