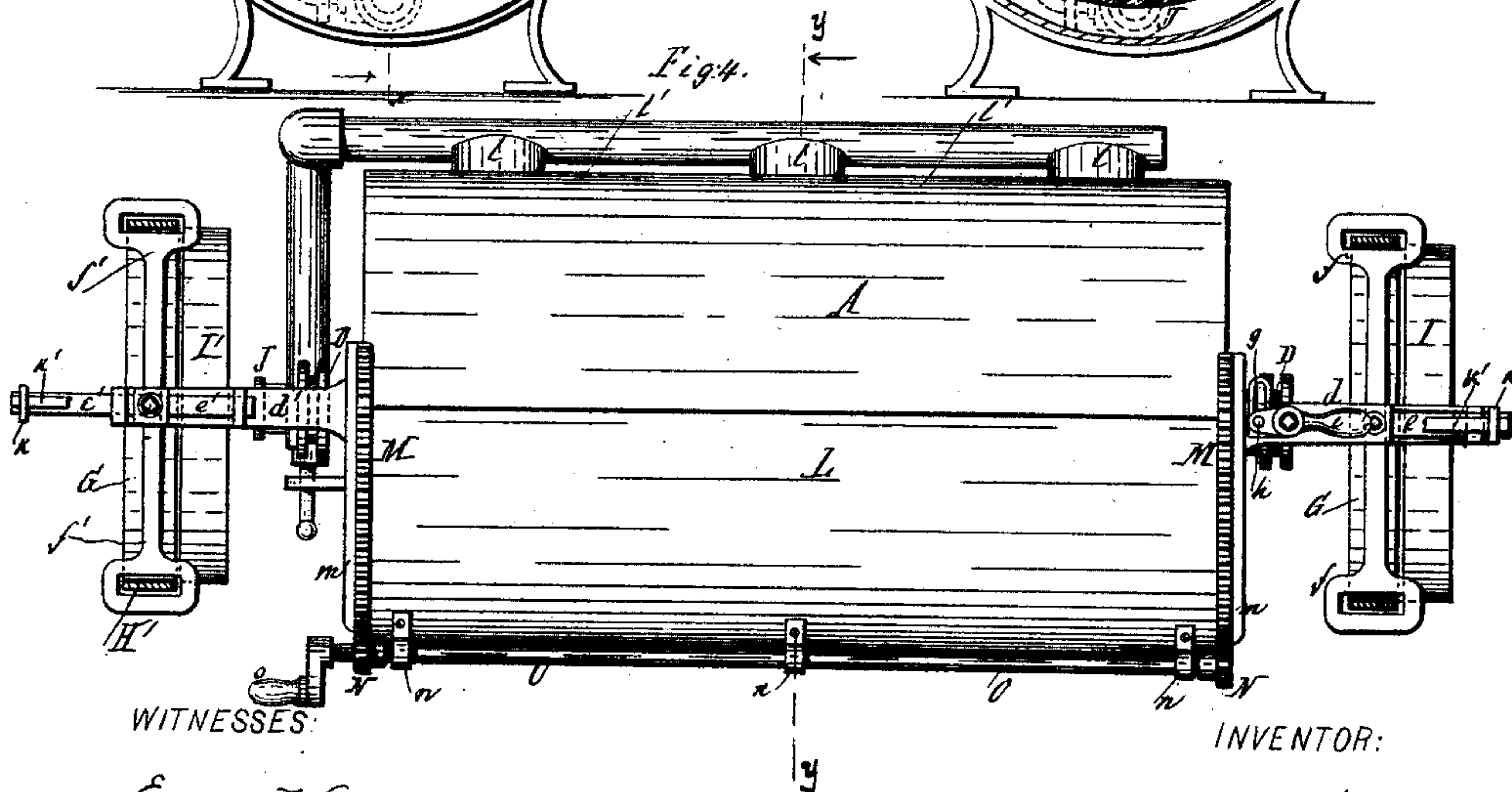
