

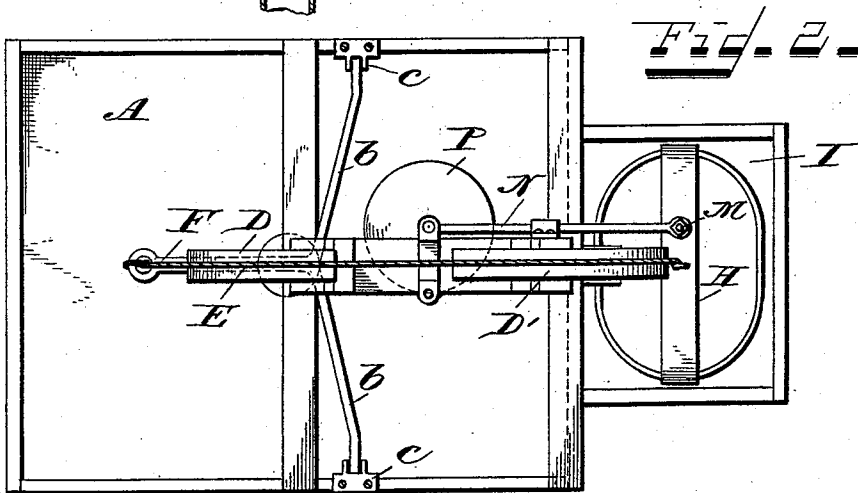
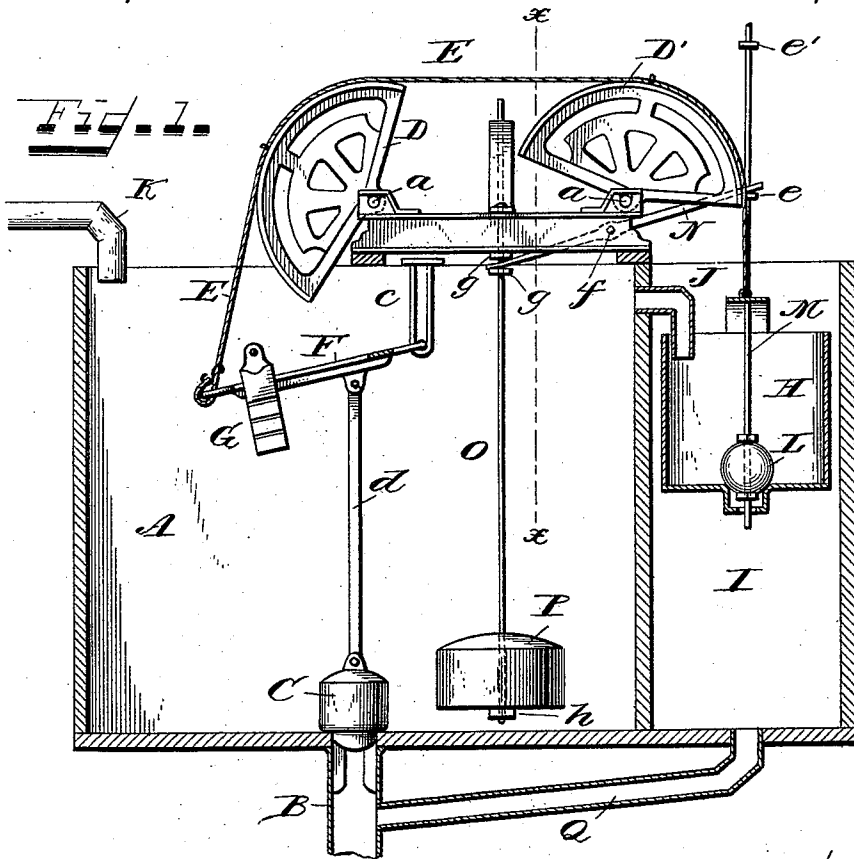
(No Model.)

2 Sheets—Sheet 1.

W. W. ENSIGN.  
AUTOMATIC FLUSH TANK.

No. 527,599.

Patented Oct. 16, 1894.



