

No. 672,431.

Patented Apr. 16, 1901.

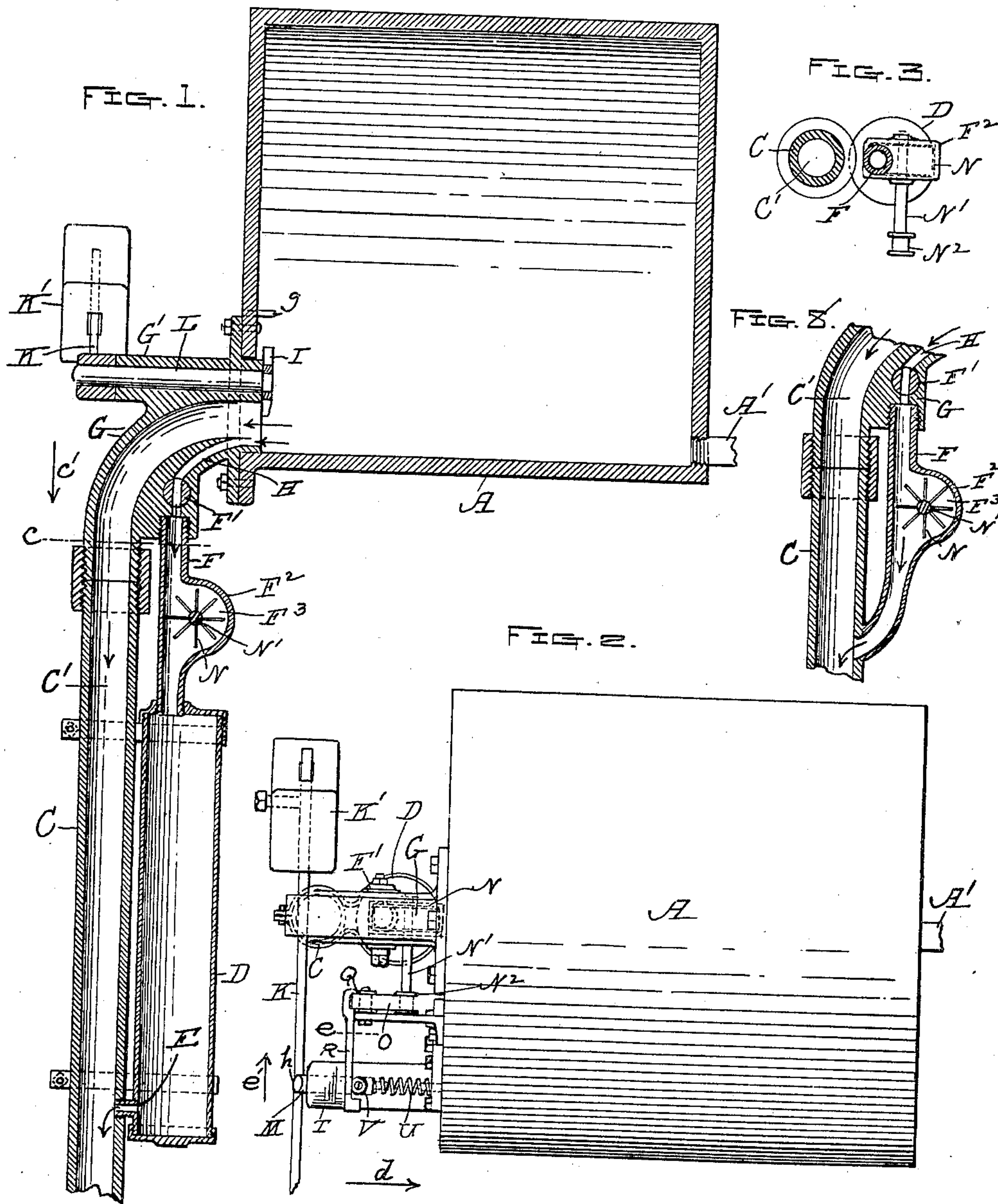
A. LA BONTÉ.

APPARATUS FOR FLUSHING WATER CLOSETS.

(No Model.)

(Application filed Sept. 4, 1900.)

2 Sheets—Sheet 1.



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FIG. 4.

