

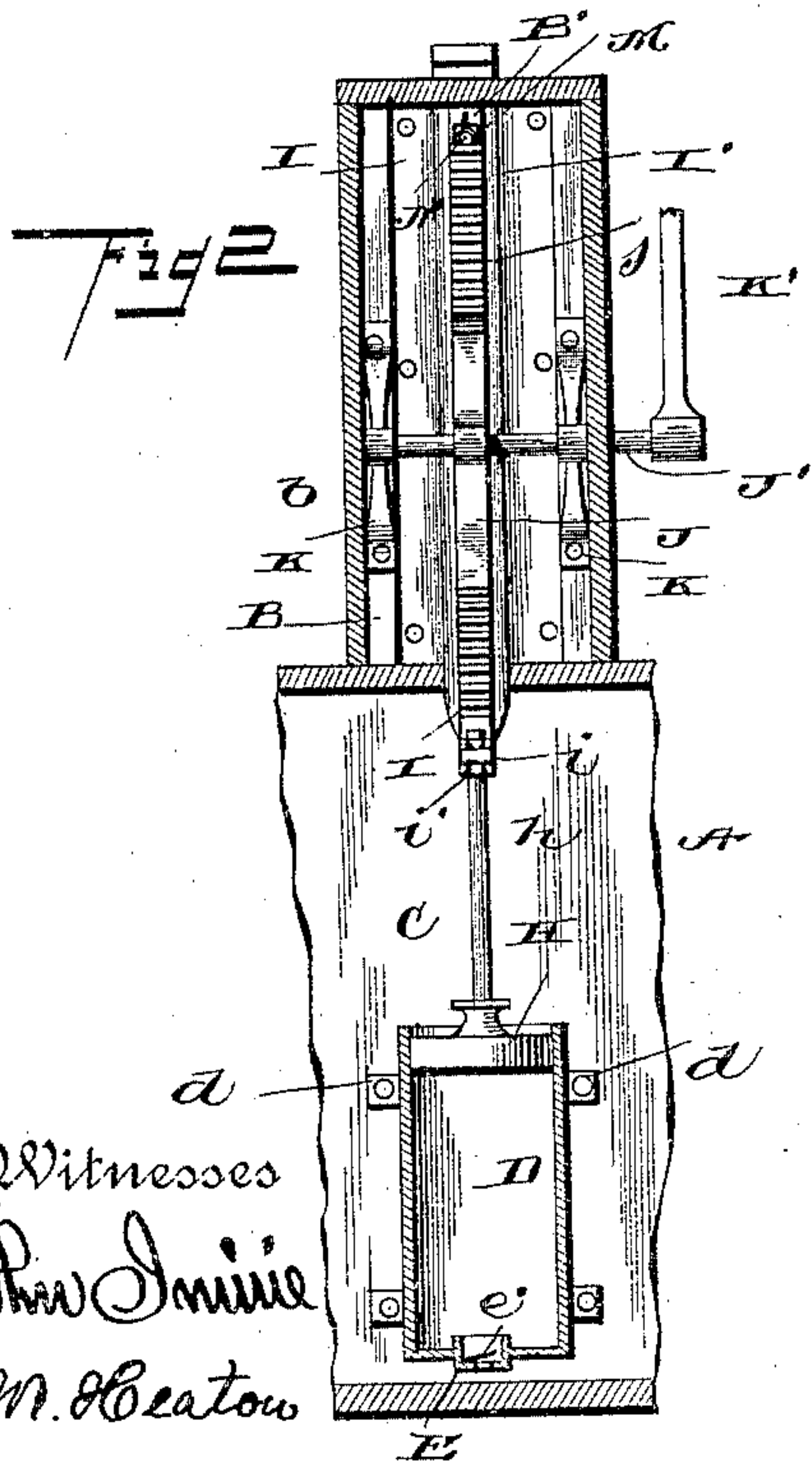
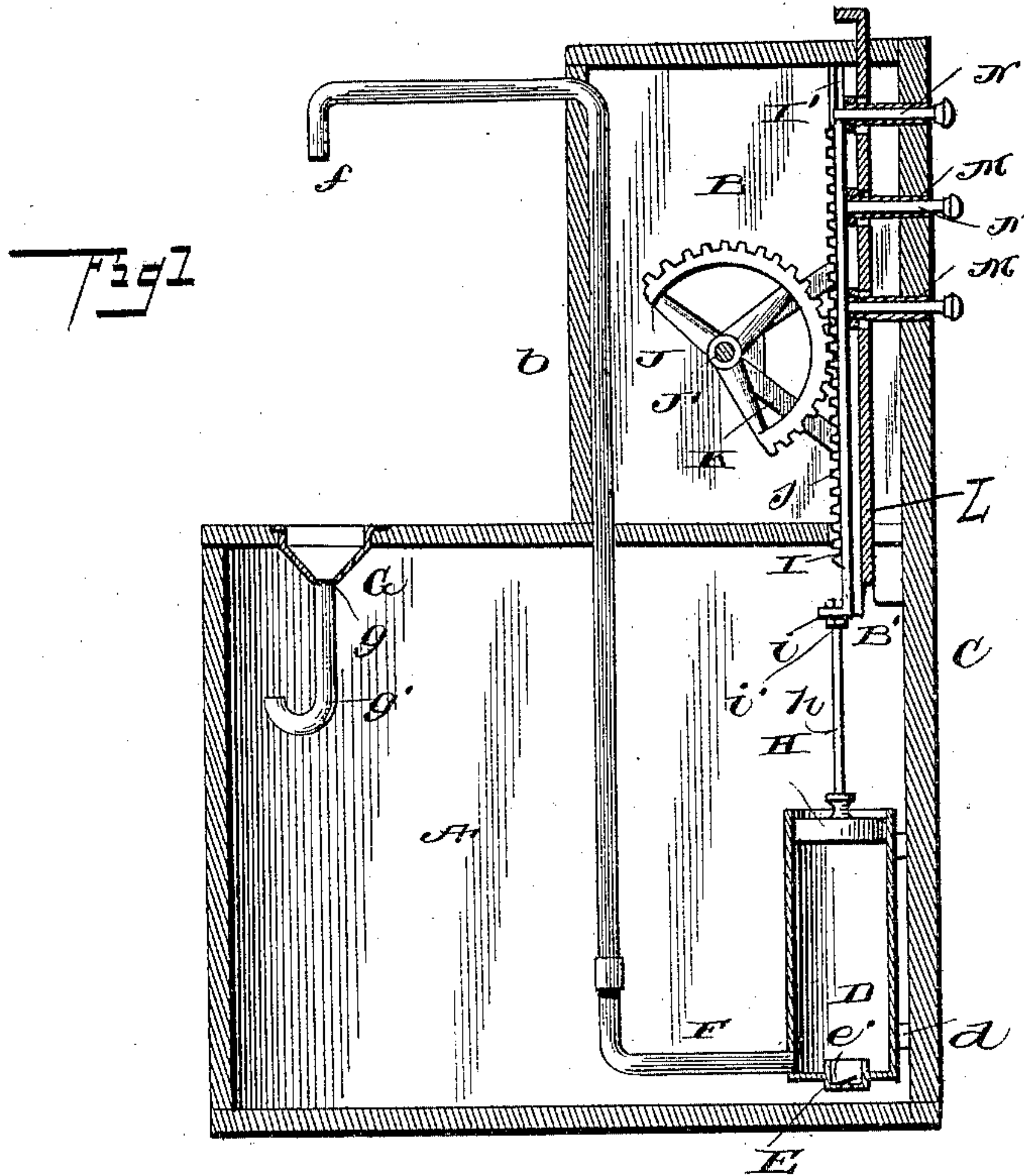
