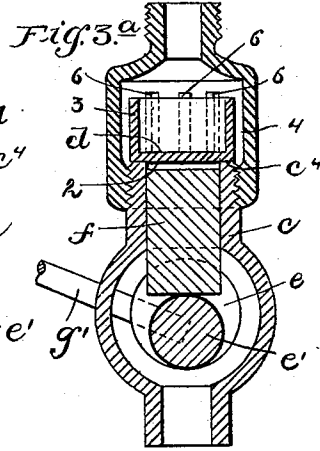
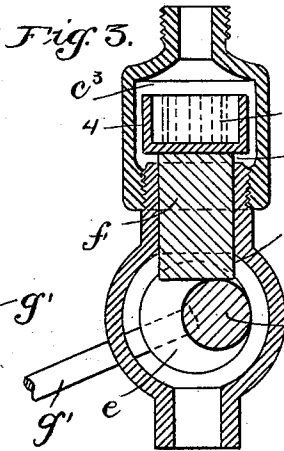
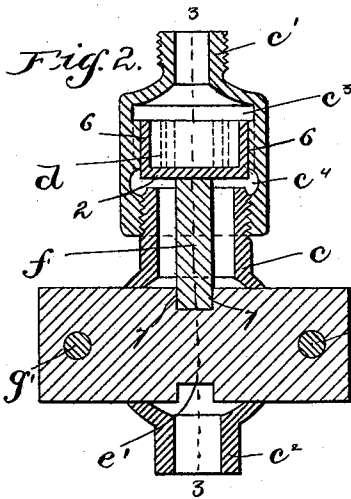
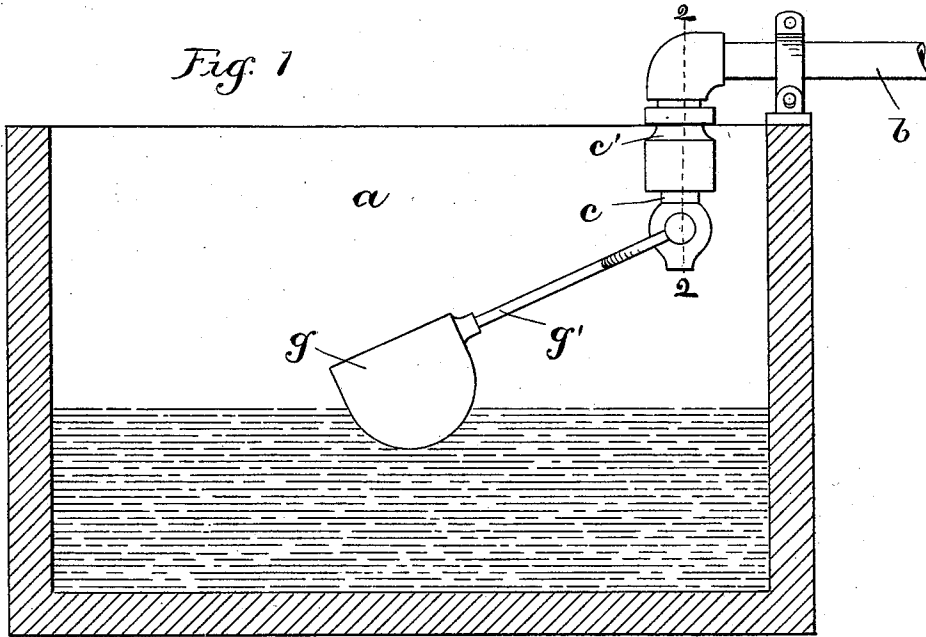


(No Model.)

A. J. & F. P. ROBINSON.  
VALVE OR FAUCET.

No. 592,172.

Patented Oct. 19, 1897.



*Witnesses:*  
*Horace Brown*  
*Rollin Abell*

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*Attys.*

# UNITED STATES PATENT OFFICE.

ANDREW J. ROBINSON AND FRED P. ROBINSON, OF BOSTON, MASSACHUSETTS.

## VALVE OR FAUCET.

SPECIFICATION forming part of Letters Patent No. 592,172, dated October 19, 1897.

Application filed January 23, 1897. Serial No. 620,450. (No model.)

*To all whom it may concern:*

Be it known that we, ANDREW J. ROBINSON and FRED P. ROBINSON, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Valves or Faucets, of which the following is a specification.

This invention relates particularly to float-controlled valves for opening an inlet which supplies a tank or reservoir with water when the accumulation of water in the tank falls below a predetermined level, and permitting the valve to close when the water again rises to said level.

Our improvements hereinafter described may, however, be applied to valves or faucets which are operated by hand, or by means other than a float.

The improvement has for its object to provide a simple, compact, and efficient appliance of this class, adapted to be readily opened against any pressure that may exist in the inlet; and it consists in the improvements which we will now proceed to describe and claim.

Of the accompanying drawings, forming a part of this application, Figure 1 represents a sectional view of a water-tank provided with an appliance embodying our invention. Fig. 2 represents a section on line 2 2, Fig. 1; and Figs. 3 and 3<sup>a</sup> represent sections on line 3 3, Fig. 2, one showing the valve closed and the other showing it open.

