

No. 893,325.

PATENTED JULY 14, 1908.

D. W. JEWELL.
VALVE.

APPLICATION FILED OCT. 18, 1907.

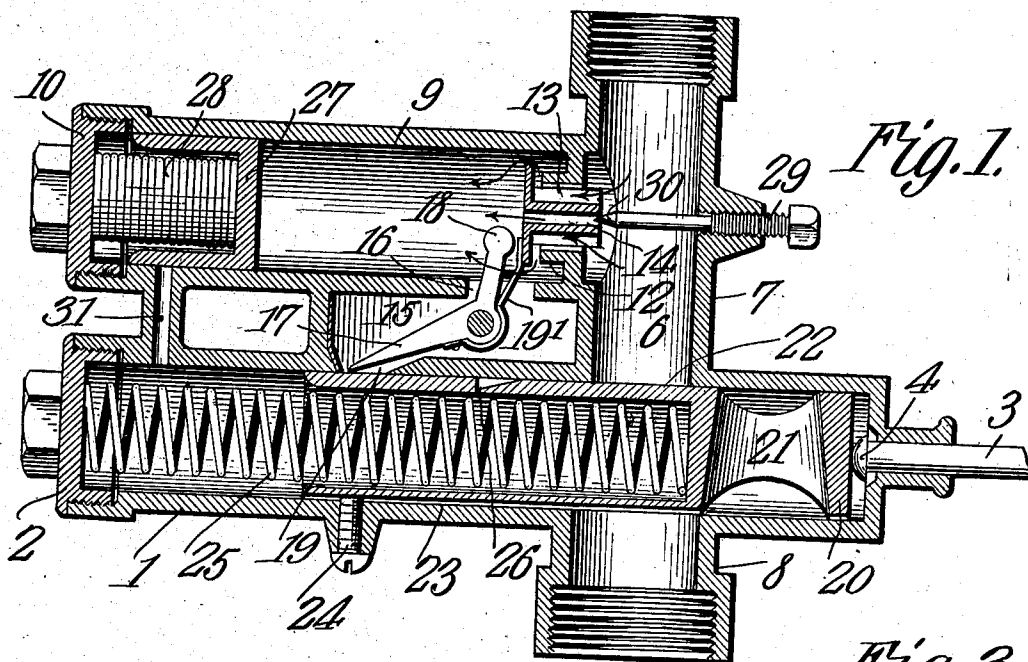


Fig. 1.

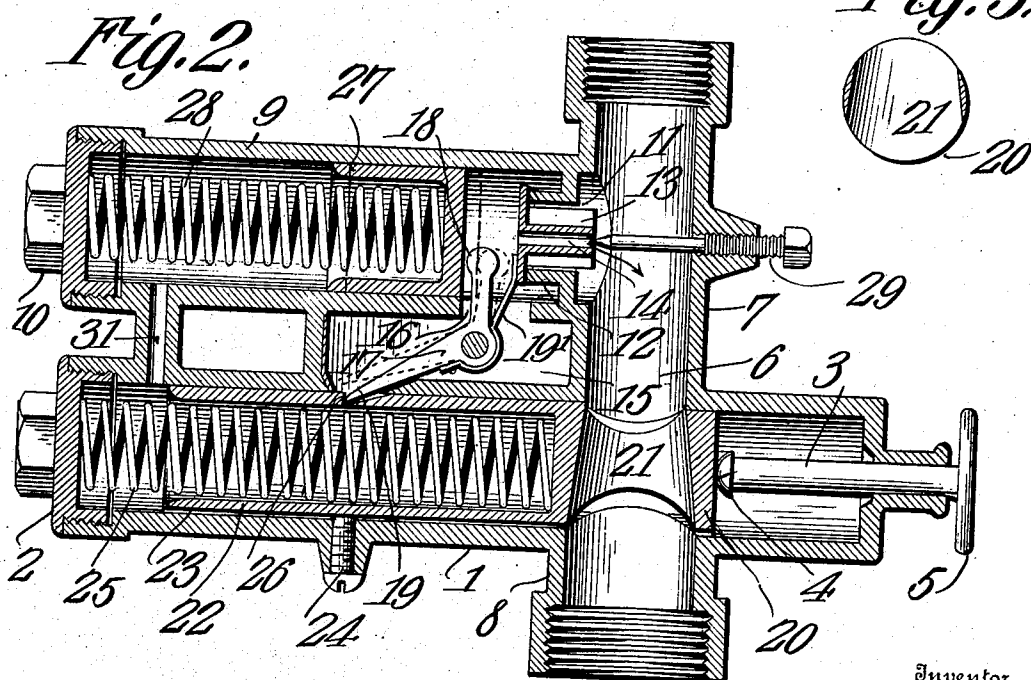
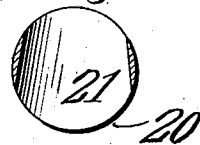


Fig. 2.

