

No. 847,183.

PATENTED MAR. 12, 1907.

A. JOHNSON.  
URINAL.

APPLICATION FILED FEB. 3, 1906.

2 SHEETS—SHEET 1.

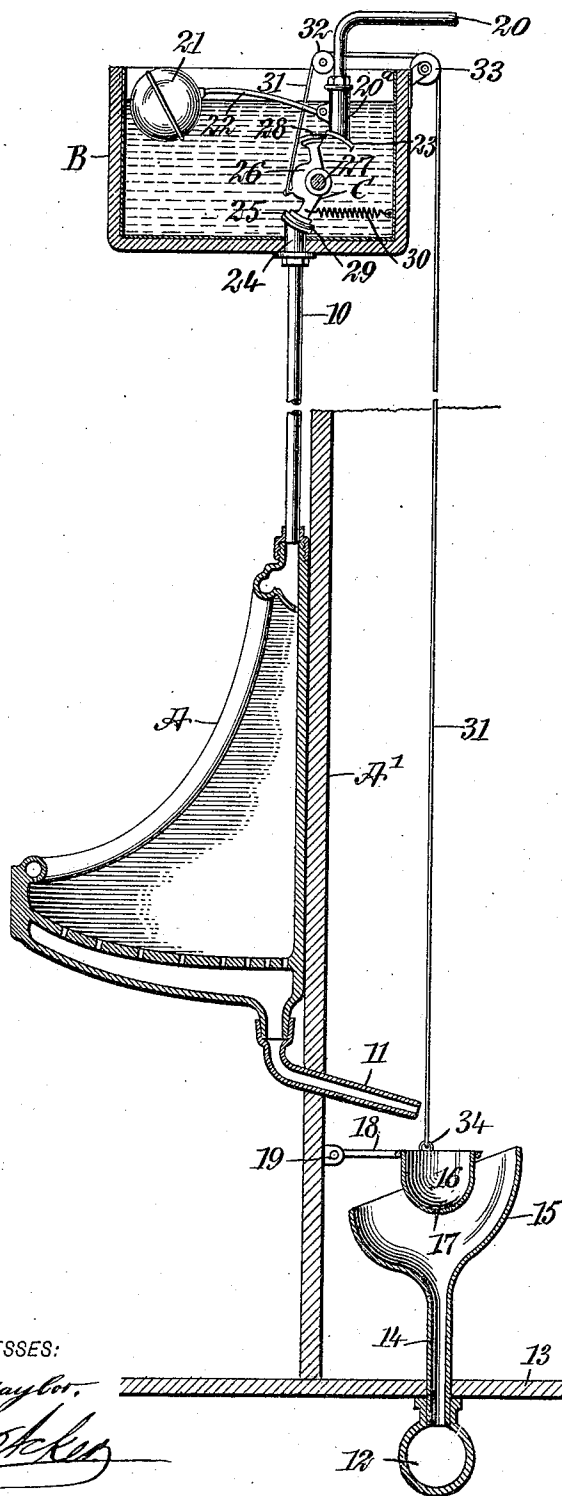


Fig. 1.

WITNESSES:

