

No. 617,722.

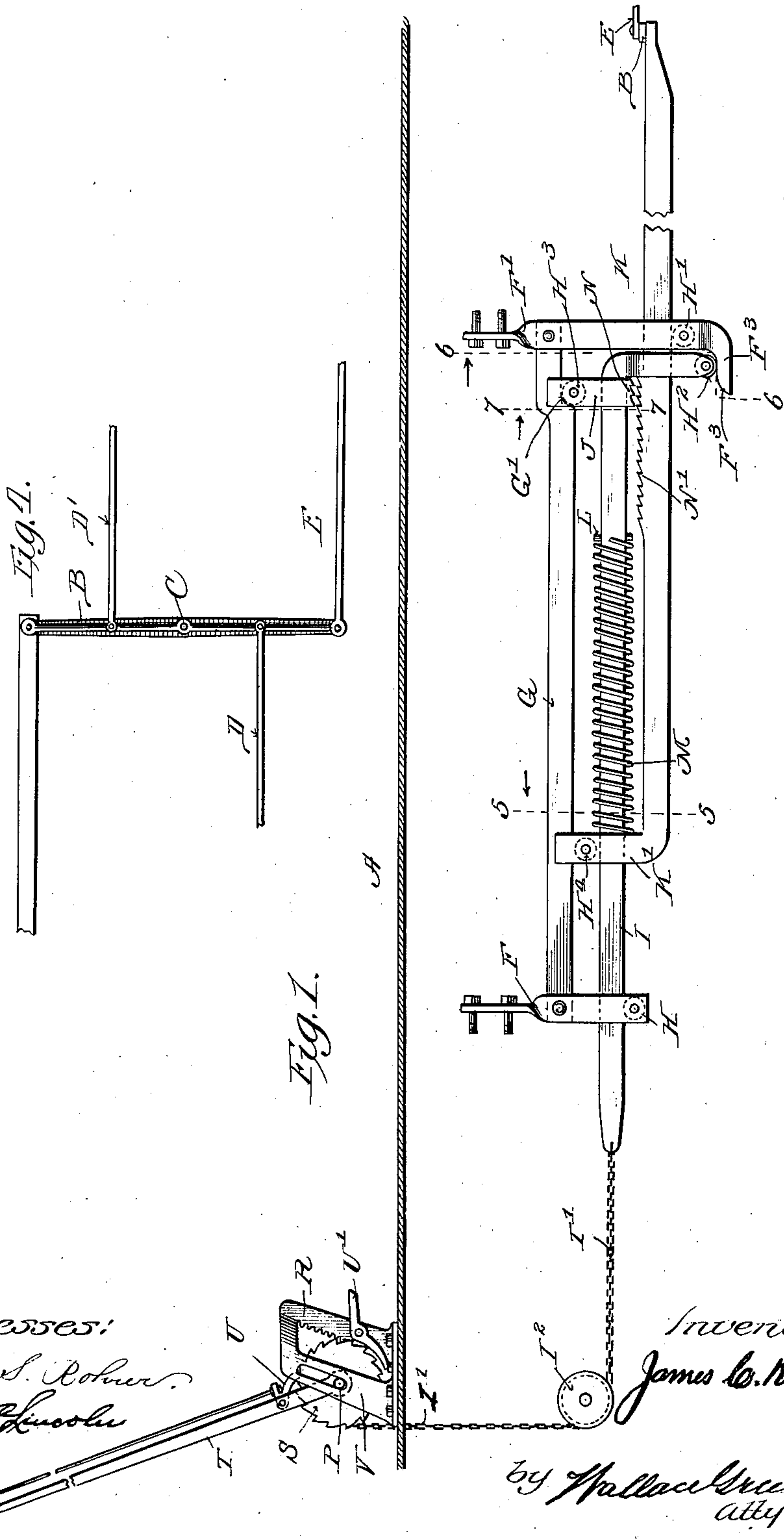
Patented Jan. 17, 1899.

J. C. DEVLIN.
CAR BRAKE.

(Application filed Mar. 8, 1898.)

(No Model.)