Fig. 3.



Witnesses
E. H. Johnson
Robert J. Lawson

Inventor
Dell W. Jewell.
By *C. Snow & Co.*
Attorneys

UNITED STATES PATENT OFFICE.

DELL W. JEWELL, OF KALAMAZOO, MICHIGAN.

VALVE.

No. 893,325.

Specification of Letters Patent.

Patented July 14, 1908.

Application filed October 18, 1907. Serial No. 398,095.

To all whom it may concern:

Be it known that I, DELL W. JEWELL, a citizen of the United States, residing at Kalamazoo, in the county of Kalamazoo and State of Michigan, have invented a new and useful Valve, of which the following is a specification.

This invention relates to flushing valves for use in connection with closets and its object is to provide a simple device of this character having means whereby the valve is automatically locked when opened, there being means for unlocking the valve and returning it to its closed position after a predetermined period.

Another object is to provide simple means for regulating the length of the flushing periods.

Another object is to provide means whereby the valve can be quickly reset automatically as soon as closed.

A still further object is to provide novel means whereby leakage within the valve may be conducted to the outlet of the valve so that all of the parts will be maintained in operative condition.

With these and other objects in view the invention consists of certain novel features of construction and combinations of parts which will be hereinafter more fully described and pointed out in the claims.

In the accompanying drawings is shown the preferred form of the invention.

In said drawings. Figure 1 is a section through a valve embodying the present improvements and showing the positions of the parts while being set. Fig. 2 is a similar view and showing the positions of the parts during the flushing operation. Fig. 3 is a transverse section through the main valve.

Referring to the figures by characters of reference, 1 designates a substantially cylindrical housing having a screw cap 2 which constitutes a closure for one end while the other end of the housing is provided with a slidable stem 3 having a head 4 at its inner end and a knob or other suitable enlargement 5 at its outer end. This housing is intersected between its ends by a passage 6 extending through a tubular extension 7 designed to be connected to a supply pipe, not shown, and said passage also extends through a tubular member 8 projecting from the housing 1 and alining with the extension 7 although preferably of slightly greater diameter. This extension 8 is designed to

be connected to the bowl in the usual or any preferred manner.

Opening into the extension 7 is a preferably cylindrical housing 9, the outer end of which is preferably closed by means of a screw cap 10. Communication between the passage 6 and the interior of the housing 9 is established through a port 11 having a valve seat 12 surrounding it. A check valve 13 is fitted within the port 11 and normally rests upon the seat 12 and this check valve has a small passage 14 extending through it. A compartment 15 is formed between the housings 1 and 9 and opens into the housing 9 through a passage 16. A dog 17 is fulcrumed within compartment 15 and has an arm 18 extending through the passage 16 and into the housing 9. An opening 19 is formed in the bottom of compartment 15 and a spring 19' is connected to the dog and bears against valve 13 so as to hold the valve normally upon its seat and the end of the dog normally within the opening 19.

A valve 20 is slidably mounted within the housing 1 and has a passage 21 there-through designed to register with the passage 6. A tubular extension 22 is formed with the valve and is slidably mounted within the housing 1 and this extension has one or more longitudinal grooves 23 into one of which extends a screw 24 or other holding device for the purpose of preventing the rotation of the valve and its extension. A spring 25 is arranged within the housing 1 and projects into valve extension 22. This spring bears against the screw cap 2 and holds the valve 20 normally against one end of the housing so that the passage 6 is closed by the extension 22 as shown in Fig. 1. A notch or recess 26 is formed in the extension 22 and is designed to receive the dog 17 when the valve is moved into open position. The valve is thus locked as shown in Fig. 2 until released in the manner hereinafter described. A release device in the form of a follower 27 is slidably mounted in housing 9 and a spring 28 which bears against the screw cap 10 holds the follower normally against arm 18 as shown by dotted lines in Fig. 2, thus drawing the dog 17 out of engagement with extension 22 and releasing valve 20.

A controlling device in the form of a threaded stem 29 engages the extension 7 and has a pointed end 30 in the form of a needle valve which is designed to project into and partly close the passage 14 in valve

13. A bypass 31 connects the housings 1 and 9 close to the screw caps so that any water which may leak past the follower 27 will be free to flow downward into housing 1 and thence through the groove or grooves 23 to the outlet extension 8.

