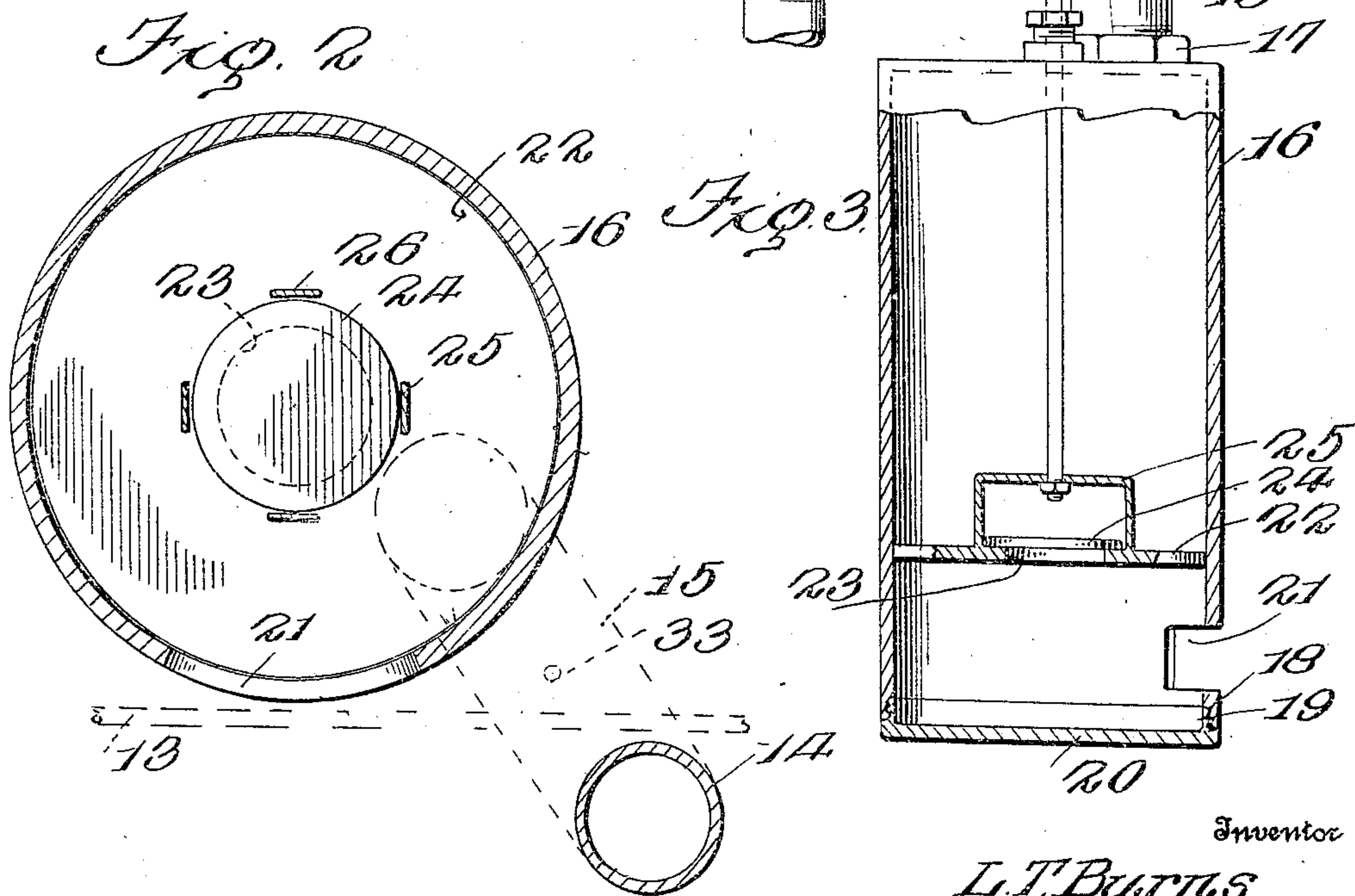