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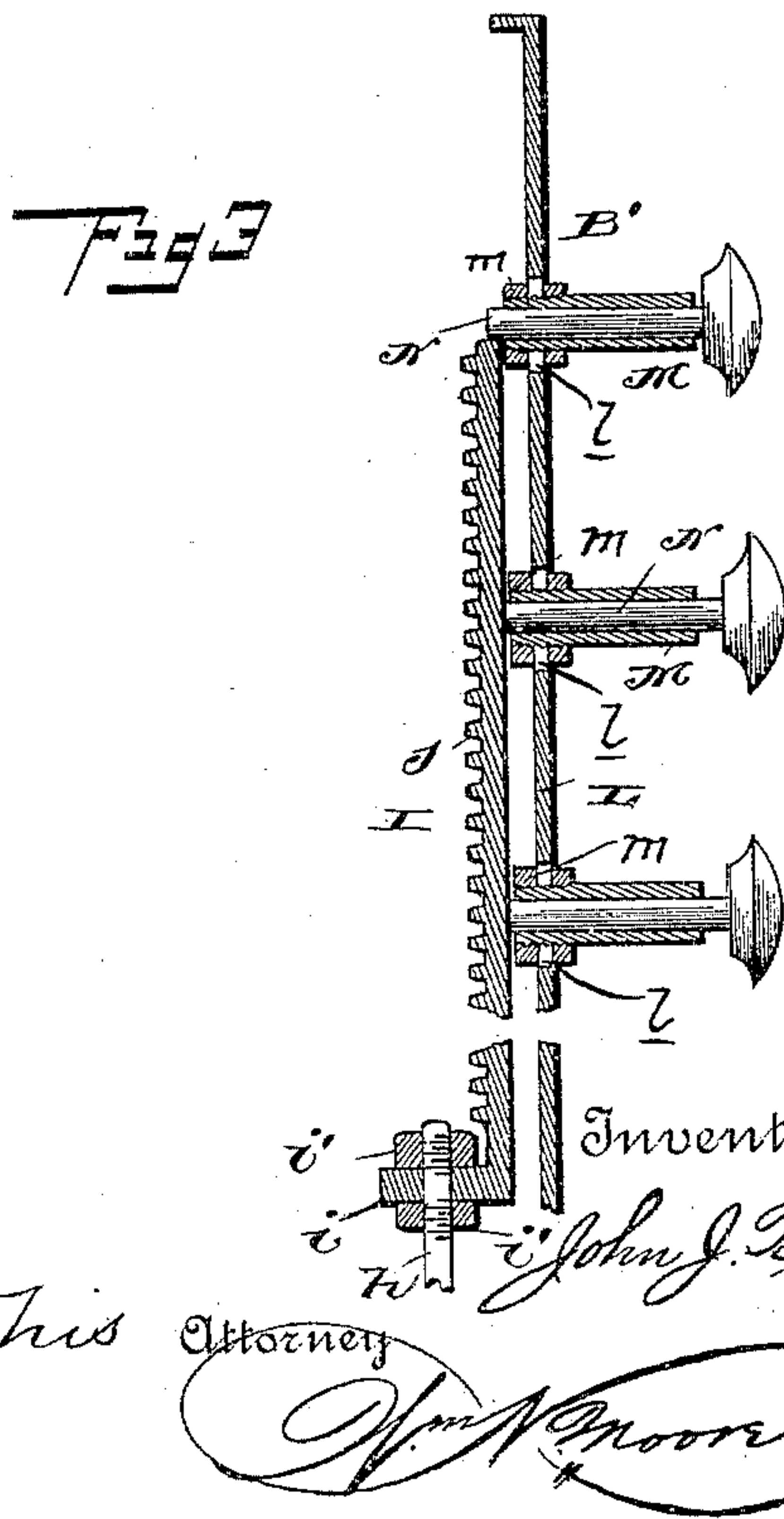
J. J. BECKER.
SELF MEASURING PUMP.

