(No Model.)

I. D. SMEAD.

AUTOMATIC FLUSHING LATRINE.

No. 588,609. Patented Aug. 24, 1897.

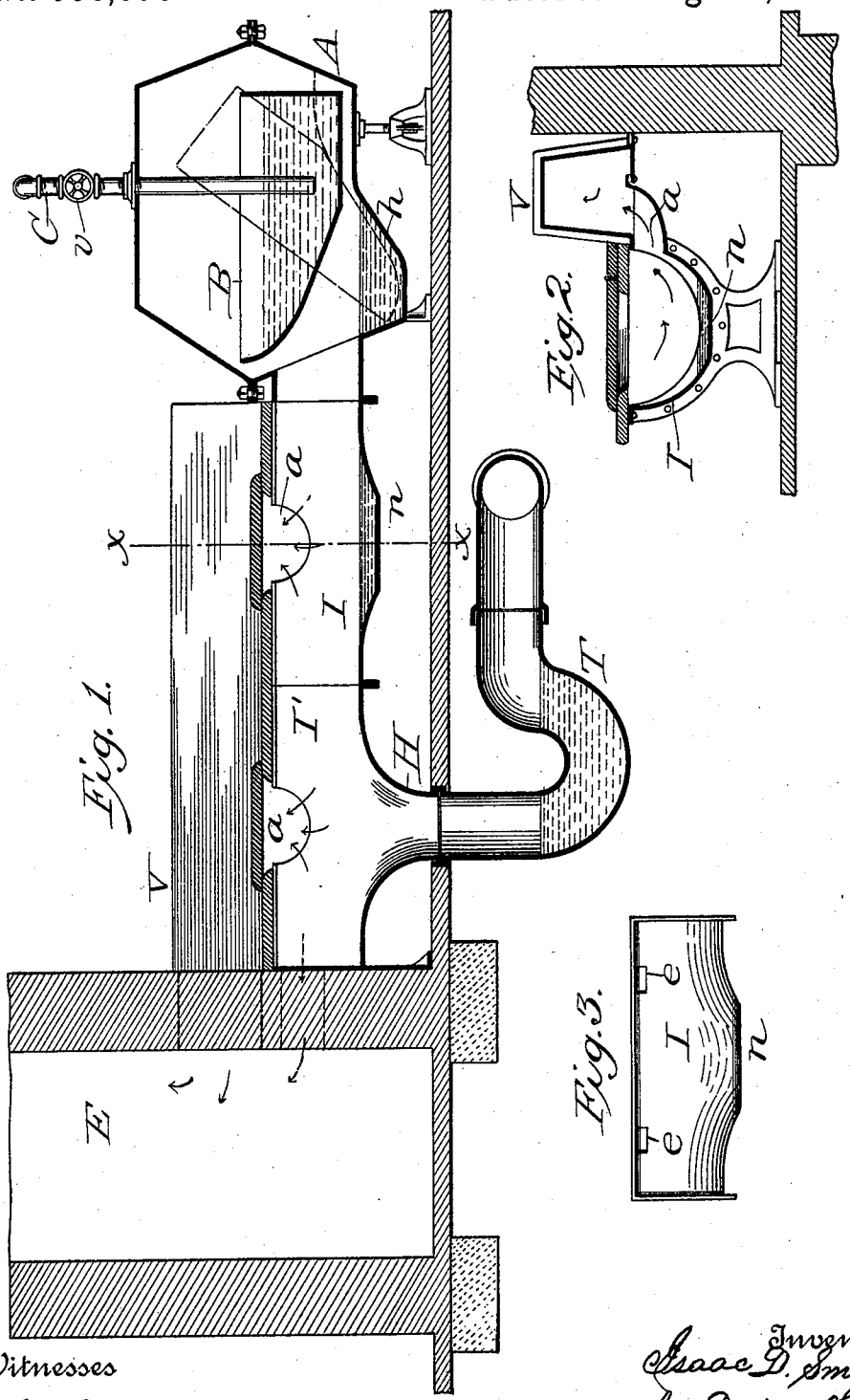


Fig. 1.

Fig. 2.

Fig. 3.

Witnesses
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UNITED STATES PATENT OFFICE.

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AUTOMATIC FLUSHING-LATRINE.

SPECIFICATION forming part of Letters Patent No. 588,609, dated August 24, 1897.

Application filed April 22, 1897. Serial No. 633,226. (No model.)

To all whom it may concern:

Be it known that I, ISAAC D. SMEAD, a citizen of the United States, residing at Toledo, in the county of Lucas and State of Ohio, have invented certain new and useful Improvements in Automatic Flushing-Latrines, of which the following is a specification.

My present invention relates to that class of closets known as "latrines," in which a large number of seats are arranged over one common receptacle; and the invention consists in the peculiar construction of the automatic flushing device, whereby it is provided with a water-cushion to prevent the noise and wear of the automatically-dumping water-tank, and in the peculiar construction of the bottom of the trough or main receptacle, as hereinafter more fully described.

Figure 1 is a central vertical section showing the apparatus as arranged for use. Fig. 2 is a transverse vertical section on the line *x x* of Fig. 1, and Fig. 3 is a front elevation of a section detached.