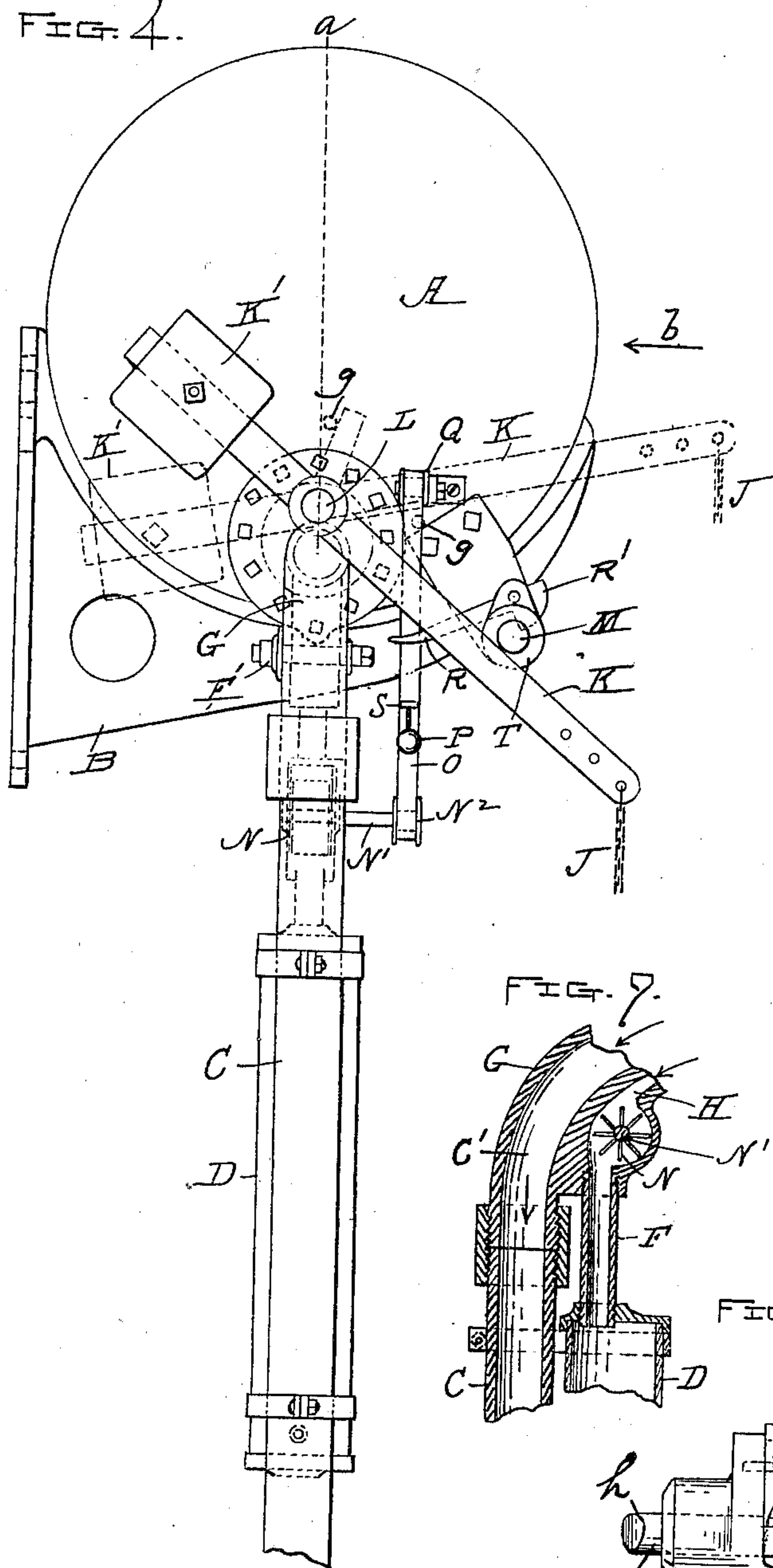


FIG. 5.

