

(No Model.)

2 Sheets—Sheet 1.

G. D. ACKLEY.
WATER CLOSET CISTERN.

No. 589,680.

Patented Sept. 7, 1897.

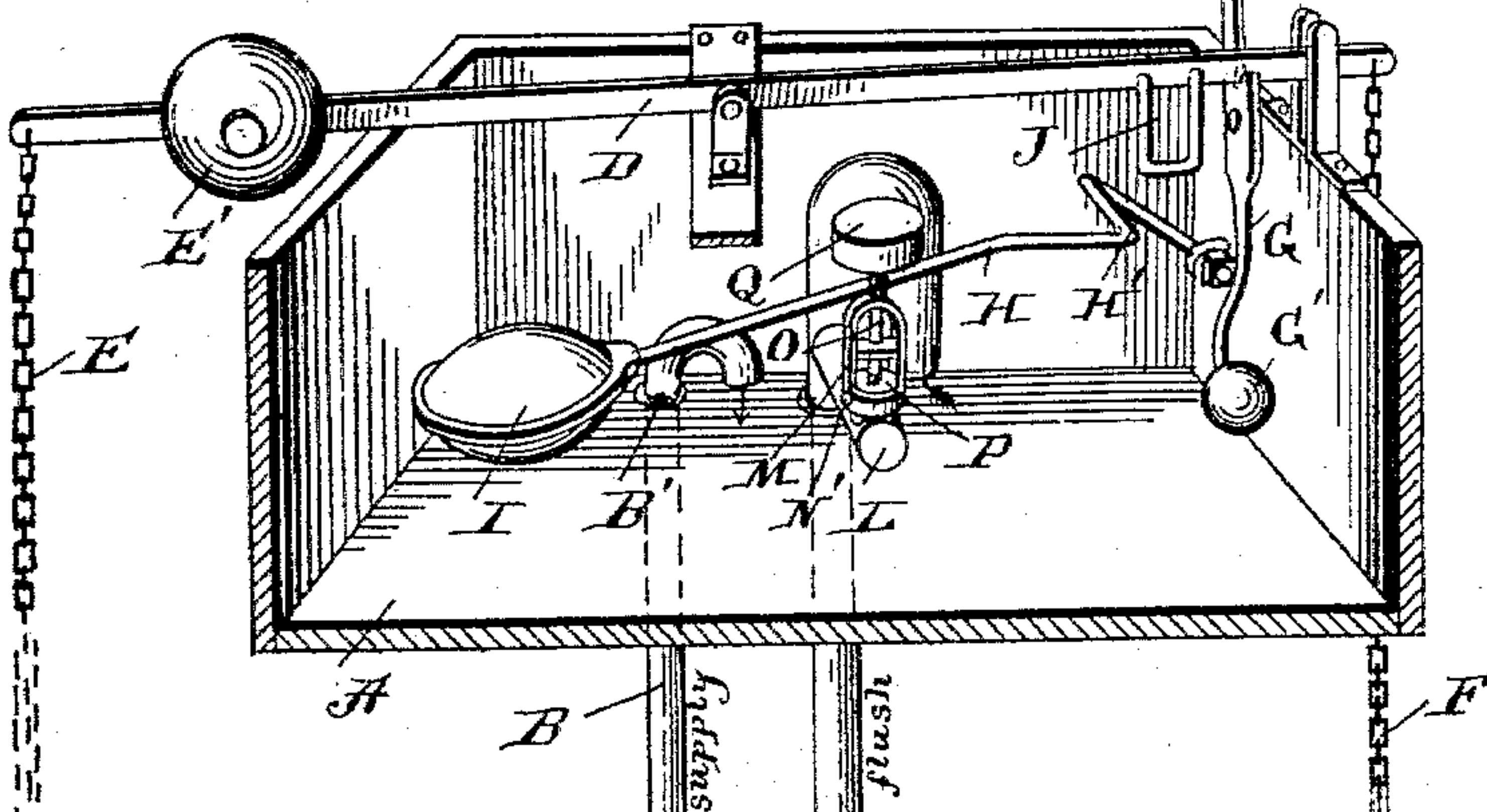
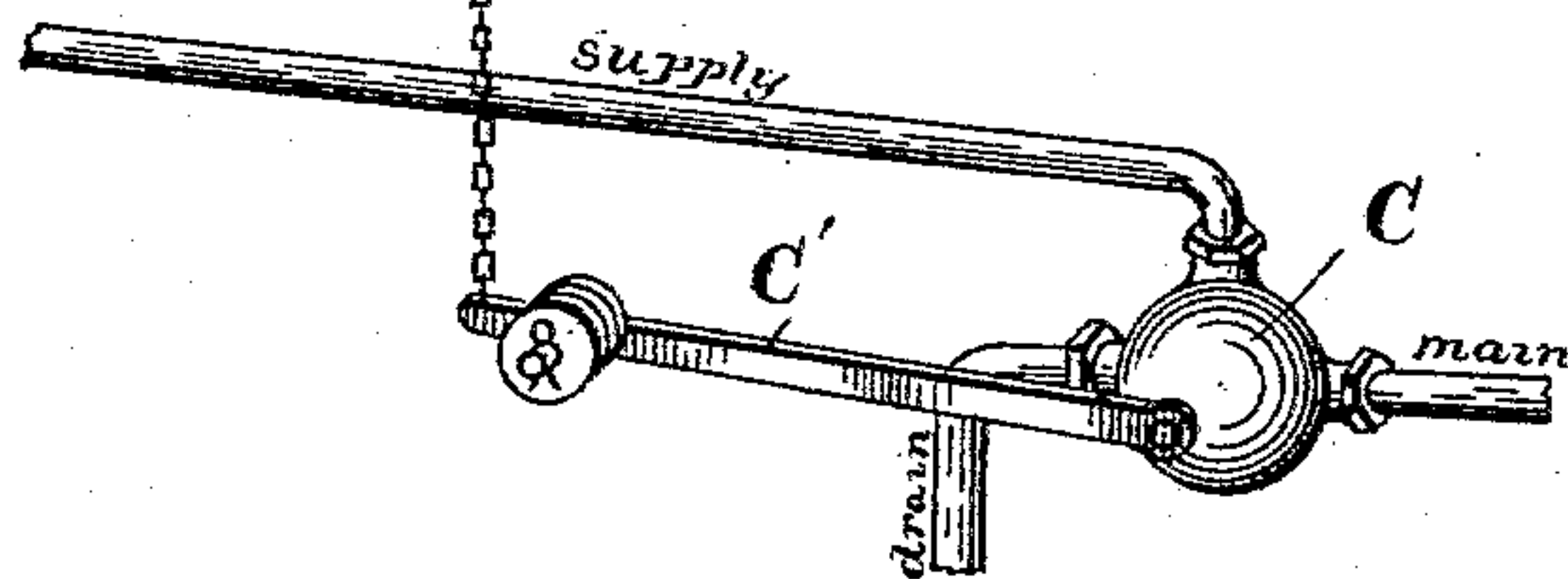
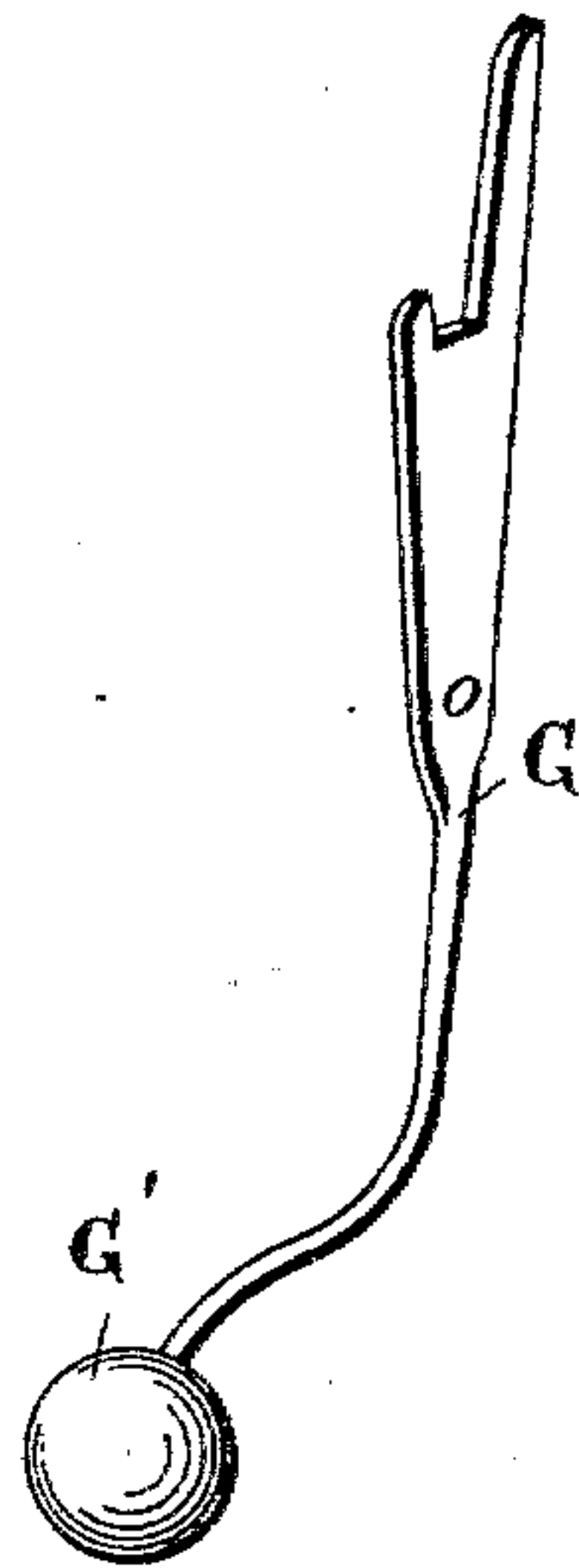


