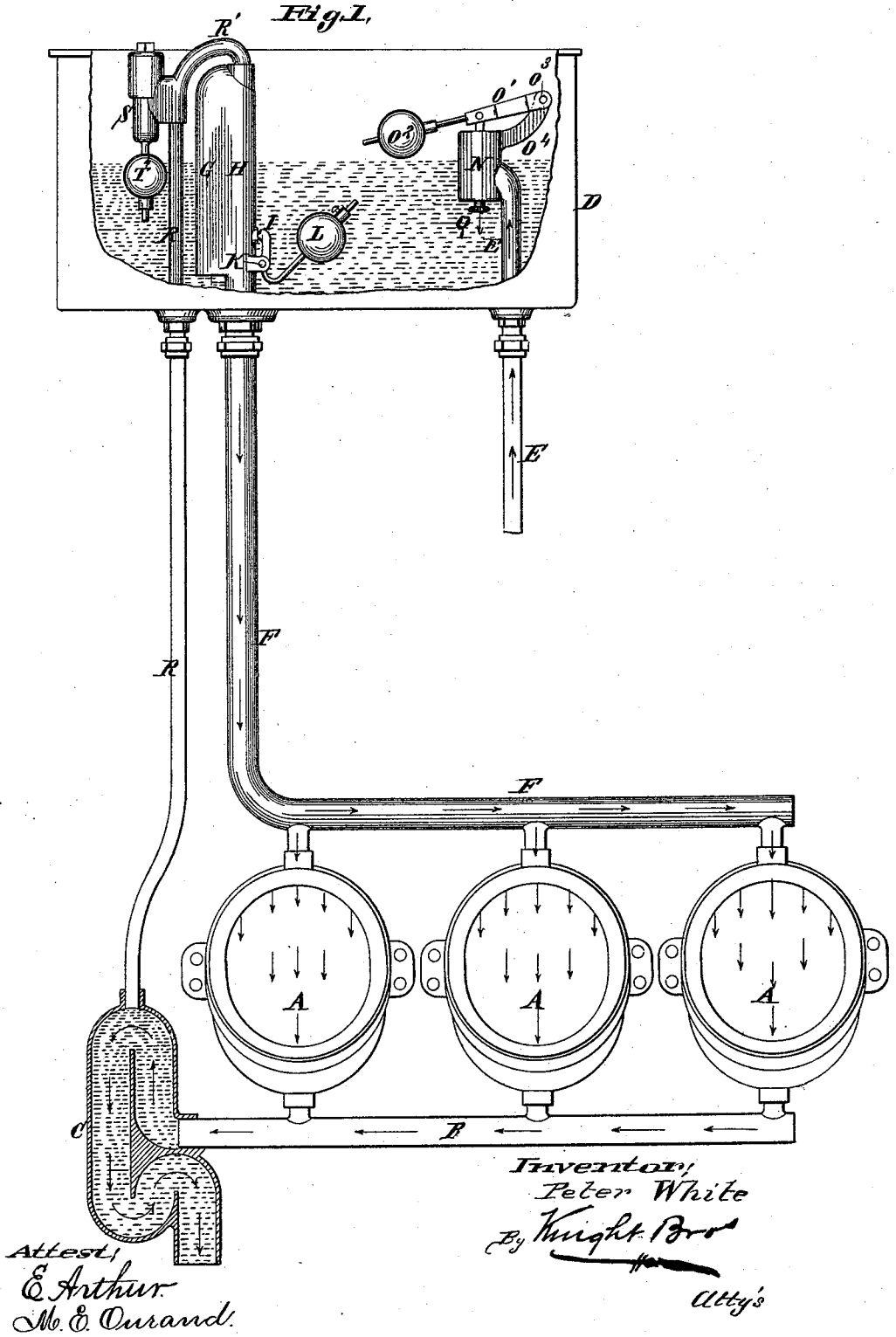
(No Model.) 2 Sheets—Sheet 1.

P. WHITE.

URINAL WASHOUT.

No. 456,073. Patented July 14, 1891.

Fig. 1.



Witnesses:
E. Arthur.
M. E. Durand.

Inventor:
Peter White
By Knight Bros
Atty's

(No Model.) 2 Sheets—Sheet 2.

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Fig. 2.

