C. ADELL.

WASTE BASIN AND FLUSHING MEANS THEREFOR.

APPLICATION FILED MAR. 17, 1913. RENEWED DEC. 7, 1916.

1,366,761. Patented Jan. 25, 1921.

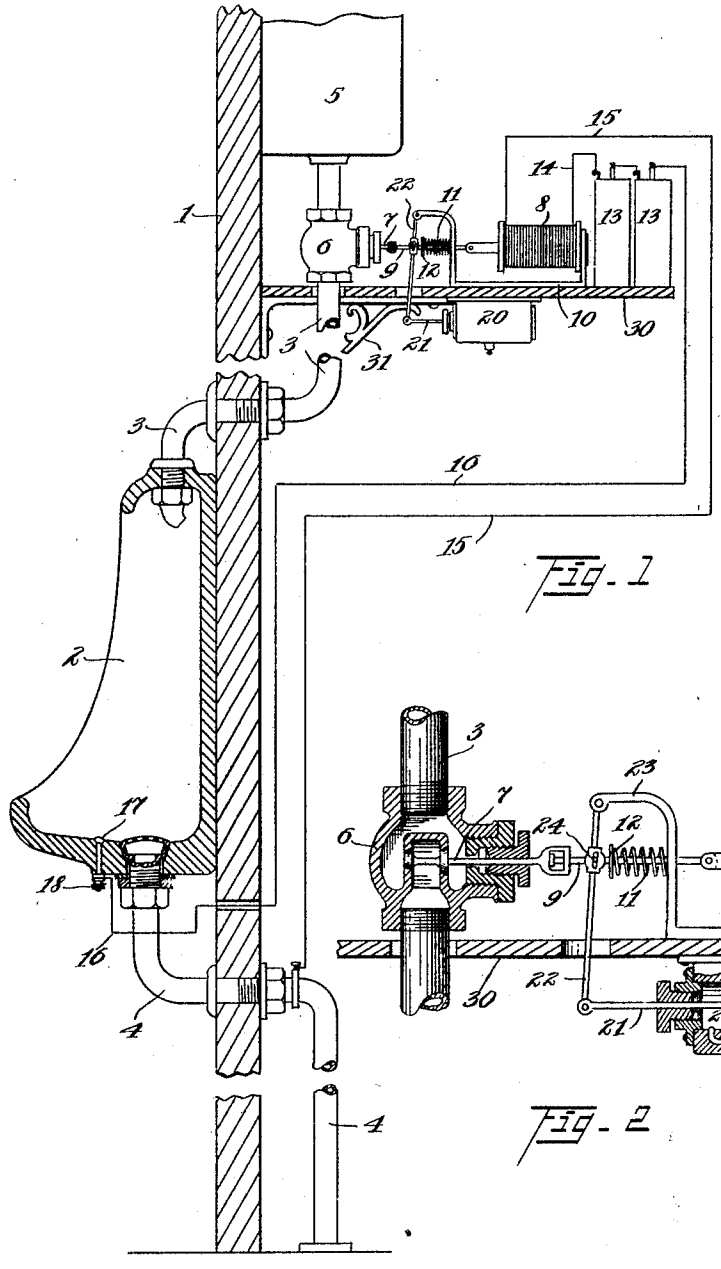


Fig. 1

Fig. 2

Witnesses:
A. L. Griswold.
Brennan B. West

Inventor
Claude Adell.
By Hull & Smith
Attorneys

UNITED STATES PATENT OFFICE.

CLAUDE ADELL, OF CLEVELAND, OHIO, ASSIGNOR, BY MESNE ASSIGNMENTS, TO KINGSBURY ELECTROFLUSH CO., INC., OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

WASTE-BASIN AND FLUSHING MEANS THEREFOR.

1,366,761. Specification of Letters Patent. Patented Jan. 25, 1921.

Application filed March 17, 1913, Serial No. 754,690. Renewed December 7, 1916. Serial No. 135,700.

To all whom it may concern:

Be it known that I, CLAUDE ADELL, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Waste-Basins and Flushing Means Therefor, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

This invention relates to waste basins of the type commonly known as urinals, and particularly to an improved flushing means or mechanism for use in connection with basins of this character. Its objects are to provide a waste basin of the aforesaid type containing two electrodes which form the terminals of an open electric circuit and which are adapted to be bridged by salts contained in the urine when urine is introduced into the basin or bowl, thereby closing the circuit and charging the urine with a current of electricity for the purpose of destroying any germs which might be present therein; and to provide electrically actuated mechanism including a valve which controls the supply of water to the basin or bowl and which mechanism is operated upon the closing of the aforesaid electric circuit to open the valve and flush or flood the bowl or basin, certain means being included in the mechanism to retard the closing of the valve in order that a sufficient flushing or flooding of the bowl is assured.