No. 473,891.

Patented Apr. 26, 1892.



Witnesses
John Smilie
H. M. Beaton



Inventor
John J. Becker,
By His Attorney
J. M. Moore

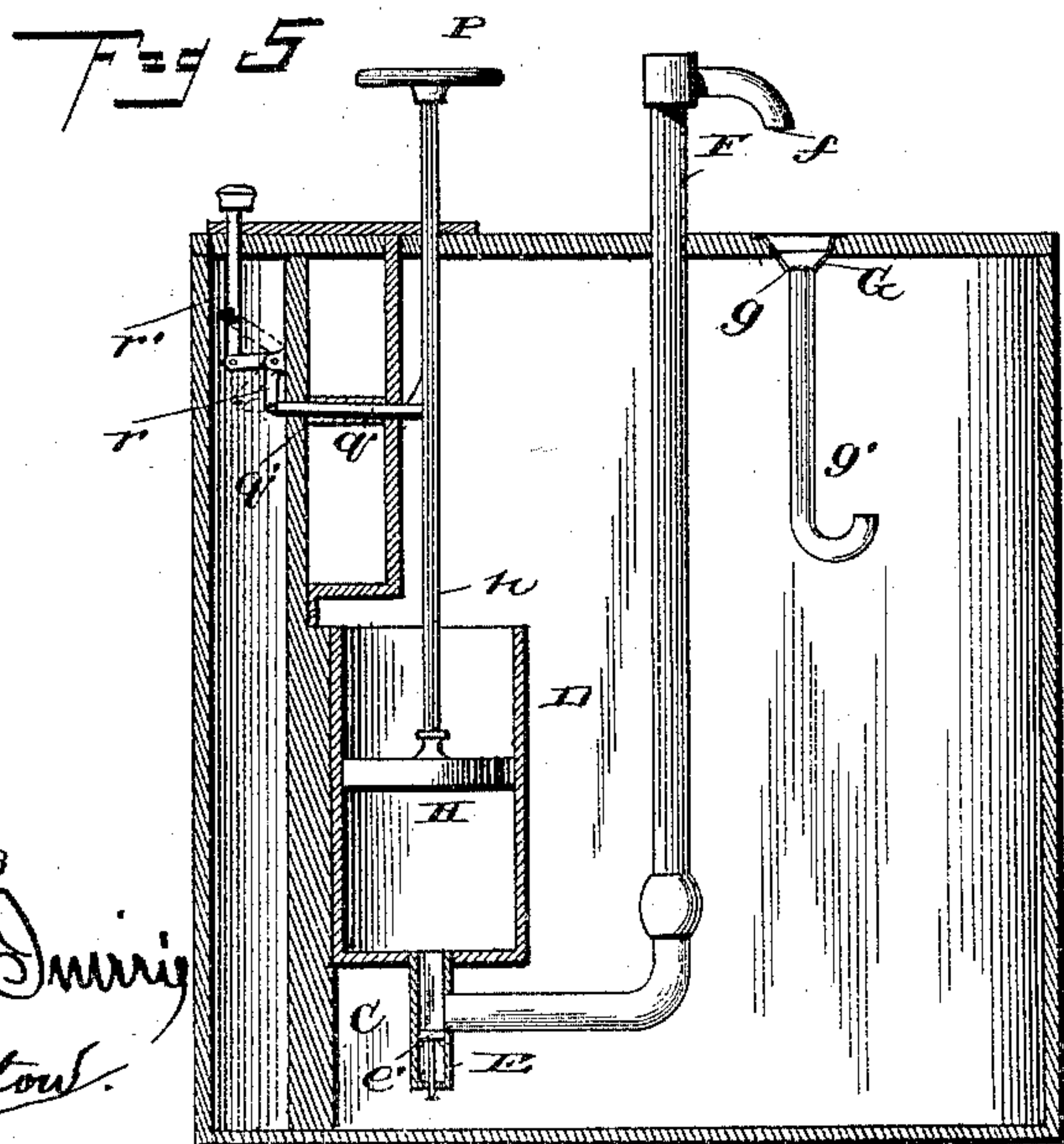
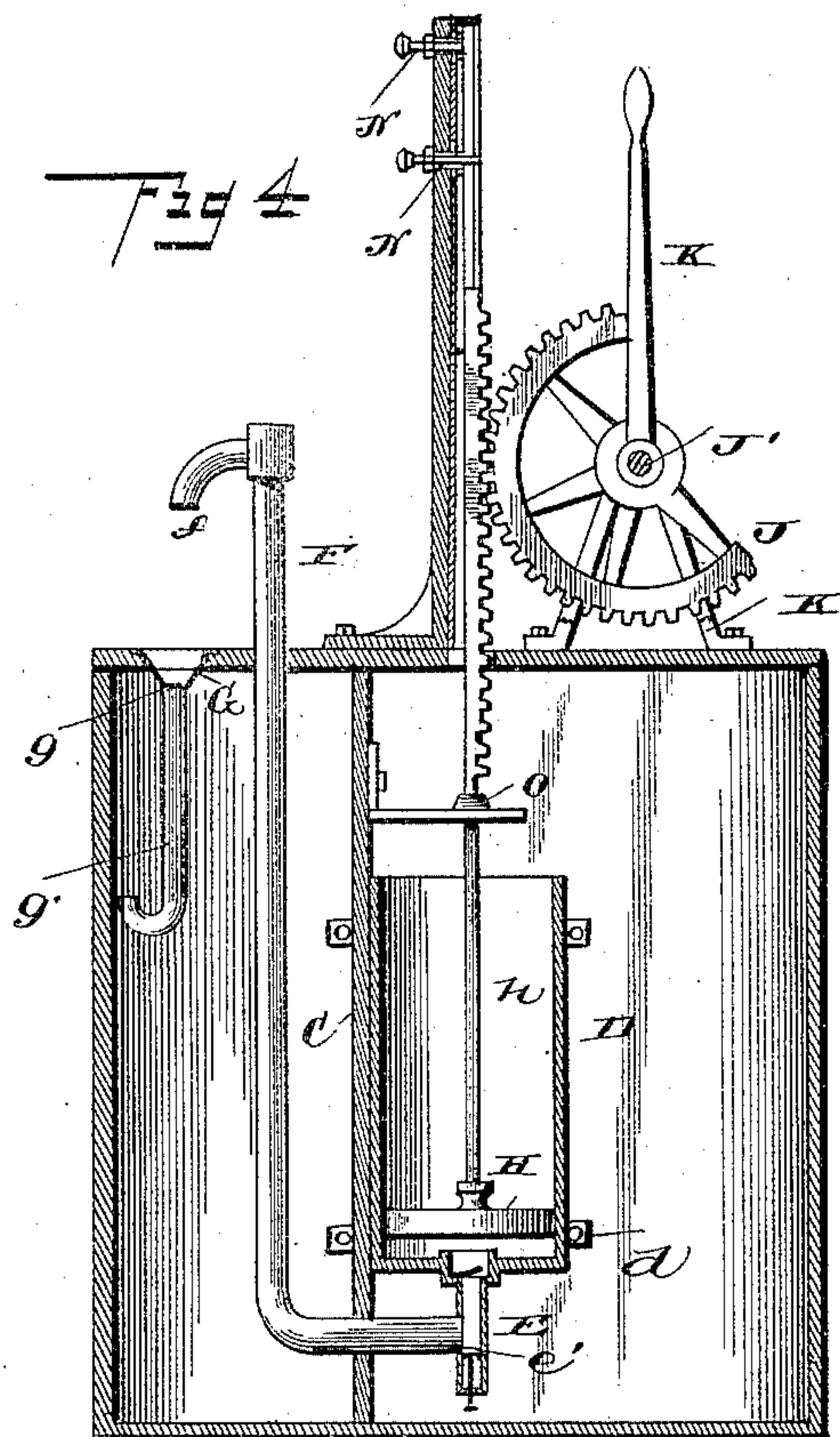
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2 Sheets—Sheet 2.

