(No Model.) 2 Sheets—Sheet 1.

R. REACH.

WATER CLOSET.

No. 256,500. Patented Apr. 18, 1882.

Fig. 1.

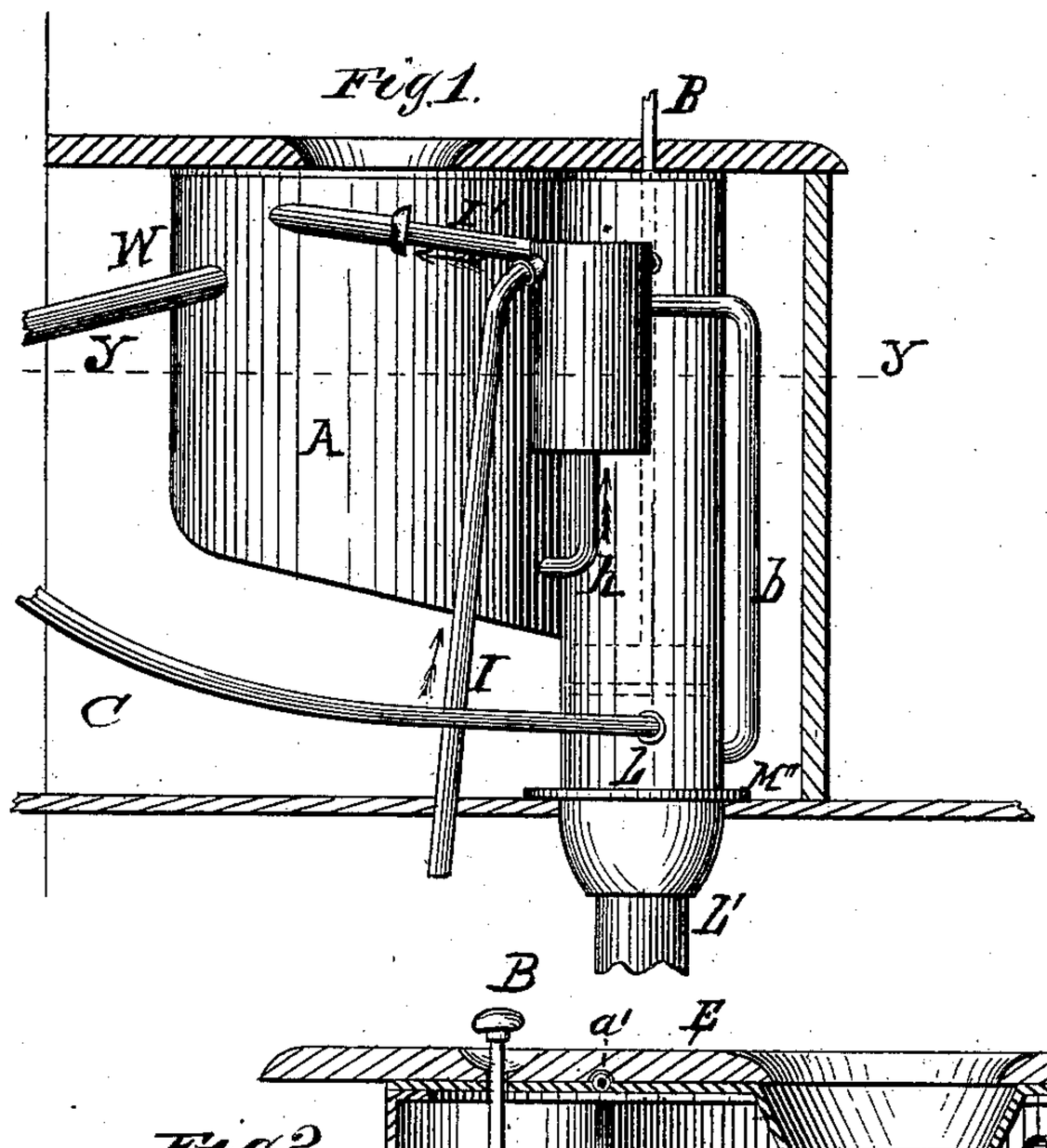

Fig. 2.