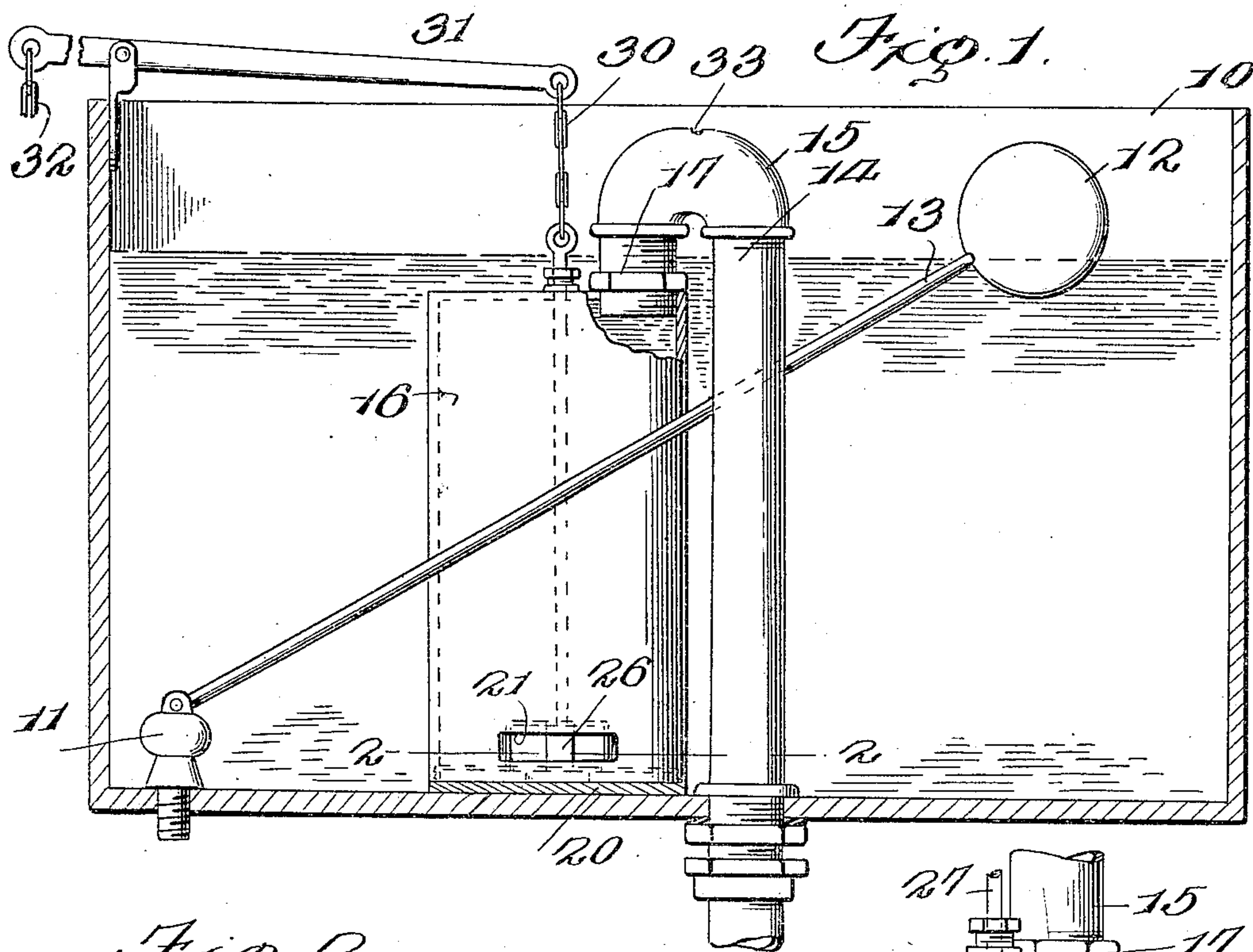


