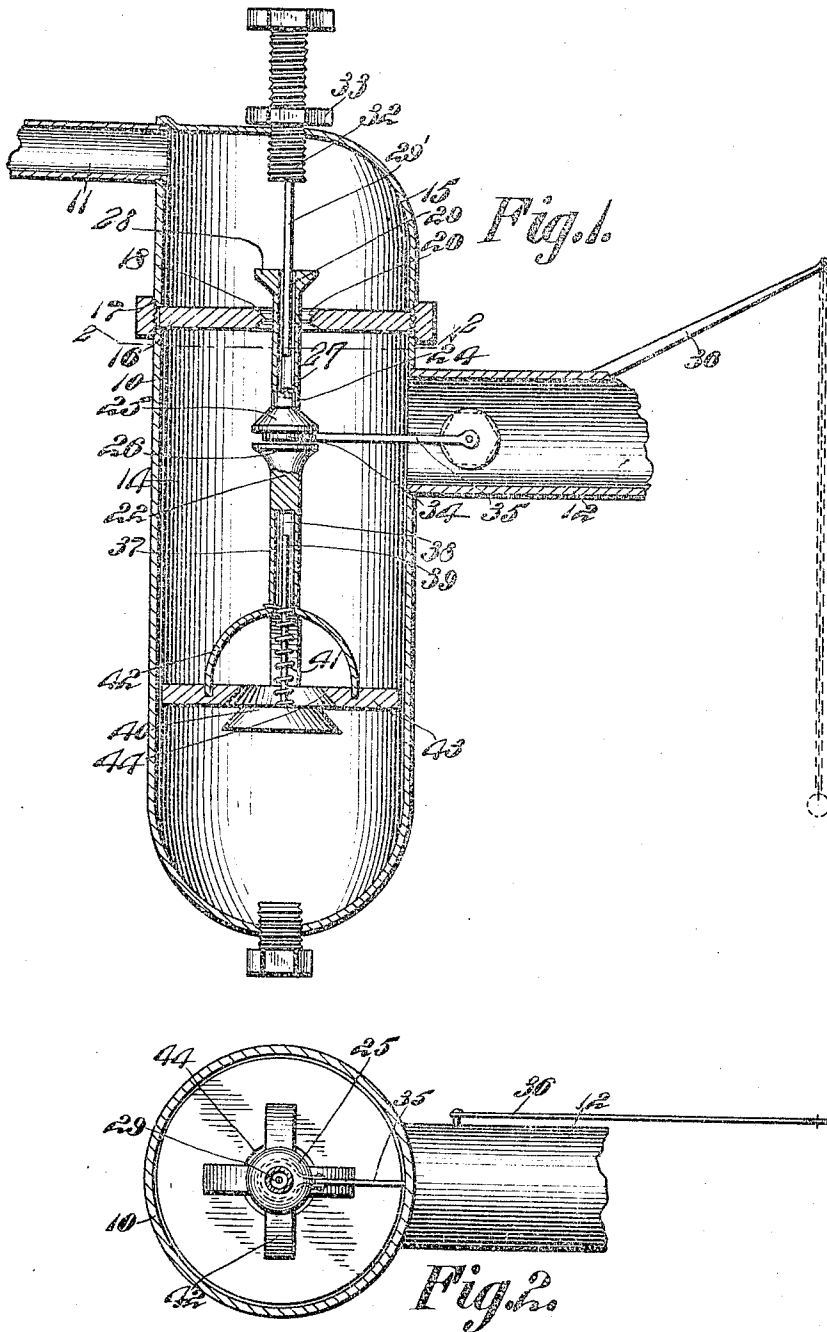


A. H. JOHNSON.
FLUSHING VALVE.

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1,055,538.

Patented Mar. 11, 1913.



Witnesses

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UNITED STATES PATENT OFFICE.

ARCY HARDY JOHNSON, OF COLUMBIA, TENNESSEE.

FLUSHING-VALVE.

1,055,538.

Specification of Letters Patent.

Patented Mar. 11, 1913.

Application filed March 30, 1912. Serial No. 637,293.

To all whom it may concern:

Be it known that I, ARCY H. JOHNSON, a citizen of the United States, residing at Columbia, in the county of Maury and State of Tennessee, have invented a new and useful Flushing-Valve, of which the following is a specification.

This invention relates to an improvement in flushing valves.

The primary object of the present invention is, to provide a flushing valve with means for effecting a gradual closing of the valve after the same has been opened, adjustable means being provided for limiting the initial movement of the valve so as to regulate the amount of water which is permitted to flow through the valve after its initial movement and prior to the closing of the valve.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed may be made within the scope of what is claimed without departing from the spirit of the invention.

In the drawings, Figure 1 is a vertical section. Fig. 2 a section taken on the line 2-2 of Fig. 1.