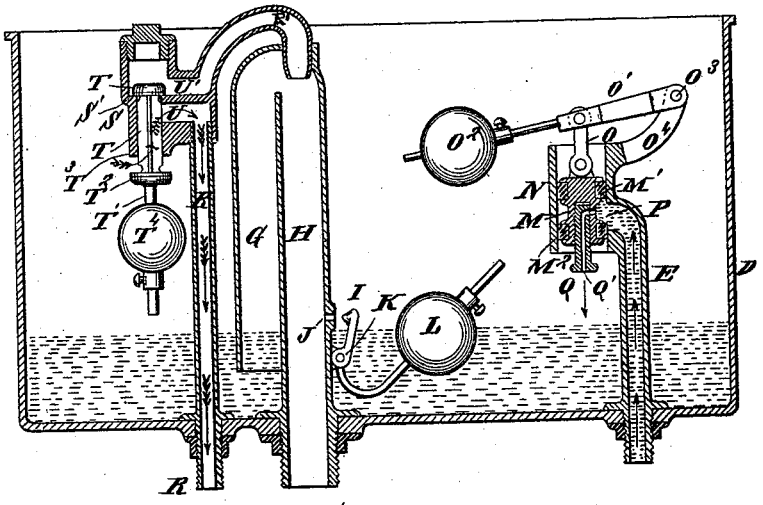


Fig. 3.

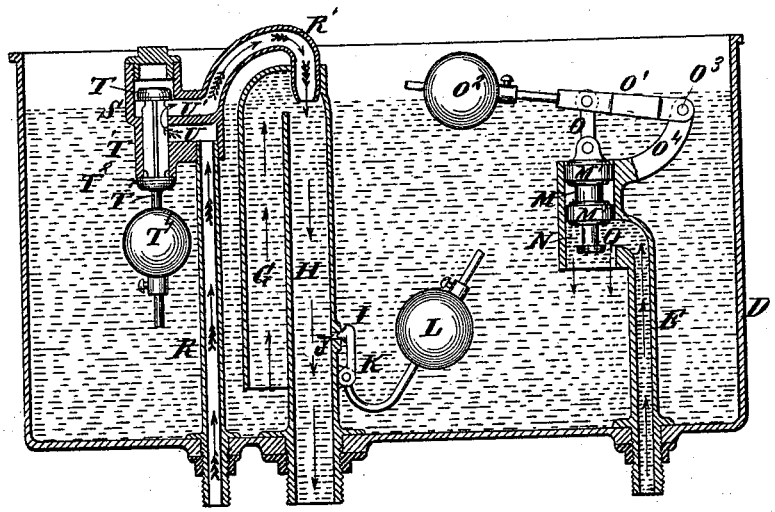
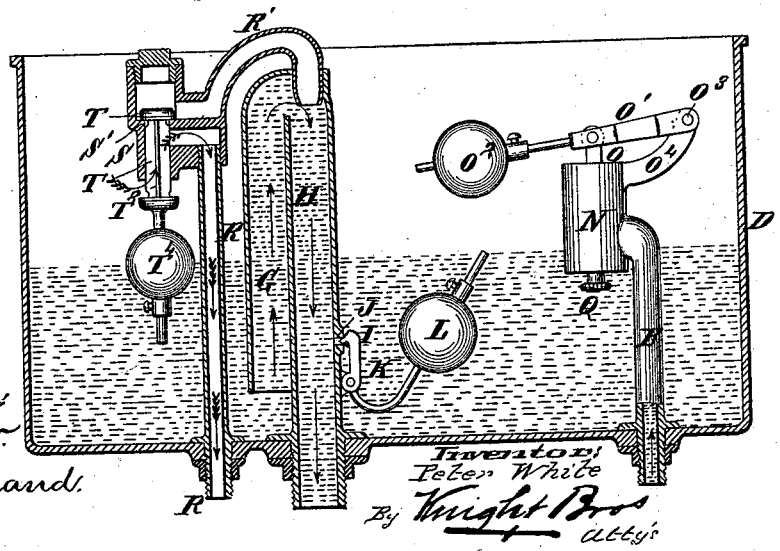


Fig. 4.



Attest:
E. Arthur.
M. E. Durand.

Inventor:
Peter White
By Knight Bros
Atty's

UNITED STATES PATENT OFFICE.

PETER WHITE, OF ST. LOUIS, MISSOURI.