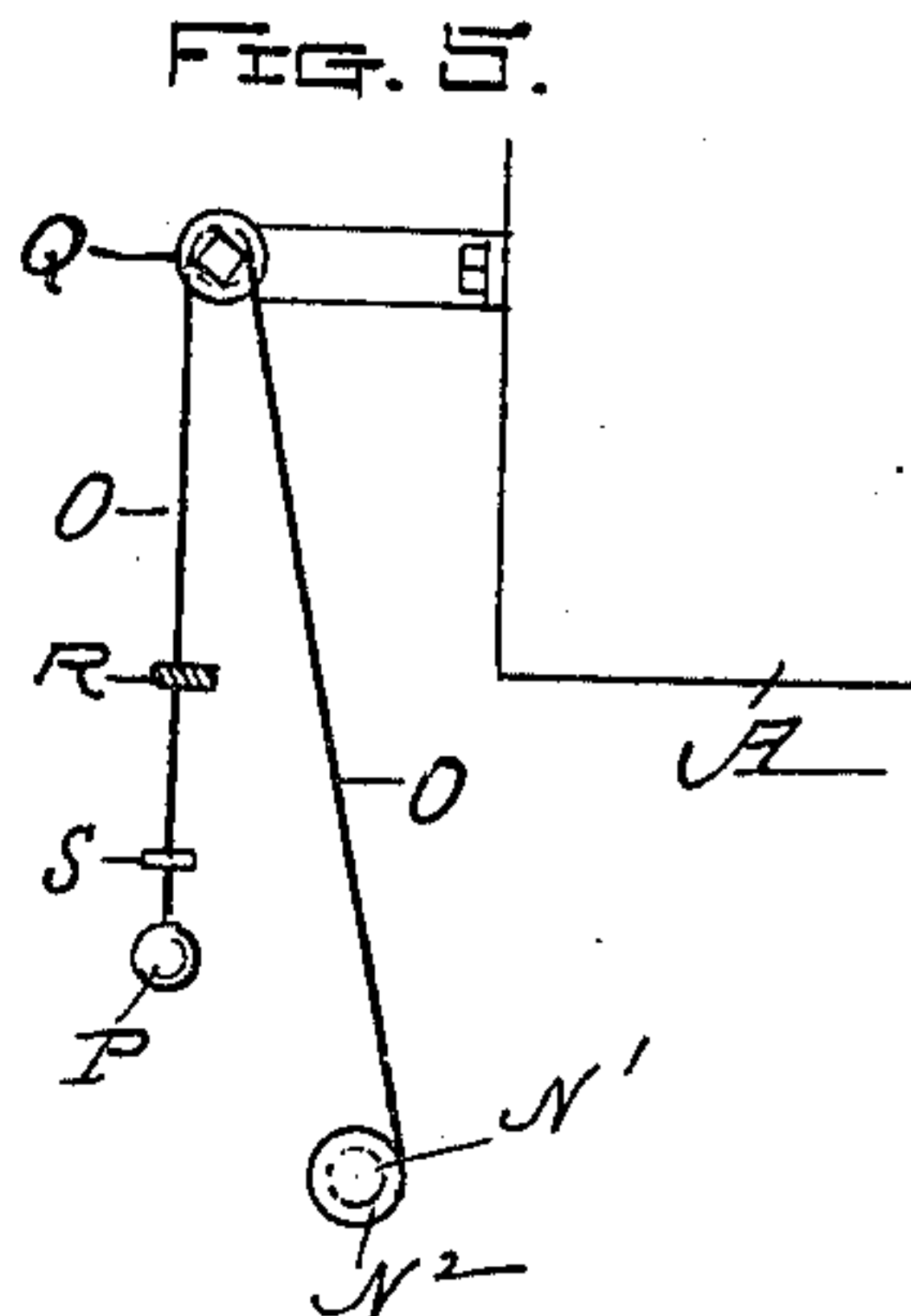


FIG. 6.

