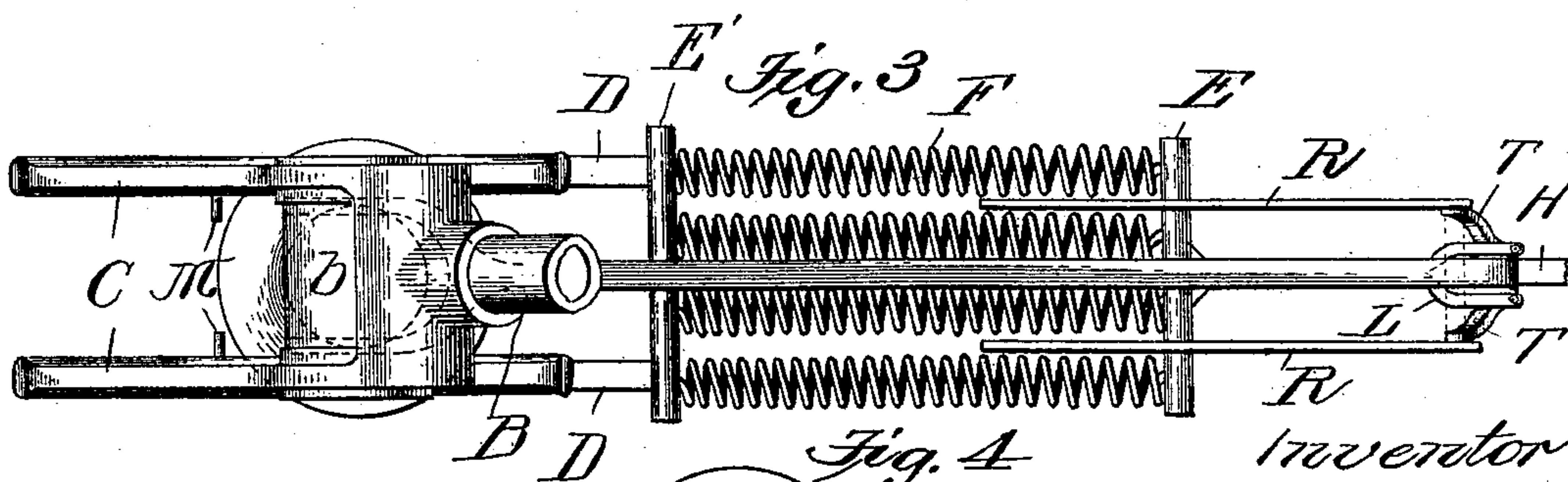
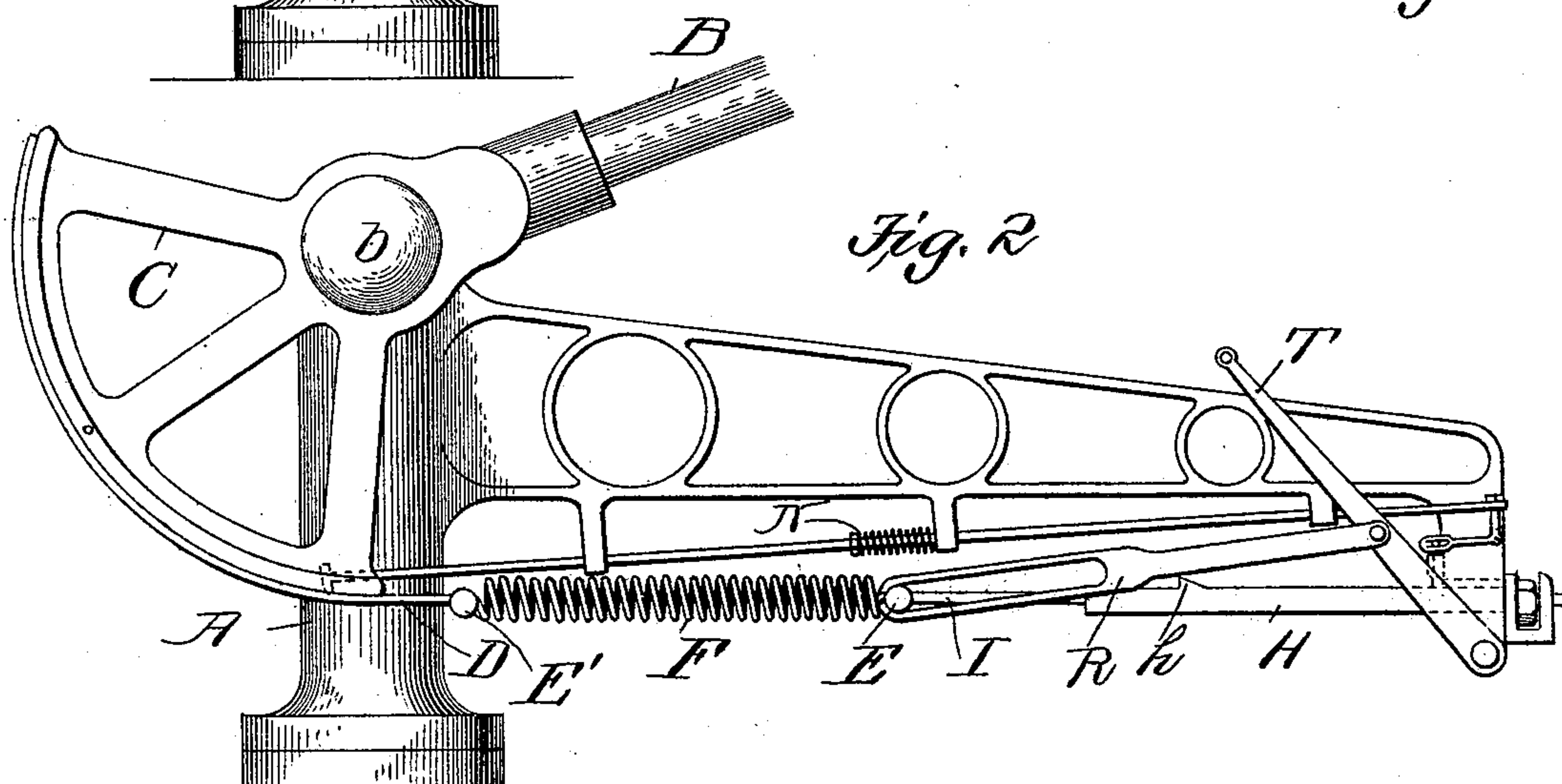