URINAL-WASHOUT.

SPECIFICATION forming part of Letters Patent No. 456,073, dated July 14, 1891.

Application filed June 7, 1890. Serial No. 354,615. (No model.)

To all whom it may concern:

Be it known that I, PETER WHITE, of the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Urinal-Washouts, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to an improved washout for urinals, which is automatic in its operation; and my invention consists in features of novelty hereinafter fully described, and pointed out in the claims.

Figure 1 is an elevation illustrative of my invention, the tank or cistern being partly broken away and the bowl-trap being shown in section. Fig. 2 is a vertical section through the tank and the parts located within it, showing the parts in the position they assume just after the flush has been broken. Fig. 3 is a similar view showing the parts in the position they assume just after the flush has commenced. Fig. 4 is a similar view showing the parts in the position they assume after the flush has been working for a time, but before it is broken.

Referring to the drawings, A represents the bowls of a urinal; B, a discharge-pipe; C, a trap in the discharge-pipe; D, a water-tank or cistern; E, a pipe through which the water is supplied to the tank or cistern, and F is a pipe forming a communication between the tank and bowls.

G represents the short leg, and H the long leg, of a siphon located in the tank D, the short leg communicating at bottom with the tank and the long leg being connected to the discharge-pipe F, which leads to the bowls A.

I represents a valve controlling a port or passage J in the long leg of the siphon. The valve is pivoted at K and is provided with a stem carrying an adjustable float L.

M represents a valve located in a housing N on the upper end of the pipe E within the tank D. The valve has an upper packing M' and a lower packing M^2, and it is connected by a link O to a lever O', provided with an adjustable float O^2 and pivoted at O^3 to an arm O^4, formed upon or secured to the housing N. The valve M controls the opening P between the upper end of the pipe E and the hollow open-ended housing N, and it is provided with a plug Q, having an opening Q', which is extended through the side of the valve next to the pipe E, as shown in Fig. 2.

R represents a pipe forming a communication between the trap C and the upper end of the siphon G H. This pipe is provided with a housing S at its upper end, in which fits a double valve, consisting of a valve T on a stem T', the stem having a valve T^2 beneath the housing, and which fits, when in its upper position, against a seat T^3, formed by the lower end of the housing. The stem T' is provided with an adjustable float T^4. The portion of the valve-stem T^5 which fits within the housing S is so formed that while it fits the opening in which it works yet it permits the passage of air when the lower valve is open, as shown in Figs. 2 and 4. Its shape may be annular and provided with a groove for the passage of the air, or it may be made in the form of radial wings, as shown in Figs. 2, 3, and 4, which, while they guide the valves, do not interfere with the passage of the air when the valve is open. The housing S has a seat S' for the upper valve T. The housing has also a passage or port U, forming a communication between the pipe R and the opening in the housing in which the valve-stem T^5 fits, and it has an opening U', forming a communication between the opening in which the valve-stem fits and the upper end R' of the pipe R.

The operation is as follows: Supposing the tank to be full of water, as shown in Fig. 3, the siphonic action of the water in the siphon G H will be formed and the water will pass from the tank to the bowls, as shown by the featherless arrows, Fig. 3. At the same time there is an upward suction through the pipe R R' and the ports U U', as shown by the full arrows in Fig. 3, which rarefies the air in the trap C, causing the siphonic action to take place in the trap C, the bowls, of course, being flushed and cleansed by the water as it passes from the tank to the trap, which communicates, as usual, with a discharge-pipe. Now as the water is reduced in the tank D