L. T. BURNS.
SIPHON VALVE.
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LUKE T. BURNS, OF WATERBURY, CONNECTICUT.

SIPHON-VALVE.

958,589.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, LUKE T. BURNS, citizen of the United States, residing at Waterbury, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Siphon-Valves, of which the following is a specification.

This invention relates to flushing apparatus and refers particularly to a novel formation of a siphon valve to be employed in connection with the same.

An object of this invention is to construct a valve of this nature in which no packing is employed and which will thereby prevent the possibility of any of the joints of the same leaking, and thereby produce a valve which is durable and one which will give great satisfaction in the use of the same.

A further object of this invention is the provision of a valve mechanism which is positive in operation and which is of such formation that the same can be easily and readily installed with a flushing tank without the employment of outlet parts or of any peculiar formations of the elements which comprise the tank, the valve also being of such formation that the same may be economically produced in view of the fact that it comprises but few parts.

The invention still further contemplates the provision of improved means whereby an overflow is formed which works in conjunction with the valve which at the same time does not hinder the even operation of the same.

For a full understanding of the invention reference is to be had to the following description and accompanying drawings, in which:—

Figure 1 is a longitudinal vertical section through a flushing tank disclosing the apparatus as positioned therein, the same being partially shown in section. Fig. 2 is a transverse section on the line 2—2 of Fig. 1, and Fig. 3 is a vertical transverse section through the cylinder and operative parts connected thereto.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

Referring to the drawings the numeral 10 designates a flushing tank which is provided with the usual inlet valve 11, the same being operated by the float 12 mounted upon the outer extremity of a rod 13 which is ex-

tended from the inlet valve 11 in the usual manner. The improved siphon valve comprises a pipe 14 which is extended downwardly through the flushing tank 10 and which is curved at its upper extremity to form a short arm 15 which is disposed in threaded engagement through the upper extremity of a cylinder 16 which is depended therefrom. The pipe arm 15 is mounted eccentrically of the cylinder and retained in rigid relation thereto by means of a jam-nut 17 which is engaged against the upper face of the cylinder 16 about the pipe 15. The cylinder 16 is provided at its lower extremity with an inwardly shouldered portion 18 which is threaded and which is adapted for engagement with an externally threaded flange 19 carried about the edge of a bottom 20 which is applied to the cylinder 16. The cylinder 16 is extended into the tank 10 adjacent the bottom thereof and is adapted to receive water from the tank 10 through an elongated peripheral slot 21 which is formed in the side of the cylinder 16 adjacent the bottom 20.

The means employed in the cylinder 16 for raising a column of water into the long arm 14 of the pipe comprises a piston or plunger 22 which is snugly engaged within the cylinder 16 and which is centrally apertured as at 23 over which is loosely engaged a metallic disk 24 which normally rests upon the upper face of the plunger 22. The disk 24 is retained in position by means of bails 25 and 26 which extend upwardly from the upper face of the plunger 22 and are crossed at substantially right angles at their intermediate portions above and centrally of the aperture 23 to confine the movement of the disk 24 when the same is raised out of engagement with the plunger 22 by the upward flow of water through the same.

A piston rod 27 is rigidly connected to the intersecting portions of the bails 25 and 26 and extends upwardly centrally of the cylinder 16 where it is engaged through the top of the same and retained in slidable engagement therethrough by means of a boss 28 provided upon the upper face of the top of the cylinder 16. The piston rod 27 is provided with an eye 29 at its upper extremity which is connected by a chain 30 to the inner arm of a lever 31 which is fulcrumed at one end of the tank 10 at the top thereof, the opposite arm of the lever 31 being extended beyond the tank 10 and provided

with a depending chain 32 for the purpose of operating the same.

The operation of the device is as follows:—When the tank is emptied the float 5 12 is dropped and thereby opens the intermediate valve 11 to admit of the inflow of water to the tank, the flow being checked by the closing of the valve 11 by the float 12 when the same reaches the water level 10 in the tank. When it is desired to produce a flushing action the lever 31 is operated to raise the inner arm of the same which causes the piston rod 27 to rise and to carry the plunger 22 therewith to raise the column 15 of water which is disposed in the upper end of the cylinder 16 by reason of the inflowing of the same through the slot 21 and upwardly through the aperture 23, the column of water within the tank 10 causing sufficient pressure to raise the disk 24 upwardly from the face of the plunger 22, the column of water within the upper end of the cylinder 16 being forced outwardly into the siphon pipe through the short arm 15 of 25 the same and being conducted into the long arm 14 causing a suction in the upper end of the cylinder 16 which produces the flowing of the water within the tank 10 through the cylinder 16 by way of the slot 21 and aperture 23 to enter the short arm 15 and to 30 follow the column of water first forced into the siphon pipe. This flowing of the water through the siphon pipe is continued until the column of water in the tank 10 is lowered 35 to dispose the surface of the same in alignment with the slot 21 when air is admitted into the cylinder and the suction of the

water is caused to cease. At this point the intake valve 11 is set in motion and the tank is again refilled. The upper curved end of 40 the siphon pipe 14 is provided with an opening 33 which is of small diameter and which is for the purpose of admitting air to break the siphon when the water is drawn off from the tank 10. The opening 33 is also em- 45 ployed as an overflow to admit of the running off of the water from the tank 10 when the same reaches the height of the aperture 33 by reason of the sticking of the valve mechanism, should such occur. 50

Having thus described the invention what is claimed as new is:—

In a siphon valve, the combination with a tank having a siphon pipe disposed therein, of a cylinder located upon the short arm of 55 said pipe and having an opening formed in the side thereof and spaced upwardly from the bottom of the cylinder, a detachable bottom formed on said cylinder, a piston located in said cylinder, bails carried 60 by said piston and crossed at their central portions, said piston having an opening centrally formed therethrough, a disk loosely mounted upon the upper face of said piston between said bails, and a piston rod up- 65 wardly extended through said cylinder and connected to the intersecting portions of said bails.

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

LUKE T. BURNS. [L. s.]

Witnesses:

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