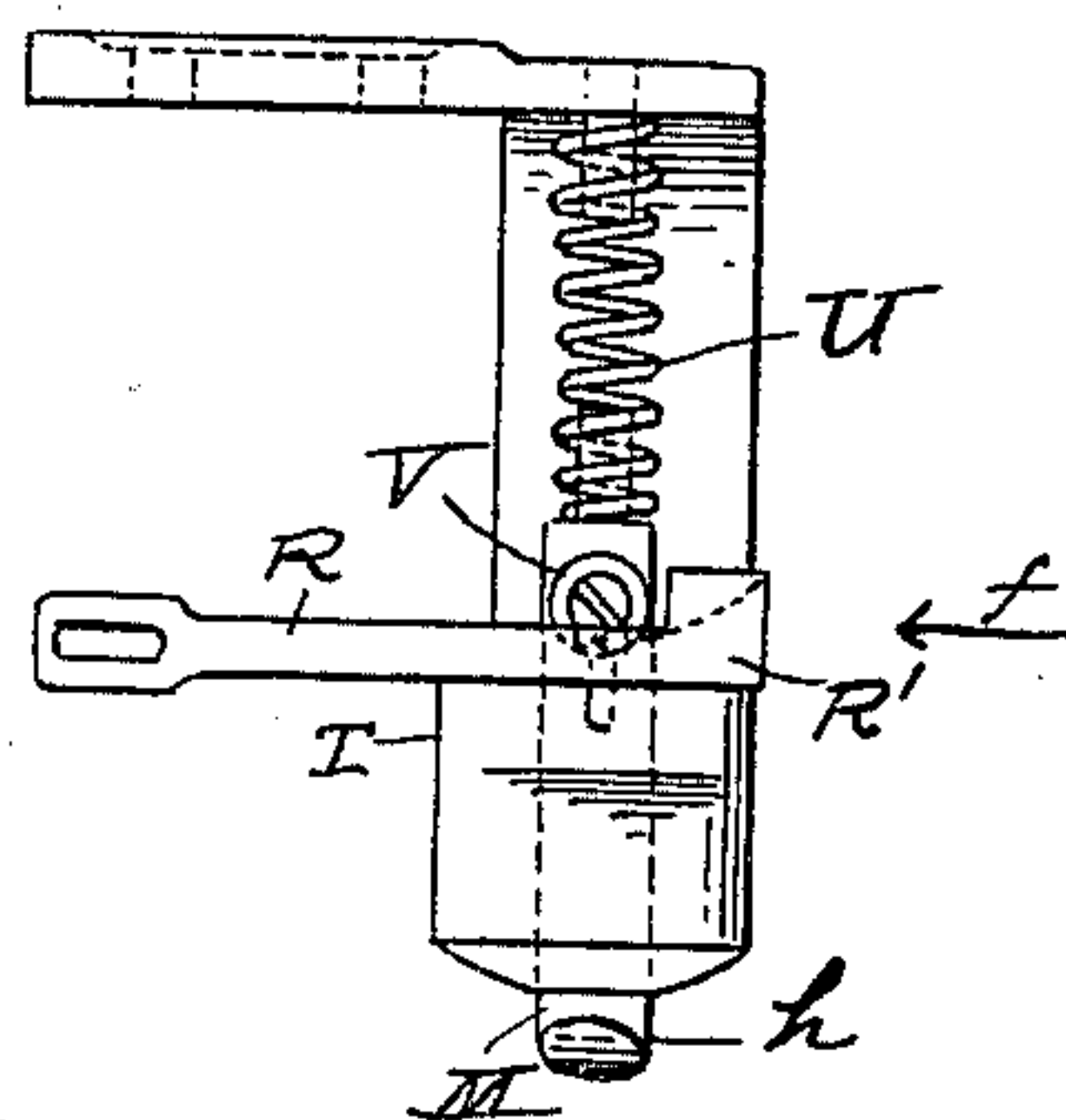


FIG. 7.