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ATTORNEYS

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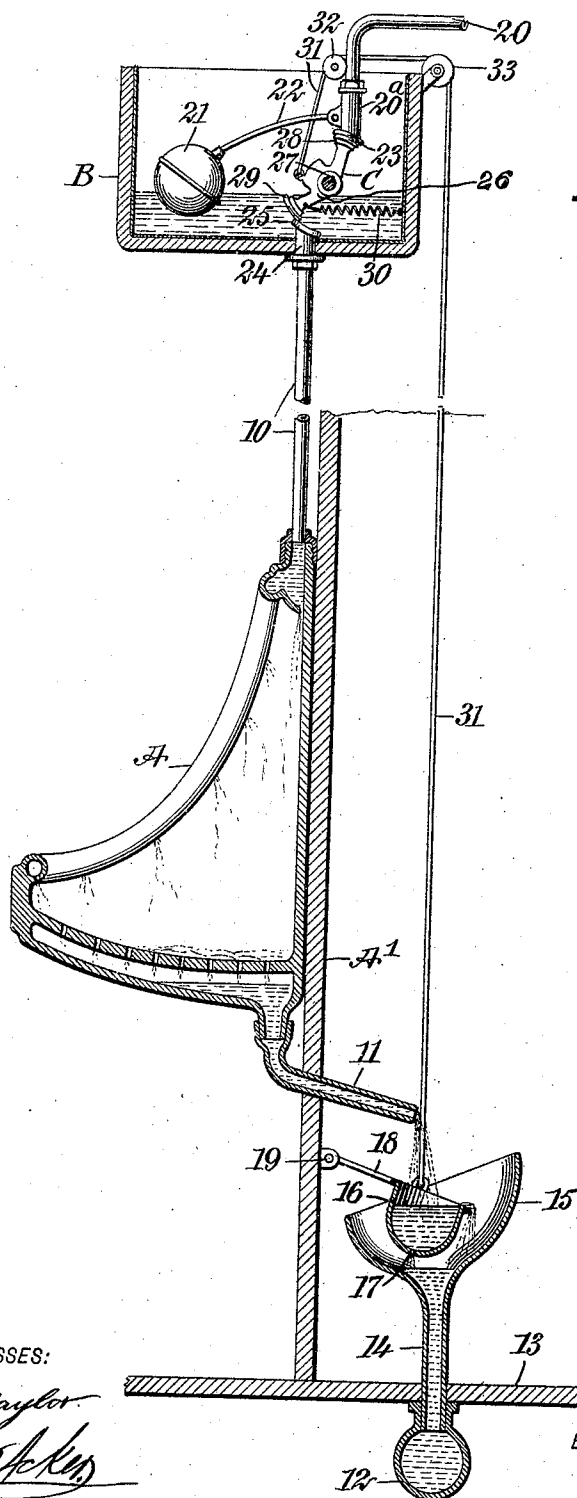


Fig. 2.

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# UNITED STATES PATENT OFFICE.

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## URINAL.

No. 847,183.

Specification of Letters Patent.

Patented March 12, 1907.

Application filed February 3, 1906. Serial No. 299,335.

*To all whom it may concern:*

Be it known that I, ALLEN JOHNSON, a citizen of the United States, and a resident of Lincoln, in the county of Lancaster and State of Nebraska, have invented a new and useful Improvement in Urinals, of which the following is a full, clear, and exact description.

The purpose of the invention is to provide an automatic flushing device for urinals, one which will be economic in the use of water and which will insure at all times sanitary conditions.

Another purpose of the invention is to provide a simple, effective, and economically-constructed mechanism for accomplishing the above-named results.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a longitudinal vertical section through the urinal and its attachments, showing the various operative parts in normal position. Fig. 2 is a view similar to that shown in Fig. 1, illustrating the apparatus in action.

A represents a urinal of the ordinary type, but it may be of any approved type, and the said urinal is supported in any suitable or approved manner upon an upright A'—a slab, for example.

A flushing-pipe 10 is connected with the upper portion of the urinal, and at the lower portion thereof a discharge-pipe 11 is connected, which latter pipe extends through the upright A' and is given a downward inclination; but the discharge-pipe 11 is not connected with the house-pipe 12, as is customary, as the said house-pipe is generally located below the floor 13 of the apartment in which the urinal is located. The house or service pipe 12 is connected with a tube 14, forming the shank of a bowl 15, which bowl is at the rear of the upright A', and the rear portion of the bowl is higher than the forward portion thereof, as is clearly illustrated.

A cup 16 is located above the bowl 15, extending partially within the same, and the said cup is adapted to have vertical movement within the bowl 15, being provided at its bottom with a small aperture 17 and at

its upper portion with a handle 18, the said handle being pivoted to the upright A' in any suitable or approved manner, the cup occupying such position that the outflow from the outlet-pipe 11 will enter said cup.