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SELF MEASURING PUMP.

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Witnesses
John D. Irving
A. M. Heaton.

Inventor
John J. Becker.
Wm. J. Moore.

By this Attorney

UNITED STATES PATENT OFFICE.

JOHN J. BECKER, OF FORT WAYNE, INDIANA, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO THE WAYNE OIL TANK COMPANY.

SELF-MEASURING PUMP.

SPECIFICATION forming part of Letters Patent No. 473,891, dated April 26, 1892.

Application filed October 3, 1891. Serial No. 407,625. (No model.)

To all whom it may concern:

Be it known that I, JOHN J. BECKER, a citizen of the United States, residing at Fort Wayne, in the county of Allen and State of Indiana, have invented certain new and useful Improvements in Self-Measuring Pumps; and I do 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, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My present invention relates to improvements in self-measuring pumps adapted for use, in connection with a tank or reservoir, for the storage of any kinds of liquids; and the object of the invention is to provide a simple, inexpensive, and durable mechanism for elevating a predetermined quantity of liquid out of the reservoir or tank and which can be readily adjusted to regulate the quantity of liquid to be delivered at each stroke of the piston of the pump.

With these and other ends in view my invention consists in the novel combination of devices and peculiar construction and arrangement of parts, which will be hereinafter fully described, and pointed out in the claim.

To enable others to understand my invention and its several modified forms, I have illustrated the same in the accompanying drawings, in which—

Figure 1 is a vertical sectional view through my preferred embodiment of a self-measuring pump. Fig. 2 is a vertical section taken in a plane at right angles to the section of Fig. 1. Fig. 3 is a detail view of the mechanism for limiting the movement of the piston. Fig. 4 is a sectional view of another embodiment of my invention, and Fig. 5 is a sectional view of a simpler form of the measuring-pump.

Like letters of reference denote corresponding parts in the several figures of the drawings.

A designates the tank or reservoir, which may be of any suitable material and of a size adapted to contain any suitable quantity of liquid. On the upper side of this tank or reservoir I erect an inclosure or chamber B,

formed by the shell *b*, and within this inclosure is arranged the mechanism for operating and regulating the pump mechanism, said inclosure having a vertically-movable slide *B'*, which is guided in suitable ways on the shell *b*.

Within the tank or reservoir is arranged a vertical partition or support *C*, which may form one end and one side of the tank and inclosure, respectively, and on this partition or support the pump-cylinder *D* is secured by means of flanges *d d*, which are integral or rigid with the cylinder and secured by screws or nails to the support *C*. This pump-cylinder is open at the top, and at the bottom is provided an inlet-pipe *e*, which opens into the tank or reservoir, the cylinder being located or arranged within the lower part of the tank.

From the lower part or bottom of the cylinder *D* leads a discharge-pipe *F*, which extends upwardly through the tank into the inclosure *B*, and this pipe has a discharge elbow or nozzle *f*, which extends laterally through the inclosure and has its mouth terminating over a return drip-basin *G*, provided in the upper or top side of the tank, said basin having a perforated screen or sieve *g* and a depending pipe *g'*, which extends into the tank and terminates in a goose-neck at its lower end, whereby foreign matter is prevented from entering the tank and at the same time any liquid which overflows the discharge-nozzle *f* can be returned to the tank. In the cylinder operates a piston *H*, which is adapted to reciprocate freely in the cylinder, and the piston-rod *h* is connected at its upper end to the foot *i* of a vertically-reciprocating rack-bar *I* by means of the nuts *i'*, as shown. This vertical rack-bar is guided in grooves or ways on the guides *I'*, which are fixed within the inclosure *B*, and on one side of this rack-bar is formed a series of gear-teeth *j*, with which meshes the teeth on a gear-segment *J*, which segment is carried by a shaft *J'*. This shaft is journaled in a suitable bracket *K*, fixed to the support *C*, and one end of the shaft extends through the inclosure *B* and is provided with a handle or lever *K'*, whereby the shaft can be rocked to turn the gear-segment and thereby operate to raise or lower the piston of the pump.