More generally stated, my invention provides a sanitary urinal which is kept in a pure and clean condition by charging any foreign matter which is introduced therein with electricity, thereby purifying it, and which urinal is automatically flushed with water every time it is used; and it may be defined generally as consisting of the combinations of elements set forth in the claims annexed hereto and illustrated in the accompanying drawings forming a part hereof, wherein Figure 1 is a vertical, sectional view through a wall or partition having applied to its front side a waste basin of my invention, and to its rear side, a flushing means or mechanism therefor; and Fig. 2 is an enlarged detail of the flushing means or mechanism, with certain of its parts shown in section.

Like reference characters designate corresponding parts in the two views of the drawing.

To the front side of the wall or partition 1 is secured the waste-basin or urinal 2 which is provided with a water supply pipe 3 and a drain pipe 4. The water supply pipe 3 extends through the wall or partition just above the basin and rises along its rear side to where it has connection with a water tank 5. It will be understood, however, that this tank may be dispensed with and the pipe 3 connected directly to the main water line, although the use of the tank provides a convenient method of introducing a disinfectant into the water, should such be desired.

The flow of water through the pipe 3 is controlled by a valve 6 (preferably of the balanced type), the stem 7 of which has a lost motion connection with the core of the solenoid 8 through a rod 9. The solenoid 8 is mounted within a substantially U-shaped frame 10, through one of the vertical arms of which is adapted to reciprocate the rod 9. A spring 11 surrounds a portion of the rod 9 and is confined, under tension, between a collar 12 on said rod and the aforesaid vertical arm of the frame 10. The action of this spring is in opposition to that of the solenoid, when the latter is energized, and tends to push the rod 9 in a direction to close the valve 6.

The solenoid 9 is supplied, under certain conditions which will hereinafter be explained with current from any suitable source of electric energy, such, for instance, as batteries 13, through a conductor 14. A wire 15 which leads from the opposite end of the solenoid coil has electrical connection with the metal drain pipe 4 of the waste basin 2, while a wire 16 connects the batteries 13 with an electrode 17 embedded within the bottom wall of the basin 2 and spaced a short distance from the drain outlet thereof, its upper end projecting a slight distance above the inner surface of said wall and its lower end being threaded to receive a thumb nut 18 to provide a binding post.

From the description thus far, it will be seen that when urine is introduced into the basin or bowl and flows over the protruding end of the electrode 17 and down the drain

pipe 4, the salt within the urine will bridge the terminals of an electric circuit which are provided by the said pipe and electrode 17 and permit a current of electricity to flow from the batteries 13 through the wire 16 to the electrode 17 within the basin 2, and thence through the aforesaid salt to the drain pipe 4, returning through the wire 15 and solenoid 8 to the batteries 13. This current will energize the solenoid 8, causing it to retract its core and through the intervention of the rod 9, unseat the valve 6, whereby water will be permitted to flow through the pipe 3 to flush or flood the basin.

To retard the closing of the valve 6 through the action of the spring 11, and thus insure a thorough rinsing of the basin or bowl, I provide a dash-pot 20 which may contain oil or other heavy liquid, and to the piston rod 21 of which is connected the lower end of a lever 22 having its upper end pivoted to the forwardly projecting portion 23 of that arm of the U-shaped frame 10 through which the rod 9 slides. Near its upper end, the lever 22 is provided with a yoke 24 which is slotted to receive a pin carried by the rod 9. Therefore, when the solenoid is energized to slide the rod 9, the piston 25 of the dash-pot will be moved toward the right hand end of the cylinder, the flap-valve 26 thereon swinging away from its seat to permit the liquid in advance of the piston to flow freely through the port 27 in the piston, to the opposite side thereof. When the basin has been sufficiently flushed and freed of foreign matter, the contact between the terminals of the electric circuit will be broken, the solenoid deënergized and the rod 9 returned to its normal position to close the valve 6 through its lost motion connection with the stem thereof; such connection causing a quick opening and closing of the valve which is desirable. Consequently, the motion transmitted to the piston of the dash-pot under these conditions, (through the parts 21, 22 and 24) will be the reverse of that just described, or toward the left hand end of the cylinder, and the liquid therein, not being permitted to flow through the port 27 by the closing of the valve 26, will be compelled to pass to the opposite end of the cylinder through the passageway 28 in the bottom wall thereof. Since the flow of liquid through this passageway may be controlled by the screw 29 which projects thereinto, the closing action of the valve 6 may be adjusted to any desired degree.

