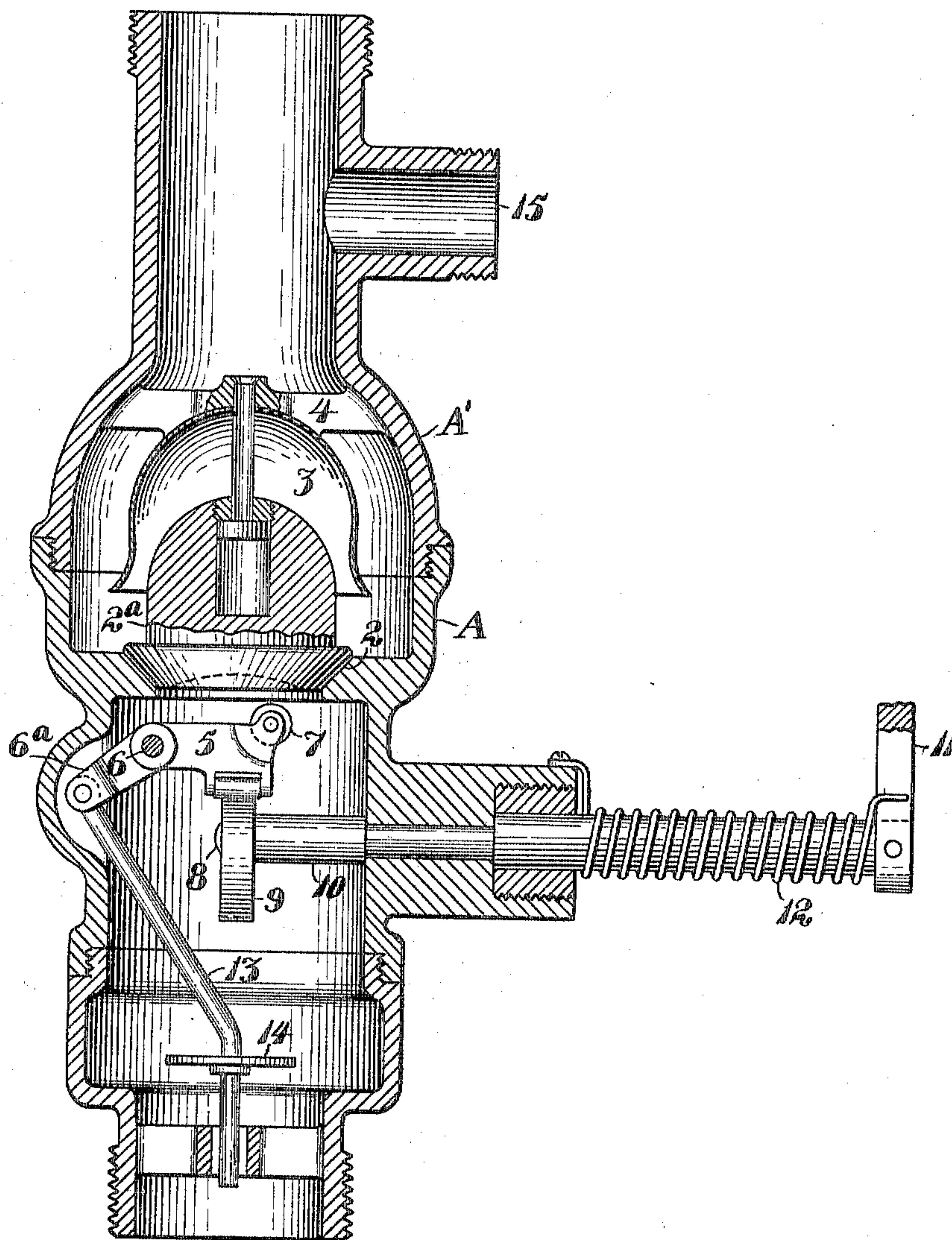


No. 812,030.

PATENTED FEB. 6, 1906.

J. E. ERICSON.
FLUSHING TANK VALVE.
APPLICATION FILED JUNE 26, 1905.



Witnesses:-

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UNITED STATES PATENT OFFICE.

JOB E. ERICSON, OF SAN FRANCISCO, CALIFORNIA.

FLUSHING-TANK VALVE.

No. 812,030.

Specification of Letters Patent.

Patented Feb. 6, 1906.

Application filed June 26, 1905. Serial No. 266,963.

To all whom it may concern:

Be it known that I, JOB E. ERICSON, a citizen of the United States, residing in the city and county of San Francisco and State of California, have invented new and useful Improvements in Flushing-Tank Valves, of which the following is a specification.

My invention relates to an improved flushing-tank valve.

It consists in the combination of mechanism whereby a flushing-valve when opened will be retained in its open position until the contents of the tank are discharged and will then automatically close against a continuously-flowing stream by which the tank is again filled.

It also comprises details of construction which will be more fully explained by reference to the accompanying drawing, in which the figure is a central sectional view of my flushing-tank valve.

It is the object of my invention to provide a flushing-tank valve and coöperative devices by which the normally closed discharge-valve from the tank is opened to allow the water from the tank to flow, means actuated by the flow of the water whereby the valve is held open during the heavy rush of water until the tank is discharged, said means ceasing to act under the impulse of the smaller flow of water by which the tank is to be again filled and which smaller flow passes through the tank until such time as the valve is released to again close.