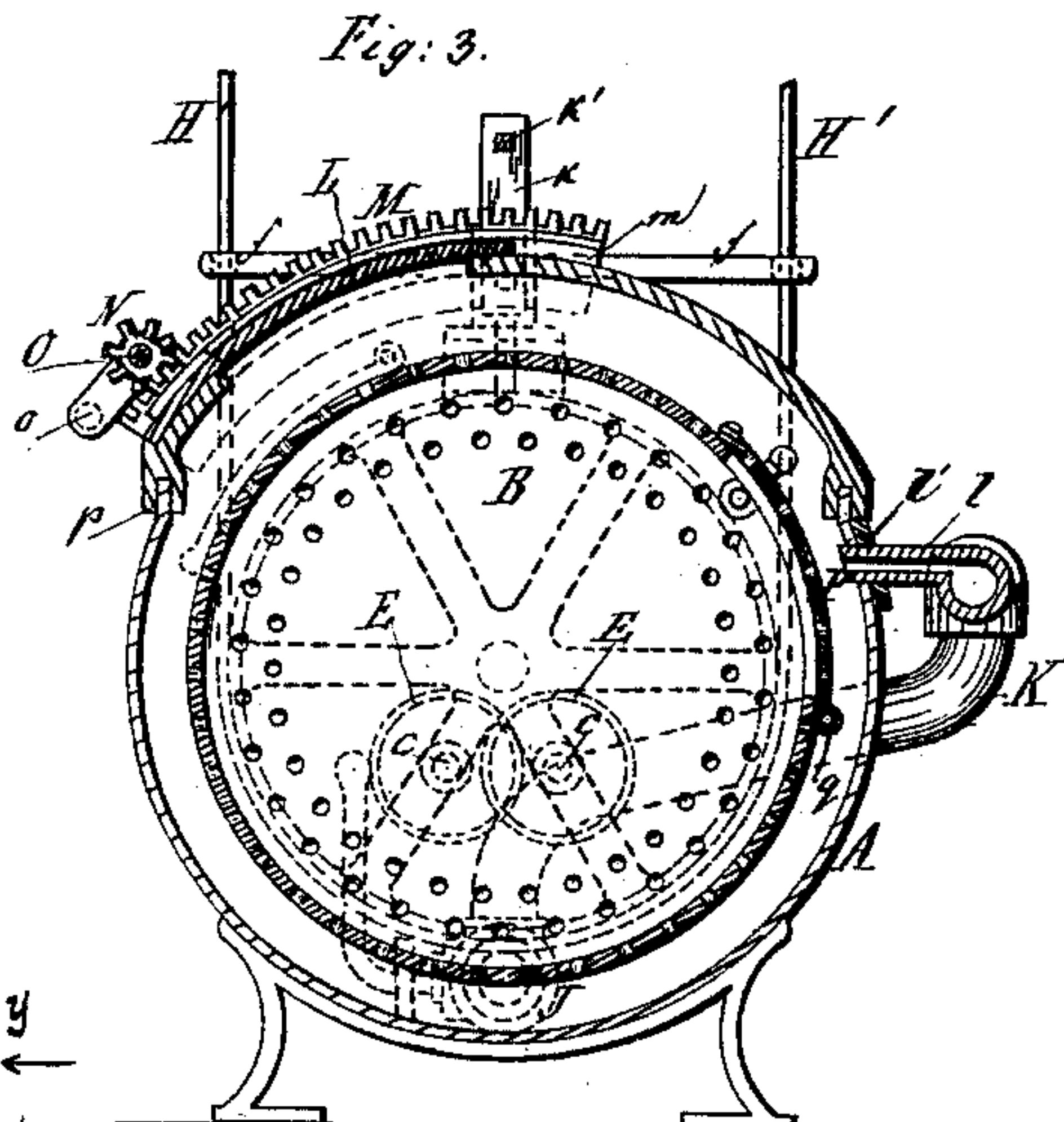
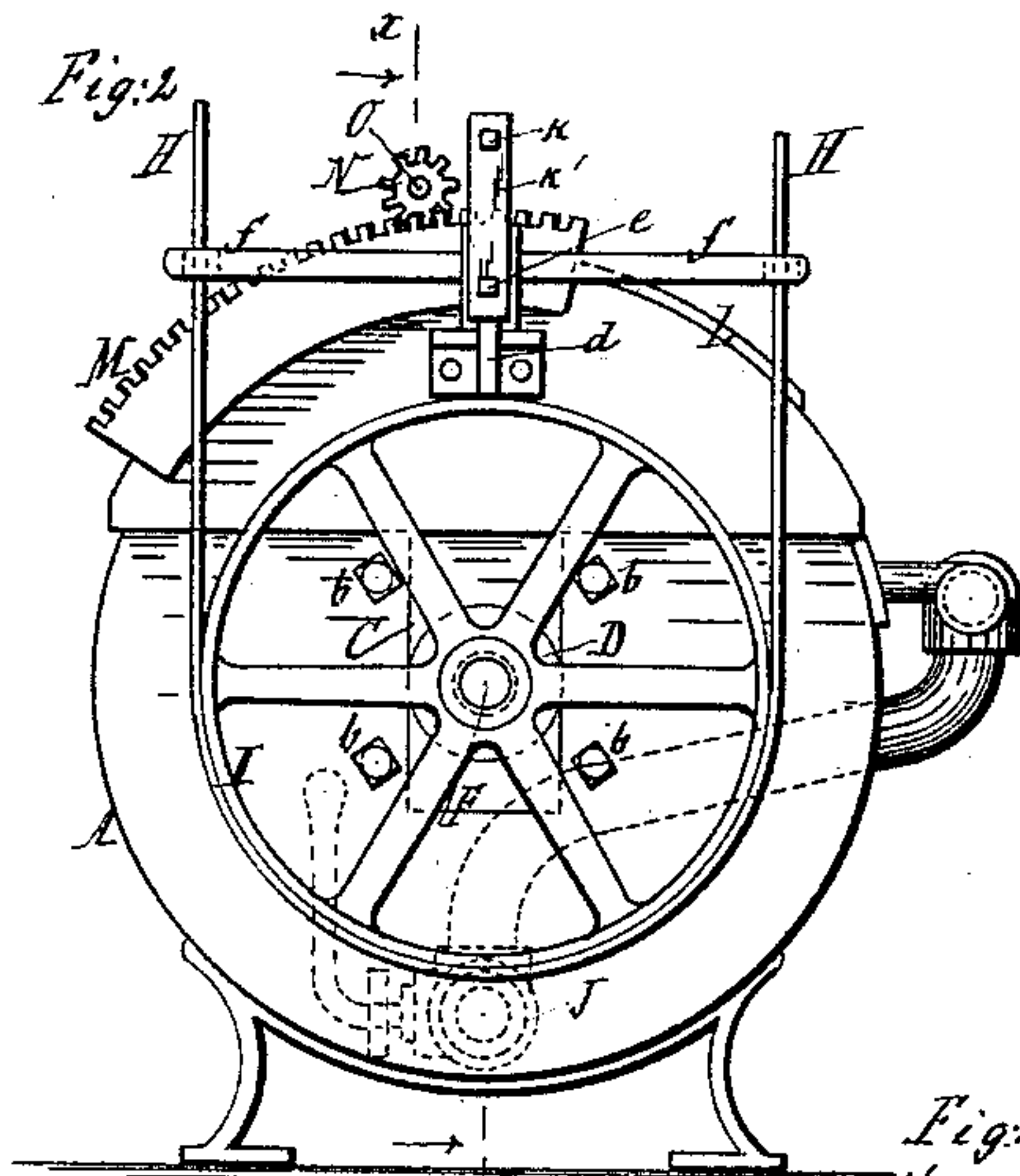