When valve 20 is in closed position with extension 22 extending across passage 6 the water under pressure will force valve 13 open against the stress of spring 19'. The water will therefore enter the housing 9 and force the follower 27 toward the screw cap 10 thereby placing the spring 28 under stress. As soon as the pressure becomes equalized at both sides of the check valve the same will be reset by spring 19'.

To operate the device for flushing purposes stem 3 is pushed inwardly against valve 20 and said valve is therefore shifted longitudinally against the stress of spring 25 until the passage 21 registers with passages 6 and notch 26 assumes a position opposite the opening 19. Spring 19' will then promptly throw the dog downward into the notch and the valve will thus be locked open. The water will then be free to flow directly from the source of supply through passages 6 and 21 and the spring 28 will force follower 27 longitudinally so as to slowly discharge the liquid contents of housing 9 through the passage 14, the speed of discharge being regulated by the stem 29. Just prior to reaching the limit of its forward movement the follower strikes arm 18 and swings dog 17 out of notch 19 whereupon spring 25 promptly shifts the valve 20 longitudinally so as to close the passage 6. The water will then be again directed into housing 9 as heretofore described and the foregoing operation will be repeated. It will be obvious that by adjusting the stem 29 toward or from the check valve the time required for the water within housing 9 to escape therefrom can be regulated and the length of the flushing operation correspondingly controlled.

It will be seen that the device is very simple, durable and efficient and that access can be conveniently had to all parts thereof.

What is claimed is:

1. In a flushing valve the combination with a spring pressed supply valve and means for actuating the same; of means for automatically locking the valve in open position, a release device disposed to be actuated in one direction by water under pressure when the valve is closed, and means for actuating the release device when the valve is open to unlock the valve.

2. In a flushing valve the combination with a spring pressed supply valve and means for actuating the same; of means for automatically locking the valve in open position, a release device disposed to be actuated in one direction by water under pres-

sure when the valve is closed, means for actuating the release device when the valve is open to unlock the valve, and means for controlling the movement of the release device while the valve is open.

3. In a device of the character described the combination with a spring pressed normally closed valve, and means for opening the valve; of a spring pressed follower, means for admitting water under pressure against the follower to actuate the same when the valve is closed, and means for automatically locking the valve in open position, said follower being disposed when the valve is open to automatically actuate said means to unlock the valve.

4. In a device of the character described the combination with a spring pressed normally closed valve, and means for opening the valve; of a spring pressed follower, means for admitting water under pressure against the follower to actuate the same when the valve is closed, means for automatically locking the valve in open position, said follower being disposed when the valve is open to automatically actuate said means to unlock the valve, and adjustable means for controlling the movement of the follower when the valve is open.

5. In a device of the character described the combination with a spring pressed normally closed main valve, and means for opening the valve; of means for automatically locking the valve in open position, a spring pressed follower, a housing for the follower, an inlet within the housing for admitting fluid under pressure against the follower, a valve within said inlet, said valve having a passage therethrough for the escape of fluid from the housing, and means for controlling the escape of fluid to regulate the movement of the follower in one direction, said follower being disposed to actuate the locking means to release the main valve.

6. The combination with a normally closed spring pressed main valve and means for opening the valve; of a housing, a spring pressed follower within the housing, said housing having an inlet for admitting fluid under pressure against the follower, a check valve within the inlet and having a passage therethrough, means for controlling the escape of fluid from the housing through the passage, and means projecting into the path of the follower for automatically locking the main valve in open position.

7. The combination with a normally closed spring pressed main valve and means for opening the valve; of a housing, a spring pressed follower within the housing, said housing having an inlet for admitting fluid under pressure against the follower, a check valve within the inlet and having a passage therethrough, means for controlling the escape of fluid from the housing through the

passage, a locking device projecting into the path of the follower, and a spring connected to said device and bearing upon the check valve for holding said valve normally upon its seat and for actuating the locking device to automatically engage the main valve to hold it open.

8. In a device of the character described the combination with communicating housings, a spring pressed follower within one of the housings, and a normally closed spring pressed main valve within the other housing, said valve having a longitudinal groove constituting an outlet; of valved means for admitting fluid under pressure into one of the housings and against the follower, and locking means projecting into the path of and disposed to be released by the follower, said means being disposed to automatically engage the main valve and lock it open.

9. The combination with a normally closed spring pressed main valve, means for opening the valve, and means for automatically locking the valve when open; of a spring actuated follower for actuating the locking means to release the valve, valved means for admitting fluid under pressure against the follower to shift the follower against the tension of its spring, and means for regulating the discharge of fluid from the path of the follower when the main valve is open.

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

DELL W. JEWELL.

Witnesses:

O. E. JOHNSON,
IRA SNYDER.