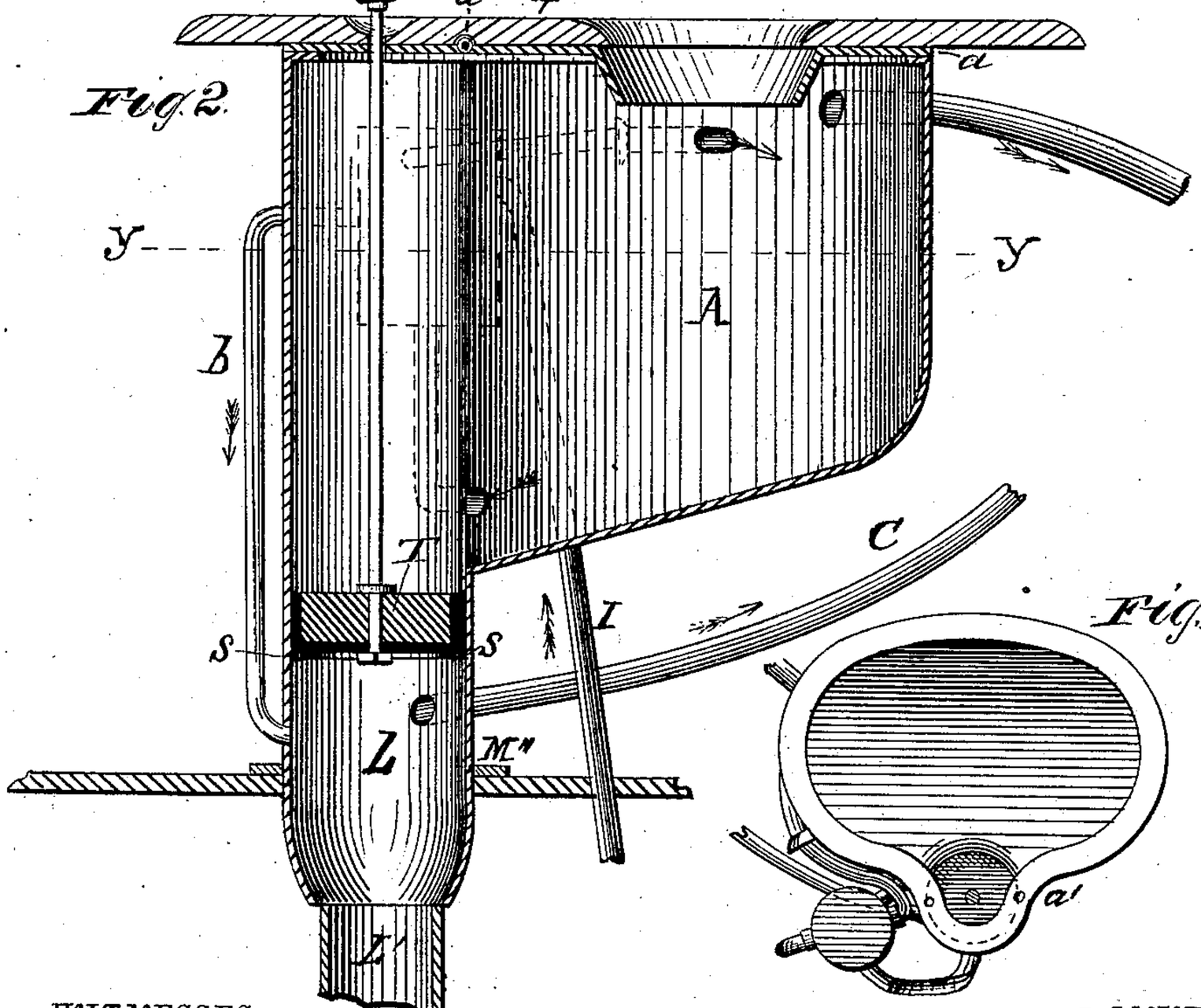

Fig. 4.