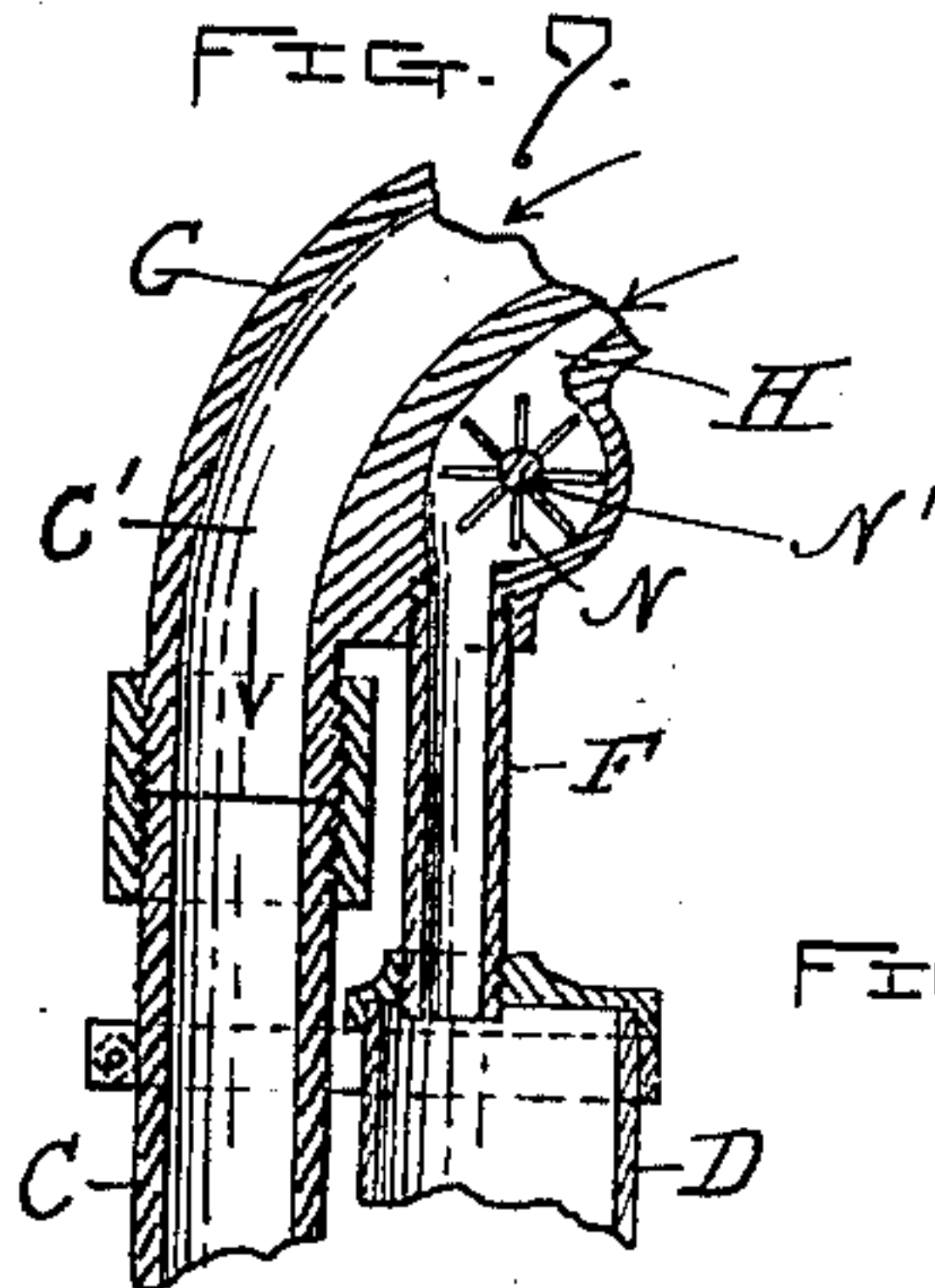
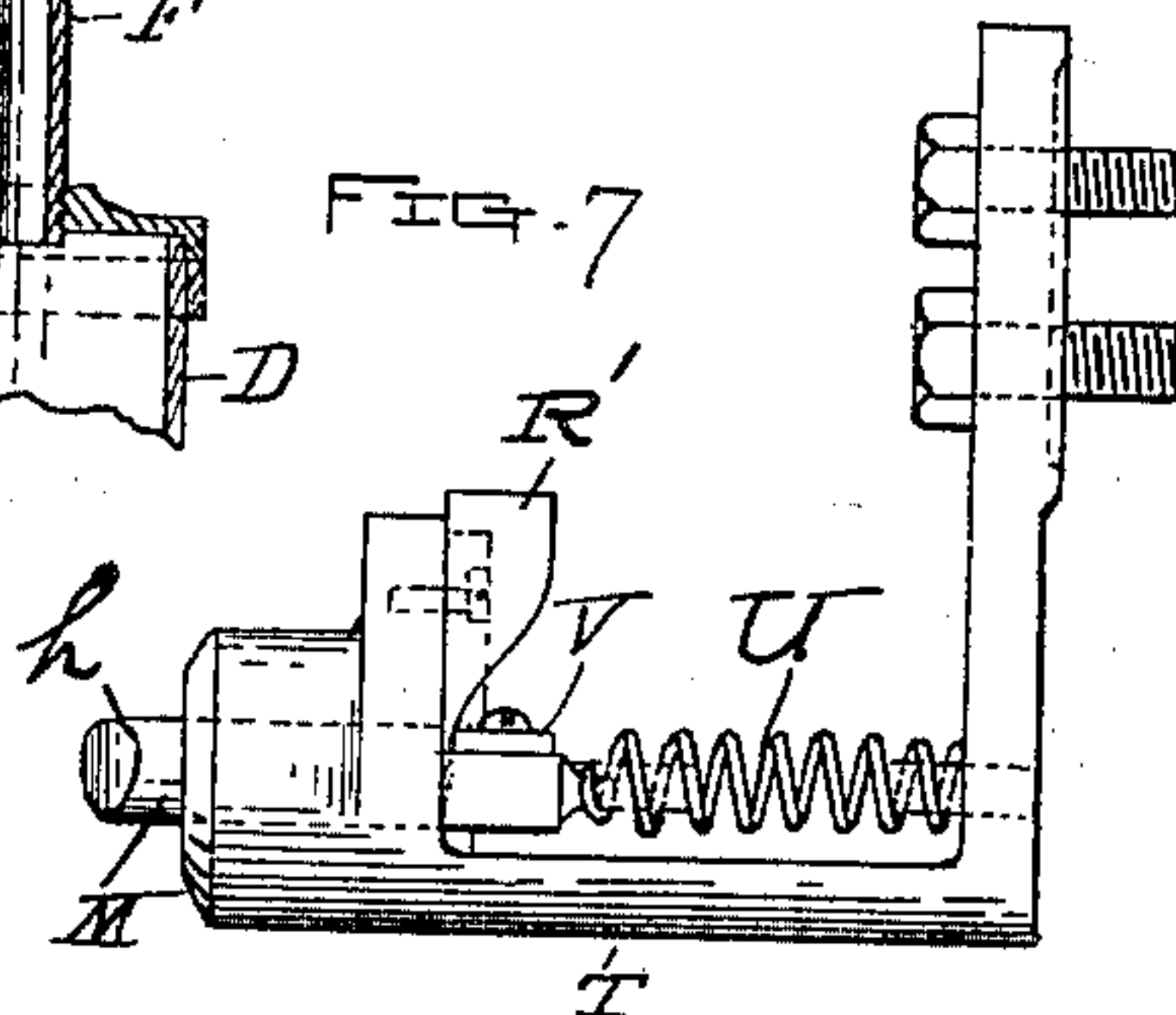


