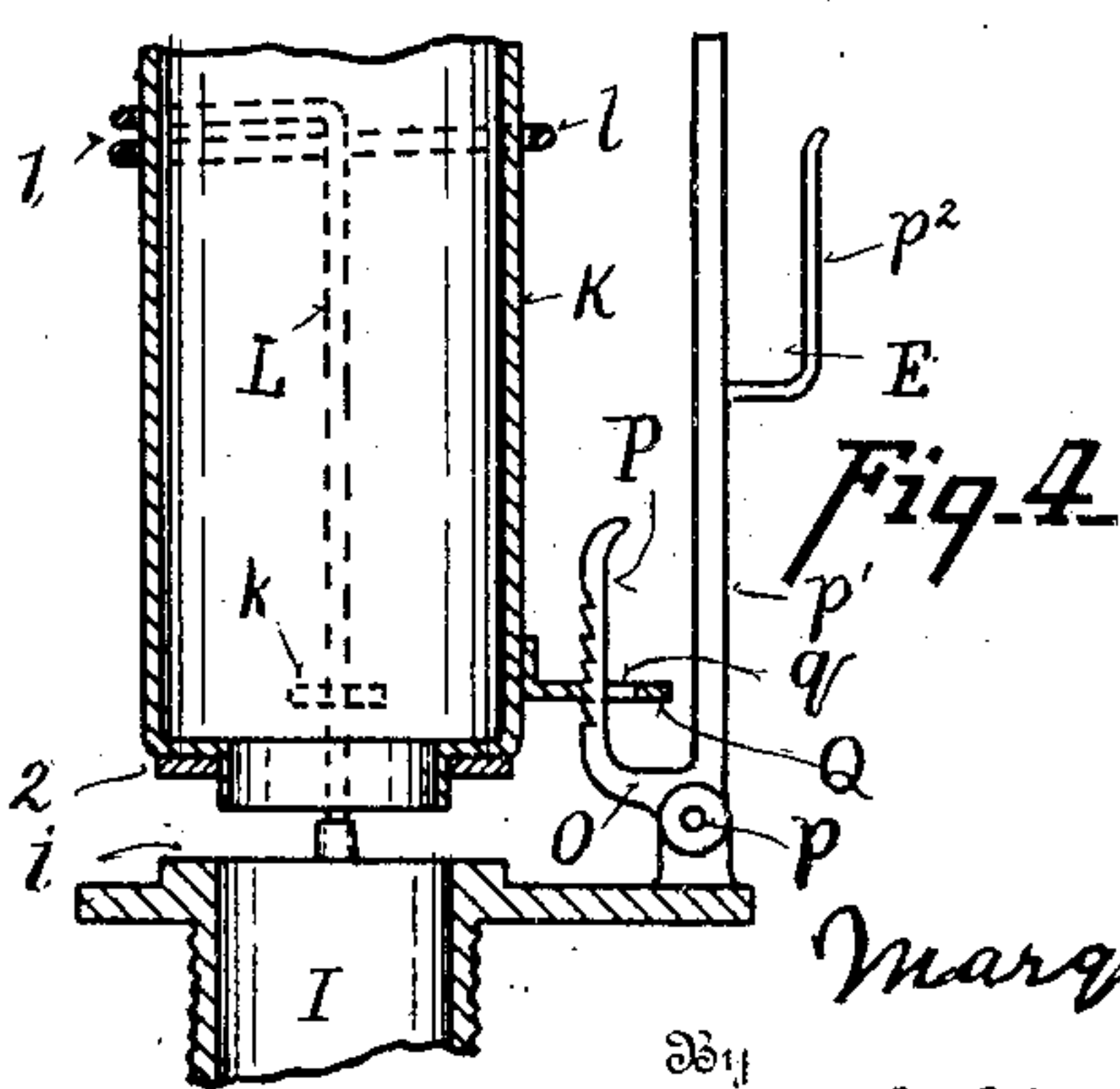