2 Sheets—Sheet 1.



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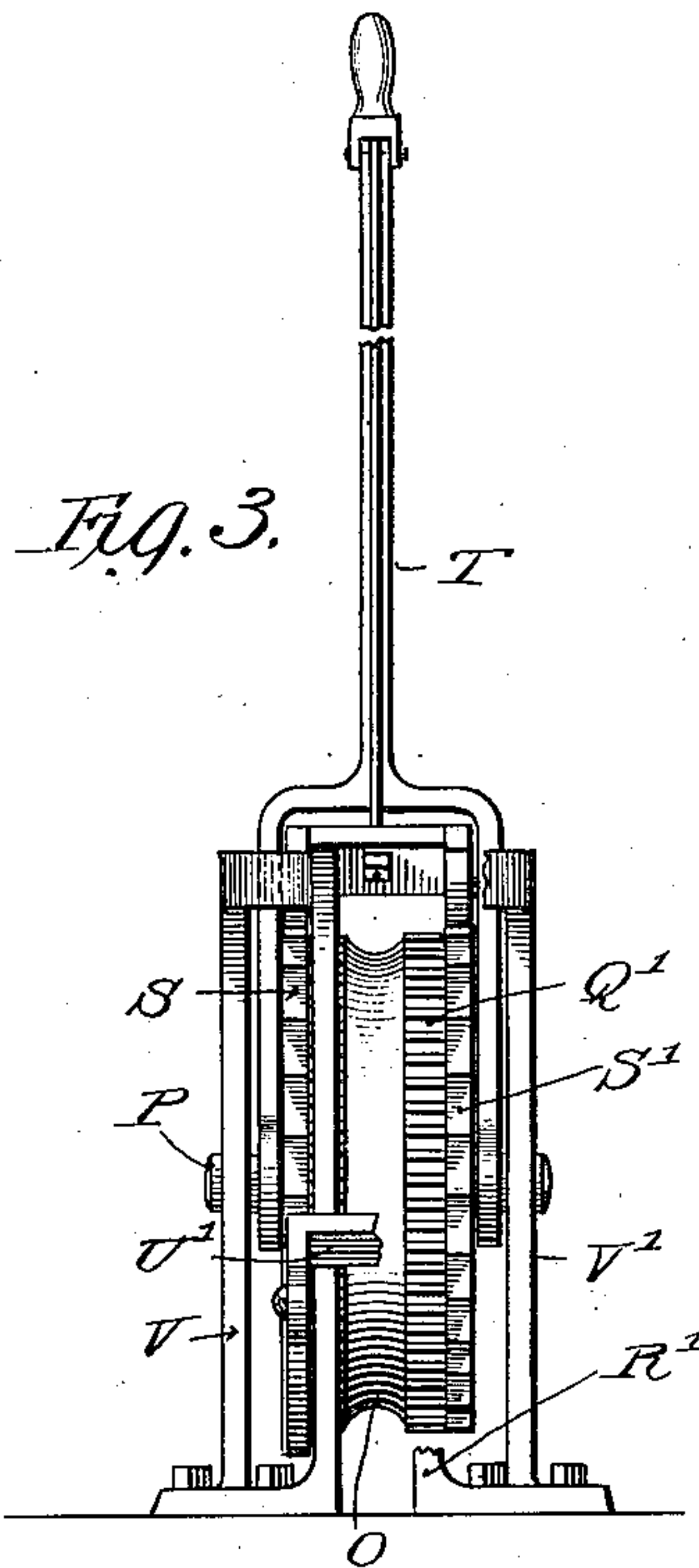