As a convenient support for the U-shaped frame 10, the batteries 13 and the dash-pot 20, I provide a shelf 30 which is carried by brackets 31 secured to the rear side of the partition 1.

While I have shown my invention as applied to the wall type of urinals, I do not limit myself to this particular embodiment, as it is equally as well adapted to urinals of other forms, such for instance, as the pedestal type.

Having thus described my invention, what I claim is:—

1. In a device of the character set forth, the combination with a urinal having an inlet pipe and a drain pipe, of a valve for said inlet pipe, means including an open electric circuit for operating said valve, and an electrode within said urinal forming one of the terminals of said electric circuit, the other of said terminals being provided by the aforesaid drain pipe, the electrode and the drain pipe being permanently separated.

2. In a device of the character set forth, the combination with a vessel, of a source of water supply, flushing means for effecting the flow of water from said source to said vessel, an electromagnet for effecting the operation of said flushing means, a source of current the external circuit of which includes said electromagnet and terminates in two permanently separated contacts in said vessel, said circuit being thus normally open and said contacts being adapted to be electrically connected together by excreta deposited in said vessel, the excreta forming part of the circuit and acting to conduct the current from said source of current to energize said electromagnet.

3. In a device of the character set forth, the combination with a vessel, of a source of water supply, flushing means for effecting the flow of water from said source to said vessel, an electromagnet for effecting the operation of said flushing means, a source of current the external circuit of which includes said electromagnet and terminates in two permanently separated contacts in said vessel, said circuit being thus normally open and said contacts being adapted to be electrically connected together by excreta deposited in said vessel, the excreta forming part of the circuit and acting to conduct the current from said source of current to energize said electromagnet, without chemically attacking said contacts.

4. In a device of the character set forth, the combination with a normally dry urinal, of flushing means therefor including an open circuit, a source of current in said circuit, and contacts within said urinal forming the terminals of said circuit, the contacts being permanently separated from each other.

5. In a device of the character set forth, the combination with a normally dry urinal having an inlet pipe and an outlet, of a valve in said inlet pipe, electromagnetic means for operating said valve, an open circuit in which said electromagnetic means is connected, a source of current in said circuit, and contacts within said urinal forming the

terminals of said circuit, the contacts being permanently separated from each other and one of them surrounding said outlet.

6. In a device of the character set forth, the combination with a normally dry vessel, of a source of water supply, a connection between said source and said vessel, a valve in said connection, outlet for said vessel, electromagnetic means for operating said valve, there being a lost motion connection between said electromagnetic means and said valve, an open circuit in which said electromagnetic means is connected, a source of current in said circuit, and contacts within said vessel forming the terminals of said circuit, the contacts being permanently separated from each other.

7. In a device of the character set forth, the combination with a normally dry vessel, of a source of water supply, a connection between said source and said vessel, a valve in said connection, an outlet for said vessel, electromagnetic means for operating said valve, an open circuit in which said electromagnetic means is connected, a source of current in said circuit, contacts within said vessel and forming the terminals of said circuit, the contacts being permanently separated from each other, and means for retarding the closing movement of said valve.

8. In combination, a vessel adapted to receive excreta, flushing means therefor, electrically operated means for controlling said flushing means, and a circuit for said electrically operated means, said circuit having a source of current therein and two stationary contact terminals disposed in said vessel and spaced apart, said contact terminals being adapted to be electrically connected by excreta deposited in said vessel to close said circuit and operate said flushing means.

9. In combination, a vessel adapted to receive excreta, flushing means therefor, electrically operated means for controlling said flushing means, a circuit containing a source of current for said electrically operated means which is energized upon the deposit of excreta in said vessel, and contacts in said vessel adapted to be bridged by the excreta to thereby close said circuit and operate said flushing means.

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

CLAUDE ADELL.

Witnesses:
BRENNAN B. WEST,
HAROLD E. SMITH.