

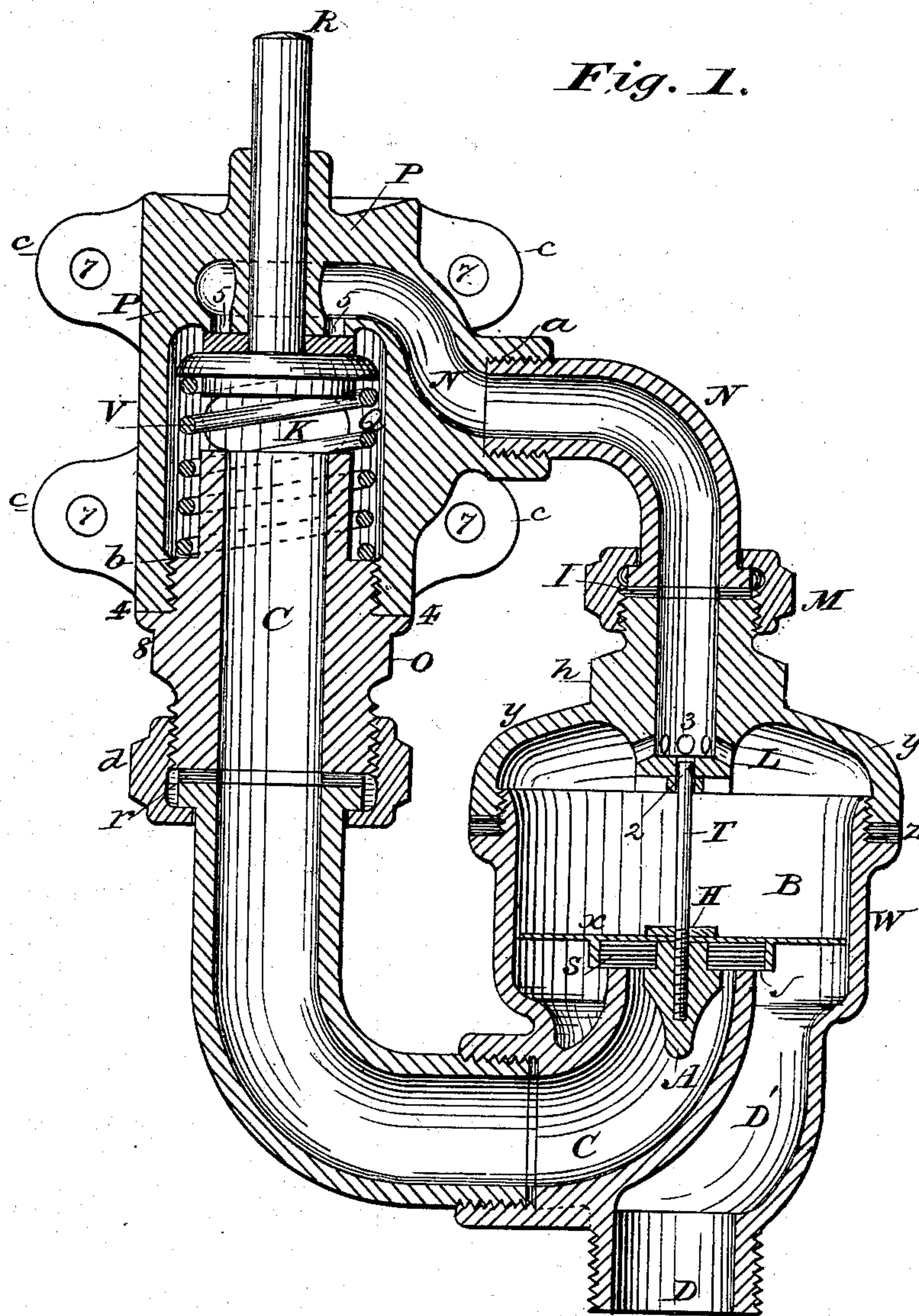
(No Model.)

2 Sheets—Sheet 1.

H. A. TOBEY.  
WATER CLOSET VALVE.

No. 263,251.