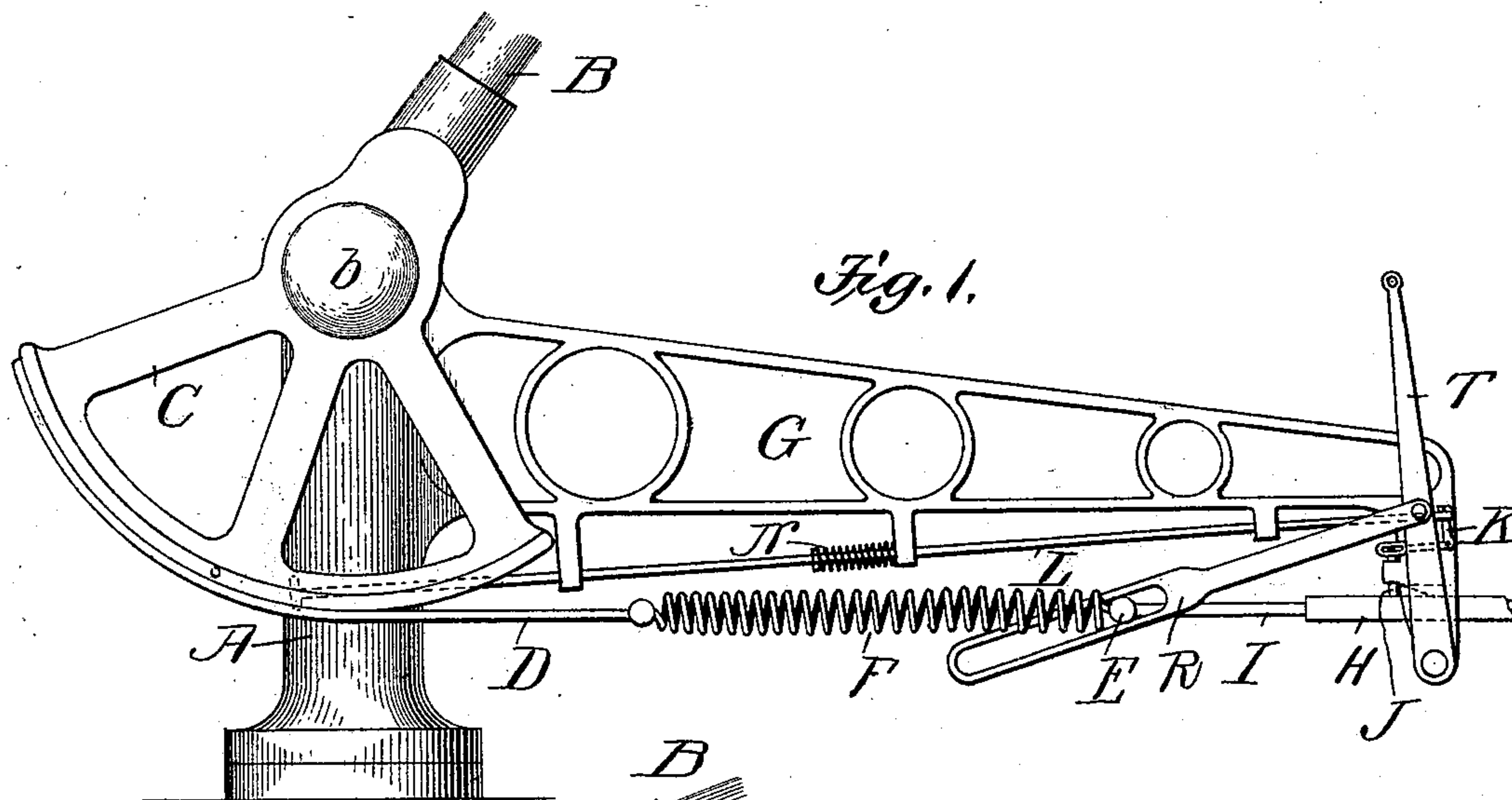