FIG. 7.



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# UNITED STATES PATENT OFFICE.

ADOLPHUS LÁ BONTÉ, OF WORCESTER, MASSACHUSETTS.

## APPARATUS FOR FLUSHING WATER-CLOSETS.

SPECIFICATION forming part of Letters Patent No. 672,431, dated April 16, 1901.

Application filed September 4, 1900. Serial No. 28,882. (No model.)

*To all whom it may concern:*

Be it known that I, ADOLPHUS LÁ BONTÉ, of the city and county of Worcester, in the State of Massachusetts, have invented certain new and useful Improvements in Apparatus for Flushing Water-Closets; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming a part of this specification, and in which—

Figure 1 represents a central vertical section through the apparatus, taken on line *a*, Fig. 4, looking in the direction of arrow *b*. Fig. 2 is a top or plan view thereof. Fig. 3 is a horizontal section taken at the point indicated by arrow *c*, Fig. 1, looking in the direction of arrow *c'*. Fig. 4 is an end view of the apparatus looking in the direction of arrow *d*, Fig. 2. Fig. 5 is a vertical section taken at the point indicated by line *e*, Fig. 2, looking in the direction of arrow *e'*, showing a side view of part of the mechanism for automatically closing the valve after each main flush. Fig. 6 is an enlarged plan view of the spring, snap-catch, and its operating cam-lever for holding the main operating-lever of the apparatus down while the water is flowing out of the main reservoir or tank until automatically released to stop the flush, as will be hereinafter described. Fig. 7 is a side view of the parts shown in Fig. 6 looking in the direction of arrow *f*. Fig. 8 is a modification in the construction upon the same scale as the first five figures, showing part of the mechanism which operates in conjunction with the parts shown in Figs. 5, 6, and 7 for automatically closing the valve after each main flush; and Fig. 9 shows another modification in the construction, which will be hereinafter described.

The object of my invention is to cover certain improvements upon the apparatuses for flushing water-closets for which Letters Patent of the United States No. 624,224, dated May 2, 1899, and No. 655,303, dated August 7, 1900, respectively, were granted to me, and more particularly to cover improvements upon the last-named patent.