The same letters and numerals of reference indicate the same parts in all of the figures.

In the drawings, *a* represents a tank which receives water from a supply-pipe *b*, communicating with a source of supply under pressure, and discharges water through an outlet controlled by a valve operated from the exterior of the tank, all being arranged as usual in water-supply apparatus for water-closets, &c. We do not show the outlet-valve, as valves of this character are well known.

In carrying out our invention we provide a casing *c*, which is connected at its inlet end *c'* with the supply-pipe *b*, its outlet end *c''* being arranged to discharge water into the tank. At the inlet end of the casing is a valve-chamber *c''*, and at the lower end of said chamber is a valve-seat *c''*. A valve *d* is movable in

said chamber toward and from the valve-seat, the acting face 2 of the valve fitting the valve-seat. Between the sides 3 of the valve and the walls of the chamber *c''* is an annular water-space 4, which communicates with the inlet *c'*, and extends to the seat *c''*, thus enabling the water-pressure to act on the sides as well as the top of the valve. The said water-space is formed by making the interior of the chamber considerably larger than the exterior of the valve, the walls of the chamber being provided with ribs 6, which guide the valve in its movements, the incoming water circulating freely between said guides.

*e* represents a shaft which is journaled in bearings in the casing below the valve-seat, and is provided with a cam *e'*, which is arranged to rise and fall when the shaft is rocked in its bearings, the cam being located between two shoulders 7 7, on the shaft. The ends of the shaft project through the casing and are fitted to rotate in orifices or bearings therein. The shaft *e* consists of a single rod adapted to be inserted in the casing from either side and locked therein solely by means of the valve stem or strut. To assemble the parts, it is only necessary to insert the shaft from either end until the front end projects through the casing, and then lower the valve strut or stem until it rests upon said shaft. If the valve stem or strut does not enter the cam-groove, a slight longitudinal movement of the shaft will permit the stem to find said groove and drop into position and thus lock the shaft against displacement without the necessity of employing any other means for holding the shaft in position in the casing. If it is desired to remove the shaft, the casing need be only inverted until the valve and its stem or strut drop away from the shaft, and then the shaft may be withdrawn endwise.

Between the cam and the valve is interposed a strut *f*, which bears at one end on the cam and at its other end on the valve, so that when the cam is raised it will impart upward motion to the valve through the strut *f*, thus opening the valve. The strut is oblong in cross-section, its ends bearing against and being guided by the casing, while its sides are separated from the casing by passages through which water flows from the valve-seat when

the valve is open. The strut is engaged with the shoulders 7 7 on the shaft, as shown in Fig. 2, so that it prevents endwise movement of the shaft, and locks the latter in place in the casing without preventing its rotary movement.

*g* represents a float which is connected by a lever *g'* with the shaft *e*, and is arranged to rest on the accumulation of water in the tank.

10 We prefer to make the float in the form of an open cup, so that its weight may be readily raised to suit the water-pressure by dropping loose weights into the chamber of the float.

15 The same result may be accomplished by making the float adjustable on the lever *g'*, thus varying the leverage. If desired, the lever may be composed of two parallel rods, attached to the shaft *c* at opposite sides of the casing, or a single rod may be employed having a forked end attached to the ends of the shaft. The float and cam are relatively arranged, so that when the water in the tank falls below a given level the cam will raise the valve, as shown in Figs. 2 and 3, the float acting by gravitation in raising the valve.

25 When the water rises in the tank, the cam descends and the valve is closed upon its seat.

The supply-pipe *b* is adjustably secured to the tank by means of a plate *i*, attached to the edge of the tank, and having slotted lugs *i' i'* and two clamping members *j j* formed to embrace the pipe, and having hooks *j' j'* formed to enter the slotted lugs *i'*, and ears *j<sup>2</sup> j<sup>2</sup>*, connected above the supply-pipe by a screw *k*.

The described apparatus may be used in connection with a steam-trap.

We do not limit ourselves to the use of our improved valve in connection with a float-lever, as a handle or lever adapted to be moved by hand, or otherwise, to raise the valve may be substituted for the float-lever, the handle being elevated and held elevated until the desired supply of water is obtained, and then released and allowed to drop, thus permitting the valve to close. The valve may be therefore used as a faucet or for any other purpose to which it may be found applicable.

We claim—

An appliance of the character specified comprising the casing *c* having a liquid-passage and a valve-seat, the shaft *e* extending through the casing and having a cam-groove therein, a valve stem or strut guided by the walls of the casing and having a step portion fitting in said groove, and a valve adapted to be lifted by the said cam through the medium of said stem or strut, the said cam-shaft being adapted to be inserted from either side of the casing, the fit of the said stem in the cam-groove enabling the cam-shaft to be held from longitudinal movement solely by the stem or strut which, in turn, is held or guided by the walls of the casing.

In testimony whereof we have signed our names to this specification, in the presence of two subscribing witnesses, this 22d day of January, A. D. 1897.

ANDREW J. ROBINSON.  
FRED P. ROBINSON.

Witnesses:

C. F. BROWN,  
A. D. HARRISON.