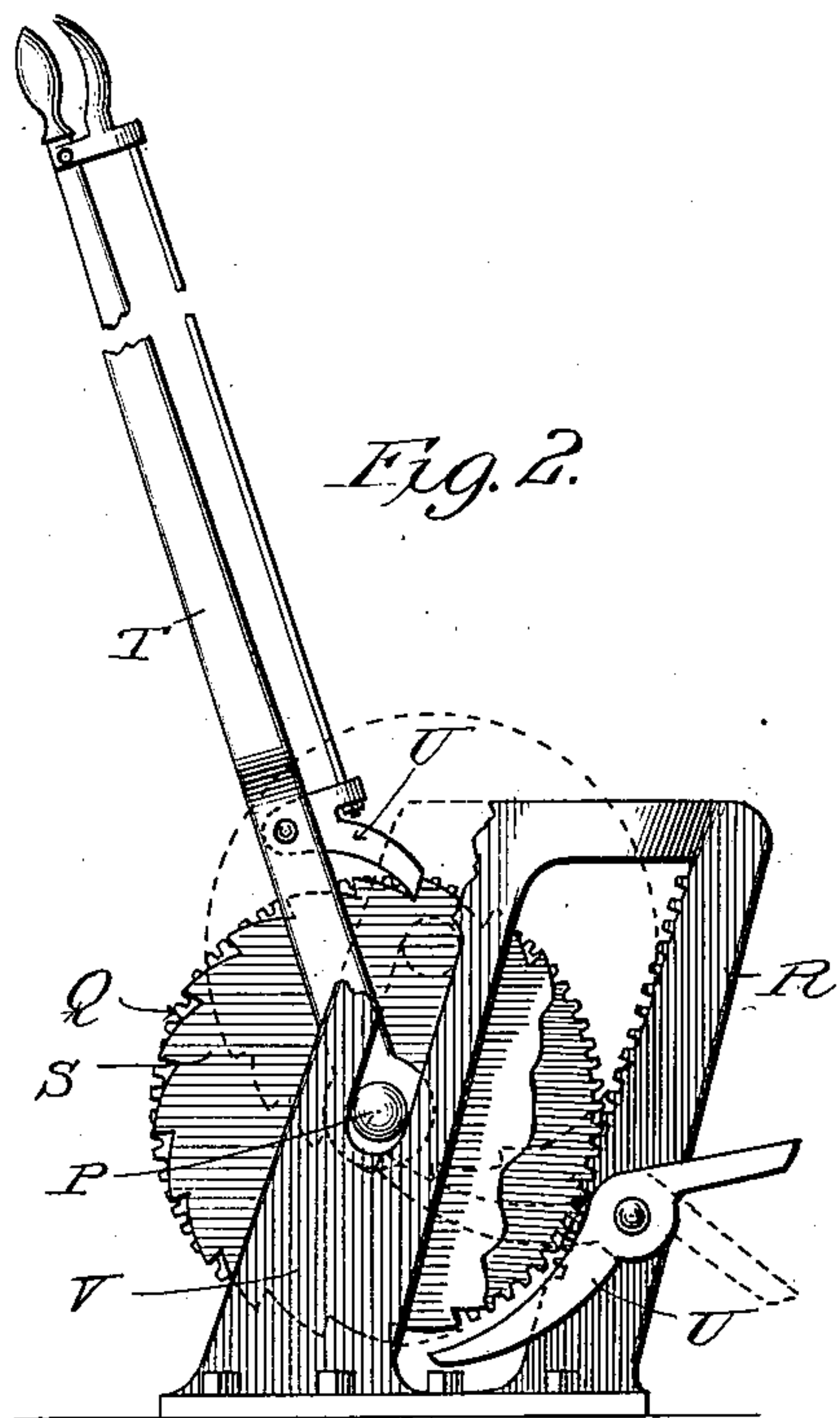
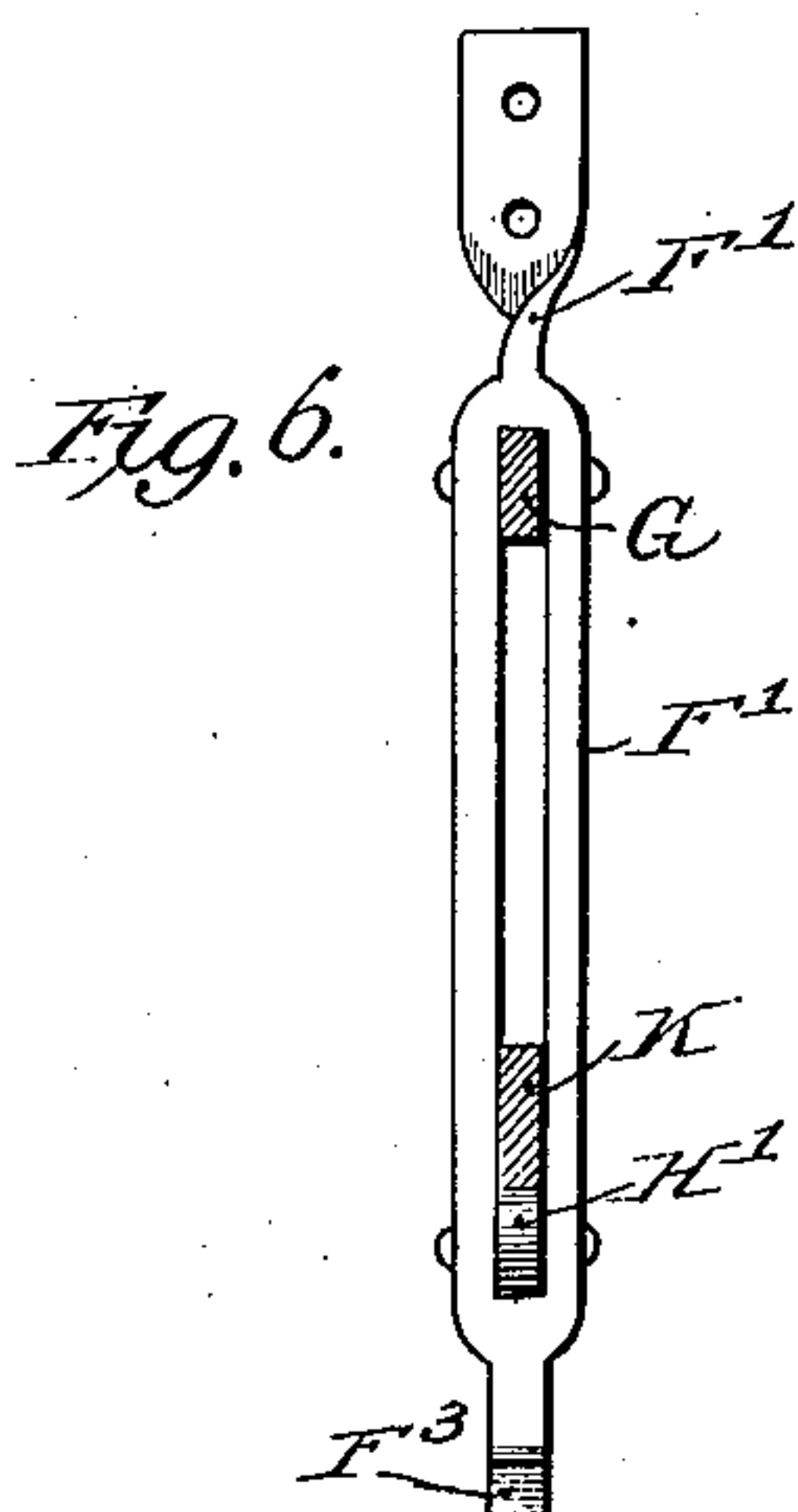
