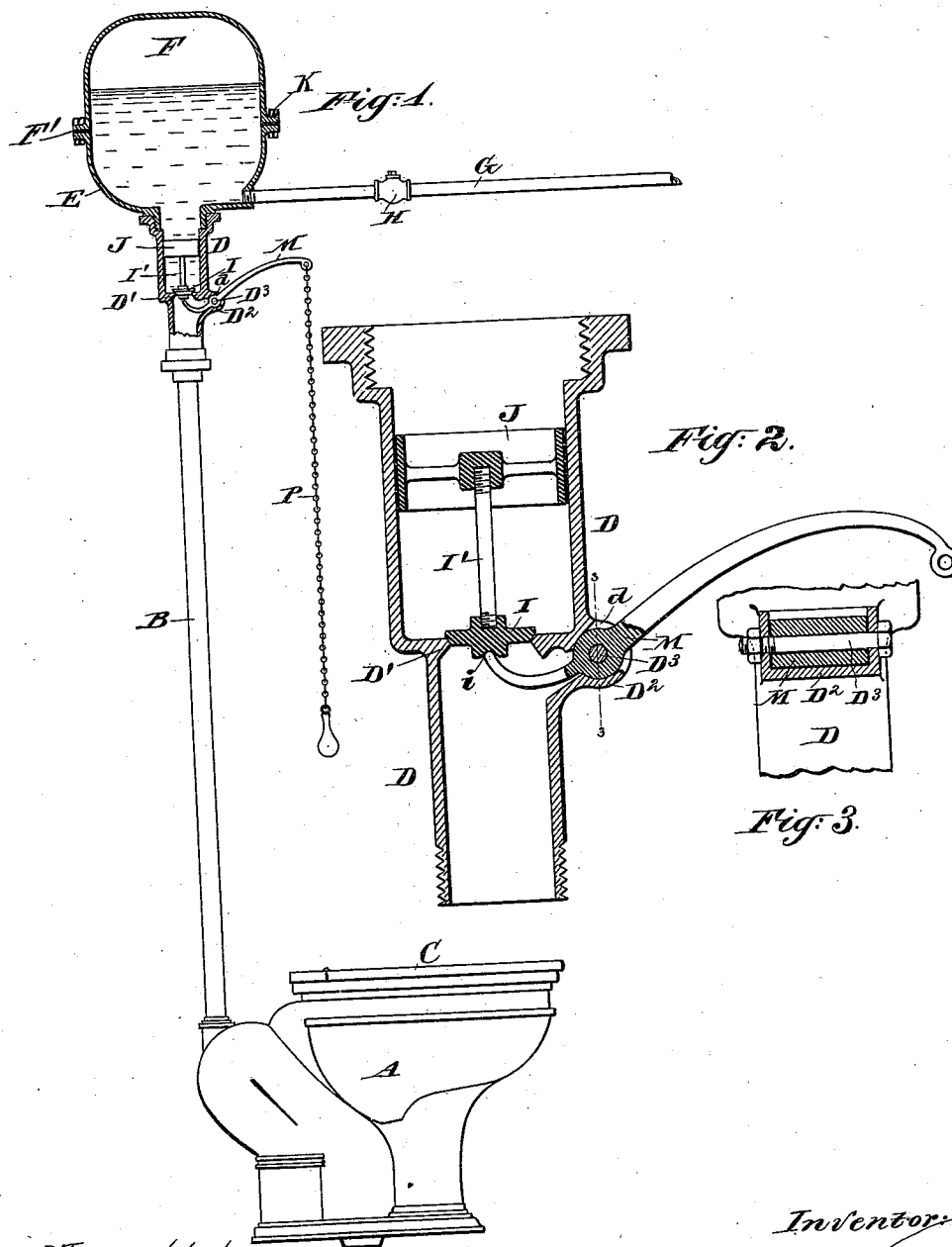


(No Model.)

W. H. ROBINSON.
MEANS FOR FLUSHING WATER CLOSETS.

No. 546,679.

Patented Sept. 24, 1895.



Witnesses:

Charles R. Searle,
M. J. Boyle.

Inventor:

William H. Robinson
by his attorney
Thomas S. S. S. S.

UNITED STATES PATENT OFFICE.

WILLIAM H. ROBINSON, OF NEW YORK, N. Y., ASSIGNOR TO HIMSELF AND
WILLIAM M. TREGLOWN, OF SAME PLACE.

MEANS FOR FLUSHING WATER-CLOSETS.

SPECIFICATION forming part of Letters Patent No. 546,679, dated September 24, 1895.

Application filed December 21, 1893. Renewed February 21, 1895. Serial No. 539,290. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. ROBINSON, a citizen of the United States, residing in the city and county of New York, in the State of New York, have invented a certain new and useful Improvement in Means for Flushing Water-Closets, of which the following is a specification.