Fig. 1.

Fig. 5.



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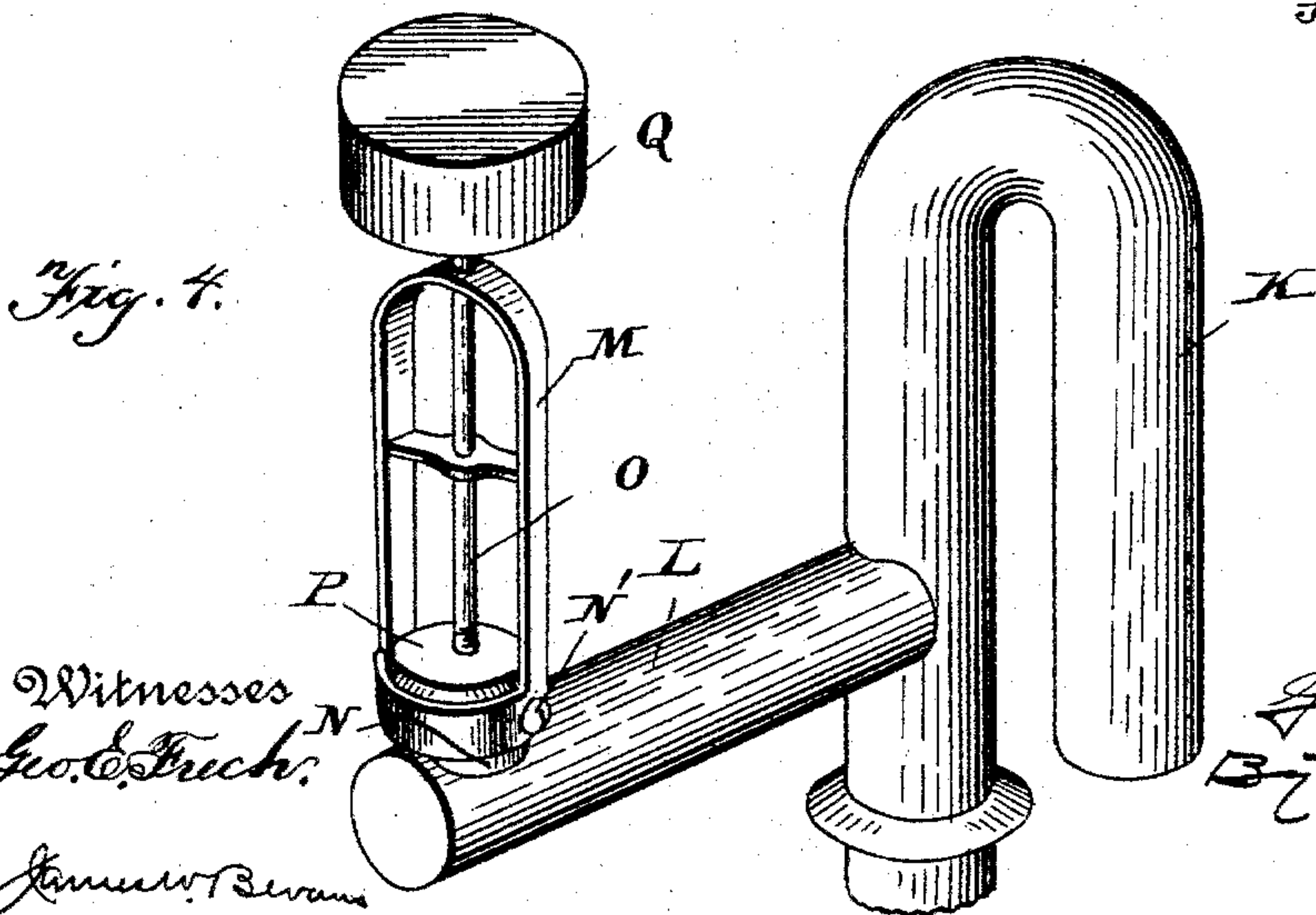