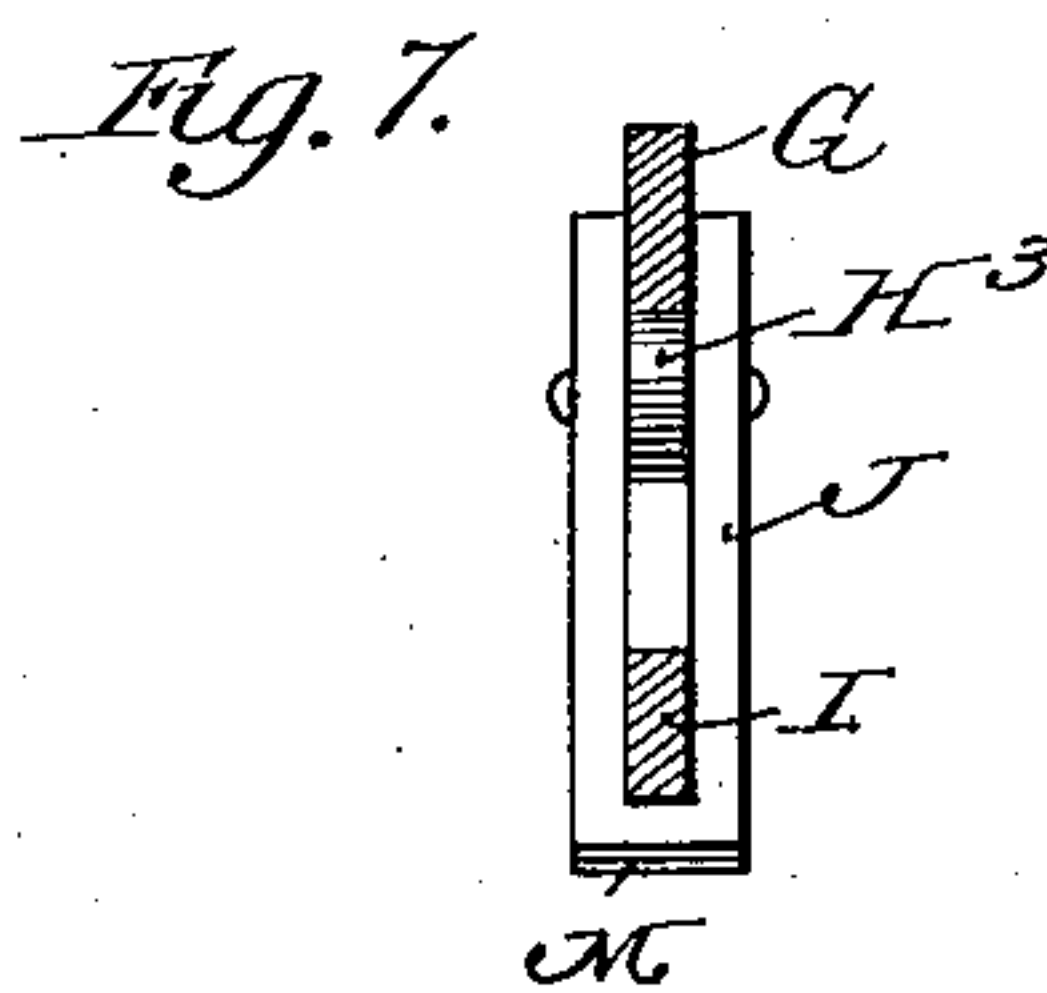
