Sept. 28, 1937. G. U. TRAVAGLIATI 2,094,310

URINAL WITH INTERMITTENT FLUSHING SET IN ACTION BY THE USER'S WEIGHT

Filed March 9, 1936

Fig. 1.

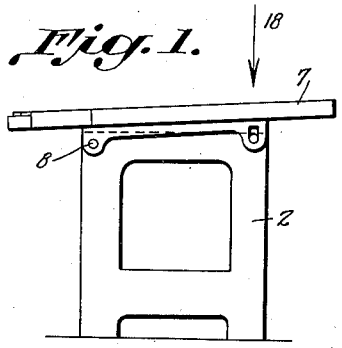



Fig. 2.

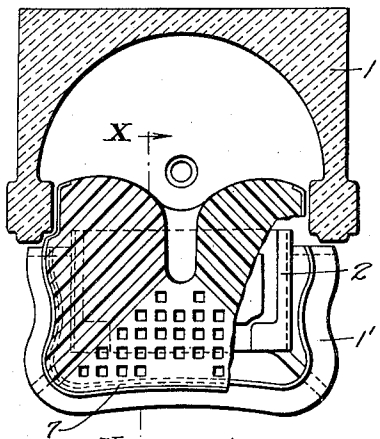
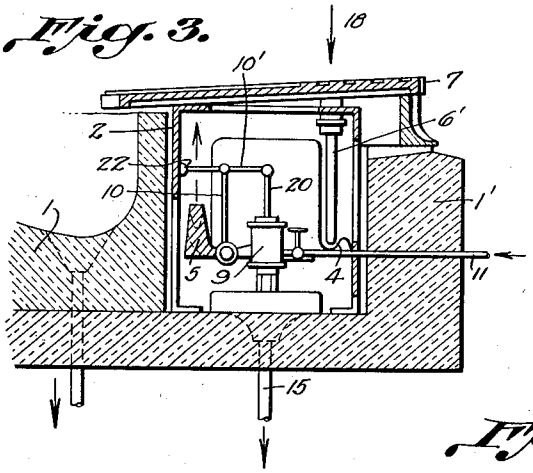



Fig. 3.



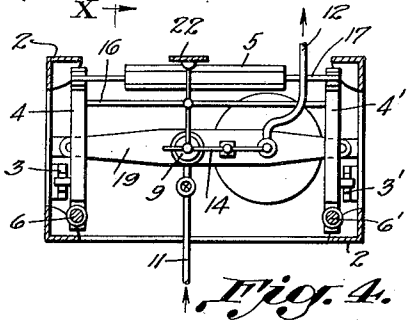
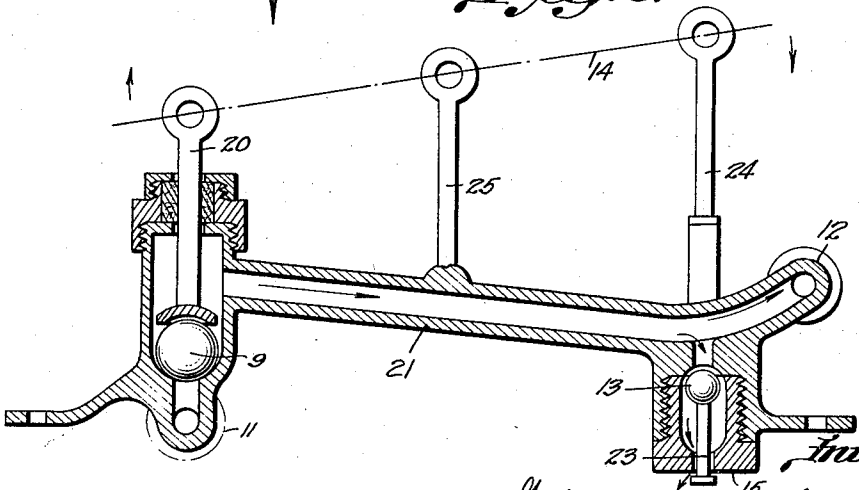




Fig. 4.

Fig. 5.