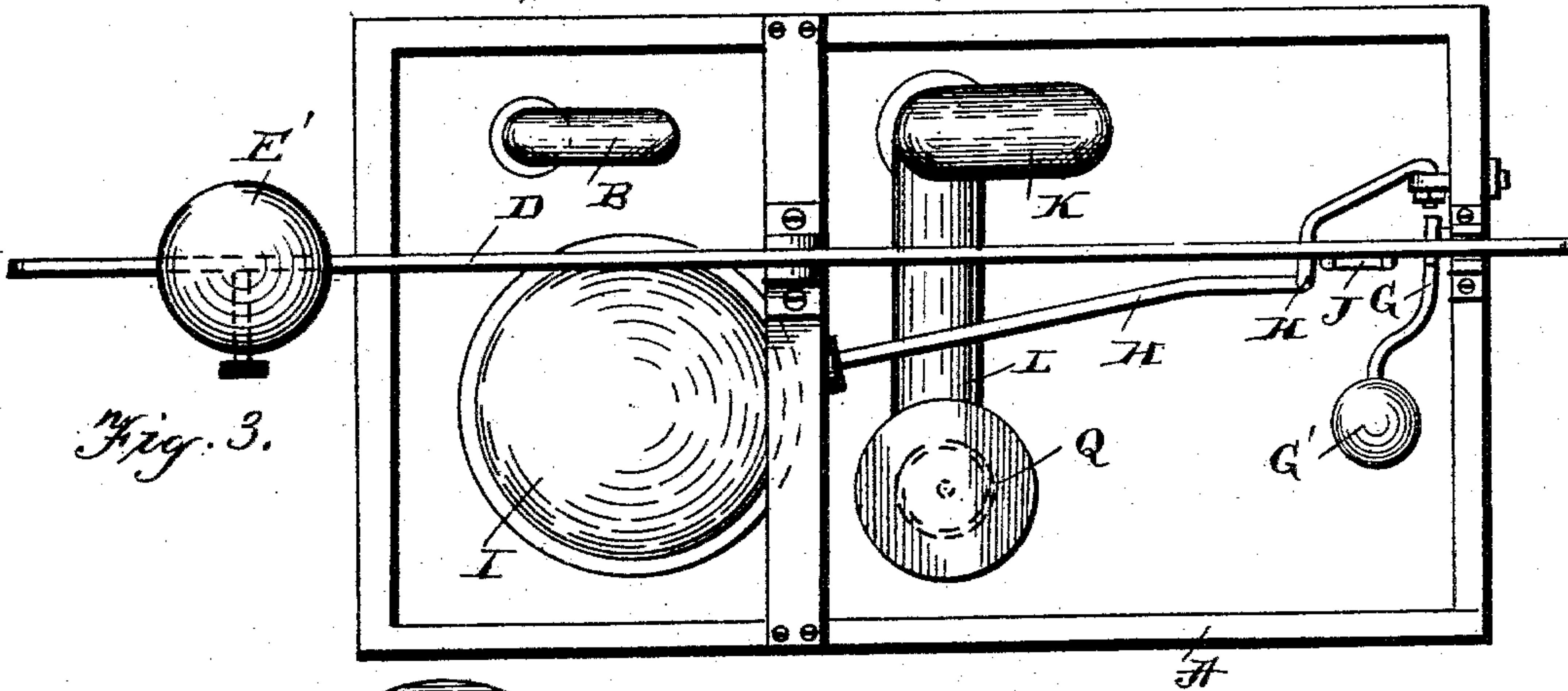
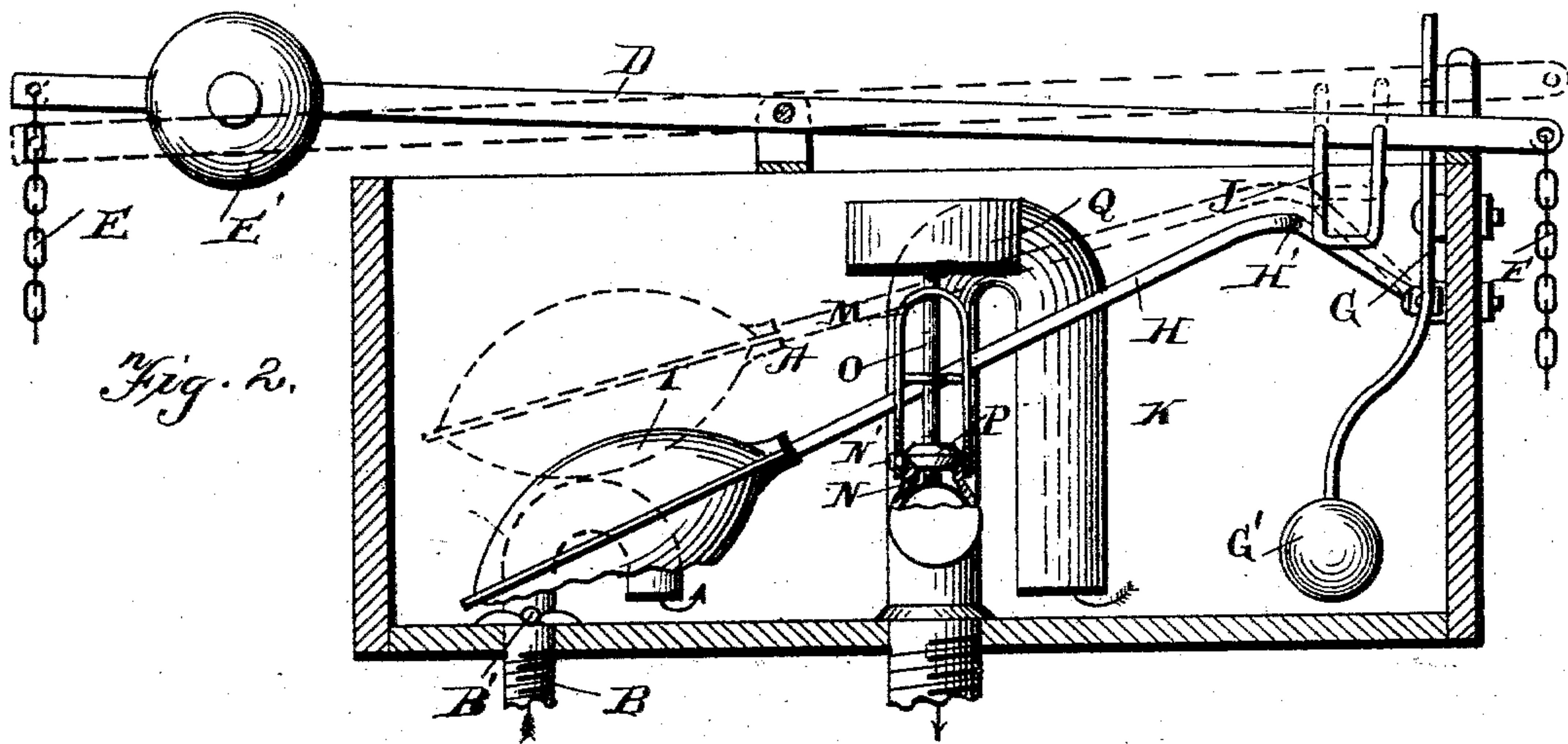
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2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