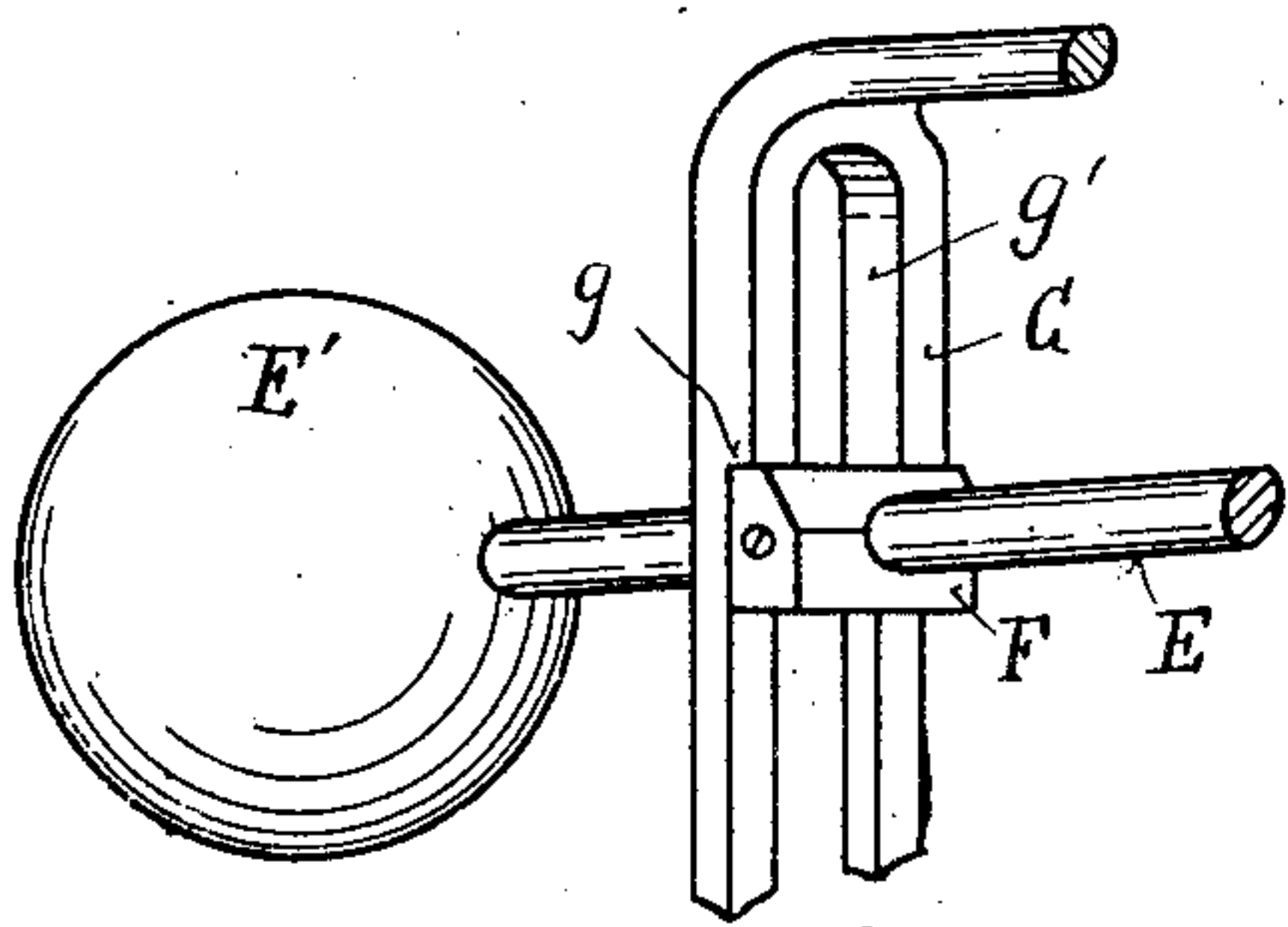
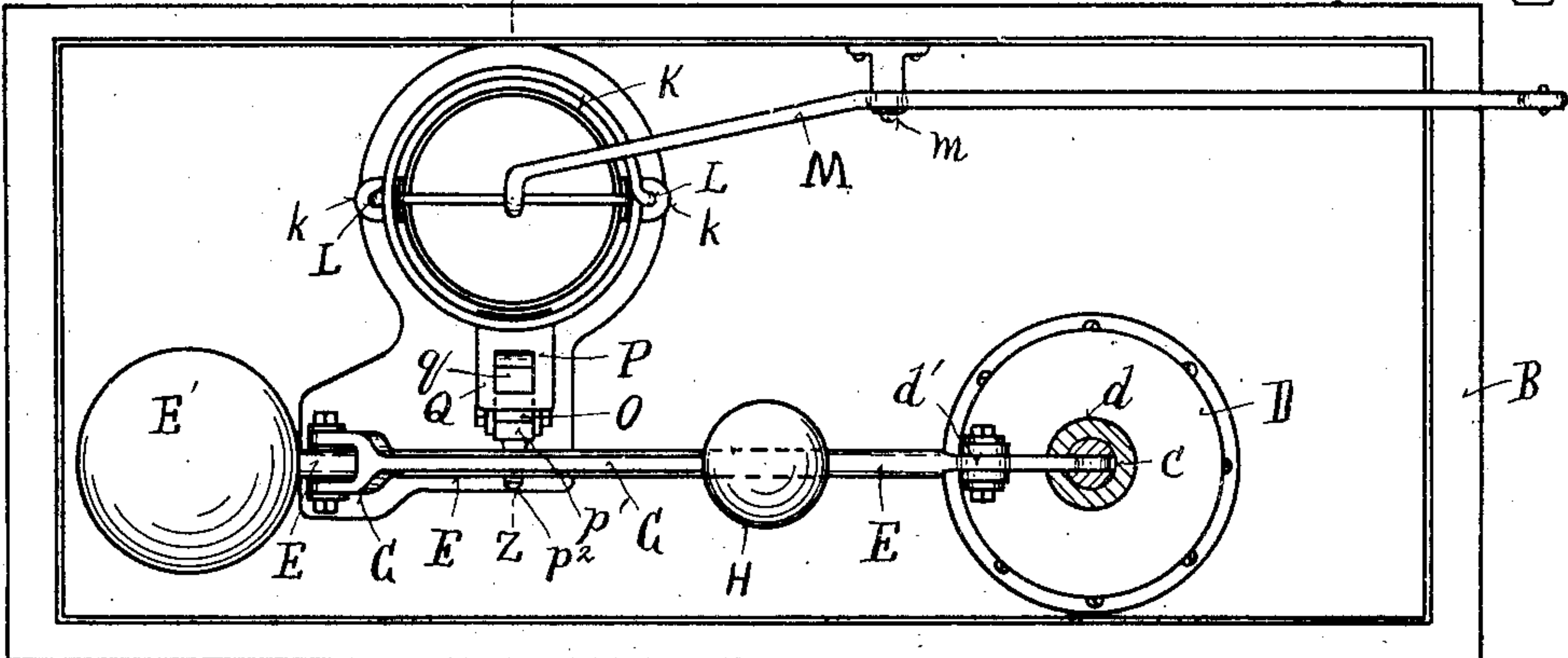