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2,094,310

## URINAL WITH INTERMITTENT FLUSHING SET IN ACTION BY THE USER'S WEIGHT

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4 Claims. (Cl. 4—108)

It is common knowledge that in the types of urinals at present in use, and especially those open to the public, the waste of water due to the continuous flushing of the installation leads to considerable expense which has to be borne by the municipality.

The present invention has been specially designed to obviate the above mentioned defect, whilst being of practical and economical construction.

It is an object of the present invention to provide a urinal having a unit for flushing the same when in use, said unit comprising a valve adapted to control the admission of flushing water to the urinal, a pivotable foot-plate, and a lever system between the foot-plate and said valve and adapted to transmit a movement of the footplate under the action of the weight, whole or partial, of a user to said valve to open the latter, said valve and lever system being disposed wholly below the footplate.

It is also an object of the invention to provide a urinal adapted to be flushed under the action of the total or partial weight of a person using the same, comprising an oscillating footplate pivoted to a fixed frame, one or more rocking levers adapted to move about its fulcrum or their fulcrums in accordance with the displacements of the footplate, and an admission valve interposed between the conduit from the main and the flushing head and adapted for opening or closing in response to the rocking of said levers, whereby water is admitted to the urinal only during the period that the latter is in use.

A further object is to provide a urinal adapted to be flushed intermittently under the action of the total or partial weight of a user, comprising a fixed frame having pivoted thereto a footplate which is adapted to oscillate under the action of the total or partial weight of a user standing thereon, rocking levers mounted in said frame and beneath the footplate, one or more plungers adapted to transmit the movement of said footplate to the rocking levers, and a valve controlling the admission of flushing water to the urinal, said valve being connected to the rocking levers through a further system of levers and being arranged to open and close in response to the movement of these rocking levers.

The attached drawing shows, in a purely representative and not definitely binding manner, one form of practical realization of the present invention.

It will be of course understood that changes may be made in the constructive details, the form, the materials employed, the dimensions and the arrangement of the accessory parts in order to allow of different practical applications of the invention, without departing from the spirit of the invention.

Fig. 1 is an outside side view of the urinal with the attachment fitted.

Fig. 2 is an enlarged partial plan view.

Fig. 3 is a cross section along the line X—X of Fig. 2.

Fig. 4 is a plan view seen from above the metal frame containing the working parts.

Fig. 5 represents a longitudinal section through the valve system.

The urinal shown in the drawing consists of the usual backing 1 and front portion 1', these parts being made of glazed brick, cement, porcelain or other suitable material. The part 1' is recessed below the floor level to receive a unit controlling the supply of water to the flushing head.

This unit consists of a metal frame 2 within which are mounted two parallel rocking levers 4, 4' on bearings 3, 3'. These bearings are arranged nearer the front end of the levers 4, 4' than the rear and the latter are synchronized with one another, being connected by a cross bar 16 towards their rear ends. At these rear ends the rocking levers 4, 4' carry a further cross bar 17 supporting a counterweight 5.

A footplate 7 is pivoted at each side to the rear part of the frame 2 at the points 8 and is adapted to oscillate about this point. The arrow 18 in Figures 1 and 3 illustrates the direction in which the front end of the footplate 7 moves when a person steps thereon. In the flushing control unit is also provided a pair of plungers 6, 6' on which the footplate is adapted to bear when a person is standing on the latter, and which fit into corresponding sockets in the levers 4, 4'.

Mounted on a cross-piece 19 in the frame 2 is a ball valve 9, which is shown on an enlarged scale in Figure 5. A piston 20 works in the valve 9 and is connected at its upper end by a lever 10' a fixed part 22 of the frame 2. At its mid-point this lever 10' is attached to the cross-bar 16 by a line 13. The valve 9 is directly interposed in the conduit between the street or other supply main 11 and the pipe 12 to the flushing head.

The operation of the device is as follows:

When a user steps upon the footplate 7 the latter pivots about the points 8 in the direction of arrow 18 so as to depress the plungers 6, 6'. The latter bear against the sockets in the levers 4, 4' to rock these levers on the bearings 3, 3'

against the counterweight 5, so as to lift the cross bar 16. The upward movement of the latter entrains the link 19, whereby the lever 10' is fulcrumed about the point 22 so as to raise the piston 20. In this way the pressure on the ball of valve 9 is released and the latter is lifted from its seat by the pressure of the water in the main 11, so that water flows through valve 9 and conduit 21 to the pipe 12 and the flushing head.