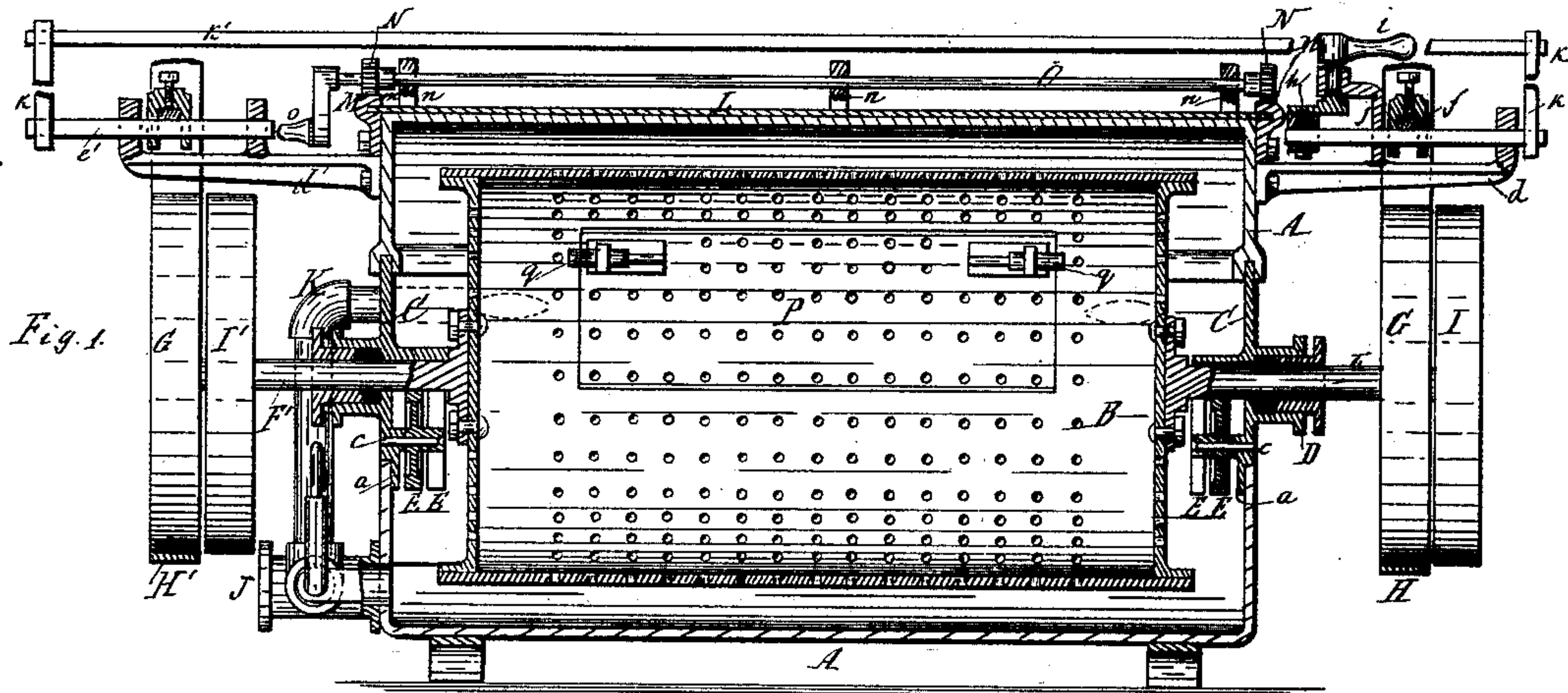