A flushing-tank B is employed, which is of the usual construction, and the water-supply pipe 20 enters the said flushing-tank in the customary way, being provided at its lower end with any approved form of valve 20<sup>a</sup>, operated through the medium of a float 21 within the tank and the connected stem 22; but the lower portion of the casing of the valve 20<sup>a</sup> is normally open and the said open end is more or less concaved and is preferably surrounded by a marginal flange 23, as best shown in Fig. 1.

The flushing-pipe 10 is provided with an enlargement 24, which extends up through the tank B into the same, and the upper end of the said enlargement 24 is normally open and is also preferably concaved and surrounded by a marginal flange 25, the concaved surface of the enlargement 24 of the flushing-pipe 10 being the reverse of the corresponding surface of the casing for the valve 20<sup>a</sup>, and these two parts are one above the other, but not in vertical alinement, one being somewhat to the side of the other.

A controller C is mounted to operate between the upper concaved portion of the flushing-pipe 10 and the concaved terminal of the casing for the valve 20<sup>a</sup>. This controller consists of an arm 26, which is mounted to revolve upon a spindle 27, secured in any suitable or approved manner in the tank B, and at the upper end of the said arm a convexed disk enlargement 28 is formed, which enlargement when it is brought in engagement with the concaved lower end of the casing for the valve 20<sup>a</sup> completely closes the outlet end of said casing, and the said arm 26 at its lower or opposite end is provided also with a convexed disk enlargement 29, which when it is in engagement with the upper concaved end portion of the flushing-pipe 10 effectually closes the said pipe, and the liquid in the tank B cannot flow down through the said flushing-pipe; but the terminals of the controller C are never in engagement with the valve 20<sup>a</sup> and the enlarged portion 24 of the flushing-pipe 10 at the same time, such engagements being alternately made; but the spring 30, which is attached to the body-arm 26 of the controller C near its lower end and likewise to the tank, serves to normally

hold the said controller in closing relation to the flushing-pipe 10 and in open relation to the valve 20<sup>a</sup>, as is illustrated in Fig. 1.

A cord or chain 31 or its equivalent is attached to the body-arm 26 of the controller C at a point in front of and below its pivot, and the said chain or cord 31 is passed up over a friction-roller 32 at the upper portion of the tank B and likewise over a second friction-roller 33, secured to the outer end surface of the tank, and the said rope, cord, or chain 31 is carried downward and is attached to the cup 16 through the medium of an eye 34 or its equivalent.

In operation, the tank B being filled with water, the float 21 will be in its upper position, in which position the valve 20<sup>a</sup> is closed, as is shown in Fig. 1, and the cup 16 will be in practically a horizontal position, and the upper end of the flushing-pipe 10 will be closed by the controller C, as is shown in Fig. 1. When liquid is received by the urinal A, the said liquid passes from said urinal into the outlet or offtake-pipe 11 and is received in the cup 16 and the weight of the liquid presses down the cup 16, as is shown in Fig. 2, causing the liquid to spill into the bowl 15 if rapidly delivered to said cup, and the liquid in the said cup slowly passes off into the bowl through the small outlet 17. When the cup 16 is thus pressed down, the cord, rope, or chain 31 is drawn upon and the controller C is shifted from the normal position (shown in Fig. 1) to the position shown in Fig. 2, wherein the valve 20<sup>a</sup> is closed and the flushing-pipe 10 is opened, permitting the water in the tank B to flow out into the basin A. The spring 30 is thus placed under tension, and the float 21 in following the level of the departing water opens the valve 20<sup>a</sup>; but at this time the water cannot flow from the valve. After the liquid in the cup 16 has dropped down therefrom the float 21 overcomes the weight of the cup 16 and draws the controller C to its normal position, closing the flushing-pipe 10 and opening the valve 20<sup>a</sup>, whereupon the water flows into the tank, and when the water has reached a predetermined level the float 21 will have been raised sufficiently to close the valve 20<sup>a</sup>, and thus cut off the supply of water to the tank.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a urinal, the combination with a flushing-tank, a flushing-pipe extending from the tank to the urinal, and an outlet-pipe extending from the urinal to the pivoted receptacle adapted to receive the liquid from said outlet-pipe, an inlet-pipe, a float-controlled valve therefor, a controlling device located within the tank between the inlet-pipe and the flushing-pipe, a connection between the pivoted receptacle and said controlling de-