Patented Aug. 22, 1882.



WITNESSES  
J. C. Brecht.  
Jno. R. Young.

INVENTOR  
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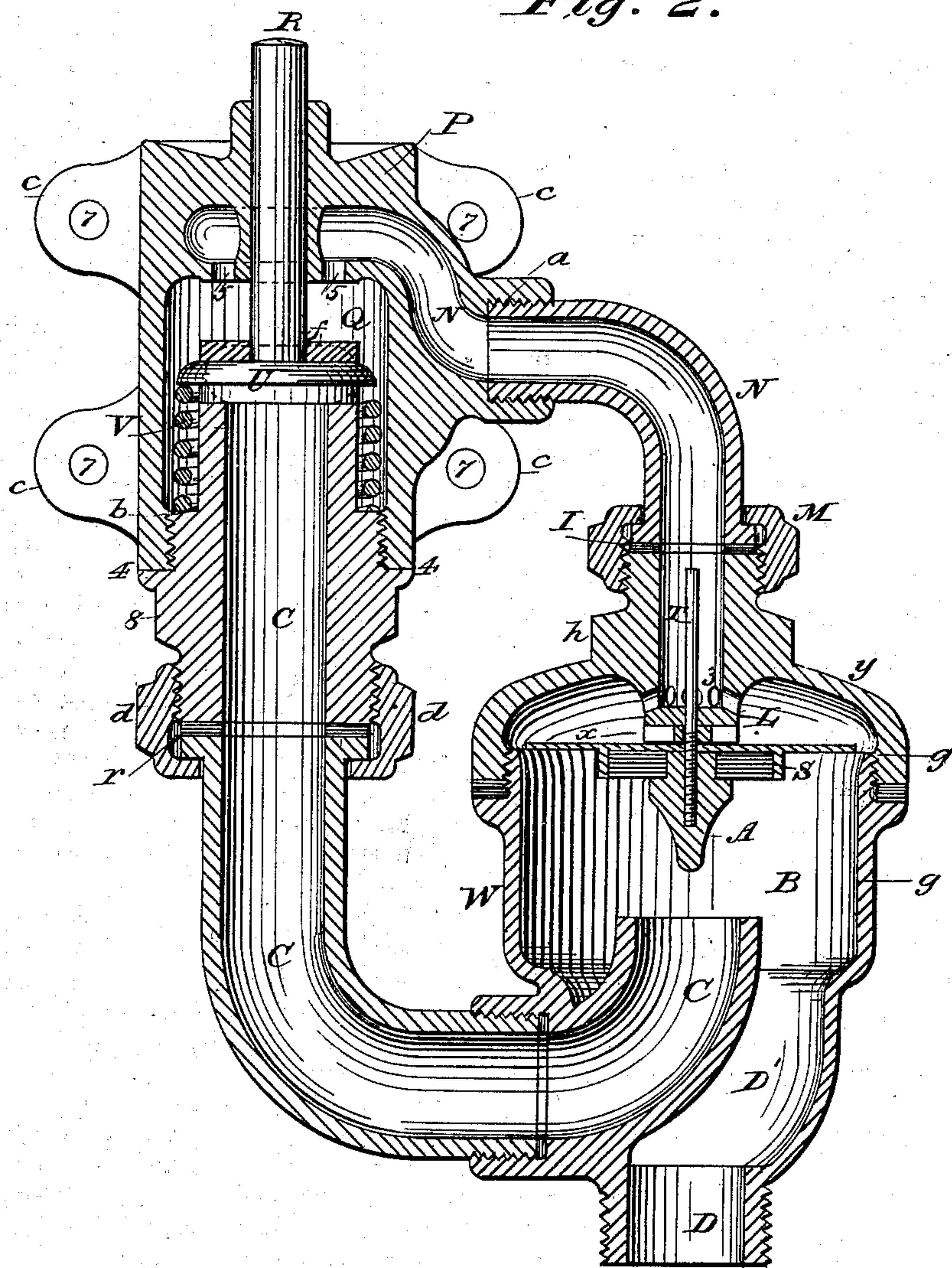
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*Fig. 2.*



WITNESSES

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# UNITED STATES PATENT OFFICE.