In connection with this pump mechanism I provide means for regulating the stroke of the piston, so that the desired quantity of liquid can be discharged at a single stroke of the piston. A vertical stop-bar L is arranged in a fixed position within the inclosure B, contiguous to the rack-bar, and in this stop-bar is provided a series of openings *l*, preferably three or more in number. In each of these openings is fitted a tube M, and these tubes M extend through suitable openings in the slide B' of the inclosure B. Through each tube passes a stop N, which is provided at its outer end with an enlarged head which lies exteriorly of the inclosure B, so that access can be had to any or all of the stops to adjust the same. The inner end of the tube M is held in place by nuts *m*, and through these nuts pass the inner ends of the stops, one of which can be adjusted so that its inner end lies in the path of the rack-bar to arrest the upward stroke of the bar when the piston reaches the desired point to expel the predetermined quantity of liquid from the cylinder.

The inlet-pipe E at the bottom of the cylinder is provided with an inwardly-opening check or foot valve *e'*, which is adapted to be closed on the downstroke of the piston.

In operation, if it is desired to measure a quart, half-gallon, or gallon of the liquid the proper stop N is shoved or adjusted inward to the path of the rack-bar and the handle is turned so as to operate the rack-bar and lift the piston and rack-bar until the latter is arrested by the stop. As the piston is raised, the liquid flows into the cylinder through the inlet-pipe, and when the lever or handle is turned to depress the rack-bar the piston descends to expel the liquid from the cylinder and out through the discharge-pipe F.

In Fig. 4 I have illustrated another embodiment of my invention in which I use the same essential parts, which are, however, somewhat differently organized and arranged. The partition or support is arranged near the middle of the tank and the inclosure B is dispensed with, although it is evident that it may be employed. The vertical guides for the rack-bar are erected on the tank, and through said guides pass the movable stops N, arranged in vertical series. The rack-bar is provided at an intermediate point of its length with a beveled shoulder or stop O, which is adapted to rise or pass the end of the stop, so that the

piston can be lifted to its full limit. The stops are adapted to limit the downstroke of the piston in this instance instead of limiting the upstroke, and the piston is normally lifted to its full extent and can be varied in its length of downstroke by adjusting the proper stop.

In Fig. 5 a still further modification, on a simpler plan, is illustrated. The operating mechanism for the piston is dispensed with and the rod of the piston provided with a knob or handle P for its convenient manipulation. This form of pump is designed for small tanks—as, for instance, measuring a quart or half-gallon—and the piston-rod is provided with a beveled stop, which is adapted to come into contact with a push-pin *q*, which is operated in a suitable right-angled guide *q'*. The rear end of this pin is connected to a bell-crank *r*, and to the other arm of the bell-crank is connected an operating-spindle *r'*, by which the pin can be moved into or out of the path of the shoulder on the piston-rod.

The operation of the apparatus will be readily understood from the foregoing description, taken in connection with the drawings.

It is evident that the tank or reservoir can be arranged in the cellar or other apartment of a store and the operating mechanism be arranged on the floor above by simply increasing the length of the pipe and the piston-rod.

I am aware that modifications in the details of construction can be made without departing from the spirit of my invention.

What I claim as new is—

In a self-measuring pump, the combination, with a tank, a cylinder having valved inlet, and a discharge-pipe, of a piston, a rack-bar connected to the piston-rod, a segment engaging with the rack-bar, a fixed stop-bar having a plurality of openings, a tube fitted in each opening and having a threaded end, a stop slidably passed through each tube to be projected into the path of the rack-bar, and nuts on the threaded ends of the tubes on each side of the stop-bar, substantially as shown and described.

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

JOHN J. BECKER.

Witnesses:

JOHN F. RABUR,
A. H. BITTINGER.