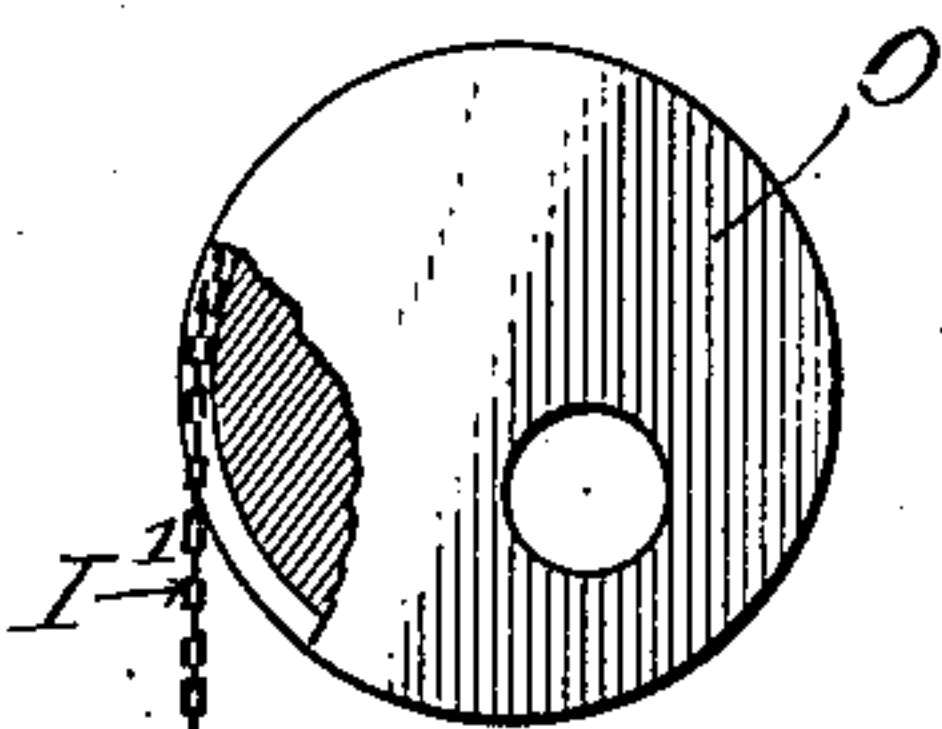
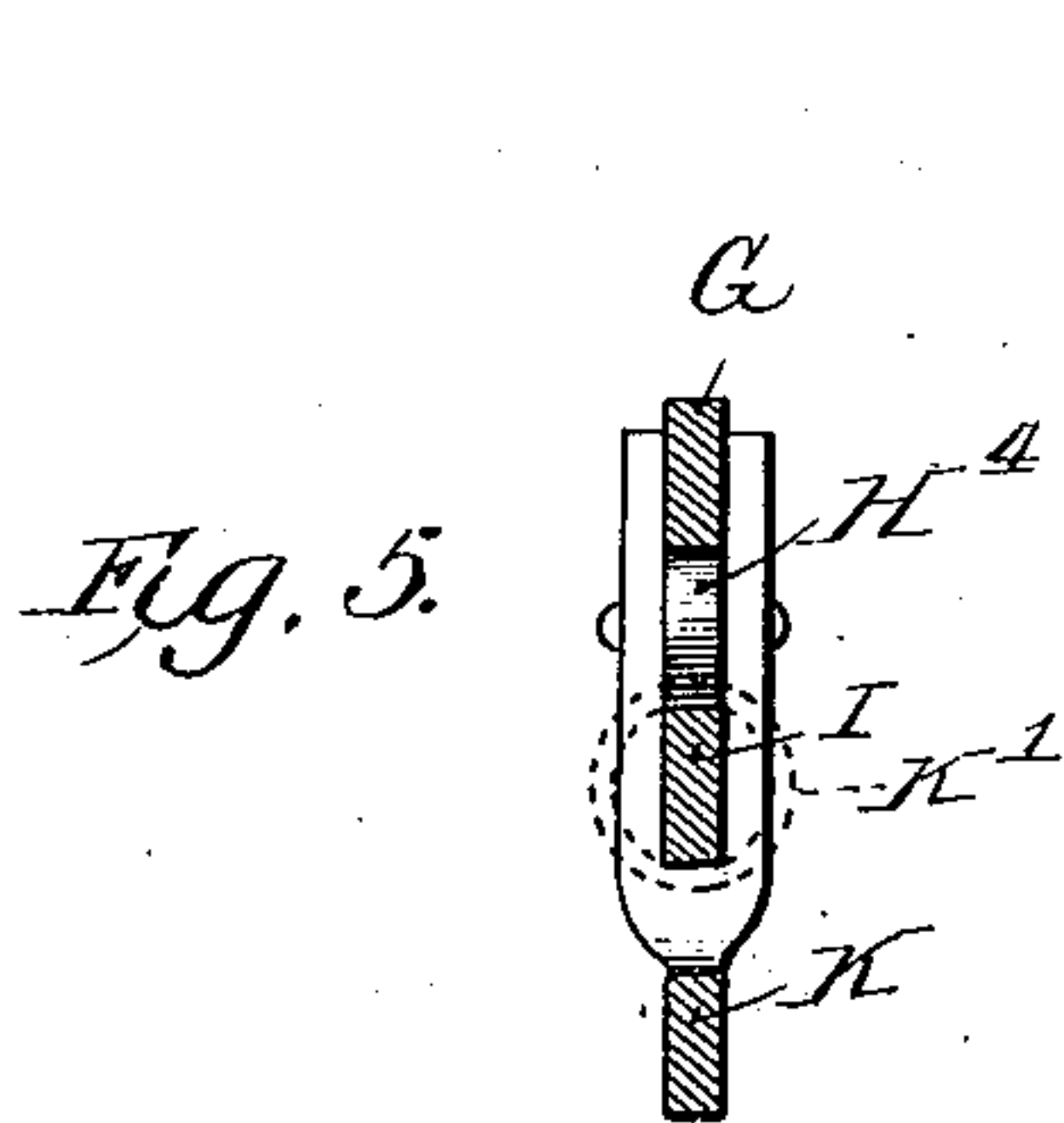