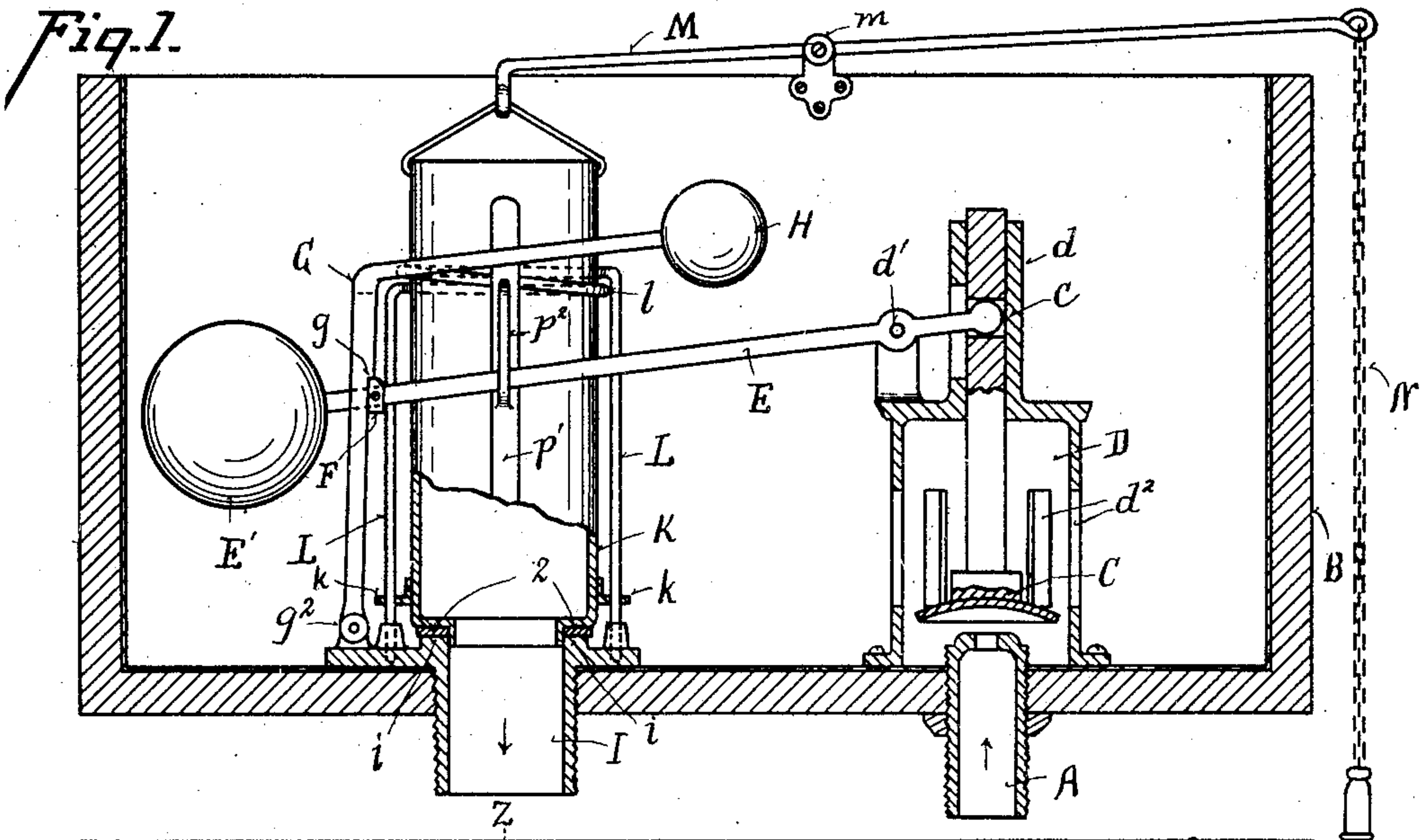