HENRY A. TOBEY, OF DAYTON, OHIO.

## WATER-CLOSET VALVE.

SPECIFICATION forming part of Letters Patent No. 263,251, dated August 22, 1882.

Application filed February 10, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY A. TOBEY, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Water-Closet Valves; 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.

The object of my improvement is to obtain a small stream of water for the basin while the closet is in use and to flush the basin with a larger stream at tank or pipe pressure after pressure on closet is relieved. I accomplish this object by the arrangement of parts illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of my improvement when the valve is at rest, and Fig. 2 a similar view when valve is in use.

The same letters represent similar parts in the different views.

B is a chamber within the casting W. It is provided with a cap, Y, screwed on at Z.

C is a flush-pipe opening upward into said chamber, and D is a screw-threaded projection formed on the lower end of casting W, to which a supply-pipe may be attached for supplying water to chamber B through the upward-extending channel D'.

$\alpha$  is a disk of metal located within the chamber B, with its diameter less than the diameter of said chamber, so that a small space is left between the edges of said disk and the sides of the chamber. This disk is attached to a guide-stem, T, which passes upward through a small hole, 2, formed in an inner and downwardly-extending projection, L, of cap Y, up into small-stream pipe N above the chamber B. The guide-stem is provided with a shoulder, H, just above and around its connection with the disk, for the purpose hereinafter described. The lower end of the guide-stem, after it passes through the disk, is screw-threaded for the purpose of receiving an elongated nut, A, which nut holds in place on the under side of the disk a leather valve, S, which closes the entrance of pipe C into chamber B.

The upper small-stream pipe, N, is fastened to cap Y of chamber B by means of screw-flanged ring M, and water is admitted from

chamber B to pipe N through small holes 3, formed in the projection L within the cap Y. The upper end of pipe N is joined at *a* with a chamber, P, into which the said pipe extends and opens, and the chamber P in turn communicates with a chamber, Q, through holes 5 5. The flush-pipe C, extending from chamber B, also opens at its opposite end into said chamber Q, and chamber Q is provided with an opening, K, extending into water-closet basin.

R is a valve-stem extending down from the closet through chamber P, and having rigidly attached at its lower end a thick disk, U, on which is fastened a valve-leather, *f*. This valve-stem rests upon spiral spring V, formed around pipe C, and which in turn rests upon shoulders *b*, formed on a section of pipe, C. This section of pipe C (marked 8) is screwed into chamber Q at the point marked 4, and said section is connected with balance of pipe C by means of a flanged screw-coupling, *d*. *c c c c* are projections on shell of valve to receive screw-holes 7 7 7 7 for fastening valve to closet-basin.

The operation of the valve is as follows: When weight is put on valve-stem R it is pressed down until disk U comes in contact with end of pipe C, as shown in Fig. 2, closing open end of said pipe. Valve-leather *F* is then removed from openings 5 5, and water flows from chamber P to Q and out into basin through opening K in a small stream. Opening K having so much more area than openings 5 5, there is no pressure in chamber Q. Consequently no stuffing-box is necessary around valve-stem R. By water flowing through openings 5 5 a current is made through pipe N, which has a tendency to relieve pressure in chamber B, as water cannot pass by edges of disk  $\alpha$  as rapidly as it passes through openings 5 5. Consequently disk  $\alpha$  is carried up, as seen in Fig. 2, its upper surface pressing against downward projection L, where chamber B has greater diameter and admits of water flowing past said disk. It will now be seen that the end of pipe C, opening upward in chamber B, which was closed by valve-leather S, is opened, and the other end of said pipe, opening into chamber Q, is closed by disk U resting upon it, as shown in Fig. 2. Water will now flow around edge of disk  $\alpha$ , through pipe N, through openings 5 5, and out into pan through opening K. As