Fig. 8.



Witnesses:

Henry S. Rohrer,
Charles P. Lincoln

Inventor:
James C. Devlin
by Wallace Green,
att'y

UNITED STATES PATENT OFFICE.

JAMES C. DEVLIN, OF HERNANDO, MISSISSIPPI.

CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 617,722, dated January 17, 1899.

Application filed March 8, 1898. Serial No. 673,043. (No model.)

To all whom it may concern:

Be it known that I, JAMES C. DEVLIN, a citizen of the United States, residing at Hernando, in the county of De Soto and State of Mississippi, have invented certain new and useful Improvements in Car-Brakes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

On street-railways hand-brakes are still preferred to other devices because they have for such use advantages over devices operated by air or other fluid or by electricity. In any ordinary arrangement of brake-gear for street-railways much slack is essential because of short curves at street corners, and all this slack must be taken up at each application of the brakes before any retarding effect upon the wheels is secured.

The object of this invention is to provide devices whereby a positive or unyielding force may be applied by a single pull upon a brake-operating handle, the ordinary slack required for passing curves being at all times taken up automatically as soon and as fast as it is not needed.

In the accompanying drawings, Figure 1 is a side elevation of my devices in operative position, the car itself being indicated by its floor-line only. Fig. 2 shows on a larger scale the brake-operating lever and its immediate connections seen as in Fig. 1. Fig. 3 is a view from the right in Fig. 2. Fig. 4 shows in plan the ordinary lever connections placed centrally beneath the car. Figs. 5, 6, and 7 are enlarged detail views showing sections at 5 5, 6 6, and 7 7, respectively, Fig. 1. Fig. 8 shows a slightly-modified detail.

As the two ends of the car bear similar devices only those at one end are shown.

In the several figures, A represents the floor and platform of a car, B a lever centrally pivoted at C under the middle of the car, and D D' rods connecting this lever with any ordinary or suitable devices carrying brake-shoes in proximity to the wheels. At one end the lever C is connected with my novel devices and at the other it is connected by a rod E with similar devices at the opposite end of the car. To the car above are bolted hangers F F', rigidly connected by a horizontal bar G,

having an incline or offset G' in its lower side. Below the bar G each hanger is divided, and between the branches of each is mounted a roller H H'. Upon the roller H rests a horizontal bar I, connected at its left end to a chain I' and having its opposite end bent downward and bifurcated to receive a small roller H². Near the bend in this bar is a rigidly-attached vertical arm J, whose divided upper end loosely embraces the bar G and is provided with a roller H³ immediately below the bar. Upon the roller H' rests a bar K, which passes also between the branches of the downwardly-bent end of the bar I and has an upwardly-bent forked end K', loosely fitting the bar G and provided with a roller H⁴, which normally rides on the bar I. The latter bar is provided with projections at L, and between these and the upturned split end of the bar K is a long open coiled spring M, encircling the bar I and constantly tending to force the bars I K in opposite directions. Below the roller H³ the bar I is provided with teeth N, (shown as formed in the bend of the arm J,) and below these teeth and upon the bar I is a rack N', which extends to some distance to the left from the teeth N. At its lower end the hanger F' is provided with a short horizontal arm F² in the plane of the roller H² and having an inclined end face F³. The parts normally rest in or nearly in the position shown in Fig. 1, the roller H² being upon the arm F² and the roller H³ being near the upper end of the incline G' and the teeth N being out of engagement with the rack. If now the car pass around a curve, slack is required, and thus the bar K is drawn toward the right, the long spring M offering only a moderate resistance to motion, affording ample slack. Just in measure as the slack is not needed it is taken up by the spring, which always holds the entire apparatus taut, whether or not the car is on a curve. If, on the other hand, the brake is to be applied, the bar I is drawn to the left, (by devices to be explained,) the spring again yielding, and the roller H³, passing along the incline, forces down the corresponding end of the bar I and engages the teeth N in the rack N', as it may do since the roller H² has simultaneously passed off its supporting-arm. So far as pull upon them is concerned, the two bars I K are

temporarily one and the force of traction transmitted is unyielding. The instant the brake-applying force releases the bar I the spring M returns the parts to normal position, the roller H² passing up its incline and lifting the teeth N out of engagement and leaving the devices again ready for slack-giving or brake-applying movements.