WITNESSES:

*J. Thomson Cross*  
*Bernard Hausfeld.*

INVENTOR

*William W. Ensign,*  
BY *Chas. M. Beck*  
his ATTORNEY

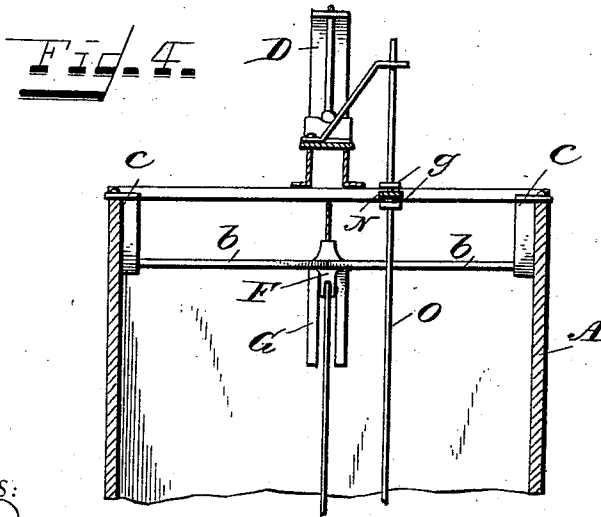
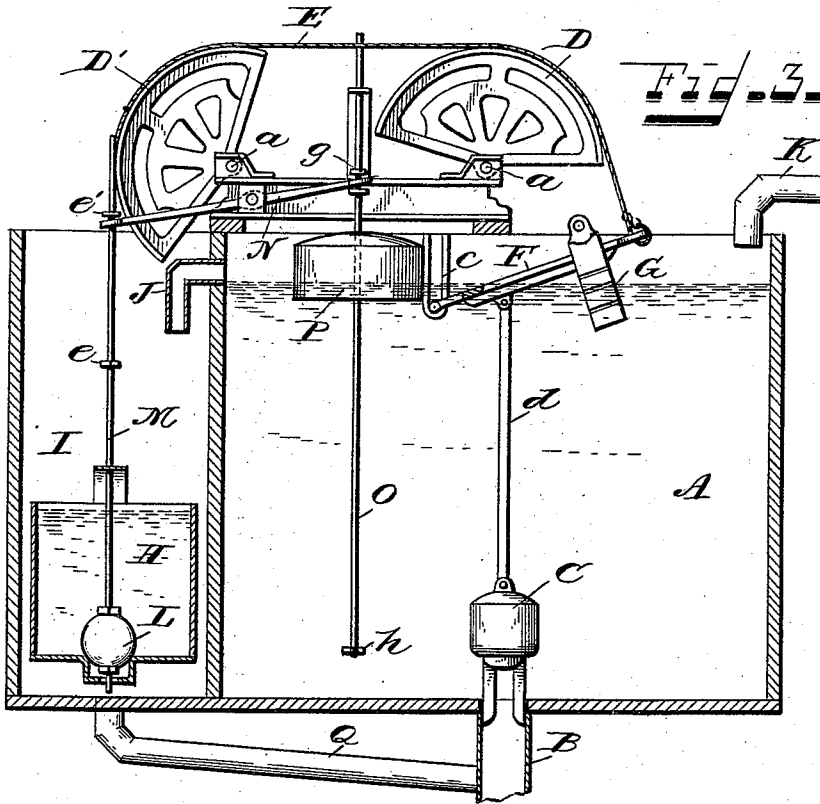
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2 Sheets—Sheet 2.

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*Thomson Cross*  
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 HIS ATTORNEY

# UNITED STATES PATENT OFFICE.

WILLIAM W. ENSIGN, OF CINCINNATI, OHIO, ASSIGNOR TO THE PECK-WILLIAMSON HEATING AND VENTILATING COMPANY, OF SAME PLACE.

## AUTOMATIC FLUSH-TANK.

SPECIFICATION forming part of Letters Patent No. 527,599, dated October 16, 1894.

Application filed June 2, 1894. Serial No. 513,303. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM W. ENSIGN, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful improvements in Automatic Flush-Tanks, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to that class of flush tanks for water closets or sewers which are automatically and periodically discharged to effect the flushing, and it has for its object the improved and simplified construction of the same whereby their efficiency is increased.

The novelty of my invention will be hereinafter set forth and specifically pointed out in the claims.

In the accompanying drawings:—Figure 1, Sheet 1, is a sectional side elevation of a flush tank embodying my invention. Fig. 2, Sheet 1, is a plan view of the same. Fig. 3, Sheet 2, is a reverse sectional side elevation showing the flushing valve just opened. Fig. 4, Sheet 2, is a partial transverse section on the dotted line  $x-x$  of Fig. 1, looking to the left.

The same letters of reference are used to indicate identical parts in all the figures.

A is the flush tank, of the usual or any suitable construction, having a discharge pipe B leading from its bottom to the point of delivery, and with a valve C seated and suitably guided in the mouth of the pipe B within the tank. Suitably pivoted as at  $a$ , above the tank, are two segment levers D D' over which is passed and secured a chain or cord E, the end of which depending from the segment D is secured to a lever F, having side arms  $b$ , Fig. 4, hung in slotted supports  $c$  on the inner side of the tank at the top. Adjustable on the lever F is a weight or counterpoise G and connecting the lever F and valve C is a pivoted link  $d$ . The opposite end of the chain or cord E depending from the segment D' is secured to a bail on a bucket H suspended in a water tight compartment I at the end of the tank A and formed integral therewith if desired.