WITNESSES

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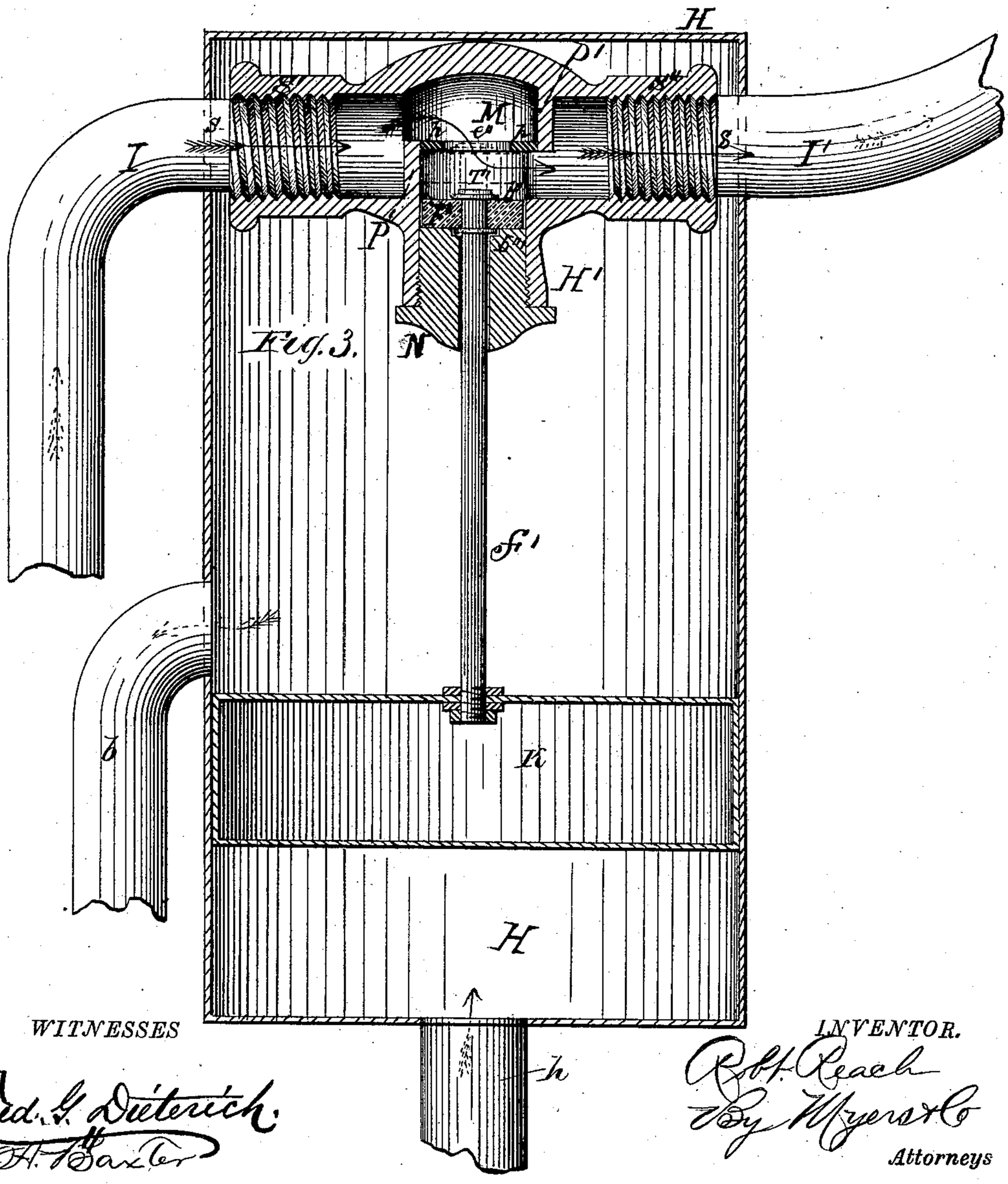

WITNESSES

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UNITED STATES PATENT OFFICE.

ROBERT REACH, OF WASHINGTON, D. C., ASSIGNOR OF ONE-HALF TO CHARLES G. SWEET AND JUDITH SWEET, BOTH OF SAME PLACE.

WATER-CLOSET.

SPECIFICATION forming part of Letters Patent No. 256,500, dated April 18, 1882.

Application filed November 23, 1881. (No model.)

To all whom it may concern:

Be it known that I, ROBERT REACH, a citizen of the United States, residing at Washington, in the county of Washington and District of Columbia, have invented certain new and useful Improvements in Water-Closets, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to improvements in water-closet valves; and it consists in an automatic check-valve so arranged and operating as to constantly furnish the bowl A with an adequate and uniform supply of water; and in the plunger B, safety-pipe *b*, ventilating-pipes C and W, and in the combination and arrangement of the parts as hereinafter more fully specified.