My improvement pertains to that class of flushing apparatus in which a quantity of water is held under a pressure of air ready to be delivered when required. I have devised important improvements in the details. I make the tight air and water reservoir, which I will term simply the "tank," in two parts, so formed and proportioned that when the air is subjected to any considerable pressure the water-level rises above the joint and immerses, technically "drowns," it. The valve and an efficient guide therefor can be lifted out and adjusted and reapplied through the tank when the top is removed. I operate the valve by a lever inserted through an orifice connected below the valve, the orifice serving two functions—to allow the operation of the lever, and consequently of the valve, and as a vent to allow the admission of air and permit the ready descent of all the water in the pipe after the valve is closed.

The invention serves by a simple and easy operation for recharging the tank with air at intervals.

The accompanying drawings form a part of this specification and represent what I consider the best means of carrying out the invention.

Figure 1 is a central vertical section, partly in elevation. Fig. 2 is a section of a portion corresponding to Fig. 1 on a larger scale, and Fig. 3 is a vertical section on the line 3 3 in Fig. 2.

Similar letters of reference indicate corresponding parts in all the figures where they appear.

A is the water-closet bowl, which may be of any ordinary or suitable construction, and B the flushing-pipe leading the water thereto in a tangential or other required direction.

C is the seat, and D a casting properly connected to the top of the pipe B and inclosing

the valve and its immediate connections; and E the lower portion, and F the upper portion, of the tank.

G is the supply-pipe and H is a check-valve, which may be of any ordinary or suitable construction adapted to allow the easy admission of the water to the tank and forbids its return in case of a diminution of pressure in the source of supply.

I is the valve, I' the stem thereof, and J an open-work guide adapted to work piston-wise in a truly-bored cylinder formed in the upper portion of the casting D. Near the mid-height of the casting D is the seat D' for the valve. Below this seat is a lateral extension D², with an aperture *d* on its upper and outer end. M is a lever inserted in this aperture and turning on a pivot D³. The inner end of this lever is adapted to lift the valve I by engaging in a properly-formed recess *i*, with liberty to roll sufficiently therein as the valve rises and sinks. To the outer end of this lever M is attached a chain or cord P, on pulling and releasing which, either directly or through any ordinary or suitable connected parts adjacent to the seat, the valve I is raised to allow the water to descend through the pipe B, the water flowing freely downward through the guide J, or is allowed to sink to its seat to which it is directed by the guide J. The air admitted through the aperture *d*, adjacent to the lever M, allows the water to descend freely and strongly and complete the flushing. My experiments indicate that a smaller quantity of water than usual will be effective by reason of the promptness and force with which it is delivered. The upper portion F of the tank is a single casting. I propose to line it with tin to increase its capacity to retain compressed air. The water received through the pipe G may come from any suitable source which will afford a sufficient pressure, as the street main, a pump, or a tank in the top of the building. If the pressure is constant the check-valve H is of no effect. When the pressure is variable, it maintains the pressure in the tank at the highest point which has been previously attained.

The connection of the upper part F to the

lower part E is formed by flanges secured by bolts K, the joint F' being tightened by a rubber or leather gasket, so that it can be readily separated when required.

5 The guide J is a sufficiently-deep ring with radial arms connecting to a hub in the center. When the water is shut off and the top F of the tank is removed, it is easy to reach down by hand or by any suitable hook and engage this
10 guide and take it with the valve directly out and again replace it. After removing the pin D³, the lever M can be readily drawn out and replaced. In all reservoirs of this class the air under pressure is liable to be absorbed by the
15 water. My invention allows this to be effected with great ease. The supply through the pipe G and check-valve H is of small capacity. The discharge-passage through the valve I and pipe B is sufficiently large to allow the water
20 to be discharged rapidly and air to rise upward through the same passage to supply its place. All that is necessary in order to refill the tank with air is to pull the chain or cord P, and thus hold the discharge-valve open a
25 sufficient period. This allows the water to be emptied more or less rapidly down the discharge-pipe B and air to be inducted through the vent *d* and rise and fill the tank. Then the valve I being allowed to close, the operation of compressing the air and the storing of
30 water under pressure ready to be promptly delivered proceeds as before.

35 Modifications may be made without departing from the principle or sacrificing the advantages of the invention. Instead of the detachable joints between the casting D and the

parts above and below, it may be made in one with either or both.

Parts of the invention can be used without the whole.

Other forms of valves may be used, and other modes of operating may be employed.

I claim as my invention—

1. In a water closet the tank E, F, having a removable top, the casting D having a truly
45 bored cylinder larger than the valve, a valve seat D' arranged below and in line therewith, in combination with each other and with the valve I, valve stem I', and open-work piston J corresponding to the cylinder, adapted to
50 guide the valve and to allow the easy removal of the valve from above when required, substantially as herein specified.

2. In a water closet the air-tight tank E, F, casting D, having the aperture *d*, a truly-bored
55 cylinder larger than the valve, a valve-seat D', arranged below, in line therewith, the valve I having stem I' and open-work piston or guiding ring J matching easily within and guided by the cylinder, adapted to allow the
60 removal of the valve and its stem from above, in combination with each other and with the operating lever M playing in the aperture *d*, all arranged for joint operation substantially
65 as herein specified.

In testimony that I claim the invention above set forth I affix my signature in presence of two witnesses.

W. H. ROBINSON.

Witnesses:

CHARLES R. SEARLE,
M. F. BOYLE.