soon as valve is relieved or weight is removed from valve-stem R spring V suddenly throws disk U up, as seen in Fig. 1, valve-leather F closing openings 5 5 and opening at the same moment pipe C into chamber Q. A stream the full size of pipe C then flows from chamber B through C to Q, and continues to flow until disk  $\alpha$ , with valve-leather S, is brought down by gravity and the suction force from  $g$  to  $g$ , Fig. 2, when valve-leather S comes in contact with open end of pipe C in chamber B and closes it, thus shutting off all flow of water. The nut A is made to project downward into the stream flowing through pipe C, so that the action of the water will cause a shaking motion of it, which will be transmitted to disk  $\alpha$ , and thus prevent it from catching on any particles of sand or other substances that may adhere to sides of chamber B.

H represents a six-square projection on top of cap Y, on which a wrench can be placed to screw said cap onto and off from chamber B.

When valve-leather S needs renewing, flange ring M can be unscrewed and slipped up out of the way, gasket I can be removed, and pipe N turned a little to get it out of the way. The wrench is then placed on six-sided nut H and cap  $y$  removed from chamber B, with disk  $\alpha$  and valve-leather S. The valve-leather can thus be repaired and replaced without disturbing other parts of the contrivance.

O is a six-square-faced projection on section 8 of pipe C, for placing wrench to screw said pipe into and out of chamber Q.

When it is necessary to repair valve-leather for spring V, flange-ring  $d$  can be unscrewed, gasket  $r$  removed, pipe C turned out of the way, wrench placed on O, and section 8 removed, whereupon spring V, disk U, valve-leather  $f$ , and stem R will drop out down through bottom of chamber Q, all without disturbing any other parts of the apparatus.

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

1. In a water-closet valve, the combination of a chamber, a movable disk located in said chamber, a supply-pipe, a flush-pipe, a small-stream pipe, and a spring stem-valve, whereby a small stream of water for the basin is obtained when the closet-seat is depressed and a large or flush stream is automatically obtained after the pressure on the closet-seat is relieved, substantially as described.

2. In a water-closet valve, the combination of the spring valve-stem and valve, the two

communicating chambers, one of which is provided with an opening into the water-basin, the small-stream pipe, the chamber B, and the valve  $\alpha$ , whereby when pressure is applied to the closet-seat the water flows into the basin in a small stream, substantially as described.

3. The chamber B, in combination with the disk-valve  $\alpha$ , lower flush-pipe, spring valve-stem, valve F, and chambers P and Q, whereby when the pressure on closet-seat is relieved the basin is flushed with a large stream of water, which is gradually shut off by the same means, substantially as described.

4. In a water-closet valve, the combination of the chamber B, the disk located within said chamber, the guide-stem to which said disk is attached, the valve-leather, the lower flush-pipe, and upper small-stream pipe provided with holes 3 3, whereby the flow of water into the flush-pipe and its entrance into the small-stream pipe is controlled, substantially as described.

5. The said automatic movable disk  $\alpha$ , located within a suitable chamber and having a diameter less than said chamber, and provided with a guide-stem, valve-leather, and elongated nut, substantially as described.

6. The combination of the spring valve and stem, chamber P, provided with opening K, and chamber Q, provided with openings into chamber P, the entire area of which openings is less than that of said opening K, whereby the pressure of water within chamber P is so reduced that the use of stuffing-boxes around said valve-stem is dispensed with, substantially as described.

7. The valve-chamber B, provided with screw-cap L, in combination with flange-ring M and gasket I, whereby said chamber can be easily uncapped and disconnected from the upper pipe and its inner parts removed or repaired without disturbing the remaining parts of the valve, substantially as described.

8. The flush-pipe having section 8, with projection for reception of wrench, in combination with chamber surrounding spring valve-stem, whereby the said pipe and chamber can be easily disconnected and the parts contained therein removed or repaired without disturbing any other parts of the apparatus, substantially as described.

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

HENRY A. TOBEY.

Witnesses:

GEORGE E. EMMONS,  
JOHN R. YOUNG.