When the tank A is empty the weight of the counterpoise G is sufficient to hold the

empty bucket H suspended to its highest position in the compartment I and to hold the valve closed, as seen in Fig. 1.

J is an overflow pipe from the upper part of the tank A into the mouth of the bucket H and so arranged that, when the tank A is filled by its overflow pipe K, the water flows through the pipe J into the bucket H which is of such size that, when filled or nearly so, the weight of the water and bucket overcomes that of the counterpoise G and the bucket descends in its compartment, thereby turning the segments D D' and lifting the lever F and raising the valve C from its seat to permit the water in the tank A to escape through the pipe B. The position of the parts at this period is shown in Fig. 3 and it is evident that to restore them to the position of Fig. 1, and to reclose the valve C, the bucket H must be emptied, to permit the counterpoise G to raise it again.

As a simple and efficient means of emptying the bucket, I provide an opening in its bottom adapted to be closed by a valve L, in this instance a rubber ball carried on a vertical rod M guided, through an aperture in the bail of the bucket and provided on its upper end with two shoulders or pins  $ee'$  some distance apart. Pivoted as at  $f$  is a lever N through a fork or perforation in the outer end of which the rod M passes between the shoulders  $e e'$ , and said lever carries on its inner end a vertical rod O within the tank A and on which is free to slide a float P. In this instance the inner forked or perforated end of the lever N encompasses the rod O between two shoulders  $g$  fast on said rod. The adjustment of the parts is such that when the tank A is nearly filled up to the point of overflow through the pipe J, the top of the float P comes in contact with the shoulder  $g$  and tilts the lever N thereby pressing its outer end down upon the shoulder  $e$  and forcing the valve L to its seat to close the opening in the bottom of the bucket. When the bucket has been filled by the overflow and has descended in its compartment and thereby opened the valve C, the float P sinks with the water in the tank A until it is arrested by the stop  $h$  on the bottom of the rod O and, the water ceasing to sustain it, the weight of the float

is sufficient to retilt the lever N and lift the valve L from its seat thereby permitting the escape of the water from the bucket. In thus raising the valve L the lever N acts upon the

5 shoulder *e'* which is in contact with the lever N when the bucket is lowered, as seen in Fig.

3. The water escaping from the bucket flows out of the compartment I, through a pipe Q leading beneath the tank A into the pipe B, and serves as an after-flush or after-fill for the closet or sewer. As soon as the bucket is emptied the counterpoise G comes into play as before described and resets the parts and closes the valve C to permit a repetition of

15 the operation.  
By regulating the amount of the inflow to the tank A, the automatic action of flushing can be timed as desired so as to flush, say, once an hour, or every half hour, or any other  
20 desired period of time, as will be readily understood.

While the use of segment levers D D' is preferable, these parts might be simply rollers or lever arms for guiding the connection  
25 between the bucket and lever F.

Having thus fully described my invention, I claim—

1. In a flush tank apparatus, the combination of the flushing tank with a constant  
30 source of water supply, a weighted valve therein controlling the exit opening, a suspended bucket to receive the overflow of the tank, a connection between said weighted valve and bucket, a valve in the bucket, a  
35 float in the flush tank and connections between said float and bucket valve, whereby

when the bucket is filled it will open the flush tank valve, and whereby when the flush tank is empty the float will open the bucket valve, substantially as described.

2. In a flush tank apparatus, the combination of the flushing tank with a constant source of water supply, a valve therein controlling the exit opening, a weighted lever connected to said valve, a suspended bucket  
45 to receive the overflow of the tank, a connection between said lever and bucket, a valve in the bucket, a float in the flush tank, and connections between said float and bucket valve, whereby when the bucket is filled it  
50 will open the flush tank valve, and whereby when the flush tank is empty the float will open the bucket valve, substantially as described.

3. In a flush tank apparatus, the combination of the tank A with adjacent compartment I, the pipe B leading from the tank A, the pipe Q leading from compartment I to pipe B, the pivoted segments D D' connected by chain or cord E, the weighted lever F connected to one end of said chain and carrying  
60 valve C for pipe B, the bucket H in compartment I connected to the opposite end of the chain, the valve L in the bucket H carried by rod M, the lever N engaging said rod at one end and a second rod O in tank A at  
65 its opposite end, a float P free to slide on the rod O, and overflow J, substantially as and for the purpose described.

WILLIAM W. ENSIGN.

Witnesses:

J. THOMSON CROSS,  
CHAS. M. PECK.