(No Model.)

H. E. SMITH.
WASHING MACHINE.

No. 414,087.

Patented Oct. 29, 1889.



WITNESSES:

Edward Wolff.
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INVENTOR:

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BY

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UNITED STATES PATENT OFFICE.

HAMILTON E. SMITH, OF NEW YORK, N. Y.

WASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 414,087, dated October 29, 1889.

Application filed May 17, 1888. Serial No. 274,214. (No model.)

To all whom it may concern:

Be it known that I, HAMILTON E. SMITH, a citizen of the United States, residing at New York, in the county and State of New York, have invented new and useful Improvements in Washing-Machines, of which the following is a specification.

This invention relates to improvements in washing-machines; and it consists in certain novel features of construction whereby the operation of the machine is facilitated, leakage prevented, and the manipulation of the machine rendered more easy, all of which is more fully pointed out in the following specification and claims, and illustrated in the accompanying drawings, in which—

Figure 1 represents a longitudinal section in the plane $x x$, Fig. 2, of a machine embodying my invention. Fig. 2 is an end view thereof. Fig. 3 is a transverse section in the plane $y y$, Fig. 4. Fig. 4 is a plan view.

Similar letters indicate corresponding parts.

In the drawings, referring at present to Figs. 1, 2, and 3, the letter A designates the casing of the machine, and B is the cylinder, which is placed within the casing and rotates therein. In each head of the casing A is formed an opening, Figs. 1 and 2, which extends from the edge of the lower section downward, and in said openings are fitted plates C, having flanges a , which abut against the interior sides of the heads. Bolts b , Fig. 2, extending through the heads and the flanges, secure the plates to the said heads. The flanges a are set back so that the body of the plate comes flush with the outer surface of the head. The bolts being tightly drawn up, leakage cannot take place about the plates. On the exterior side of each plate is formed a stuffing-box D, said stuffing-boxes being cast integral with the plates and having their glands adjustable in the usual manner. In the inner side of the plates are secured studs c , which form pivots for rollers E E. Said rollers are intended to give a nearly frictionless support to the gudgeons F F of the cylinder, which extend through the stuffing-boxes D D.

To prevent a torsional strain on the cylinder B, I drive the same from both ends—that is to say, a driving-pulley G and G' is mounted

on each of the gudgeons F F, said driving-pulleys being actuated by belts H H'. Loose pulleys I I' are provided, upon which the belts are shifted to throw the machine out of action.

The belt-shifting apparatus for the pulleys G and I is supported upon a bracket d , secured to the casing A. The slide e has secured thereto the shifting-arms f , which are provided with slots through which the belt H passes. The slide can move rectilinearly in bearings formed on the bracket. Its inner end is provided with a laterally-extending slot g , which is engaged by a pin h , projecting from a hand-lever i , which is pivoted to an arm j , extending upwardly from the bracket d .