2 Sheets—Sheet 1.

No. 521,602.

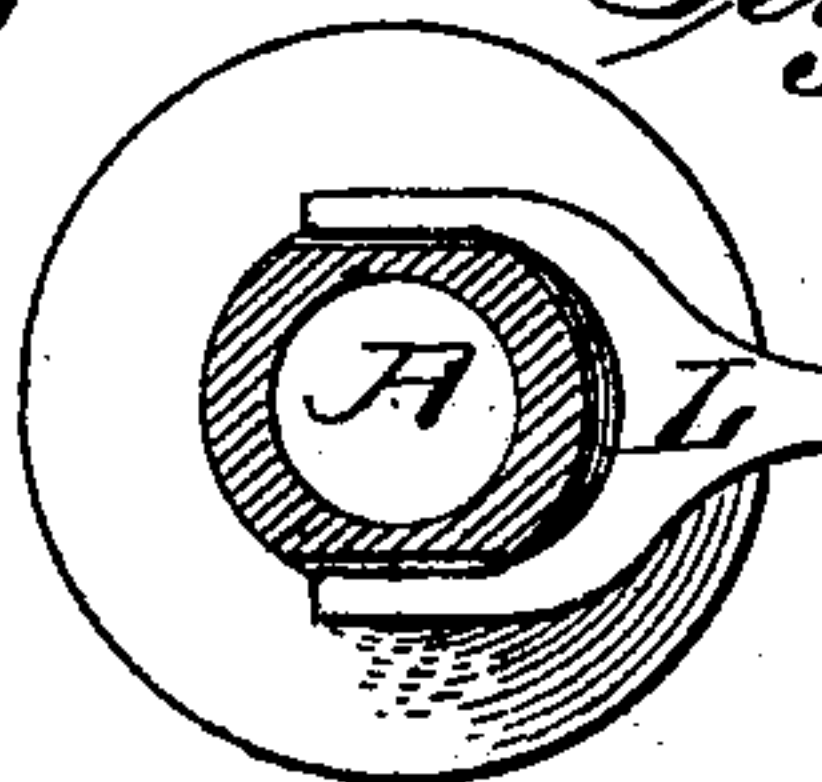
Patented June 19, 1894.