In the drawings, Figure 1 is a side elevation, showing the plunger in dotted lines. Fig. 2 is a vertical central section, the valve-cylinder and supply-pipes being shown in dotted lines. Fig. 3 is an enlarged vertical section, and Fig. 4 is a plan view of the device.

A represents a closet-bowl, having the metallic cover *a*, which is hinged at *a'*, and hinged lid E.

M represents an automatic valve located in cylinder H. It has provided on the periphery of inlet-pipe S' and outlet-pipe S'' the female screws S S, for attaching the same to water-pipes I and I', and the vertical cylinder H', having a female screw therein for attaching thereto the stopper or piston-guide N.

The automatic valve has cast solid therewith the vertical shoulders P and P', and hence fluid in passing through the same from pipe I must pass in the direction of the arrow, as shown. It is also provided with the circular flange or shoulder *p*, forming an orifice, *e''*, which is slightly smaller than the diameter of the piston F, and through this orifice the fluid passes, as shown by the arrow. The metallic stopper and piston-guide N has therein a vertical orifice wherein freely plays the piston-rod *f'*.

The metallic stopper and piston-guide N is screwed in the vertical cylinder H', and thus secured extends a short distance below the circular flange or shoulder *p p*. The piston is secured by the washers *b''* and *b'''* and nut T', and is made of rubber or other suitable material, and a few lines smaller than the diameter of the cylinder. When the fluid flows into cylinder H through pipe *h* the piston F is elevated, and pressing against the flange or shoulder *p* closes the opening *e''*, through which the water flows, and thus cuts off the flow of water from pipe I into the bowl A, the valve being closed when the water attains an elevation indicated by the lines *y y* of Fig. 1. When the water in bowl A has descended to its lowest point from the dotted line *y y*, which marks its greatest elevation, by elevating plunger B, whereupon it empties into cylinder L and out through waste-pipe L', water also flows through pipe I and pipe I' into bowl A, and it also flows from cylinder H through pipe *h*, into bowl A, and from bowl A into cylinder L, and out through the waste-pipe L'.

The objective point of my water-closet valve is to keep a uniform and adequate supply of water in the bowl at all times without possibility of its overflow.

b represents a safety-pipe, which is designed to admit the outflow of water from the cylinder of the float-valve should the valve be accidentally held open, thus giving continuous supply of water to the bowl when the plunger is in its lowered condition. Hence it prevents the bowl being overflowed.

In order better to facilitate the elevation of the piston K, it is constructed as a hollow metallic box or of any light suitable material.

The trap is operated by means of the plunger B, which, when lowered into position, serves to prevent the water from falling into the sewer through waste-pipe L', but when elevated immediately admits its escape through the waste-pipe.

The cylinder L is provided with the flanges M'', which serve to admit the same being nailed to the floor in a vertical position.

The safety-pipe *b*, which prevents the overflow of the water, may have an elbow for connecting thereto a ventilating-pipe leading to the roof-pipe; or a separate ventilating-pipe may be employed, as at C.

W is a ventilating-pipe for the bowl, which admits escape of gas or odors into the same pipe connected with the roof.

When the water in the bowl has been allowed to escape by raising the trap or plunger B the piston of the float-valve descends beneath the ends of the pipes I and I′. The water in the float-valve cylinder then escapes into bowl A through pipe *h* and out through the waste-pipe, and will continue thus to flow until the plunger is dropped or replaced in its usual position, when the water rises in the bowl, and through pipe *h* into the valve-cylinder H, which elevates the cylinder-valve, and thus cuts off the water supply, leaving the water in the bowl and valve-cylinder at a uniform altitude.

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

1. An automatic valve located in a cylinder, having inlet and outlet water-pipes I and I′, shoulders P and P′, and flange *p*, and operated by piston K, in connection with piston F, by opening and closing the opening *e*″, substantially as shown, and for the purpose described.

2. The combination of cylinders H and H′, metallic stopper and piston-guide N, shoulders P and P′, flange *p*, and pistons F and K, substantially as shown, and for the purpose described.

3. The combination of the pipes S′ and S″, flange *p*, shoulders P and P′, cylinders H and H′, metallic stopper and piston-guide N, and pistons F and K, substantially as shown, and for the purpose described.

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

ROBERT REACH.

Witnesses:
WILL R. OMOHUNDRO,
JOHN T. ARMS.