GEORGE D. ACKLEY, OF FORT WORTH, TEXAS.

WATER-CLOSET CISTERN.

SPECIFICATION forming part of Letters Patent No. 589,680, dated September 7, 1897.

Application filed January 9, 1897. Serial No. 618,615. (No model.)

To all whom it may concern:

Be it known that I, GEORGE D. ACKLEY, of Fort Worth, in the county of Tarrant and State of Texas, have invented certain new and useful Improvements in Water-Closet Cisterns; 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 pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

This invention relates to that class of water-closet cisterns which are normally empty to prevent freezing and which are only filled just before the flush is desired. In this form of apparatus the supply is provided with an underground or otherwise-protected valve normally closed and connected with the flushing apparatus, so that it may be opened when the cistern is to fill. The present invention is directed more particularly toward providing an improved automatically-controlled mechanism for holding open said supply-valve until a sufficient quantity of water has run into the cistern.

The invention consists in the novel features of construction hereinafter fully described and claimed, and illustrated by the accompanying drawings, in which—

Figure 1 is a perspective view of the cistern with one side removed to disclose the mechanism contained therein, the mechanism being set to permit an inflow of water. Fig. 2 is a side elevation with the side of the cistern removed and the mechanism in its normal position with the supply-pipe closed. Fig. 3 is a plan view. Fig. 4 is a detailed perspective view of the siphon. Fig. 5 is a similar view of the lever-holding latch.

The cistern A is provided with supply-pipe B, having arranged therein an underground or otherwise-protected valve C. The valve is of the Kelly type, being so constructed as to open the supply-pipe to the drain when the supply-pipe is cut off from the main, thus draining all the water out of the supply-pipe. The end of said pipe projecting into the cistern is formed with an orifice B', whereby all the water is drained from the cistern which is not removed by the siphon mechanism presently to be described. Suitably supported

and fulcrumed between its ends over the cistern is lever D, having one end provided with the pull-chain E and the counterbalance E', while from the opposite end depends chain F, connected to the weighted arm C' of the valve C. The weight of said valve-arm is sufficient to hold lever D normally depressed with the pull-chain and counterweight raised.

Pivotally secured to the inner side of the box and beneath the normally-depressed portion of the lever is latch G, the same being curved slightly at its lower end, as shown, and carrying float G'. The upper portion of latch G is notched upon one side, as shown, and the lower portion being heavier than the upper portion said upper portion is caused to bear constantly against lever D, with the result that when the opposite end of the lever is depressed by the pull-chain the latch will move beneath the lever and hold it raised with the valve in the supply-pipe open. Arm H is pivoted to the end of the cistern and formed with lateral offset H', which crosses the vertical line of lever D, and carried by the outer extremity of said arm is float I. Depending from lever D is a loop or stop J.

The float I is in a normally-lowered position, as the tank is normally empty; but as it fills the tendency of the float is to rise; but this movement is obstructed by its engagement with loop J. Hence the float is held submerged until the water has risen sufficiently in the cistern to give it the buoyancy or strength necessary to raise lever D. This being accomplished, latch G falls back, the float G' rising, and about this time this movement of lever D is accomplished the cistern begins to empty or flush through the siphon, as will presently be explained, and the outflow being greater than the inflow arm H and float I lower together with lever D; but as the lever and float-arm swing in opposite arcs stop J of the lever and offset H' of the arm soon disengage, thus permitting the lever D to respond to the downward pull of valve-arm C', thus shutting off the supply and opening the cistern supply-pipe to the drain-pipe of valve C, as will be understood, thus draining through port B' all water at the bottom of the cistern.