M. C. GHOLSON.
VALVE MECHANISM FOR WATER CLOSETS.

APPLICATION FILED SEPT. 8, 1902.

NO MODEL.



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MARQUIS C. GHOLSON, OF CINCINNATI, OHIO.

VALVE MECHANISM FOR WATER-CLOSETS.

SPECIFICATION forming part of Letters Patent No. 747,413, dated December 22, 1903.

Application filed September 8, 1902. Serial No. 122,489. (No model.)

To all whom it may concern:

Be it known that I, MARQUIS C. GHOLSON, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Valve Mechanism for Water-Closets; 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.

My invention relates to improvements in valve mechanism for water-closet-flushing tanks and similar purposes.

One of its objects is to prevent the noise accompanying the admission of water to the flushing-tank.

Another object is to prevent as far as possible the noise due to the discharge of water from the tank.

Another object is to provide improved, simple, and reliable mechanism for actuating the valves in the tank in the desired order and interval of sequence.

It also consists in certain details of combination, form, and arrangement, all of which will be more fully set forth in the description of the accompanying description-drawings, in which—

Figure 1 is a sectional view through the flushing-tank, showing the valves and actuating mechanism partly in section and partly in elevation. Fig. 2 is a top plan view of the same. Fig. 3 is a detail perspective view of the catch and release mechanism. Fig. 4 is a detail sectional view on line $z-z$ of Fig. 2.

In the flushing of water-closets heretofore considerable noise accompanied the discharge of water from the flushing-tank and a further continued noise was produced in recharging the same, which noises are obviated by the use of the mechanism here described.

A represents the pipe supplying water to the flushing-tank B.

C represents a valve adapted to rest upon the seat a , formed at the upper end of pipe A, to cut off the supply of water to the tank. The upper end of the valve-stem is slotted at c and is supported in a sleeve d , forming part of the valve-casing D.