the valve M closes or moves from the position shown in Fig. 3 to the position shown in Fig. 1, thus shutting off the main supply of water through the pipe E, the valve M being permitted to close by the water leaving the float O^2, which counterbalances the valve and forces it to its lower position or the position shown in Fig. 2. When the water in the tank D is reduced to about the amount shown in Fig. 4, the valve-stem T′ drops, (owing to the water leaving the float T^4,) causing the valve T^2 to open or leave its seat T^3 and the valve T to be closed, as shown in Figs. 2 and 4. Air is now permitted to pass through the pipe R, as shown by the arrows in Figs. 2 and 4, breaking the siphon in the trap C, but is prevented by the valve T from passing into the siphon G H. As the water in the tank D is reduced still more than shown in Fig. 4, and to about the amount shown in Fig. 2, the valve I opens, (owing to the water leaving the float L,) admitting air through the opening J and breaking the siphonic action in the siphon G H. The water will then cease to pass from the tank to the bowls; but it will continue to flow in a small quantity from the pipe E into the tank D, the quantity being regulated by the opening Q′ in the plug Q, the plug being turned to regulate the communication between the opening in the plug and the opening in the housing between the plug and the pipe E. As the water enters the tank through the pipe E and the plug Q, as shown by the featherless arrows in Fig. 2, it first lifts the float L and closes the valve I, and as it continues to enter it lifts the float T^4 and closes the valve T^2, and as the tank still continues to fill the water lifts the float O^2, raising the valve M and opening a free communication between the pipe and the tank, this taking place just before the tank is about full. This rush of water starts the water in the siphon G H, as shown in Fig. 3, and the tank begins to empty again, as explained. The operation thus goes on continuously, the parts all working automatically and continuing to flush the bowls.

If it is desired to stop the action of the the parts, it is of course only necessary to provide the pipe E with a valve which can be closed at will.

By adjusting the floats L, T^4, and O^2 the various valves may be regulated at will.

I claim as my invention—

1. The combination of a tank, a siphon located in the tank and communicating with the bowls, a housing having an air-port, a pipe forming a communication between the bowl-trap and the siphon through said housing, a valve provided with a float for closing communication between the trap and siphon and permitting the passage of air into said trap-pipe when the water in the tank is reduced, a valve provided with a float situated below aforesaid float and controlling a port in said siphon which is opened after the siphon of the trap-pipe is broken, and an inlet-pipe leading into the tank, controlled by suitable means, substantially as and for the purpose set forth.

2. The combination, with the tank having a normally-open supply-pipe, of a valve for permitting a further or increased flow to the tank, a float for opening said valve as the tank fills, the siphon, the trap-pipe communicating with said siphon, a shifting valve for closing communication between the trap-pipe and siphon and admitting air to the trap-pipe, and a float for actuating said shifting valve, substantially as set forth.

3. The combination, with the tank, the bowl-pipe siphon, the housing, and the trap-pipe communicating with the said siphon and with the atmosphere through said housing, of a shifting valve co-operating with said housing for closing communication between the trap-pipe and siphon and opening communication between the trap-pipe and atmosphere, substantially as set forth.

4. The combination of a tank, a siphon located in the tank and communicating with the bowl, a valve provided with a float for controlling said siphon, a pipe forming a communication between the siphon and the bowl-trap, a float-actuated valve located in said pipe, an inlet-pipe, a float-actuated valve for controlling the inlet-pipe, and a perforated plug in said last-mentioned valve, substantially as and for the purpose set forth.

5. The combination of a tank, a siphon located in the tank and forming a communication between the tank and the bowl, a pipe provided with a float-actuated valve located between the bowl-trap and the siphon, a supply-pipe, a float-actuated valve for controlling the supply-pipe, and an adjustable perforated plug in said last-mentioned valve, substantially as and for the purpose set forth.

6. The combination of a tank, a siphon located in the tank and forming a communication between the tank and bowl, an adjustable float controlling said siphon, the housing having an air-port, a pipe forming a communication between the bowl-trap and the siphon through said housing, a double valve located in said housing and provided with an adjustable float arranged above the aforesaid float, an inlet-pipe, a valve controlling said inlet-pipe, and an adjustable float operating said last-mentioned valve, substantially as and for the purpose set forth.

7. The combination of a tank, a siphon located in said tank, and the trap-pipe connected with said siphon, of a shifting valve for closing communication between the trap-pipe and siphon and admitting air to the trap-pipe, a float for actuating said valve, a second valve for controlling an air-port in the siphon, a second float located below the said first float for closing the second valve, an inlet-pipe, a third valve in said inlet-pipe,

and a float for opening said third valve as the water rises in the tank, substantially as set forth.

8. The combination of a tank, a siphon having communication with the bowls, a valve controlling said siphon, an inlet-pipe, a valve controlling said inlet-pipe, a pipe forming comunication between the bowl-trap and siphon, a valve-stem T', having valves T and T^2 controlling ports U and U', and a float T^4, substantially as and for the purpose set forth.

PETER WHITE.

In presence of—
E. S. KNIGHT,
THOS. KNIGHT.