Witnesses
F. R. Cornwall
W. M. Byrne

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Owen G. Cates Jr

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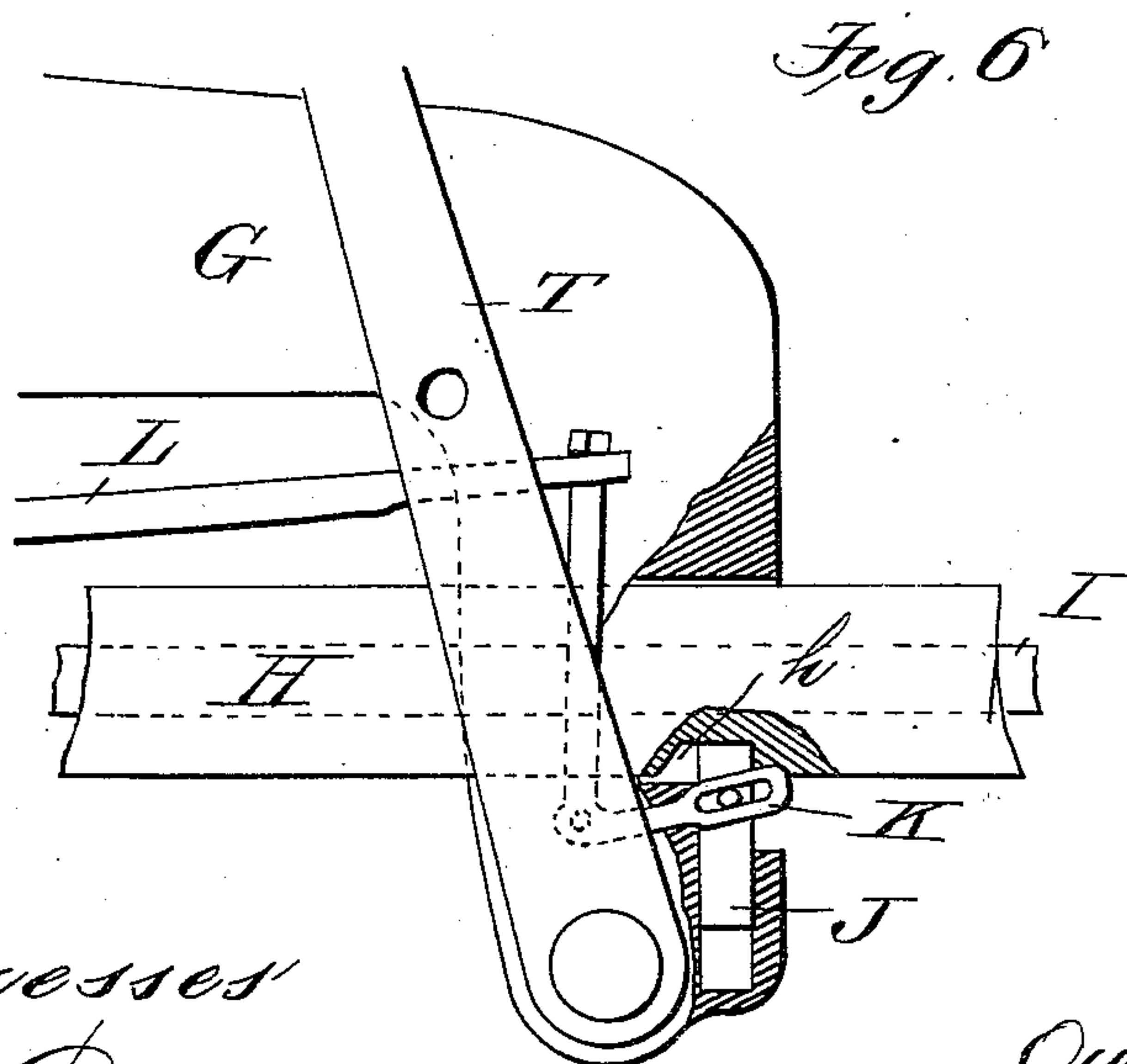
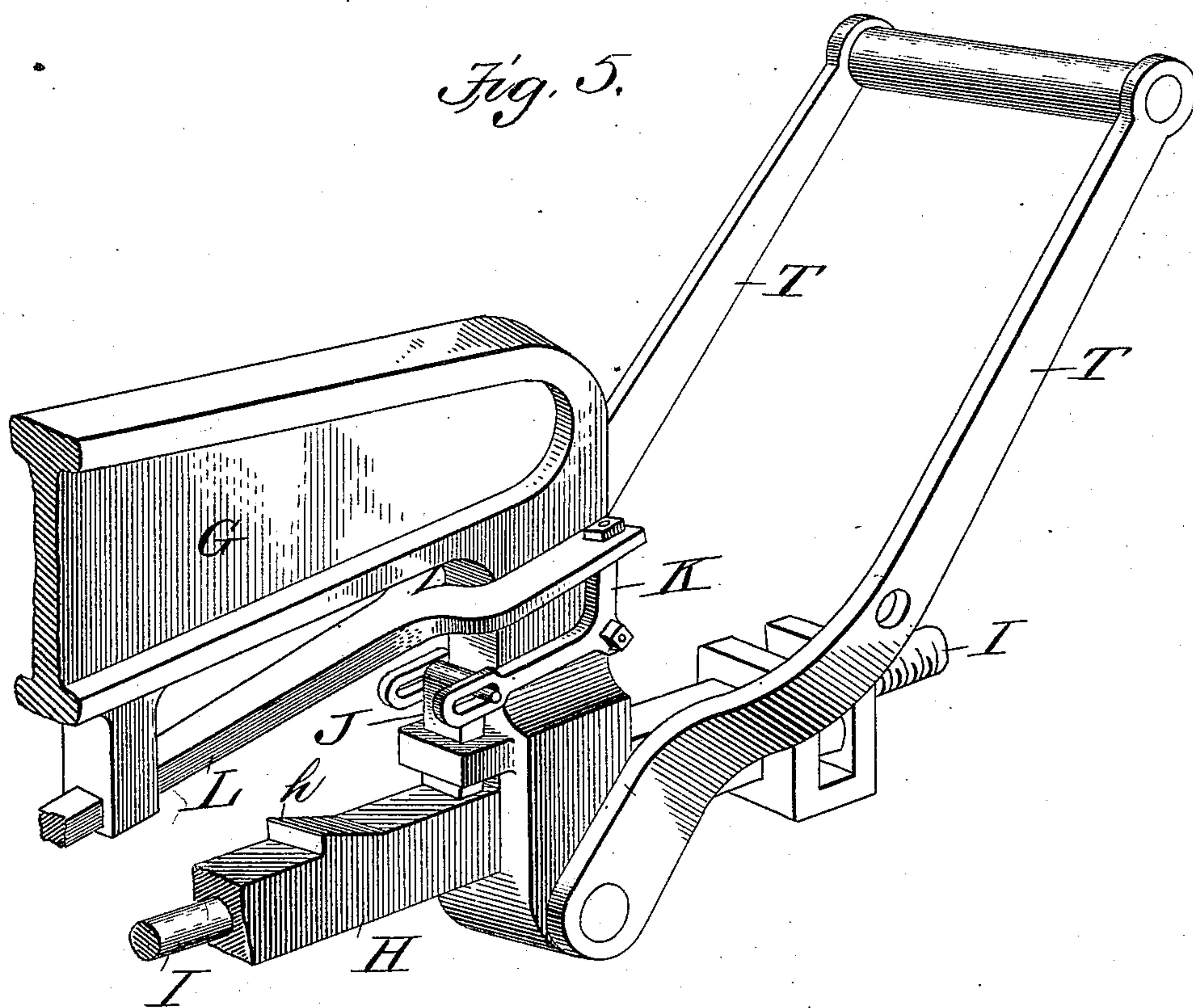
(No Model.)