Said invention consists of certain improvements whereby that portion of the apparatus for automatically closing the valve after each main flush is greatly simplified in both the

construction and operation thereof, as will be hereinafter more fully set forth.

In order that others may better understand the nature and purpose of my said invention, I will now proceed to describe it more in detail, with reference to the accompanying drawings.

In said drawings, A represents the main reservoir or tank, provided with the supply-pipe A', and which may be supported on brackets B or in any other suitable and convenient manner.

C is the main flush-pipe, which is in practice connected at the bottom with the water-closet. (Not shown in this instance.)

D is the refilling-tank, arranged vertically at one side of the flush-pipe C, near its upper end, and connected near its bottom end by a small pipe E with said flush-pipe. Said refilling-tank D is also connected at its upper end with the lower end of a conducting-pipe F, considerably smaller than the main flush-pipe, and the upper end of said conducting-pipe F is in turn connected with an irregular-shaped casting G, forming the outlet of the main reservoir or tank A and to which said main flush-pipe is attached.

The short discharge-pipe E is made considerably smaller than the conducting-pipe F for the purpose hereinafter described.

The aforesaid irregular-shaped casting G serves a triple purpose—viz., to form a water-passage from the outlet in the tank A to the main flush-pipe C, to also form a smaller water-passage H to the conducting-pipe F, and to serve as a bearing for the mechanism for automatically operating the valve I at the outlet of tank A. The upper end of flush-pipe C is attached to the lower end of casting G, and its water-passage C' extends in a curved line from the tank to said flush-pipe, as is shown in Fig. 1. The water-passage H is independent of the water-passage C' and connects the tank with the conducting-pipe F. It may be provided with a suitable valve F' for controlling the passage of the water there-through. By the above arrangement it will be seen that when the valve I is opened part of the water will discharge through the passage C' and part through the passage H, the greater part passing through the flush-pipe, owing to



its greater size, as is shown in Fig. 1. The valve I is opened by hand by pulling upon the usual chain J to operate the weighted lever K and is closed automatically. Said weighted lever K is secured to the outer end of a short shaft L, which turns in a bearing G', forming a part of casting G, and to the inner end of said shaft is secured the valve I. The movements of said valve may be controlled by pins *g g*, projecting into the tank. The lever K is in its normal position ready for operation to flush the closet when in the position shown by dotted lines, Fig. 4, and to flush said closet the chain J is pulled down, as usual, to tip the lever into the position shown by full lines in said figure. It is pulled down far enough to be passed down past the beveled head *h* of a snap-catch M and is held by it during the main flush until released by drawing back said head to allow the weight K' of lever K to tip back said lever into its normal position and close valve I. The head *h* is thus drawn back automatically by mechanism operated by the water flowing into and through the passage H in the following manner: The conducting-pipe F is provided with an enlargement F<sup>2</sup> to form a chamber F<sup>3</sup>, and in said chamber is arranged a small water-wheel N, adapted to be turned by the inflowing water striking the blades thereof. The spindle N' of wheel N extends out laterally a short distance and preferably has mounted thereon a pulley N<sup>2</sup>, to which the end of a belt O is attached, said belt being wound and unwound upon and from said pulley N<sup>2</sup> when the water-wheel is turned. It is turned one way by the water flowing upon the blades thereof, as aforesaid, and the other by the power exerted in the opposite direction by the weight P on the opposite end of said belt. (See Figs. 4 and 5.) The belt extends from the winding-pulley N<sup>2</sup> over a guide-pulley Q and thence down through an opening in the end of the cam-lever R, which serves when operated to force back the snap-catch M, as previously stated, said belt being provided with a stop S below said lever, adapted to bear upon the under side of the lever when the belt is wound upon its pulley, and the weight P being attached below said stop, as is shown in Figs. 4 and 5. The snap-catch M is fitted to slide longitudinally in stationary bearings T, is provided with a suitable spring U for exerting a constant outward longitudinal pressure thereon, and is also preferably provided on its upper side with a friction-roll V for the cam R' on lever R to bear against, although, if desired, simply a projection or hub may be formed on the snap-catch spindle in lieu thereof. The cam R' is made wedge shape with the thin edge at the bottom. (See Fig. 7.) Therefore when it is moved down against the side of the friction-roll by the belt O elevating the free end of lever R the snap-catch M is moved back and lever K released, as previously described.