The chain I' passes from the bar I around a pulley I² and thence to traction devices upon the platform. These devices consist of a grooved drum O, which may be eccentric, as suggested in Fig. 8, mounted upon a shaft P and rotating with it, gear-wheels Q Q', fixed upon the same shaft on opposite sides of the drum and engaging, respectively, inclined racks R R', rigidly fixed to the platform, ratchet-wheels S S', fixed also to the shaft and lying next the gears, respectively, an ordinary clutch-lever T, pivoted on the shaft and bearing a double pawl U to engage the two ratchet-wheels, a double pawl U', centrally pivoted to the rack members and normally held out of engagement by overweighting its working end, but capable of being thrown into engagement with the two ratchet-wheels by pressure of the foot upon its opposite end, and rigid supports V V', preferably integral, respectively, with the rack members and provided with slots parallel to the racks to serve as bearings or guides for the shaft P. If this lever be pulled rearward while the upper pawl is in engagement, the shaft P is rotated, winding the chain upon the drum, to which it is fixed, and at the same time rolling the gears up the inclined racks and lifting the drum bodily as well as moving it slightly to the right. If the parts be properly proportioned and adjusted, one rearward sweep of the lever is sufficient to engage the teeth N in the rack N' and allow the brakeman to exert his full power upon the brake. If it is desired to hold the brake-shoes upon the wheels without continued effort or if a second sweep of the lever is for any reason desired, the lower pawl is thrown into engagement with the foot and reverse rotation of the shaft is prevented, while the lever is entirely free to swing forward and reengage the ratchet-wheels.

If the drum be eccentric, as suggested in Fig. 8, the chain will be drawn at first rapidly and then with less speed, but with greater force. This change and others analogous and otherwise may obviously be made without passing beyond the limits of my invention, and I do not therefore wish to limit myself to the exact construction set forth.

What I claim is—

1. For transmitting the force of traction in brake-applying mechanism, two bars having

the same general direction and arranged to slide longitudinally in opposite directions, means whereby the sliding of one bar in the proper direction locks the two bars together, and a spring offering yielding resistance to the other bar in the contrary direction.

2. In car-brakes, the combination with devices for primarily receiving the brake-applying force, of a bar connected to said devices and arranged to be drawn longitudinally thereby, a second bar having the same general direction as the first and arranged to slide longitudinally toward and away from said devices, connections joining the second bar to other brake mechanism, a spring offering yielding resistance to the sliding of the second bar away from said devices, and means whereby the movement of the first bar toward said devices locks the two bars together, positively.

3. The combination with a drum mounted for rotation and bodily lateral movement and provided with a rigidly-attached gear, of a fixed rack engaged by said gear, a pivoted power-applying lever, and pawl-and-ratchet mechanism transmitting the movement of the lever to said drum, substantially as set forth.

4. In brake mechanism, the combination with a bar provided with a rack, of a second bar overlapping the first and provided with a tooth for engaging said rack, means whereby the tooth is normally held out of engagement, a spring tending to further overlap the bars and offering yielding resistance to lessening such overlapping, and means whereby proper relative movement of the first bar throws said tooth into engagement.

5. The combination with the fixed slotted bearings and the adjacent racks, of the shaft mounted in said bearings, a drum, gears and ratchet-wheels rotating together about the axis of said shaft while the gears engage the racks, the lever pivoted on said shaft and provided with the pawl to engage the ratchet-wheels, and the brake-operating cable winding upon said drum.

6. The combination with the fixed slotted bearings and the adjacent racks, of the shaft mounted in said bearings, the eccentric drum, gears and ratchet-wheels rotating together about the axis of the shaft, the lever pivoted on the shaft and provided with the pawl, the foot-operated pawl below the shaft, and the cable winding upon said drum and connected with other brake mechanism.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES C. DEVLIN.

Witnesses:

HARRY S. ROHRER,
HUGH M. STERLING.