In the drawings, Figs. 1 and 3, I have shown the belt H in contact with the tight pulley G. If the lever i is turned through a semicircle, the slide is moved and the belt is shifted from the tight pulley upon the loose pulley. It will be noticed that when the hand-lever i is in either of its extreme positions the pin h thereof, engaging the slot in the slide e , is in the same right line with the slide, and consequently the position of said slide cannot be disturbed by any external force acting directly upon the same while the handle is in either of its extreme positions; in other words, the pin h serves to lock the slide.

In order that both belts G and G' may be shifted simultaneously, I provide the pulleys G' and I' with a shifter, Figs. 1 and 4, consisting of a bracket d' and a slide e' , supported in said bracket and carrying shifting-arms f' , engaging the belt H'. On the slides e and e' are formed vertical extensions or arms k , which are connected by a link k' , extending across the top of the machine. When the hand-lever i is turned, the link is moved, thereby imparting a movement to the slide e' .

I do not herein claim the belt-shifting mechanism shown and described, as such constitutes the subject-matter of my application for Letters Patent filed July 11, 1889, Serial No. 317,119.

Fresh water is supplied to the casing A by means of a supply-pipe J, Fig. 1, entering the same at or near the bottom. The overflow-pipe K for carrying off the water extends along the back of the casing in an approximately horizontal line. It is connected with

the interior of the casing by a number of branches *l l*, three being shown, one of which is in the center and the others near the ends of the casing. However, more may be used, if so desired. The branches are provided with suitable flanges *l'* for bolting the same to the casing. These branches are made narrow and long, so that they will readily receive the water and scum from the casing.

Heretofore the overflow-pipe in washing-machines was made to communicate directly with one of the heads of the casing; but this position was not favorable for carrying away the scum. In my case, the overflows being located in the periphery of the casing, the scum is forced toward the same by the motion of the cylinder B. The overflow-pipe K is led downward and may be provided with a valve. In the example illustrated in the drawings I have shown the same connected with a three-way cock, to which the supply-pipe J is connected also, so that when the supply is opened wide the overflow is closed, and vice versa.

On inspection of Fig. 3 it will be seen that the branches *l l* of the overflow-pipe enter the same at its highest portion. This permits almost the full capacity of the pipe to be utilized in conducting away the liquid and scum.

A portion of the top of the casing A is left open to permit the introduction of the articles in the cylinder, which latter has a similar opening. This opening in the casing is closed by a cover L, which corresponds in curvature to the casing and can slide in suitable ways *m m*, formed on or secured to the casing. Opposite the ends of the cover are fixed racks M M, which extend about a portion of the periphery of the casing. These racks are engaged by two gear-wheels N N, rigidly mounted upon a horizontal shaft O, having its bearings in lugs *n n*, projecting from the door. A crank *o*, secured to one end of the shaft O, affords means for rotating the shaft. By turning the shaft O in one direction the cover is moved to open the casing,

the gear-wheels traveling up the rack, and vice versa. A suitable jam *p*, Fig. 3, is formed at the bottom of the opening in the casing for the cover to strike against the same.

The door P, closing the opening in the cylinder B, is hinged at *q q*, Figs. 1 and 3, to the cylinder by any suitable means.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the casing A and its cover, of a fixed rack secured to the casing, and a gear-wheel on said cover engaging with the rack, whereby the rotation of the gear opens or closes the cover, substantially as shown and described.

2. The combination, with the casing A, having curved ways formed therein and a curved cover guided in said ways, of a rack formed on the casing, a shaft having bearings on the cover, and gear-wheels rigidly mounted on said shaft and engaging with said rack, substantially as shown and described.

3. The combination, with the casing A and its cylinder B, of the overflow-pipe K, having a connection with the interior of the casing in the periphery thereof, substantially as shown and described.

4. The combination, with the casing A, of the horizontal overflow-pipe K and the branches *l* thereof, connecting with the interior of the casing at its periphery, substantially as shown and described.

5. The combination, with the casing A, of the horizontal overflow-pipe K and the branches *l* thereof, connecting with the interior of the casing and with the highest portion of the overflow-pipe, substantially as shown and described.

In testimony whereof I have hereunto set my hand and seal in the presence of two subscribing witnesses.

HAMILTON E. SMITH. [L. S.]

Witnesses:

BENJN. A. DARE,
A. FABER DU FAUR, Jr.