Siphon K is formed with the horizontal branch channel L leading from its base, said

branch at its outer end having the flanged opening or port N. Removably secured to this flanged port by set-screws N' is the upright guide-post or supporting-frame M, and movable vertically therein is rod O, carrying upon its lower end valve P, adapted to close port N. Upon the upper end of the rod O is float Q. In operation when the water has risen sufficiently in the cistern to raise the float Q valve P is opened and the water permitted to rush through port N and discharge through the siphon, thereby starting the latter. The suction of the water rushing through port N is sufficient to immediately reseal valve P, thus closing the siphon at this point and leaving it in full operation.

In the apparatus herein shown and described provision is made for automatically stopping the water-supply and also for automatically flushing the cistern, so that the cistern is empty when the chain E is pulled, when it immediately fills and empties and remains empty until again set in action by a pull upon the chain.

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

1. A flushing apparatus comprising a cistern, a lever adapted to swing vertically over the cistern, a float-carrying latch adapted to automatically engage the lever when raised, a water-supply adapted to be opened by the raising of the lever, a float mechanism adapted to automatically raise the lever from engagement with the latch when the latter falls back out of the path of the lever, and a discharge, substantially as shown and described.

2. An improved flushing apparatus comprising a cistern, a lever fulcrumed thereover and controlling the water-supply, the supply being cut off when the lever is depressed and open when the lever is raised, a mechanism for holding the lever raised, a float-actuated device adapted to exert upward pressure upon the lever to release it from said holding mechanism, and a discharge for the cistern, substantially as shown and described.

3. An improved flushing apparatus comprising a cistern, a vertically-swinging lever controlling the water-supply, a device for holding the lever raised, a float-actuated mechanism adapted during a portion of its vertical movement to engage the lever and release it from said holding device, and mechanism for automatically depressing the lever upon the release of said holding device, thus shutting off the water-supply, substantially as shown and described.

4. In an improved flushing apparatus, the combination with a cistern, a vertically-

swinging supply-controlling lever, a vertically-swinging float-actuated device adapted to engage the lever during a portion of its vertical movement and thus sustain the lever in an elevated position, of a discharge mechanism adapted to be started at the time the float-actuated device is sustaining the lever, the water discharging more rapidly from the cistern than it flows thereinto, thus lowering the float-actuating device and causing the latter to disengage the lever and permitting the latter to drop and thereby close the supply, substantially as shown and described.

5. In a flushing apparatus, a cistern, a lever adapted to move in a vertical arc, a mechanism for holding the lever in a raised position, a float-actuated device adapted to swing in a vertical arc in a direction opposite to that of the lever, and adapted during a portion of its upward movement to engage and elevate the lever, said holding mechanism being adapted to release upon the elevation of the lever, substantially as shown and described.

6. An improved flushing apparatus comprising a cistern, a lever fulcrumed above the cistern for controlling the water-supply, said lever being normally lowered with the water-supply cut-off, a float-carrying latch adapted to swing automatically beneath the lever when raised, the tendency of the latch being to disengage the lever when the water rises in the cistern, mechanism for elevating the lever so as to permit the latch to disengage the same, and a discharge for the cistern, substantially as shown and described.

7. In a flushing apparatus, the combination of a vertically-swinging lever for controlling the water-supply, a device for holding the lever raised, an extension depending from the lever, and a vertically-swinging float-arm adapted to engage said extension, the holding device being adapted to release upon engagement of said parts, substantially as shown and described.

8. In a flushing apparatus, the combination of a vertically-swinging supply-controlling lever, a loop depending therefrom, the float-latch adapted to engage the lever and hold it elevated, and the vertically-swinging float-arm formed with a lateral offset adapted to engage the depending loop and thus sustain the lever and permit the float-latch to release, substantially as shown and described.

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

GEORGE D. ACKLEY.

Witnesses:

WILLIAM H. D. MERRILL,
ROBT. G. LITTLEJOHN.