2 Sheets—Sheet 2.

O. G. CATES, Jr.
TROLLEY POLE CATCHER.

No. 521,602.

Patented June 19, 1894.



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UNITED STATES PATENT OFFICE.

OWEN G. CATES, JR., OF ST. LOUIS, MISSOURI.

TROLLEY-POLE CATCHER.

SPECIFICATION forming part of Letters Patent No. 521,602, dated June 19, 1894.

Application filed March 12, 1894. Serial No. 503,275. (No model.)

To all whom it may concern:

Be it known that I, OWEN G. CATES, Jr., a citizen of the United States, residing in the city of St. Louis, State of Missouri, have invented a certain new and useful Improvement in Trips for Trolley-Poles, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, wherein like letters of reference denote like parts wherever they occur, and in which—

Figure 1 illustrates a side elevation, showing the trolley pole in operative or a set position. Fig. 2 is a similar view, illustrating the position of the parts after the trolley pole has been tripped. Fig. 3 is a plan-view. Fig. 4 is a sectional view, through the pivot post, taken just above the trigger operating rod. Fig. 5 is a perspective view, illustrating the parts on the outer end of the swinging arm; and Fig. 6 is a modification.

My invention relates to a new and useful improvement in trolleys for electric cars, and resides particularly in the provision on the reach arm, in the form of a bolt, for releasing the tension of the trolley supporting springs, upon the escape of the trolley wheel from the overhead conducting wire.

Other minor details of the invention reside in the construction, arrangement and combination of the several parts, all as will hereinafter be described, and afterward pointed out in the claims.

Heretofore, great trouble and annoyance has been experienced in controlling the trolley pole in overhead wire systems to prevent the trolley running off the wire, and the pole becoming "wild." Particularly is this true where double tracks cross each other and the trolley jumps the wire at the first crossing connection, when it will fly free and forward to the next cross-wire, against which it will strike with great force, to the detriment of the wire and pole. My invention is to obviate this difficulty.

In the drawings, A indicates the pivot post, as I shall term it; B the trolley pole, pivoted at *b* to the upper end of the post A; C, the rocker arms; D the strap; E, and E', the cross-bars, one of which E' is attached to the straps D.

F, are springs interposed between the cross-

bars E and E', which springs have a tendency to force the trolley pole B forward, and hold its carried trolley against the wire.

G indicates a reach-arm, through the outer end of which passes a sleeve H, through which sleeve a rod I passes, said rod being attached at its inner end to the cross-bar E, and threaded at its outer end to receive a nut whereby the tension of the springs F is adjusted.

All the above parts are common and well known, and heretofore the adjustment of the springs F has been made by the impingement of the nut on the rod I directly against the outer face of the reach-arm G.

In my present construction, I form a shoulder or recess *h* on or in the sleeve H, which shoulder or recess co-operates with the slide-block or bolt J, slidably mounted in suitable ways formed on the reach arm. Bolt J is raised, by suitable mechanism, operated upon the forward movement of the trolley pole, in this instance being illustrated as a bell-crank lever K pivoted to the reach-arm, one member of which is connected to a rod L, which rod is mounted in suitable ways formed on the under side of the reach-arm, and extends forward such a distance as to be in a convenient position to be operated upon by the forward movement of the trolley pole. I have illustrated a convenient means for accomplishing this, which resides in the rod L straddling the post A, the ends of which are in the path of pins M extending from the rocker-arms.