In the drawings, 10 designates a vertical cylindrical casing which is provided with an upper inlet 11 and an intermediate outlet 12. The casing 10 is formed of the two sections 14 and 15, connected by a coupling 17, a partition or disk 16 being disposed between the adjoining ends of the sections and being arranged between the inlet and outlet.

The partition 16 is formed centrally with an opening 18, forming an upper valve seat 20. A piston rod 22 passes through the opening 18 and is spaced from the edges thereof, said piston rod at an intermediate portion 24 being formed with conical enlargements 25 and 26. The piston rod 22 is provided at its upper end with a valve 28 which is adapted to seat downwardly in the opening 18 to close the passage there-through. This piston rod is limited in its upward movement by a depending needle 29' entering an elongated socket 29 in the upper end of the piston rod, which needle is adapted to contact with the inner end 27 of the socket 29 so as to restrict the upward

movement of the piston. The needle also guides the piston rod and is supported by the screw 32, which passes through the upper end of the casing 10, said screw being held in locked position by the jam nut 33. It will be noted that the degree of upward movement of the valve may be accurately regulated by the set screw 32. The piston rod 22 is embraced between the enlargements 25 and 26 by the yoke 34 which is pivoted to an actuating arm 35, said arm being fulcrumed in the outlet and being operated by the lever 36 to which a suitable chain is attached, the piston rod being raised by depressing the lever 36 through the medium of said chain.

The lower terminal 37 of the piston rod 22 is provided with an elongated socket 38 which receives the upstanding stem 39 of the valve 40, a contractile spring 41 being coiled around said stem and secured at its ends to the lower end of the piston rod and a valve 40, the normal tendency of said spring being to seat the valve upwardly in the central opening 44 of a piston 43. An arched spider 42 is connected to the lower terminal of the piston rod, the arms of the said spider being secured to the piston 43 which is of a diameter slightly less than the internal diameter of the casing, water being allowed to pass between said piston and the wall of the casing. The piston 43 is adapted to reciprocate loosely in the lower end of the casing. The piston rod and attached parts are adapted to normally gravitate so that the valve 28 seats within the opening 18 and serves to close the passage from the inlet to the outlet, and when the piston rod is raised, the valve 28 is raised from the seat 20 so as to open the passage between the inlet and outlet to establish the flow of water into the hopper.

It will be noted that as the lever 36 is depressed by the chain which is attached thereto, the piston rod 22 will be raised until the bottom 27 of the socket 29 contacts with the lower terminal of the needle 29', allowing the water to pass through the opening 18, the valve 28 having been raised from the valve seat 20 and the water passing around the piston rod and through the outlet 12 to the hopper. As the piston is raised, the valve 40 will be forced open by the pressure of the water above the piston, and the lower portion of the casing 10, that is, the portion beneath the piston 43 will be filled with

water. When the pull on the chain is released, the piston will begin its return movement, being cushioned in this return movement by the water between the same and the base of the casing, the piston gradually descending as the water passes upward between the periphery of the piston 43 and the walls of the casing, thus assuring a gradual sinking of the valve 28 onto the seat 20 and a proper flushing of the hopper. After the piston rod has gravitated, the valve 28 will be seated in the opening 18 so as to cut off the flow of water. It will be observed that by adjusting the needle 29 the piston rod is limited in its upward movement so as to adjust the amount of movement of the piston. This is of advantage for the reason that the amount of water which is permitted to flow through the valve may be regulated as desired. Thus by adjusting the needle 29' upward, the piston rod will be given a greater amount of movement, which will require a greater length of time for the piston rod to gravitate after its initial upward movement, thereby permitting a greater quantity of water to flow through the valve prior to the seating of the valve 28 in the opening 18. By adjusting the needle 29' downward, the amount of movement on the piston rod is diminished and the amount of water permitted to flow through the valve is accordingly lessened.

The many advantages of a construction of this character will be clearly apparent, as it will be noted that the same provides

a valve which may be easily and economically manufactured, the structure being such as to assure the proper flushing of the hopper, and the amount of water supplied to the hopper being capable of accurate regulation. It will also be noted that the valve may be readily taken apart and cleaned, and that the various parts may be readily assembled.

What is claimed is:

A flushing valve comprising a vertical casing having an upper inlet and an intermediate outlet, a partition in the casing between the inlet and outlet having an opening therein, a piston rod passing through the said opening, the piston rod having a valve at its upper end adapted to seat in the said opening to close same, and having a piston at its lower end adapted to reciprocate loosely in the lower end of the casing, the piston having an opening, a spring pressed valve adapted to seat upwardly in the opening in the piston, the piston rod having a pair of enlargements at an intermediate point, a yoke embracing the piston rod between the enlargements, an actuating arm pivoted to the yoke and fulcrumed in the outlet, and adjustable means for limiting the upward movement of the piston rod.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

ARCY HARDY JOHNSON.

Witnesses:

N. B. COCHRAN,
H. C. HENDLEY.