vice, said controlling device being operated in one direction to cut off the supply to the tank and to open the exit therefrom, being operated in another direction to close the flushing-pipe and to open the inlet, as described.

2. In a urinal, the combination with a flushing-tank, a flushing-pipe extending from the tank to the urinal and an outlet-pipe extending from the urinal to a pivoted receptacle adapted to receive liquid from said outlet-pipe, an inlet-pipe, a float-controlled valve therefor, a spring-controlled controller located within the tank between the inlet-pipe and the flushing-pipe, and means connecting the pivoted receptacle with said controller, which controller is operated to cut off the supply of water to the tank and the exit therefrom through the medium of the connection between the receptacle and the controller, being spring-controlled in another direction to open the flushing-pipe and to open the inlet-pipe.

3. The combination with a urinal, a support therefor, a flushing-tank, a flushing-pipe extending from the tank to the urinal, an outlet from the urinal, and a pivoted receptacle located below the outlet to receive liquid therefrom, of a water-supply pipe, a float-controlled valve located within said tank, a rocking controller-arm mounted in said tank, a connection between the said controller-arm and the said receptacle, the arm being adapted for alternate cut-off engagement with the inlet-pipe and the flushing-pipe, being spring-controlled in one direction, and controlled in the opposite direction by the downward movement of the said receptacle.

4. The combination with a urinal, a flushing-tank, a flushing-pipe connecting the tank and the urinal, an outlet for the urinal, and the pivoted receptacle mounted below the said outlet, of a water-supply pipe for the tank, a float-controlled valve for the said supply-pipe spring-operated in one direction, and means operated by and connected with the said receptacle for operating the said valve in a contrary direction.

5. In a urinal the combination with a flushing-tank, a flushing-pipe connecting the tank and the urinal, an outlet for the urinal and a pivoted receptacle mounted below the said outlet, a water-supply pipe for the tank, a float-controlled valve for the said supply-pipe, and means operated by the said receptacle for closing the water-inlet pipe and opening the flushing-pipe, which means are contained within said tank and comprise a rocking arm mounted between the inlet-pipe and the flushing-pipe, the terminals of the arm being adapted one for closing engagement with the inlet-pipe and the other for closing engagement with the flushing-pipe, such engagements being alternately made, of a spring connected with the tank and the said

arm, whereby to open the inlet-pipe and close the flushing-pipe, and a connection between the said arm and the said receptacle, whereby, when the receptacle receives liquid, to  
5 open the flushing-pipe and close the supply-pipe.

6. In a urinal the combination with a support, a flushing-tank, a flushing-pipe extending from the flushing-tank to the urinal, an  
10 outlet for the urinal, a pivoted cup located beneath the outlet and provided with an aperture in its bottom portion, of a bowl located beneath the said cup, means for connecting the bowl with a sewer, an inlet-pipe leading  
15 into the tank, a float-controlled valve for the inlet-pipe, a controller-arm mounted to rock in the said tank, having its terminals ar-

ranged for alternate cut-off connection with the inlet-pipe and the flushing-pipe, the said controller-arm being spring-controlled in one  
20 direction, guide-pulleys carried by the tank, and a flexible connecting medium attached to the controller-arm at a point opposite that at which the spring acts thereon, which flexible connecting medium is passed over said  
25 pulleys and is attached to said cup.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ALLEN JOHNSON.

Witnesses:

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GLENN. N. VENRICK.