In school-buildings and the like, where a large number of persons are congregated, it is necessary to provide a large number of closets and to provide for the frequent flushing of the same, and for the latter purpose it is customary to use a tank of a peculiar form hung on pivots and which will normally remain in a horizontal position until filled with water to a certain point, when it will be overbalanced, dump the water, and automatically resume its position to be again filled. As in these long latrines a considerable volume of water is required to effect a thorough flushing, these tanks, generally made of cast-iron and sometimes of galvanized sheet metal, have necessarily to be made of considerable size, and their frequent tipping to and fro not only makes considerable noise, which is objectionable, but it also causes much strain and wear, causing them to break and frequently get out of order. It is to remedy this that the first part of my invention is designed.

In Fig. 1, B represents the dumping-tank, and C the water-pipe by which it is supplied, this pipe being provided with a valve *v*, by which the flow of the water can be regulated so as to cause the flushing to occur at longer or shorter intervals, as desired. This tank, which is mounted on pivots, (not shown, as the construction is common and well known,) is hung in a cast-iron case A, the bottom of which at its front or outlet end is provided with a depression or recess *h*, as shown clearly in Fig. 1, and which will normally remain filled with water, as indicated. With this arrangement it will be seen that when the tank tips, as indicated by the dotted lines, its front portion, instead of striking the metal case, will strike upon the water in the recess *h*, which thus serves as a cushion for the tank, thereby preventing the noise that would otherwise occur and also preventing the strain and wear of the parts.

As the tank enters the water in the recess most of the water is forced back upon the raised portion of the bottom of the case, as indicated by the dotted line, and as it flows back to the recess it helps to raise the front end of the tank, which, being relieved of the weight of the water that caused it to tip, resumes its horizontal position. At the same time the recess is of course left full of water by the dumping of the tank, and as the water flows back from the raised portion of the bottom it naturally causes an overflow or afterwash from the case into the trough. As the rush of the water from the tank causes it to flow with velocity through the trough it sometimes happens that some of the depressions in the bottom of the trough are liable to be left with little or no water in them, and this afterwash not only serves to fill them but keeps up a small flow of water through the trough until the tank is nearly or quite ready to dump again. In practice I have found this to be a great improvement on the automatic tank shown in my patent of November 26, 1889, No. 415,799, and all others of similar construction.

It is obvious that instead of making the case A with the recess, as shown, the bottom might be extended of full depth all the way from front to rear, in which case the operation and effect would be essentially the same, as there would still be the body of water to act as a cushion; but that would require more material for the case and a larger body of water in the case, and therefore I prefer to make it in the form shown.

The trough or main receptacle is composed of a series of sections I, firmly bolted together by external flanges, as represented in Fig. 1, only one of the body-sections being shown in connection with the section I′ at the discharge end, as all the body-sections are duplicates, any desired number being used.

In order to secure a thorough and efficient flushing and provide for the retention of the proper quantity of water directly under the seats, I construct the bottom of each section as shown in Figs. 1 and 2. For some little distance from each end the bottom is curved transversely, but at its center, for about one-third of its length, the bottom is flat, as shown at *n*, Figs. 1, 2, and 3, this flat portion being united to the curved portions on each side of it by a gently-inclined portion, as shown. By this construction it will be seen that the water retained under each seat is of uniform depth over the entire flat surface *n*, instead of being much deeper at the center and shallow elsewhere, and that there are no abrupt angles or ridges to interfere with the rush of the water when the contents of the flushing-tank are dumped into the trough.

The end section I′ is formed with an outlet-tube H at its center to connect with a sewer-pipe having a trap T, as shown in Fig. 1.

In order to secure a thorough ventilation to convey away any odors, either of two plans may be adopted. The sections I may be made with holes *e* at the front, as shown in Fig. 3, for the entrance of air when the lids are closed, and with openings *a* at the rear for the passage of the air and odors into a ventilating-duct V, arranged above and in rear of the trough, as represented in Figs. 1 and 2, the duct V being connected with the vent-shaft E, as shown; or if the arrangement of the building be such that the main receptacle can be located in proximity with the vent-shaft the end section I′ may be constructed with an opening at its end and be connected direct with the vent-shaft, as indicated by dotted lines in Fig. 1. Where this latter plan is adopted, the openings *a* at the rear side of the sections I may be omitted, the sections for this plan being cast smooth and continuous at that point.

By simply providing two patterns from which to cast the sections, one with and the other without the rear opening, I am enabled to adapt the latrine to either plan of ventilation and thus to adapt it to the varying conditions found in different buildings.

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

1. An automatic flushing device for latrines, comprising an automatically-tipping tank B pivoted in a case A having an opening in its side wall for the sudden escape of the water, and a space below said opening for the retention of water to form a cushion for the pan and produce an afterwash.

2. In combination with a latrine, the case A having an opening in its side where connected to the latrine, and a recess or reservoir below said opening, and the automatically-tipping tank B, all arranged to operate substantially as shown and described.

3. In combination with an automatically-tipping tank B, a case inclosing said tank and having its bottom formed with a recess in its front portion, and a raised portion in rear thereof, whereby the water in the recess is forced back upon the raised portion by the tank when tipped, and then flows back from the raised portion to assist in raising the tank to its normal position, substantially as specified.

In witness whereof I hereunto set my hand in the presence of two witnesses.

ISAAC D. SMEAD.

Witnesses:
WILL A. BAKER,
HARRY A. BENNETT.