To retain the bolt or sliding block J in its proper position, and, at the same time, afford means to return the rod L to a set position ready to be acted upon by the pins M when the trolley pole swings forward, I arrange thereon a spring N, as shown.

Should the trolley jump the wire and the pole swing forward, the projections M will be carried back until they strike the inner end of the rod L, which rod will, through the bell-crank lever, raise the bolt or sliding block J out of the recess or from in front of the projection on the sleeve H, which will permit the sleeve and its carried rod I to move inwardly, under the action of springs F, which will throw the pole to the rear and out of the way. The pins M will prevent the pole from moving forward too far, to work any damage, and,

if desired, a suitable buffer spring may be used between the rocker arms to arrest its forward movement, as is common. To reset the pole after it has been tripped as above described, I have illustrated a means comprising a suitable lever or levers T pivoted to the lower end of the reach-arm, upon which lever is arranged a link R, slotted at its inner end for the reception of the cross-bar E. A cord or other suitable means may be connected to the outer end of the lever T, by which the same may be operated from the ground or platform of the car.

When the parts are in the position shown in Fig. 2, that is, the trolley pole having been tripped, the cross-bar E will be located near the outer extremity of the slot in link R. By pulling the lever T outwardly, the cross-bar E will be brought out, forcing the sleeve H through the opening in the outer end of the reach arm until the recess or projection h reaches a point where the sliding block or bolt J can operatively engage therewith, when the parts will be set for another operation.

In Fig. 6, I have illustrated a sliding bolt J as being located so as to co-operate with a recess in the sleeve H on its under side, the bell-crank lever being reversed from the position shown in Figs. 1 and 2.

I am aware that there are many minor changes in the construction and arrangement of the several parts of my device which could be made and substituted for those herein shown and described, without departing from the nature and principle of my invention, and I also do not wish to be understood as confining myself to this special form of trolley base, as there are others to which my invention is applicable.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination with the trolley pole and its means for holding the trolley in contact with the wire, in which means are included springs, of a bolt for holding the springs under tension, a bell-crank lever connected to the bolt, a rod connected to the other arm of the bell-crank lever, and projections on the rocker arms of the trolley pole for engaging and operating the arm when the trolley leaves the wire, whereby the bolt is actuated to release the tension of the springs, substantially as described.

2. The combination with a trolley pole, pivot-post, reach-arm and springs, of a movable bearing for one end of the springs, a threaded rod connected to said movable bearing, a sleeve upon said rod, a projection on the sleeve, a bolt which is adapted to engage the projection and hold the pole in an operative position, and means for operating the bolt to release the projection upon the forward movement of the pole, substantially as described.

3. The combination with a trolley pole, pivot-post, reach-arm and springs, of a movable bearing for one end of the springs, a bolt for retaining the springs under tension, a bell-crank lever for operating the bolt, a rod connected to the bell-crank lever, and extending within the path of the lower end of the trolley pole, a spring surrounding the rod for holding the same and the bolt in a normally operative position, and means on the lower end of the trolley pole for coming in contact with the rod and actuating the same when the trolley wheel jumps the conducting wire, substantially as described.

4. The means for resetting a tripped trolley pole, comprising the combination with the spring bearing bar, of slotted links through which said bar passes, and a lever to which said links are connected, substantially as described.

5. The combination with the means for tripping a trolley pole whose wheel has jumped the conducting wire, of mechanism for resetting the trolley pole comprising a slotted link through which one of the spring bars passes, a lever to which said link is connected, said lever having an eye in its free end, substantially as described.

6. The combination with a pivoted trolley pole, of a spring or springs connected thereto for holding the trolley in contact with a conductor, a catch for normally holding the springs under tension, and means for adjusting the relation between the springs and catch, whereby the tension of the springs can be adjusted or regulated, substantially as described.

In testimony whereof I hereunto affix my signature, in presence of two witnesses, this 23rd day of February, 1894.

OWEN G. CATES, JR.

Witnesses:

F. R. CORNWALL,
HUGH K. WAGNER.