As shown in the drawing, A is an outer casing, which may be made of as many separable parts as may be found desirable or convenient for the purpose of construction and which parts when assembled complete the case. The central portion A of the case has within it a valve-seat 2 of any suitable description.

3 is a vertically-guided puppet-valve which normally closes by gravitation upon the valve-seat. This valve is here shown located in the upper section A' of the apparatus, and through which section the water from the tank is discharged. Within this upper portion A' and above the valve 2 is a bell-mouthed hood 3, suitably supported within the casing, as here shown, by a transverse bar at 4, which bar also supports the guide for the valve 2^a. The lower periphery of the hood 3 is slightly larger in diameter than the largest diameter of the valve, and when the valve is open (as will be hereinafter described) it lies within

and is protected by this bell-mouth, so that the rush of water passing down from the tank will be diverted by this bell-mouth and pass through the annular channel between the bell and the inner diameter of the case. Thence the water passes down through the valve-seat opening and through the lower part of the casing to the point where it is to be used. The valve 2^a will be normally closed upon the seat 2, and thus ordinarily prevent any passage of water.

When it is desired to open the valve, it is effected by a mechanical device as follows: 5 is an arm fulcrumed and turnable upon a pivot-pin 6, located below the valve and on one side of the opening, so that the arm projects just beneath the valve. The arm may have an antifrictional roller, as at 7, and this roller is adapted to contact and move within the concavity of the bottom of the valve. 8 is a shaft having upon it an eccentric or equivalent irregular device at 9, and when this shaft is turned the eccentric will contact with the lever 6 and press it outward, and the lever acting upon the valve will open the valve. The shaft 8, as here shown, extends outwardly through a sleeve 10 and has upon its outer end a lever-arm 11, to which may be attached a pulling cord, wire, or rod, so that the shaft may be rotated, and with it the eccentric or cam 9, to operate the lever and valve, as previously described. When the pull-cord has been released, the spring 12 will immediately return the lever-shaft and cam to their normal positions, and under ordinary conditions the lever-arm 6 would immediately drop and allow the valve 2^a to close before the flushing was completed. In order to prevent this and to hold the valve open during the heavy rush of water, the lever-arm 6 is continued behind the fulcrum, as shown at 6^a, and to this extension is connected a rod 13, curved so as to extend down into the passage in the casing through which the flushing-water passes. Upon this rod is fixed a disk 14, and this disk is of such size that the rush of water during the act of flushing will bring pressure enough to bear upon the disk to pull it down and maintain the end of the lever 6 in contact with the valve, thus keeping the valve open, and as the valve is protected from the rush of water by the hood 3 within which it lies when open it will be seen that the water can have no effective pressure upon the valve, which is thus maintained in its open position during the rush of water. As soon as the

tank is emptied a small stream of water will begin to flow into the tank through the passage 15, which is here shown opening into the side of the upper portion A' of the casing.

5 It will be seen that while the valve is open this stream of water will flow down through the same passage that has just been filled by the heavier stream from the tank; but the momentum and quantity of this small stream
10 is insufficient to counterbalance the weight of the valve resting upon the lever end of the lever 6. Therefore this weight will overcome the reduced pressure upon the disk 14 and will close the valve, raising the disk at the
15 same time to its normal position. The parts will remain in this condition until, the tank being filled, the valve is again opened and another heavy flushing stream is allowed to pass through.

20 Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination of a casing, a flushing-tank valve, a seat upon which the valve is
25 closable, a hood located above the valve and within which the valve lies when opened, said casing having a passage which surrounds the hood and through which the flushing-water passes without pressure upon the valve,
30 and means for opening the valve said means including a pivoted lever below the valve and having one portion to contact therewith to lift the valve, and a member suspended from the opposite portion of the lever in the path
35 of the rush of water whereby said member is actuated by the water-flow to hold the valve open until the water is discharged.

2. In a flushing apparatus, a pipe and casing through which the water is discharged, a
40 hood located in the upper part of the casing and having an annular passage for the water around it, a valve-seat located below the hood, a valve reciprocable between the seat

and the hood, a lever-arm below the valve having one end to engage said valve whereby 45 the valve is raised from its seat into the hood, and means carried by the other end of the lever-arm and actuated by the water-flow by which the valve is held until the water is discharged.

3. In a device for controlling the flow of 50 water, a pipe and casing through which the water flows, a valve-seat located within the casing, a vertically-movable valve closable upon the seat, a hood fixed above the valve 55 when opened, said hood having an annular water-passage around it, a fulcrumed lever, one end of which contacts with the valve to open it, means carried by the other end of the lever and within the path of the flowing wa- 60 ter whereby the valve is retained in an open position during said flow.

4. In a flushing and like device, a passage and casing through which the water is delivered, a valve-seat located within the casing, a 65 rising and falling valve closable upon the seat, means for opening said valve, said means comprising a fulcrumed lever, one end of which contacts with the bottom of the valve, a shaft having a cam or eccentric contacting 70 with said lever, said shaft being rotatable so that the cam will act through the lever to open the valve, a rod suspended from the opposite end of the lever carrying a disk in the path of the flowing water so that the pressure 75 upon the disk will hold the valve open, and a hood located above the valve, within which the valve is protected during the flowing of the water.

In testimony whereof I have hereunto set 80 my hand in presence of two subscribing witnesses.

JOB E. ERICSON.

Witnesses:

JOHN WALTER DRISCOLL,
I. C. DRATHMAN.