As soon as the user steps off the footplate 7, the pressure on the rocking levers 4, 4' is released and these resume their original position under the action of counterweight 5. This causes the link 19 and thus the piston 20 to be drawn downwardly whereby the valve 9 is reclosed and the flushing of the urinal discontinued.

Advantageously a second drainage or discharge valve is provided in the conduit 21 and at the lowest point of the latter. Such a valve has been illustrated in Figure 5 at 15. In this figure the ball 13 of the valve is mounted on an upstanding part 23 of a link 24.

To the conduit 21 is rigidly attached an upstanding bar 25, at the top end of which is pivoted a rocking lever 14 connected at or near its ends to the piston 20 and the bar 24 respectively. The lever 14 is so arranged that when the piston 20 is in its lowest position, that is to say when the valve 9 is closed, the ball 13 is lifted off its seat to a greater or lesser extent by the part 23.

The valve 15 is thus wholly or partially open and, being at the lowest point in the conduit 21, the water trapped between valve 9 and the flushing head is allowed to drain through valve 15, whereby any possibility of water freezing in the conduit 21 and bursting the latter in cold weather is avoided.

It will be seen that when the piston 20 is raised to admit water from the main 11, the bar 24 will be correspondingly lowered by such an amount that the ball 13 contacts with its seat to seal the valve 15 against the escape of water.

What is claimed is:

1. The hereinbefore described urinal with intermittent flushing set in action by the total or partial weight of the person using it, and characterized by the fact that the said weight bears on an oscillating footplate arranged, through a suitable valve mechanism, to admit the flushing water into the urinal in such a manner as to limit the admission of the water to the period of time during which the person remains on the footplate, which footplate is pivoted to a frame within which acts a system of counterbalanced rocking levers subjected to the movement of the latter and actuated by pistons on which the footplate rests; the said system of rocking levers being destined to actuate simultaneously, through suitable levers, two valves respectively for the admission and discharge of water from the street main to the urinal and for emptying.

2. The hereinbefore described urinal with intermittent flushing set in action by the total or partial weight of the person using it, and characterized by the fact that the said weight bears on an oscillating footplate arranged, through a suitable valve mechanism, to admit the flushing water into the urinal in such a manner as to limit the admission of the water to the period of time during which the person remains on the footplate, which footplate is pivoted to a frame within which acts a system of counterbalanced rocking levers subjected to the movement of the latter and actuated by pistons on which the footplate rests; the said system of rocking levers being destined to actuate simultaneously, through suitable levers, two valves respectively for the admission and discharge of water from the street main to the urinal and for emptying, the articulated levers allowing the discharge valve to close simultaneously with the opening of the admission valve of water to the urinal, whilst the first valve may be partially open or may open when the latter is closed, or in other words, during the time the footplate is inactive.

3. A urinal adapted to be flushed intermittently under the action of the total or partial weight of a user, comprising a fixed frame having pivoted thereto a footplate which is adapted to oscillate under the action of the total or partial weight of a user standing thereon, rocking levers mounted in said frame and beneath the footplate, at least one plunger adapted to transmit the movement of said footplate to the rocking levers, and a valve controlling the admission of flushing water to the urinal, said valve being connected to the rocking levers through a further system of levers and being arranged to open and close in response to the movement of these rocking levers.

4. A urinal having a unit for flushing the same when in use, said unit comprising a valve adapted to control the admission of flushing water to the urinal, a pivotably mounted footplate, and a lever system between the footplate and said valve and adapted to transmit a movement of the footplate under the action of the weight, whole or partial, of a user to said valve disposed wholly below the footplate, a second and discharge valve arranged in a conduit connecting the admission valve to the point at which the flushing water is expelled over the surface of the urinal and is adapted to be opened to discharge water from said conduit, whereby freezing up of the latter in cold weather is prevented, said discharge valve being connected to the admission valve by means of a rocking lever device and is adapted to be closed simultaneously with the opening of the discharge valve and to be opened or partially opened as the pressure exerted by a user on the footplate is relieved.

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