E represents a lever pivoted at d' and pro-

vided at its outer end with a float E' . The inner end of the lever E enters the slot c and serves to lift the valve from its seat when- 55 ever the float E' is lowered and to hold the valve to its seat when the float is raised.

F represents a dog or stop located on the lever E, which is adapted to engage the offset g of the lever G. The lever G is pivoted 60 at its lower end at g^2 , and its upper end is bent or curved and provided with a small float H.

I represents the discharge-pipe, through which the water flows to flush the closet. The 65 upper end of this pipe is provided with an annular seat i , on which rests the ring 2, of rubber or leather, which ring is attached to the cylindrical shell K, which serves as a discharge-valve. This shell K is open at the 70 top and is supported in a vertical position by the loop l of the bracket L and by the ears k , through which the lower ends of the bracket L pass.

M represents a lever pivoted at m and adapted, by means of the pull chain or lever 75 N, to lift the discharge valve or shell K.

O represents a lever pivoted at p and having an arm P passing through an opening q in the bracket Q, which is attached to the 80 shell K. The arm P is provided with teeth adapted to engage the inner edge of the opening through the bracket in order to lock the shell K temporarily in the raised position. The arm p' of lever O has a finger p^2 , which 85 is engaged by the lever E to trip the lever O and release the shell K.

The mode of operation is as follows: When there is no water in the tank, or when the water is low in the tank, the parts are in the 90 position shown in Figs. 1 and 3, with the lever E locked in position shown by the offset g of lever G and the valve C raised. As the water flows in through pipe A it is deflected by the curved under face of valve C beneath 95 the surface of the water and without noise. The water-level in the tank rises until the float E' is first submerged, and afterward the float H is reached and lifted, which moves the lever G and releases the dog F, whereupon 100 the float E' rises and closes the valve C, instantly cutting off the water-supply. When the chain N is pulled to flush the tank, it lifts the shell K and washer 2 from the valve-

seat *i*, and when the chain N is released the arm P of lever O locks the shell in the raised position, as shown in Fig. 4, permitting the water to flow down the pipe I. As the water-level in the tank is lowered the weight of the float H moves the lever G into position to engage the dog F, which it does as soon as the water-level is lowered sufficiently to lower the float E'. As the float E' descends the lever E engages the finger *p*², tilting the lever O and releasing the shell K, which drops to its seat to cut off the discharge at I. The lowering of the float E' opens the valve C to fill the tank, as heretofore described.

It will thus be seen that the water enters the chamber D below the water-level and is deflected by the valve C without noise and is allowed to flow through the openings *d*² into the tank until the water has reached the proper height, when the inflow is quickly cut off, avoiding the usual hissing noise. Also the discharge-valve is opened in a manner to prevent noise and the water allowed to discharge the required amount, when the discharge is likewise quickly cut off without noise. The open upper end of the shell permits the air from above to quietly follow the water down the pipe I and also serves in emergency as an overflow should the water in the tank accidentally rise to its upper edge. The above mechanism is also simple in construction and reliable in action.

Having described my invention, what I claim is—

1. A flushing apparatus comprising a tank provided with an inlet and an outlet, a valve controlling the outlet, a valve controlling the inlet, means for elevating the first-named

valve, means for holding the same in elevated position, comprising an arm formed with teeth adapted to engage said valve, a pivoted lever formed integral with said arm, a lever connected to said last-named valve and coöperating with said last-named lever for releasing the same, and a bell-crank lever formed with means coöperating with said last-named lever and normally holding the same in a predetermined position whereby the valve to which it is connected is held in an elevated position, and floats carried by the last-named levers, substantially as and for the purposes specified.

2. In combination with a tank formed with inlet and outlet openings, valves controlling the openings, a lever pivoted adjacent the outer valve, a finger formed integral with said lever on one side thereof, a toothed arm formed integral with the opposite side thereof, said last-named lever passing through an opening in a bracket carried by the said outlet-valve, and coöperating therewith for holding the valve in an elevated position, a lever connected with the inlet-valve and normally resting in the said finger, a float carried on the free end of said last-named lever, a second lever provided with means coöperating with the last-named lever for holding the same in predetermined position, a float secured to the free end thereof, and means for elevating the said outlet-valve.

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

MARQUIS C. GHOLSON.

Witnesses:

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