In order that the refilling-tank D may be filled and not emptied until after the main flush is completed, so as to produce an after flush, the outlet E thereof is made quite small, as previously stated. Therefore the water in said tank is discharged slowly, and sufficient water remains after the main flush to produce the desired after flush to fill the closet after having been used and flushed.

The duration of the main flush may be adjusted to discharge more or less water at each flush when the lever K is pulled down by hand to open valve I by arranging the stop S at a greater or less distance below lever R, (when the parts are in their normal positions,) the length or duration of the flush being governed by the time occupied by the water-wheel N in winding the belt O on its pulley N<sup>2</sup> to raise the stop S, so as to bear upward on the lever R and cause the snap-catch M to be forced back and release lever K to close valve I, as previously described. A short flush is produced by arranging the stop to come only a short distance below the lever R and a longer one by increasing said distance, as will be obviously seen.

By the above construction and arrangement I am enabled to stop the flush automatically and to regulate at will the quantity of water to be used at each flush by means of a very simple, effective, and positive-acting device, easily and cheaply applied and which is not liable to become disarranged in use.

If desired, the apparatus may be made without the refilling-tank D for producing the after flush and the water discharged directly from the conducting-pipe F into the main flush-pipe C, as shown in Fig. 8, without departing from the principle of my invention. I also reserve the right to make such other modifications in the construction as may be deemed advisable in practice coming within the scope of my invention.

In Fig. 9 I have shown the water-wheel N located in the casting G instead of in the enlargement on pipe F, the valve F' being left out. I reserve the right to make this modification in the construction in practice, if desired.

Having now described said invention, what I claim therein as new, and desire to secure by Letters Patent, is—

1. In an automatic apparatus for flushing water-closets, the tank A, bearing G having water-passages C' and H, valve I, shaft L and lever K, in combination with main flush-pipe C, conducting-pipe F, having the chamber F<sup>3</sup>, refilling-tank D, having a small discharge-pipe E near its lower end, connected with the main flush-pipe, water-wheel N arranged in said chamber, its spindle N'; belt O, provided with a stop and weight; guide Q; cam-lever R, its cam R', frame T and snap-catch M, substantially as and for the purpose set forth.

2. In an automatic apparatus for flushing water-closets, the combination of conducting-



pipe F, having the chamber F<sup>3</sup>, and refilling-tank D, connected by a small pipe E with the main flush-pipe, with water-wheel N arranged in said chamber, its spindle N'; belt O provided with a stop and weight; guide Q; cam-lever R; its cam R', frame T and snap-catch M, substantially as and for the purpose set forth.

3. In an automatic apparatus for flushing water-closets, the tank A, bearing G, having water-passages C' and H, valve I, shaft L and lever K, in combination with main flush-pipe C, conducting-pipe F having the chamber F<sup>3</sup>, water-wheel N, arranged in said chamber, its spindle N', belt O, provided with a stop and weight, guide Q, cam-lever R, its cam R', frame T and snap-catch M, substantially as and for the purpose set forth.

4. In an automatic apparatus for flushing water-closets, the combination of conducting-pipe F, having the chamber F<sup>3</sup> and connected with the main flush-pipe below said chamber, with water-wheel N, arranged in said chamber, its spindle N'; belt O, provided with a stop and weight, guide Q, cam-lever R, its cam R', frame T and snap-catch M substantially as and for the purpose set forth.

5. In an automatic apparatus for flushing

water-closets, the tank A, bearing G, having water-passages C' and H, valve I, shaft L and lever K, in combination with main flush-pipe C, conducting-pipe F, having the chamber F<sup>3</sup>, refilling-tank D, connected near the bottom by a small pipe E with the main flush-pipe; water-wheel N, arranged in said chamber F<sup>3</sup>, means for operatively connecting the axis of said water-wheel with the free end of lever R, to lift the same; said lever R, its cam R', frame T and snap-catch M, substantially as and for the purpose set forth.

6. In an automatic apparatus for flushing water-closets, the tank A, bearing G, having water-passages C' and H; valve I; shaft L and lever K, in combination with water-wheel N, arranged in a chamber located between tank A and the flush-pipe; means for operatively connecting the axis of said water-wheel with the free end of lever R to lift the same; flush-pipe C, conducting-pipe F and refilling-tank D, connected by a small discharge-pipe E with the main flush-pipe C, substantially as and for the purpose set forth.

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