

(No Model.)

2 Sheets—Sheet 1.

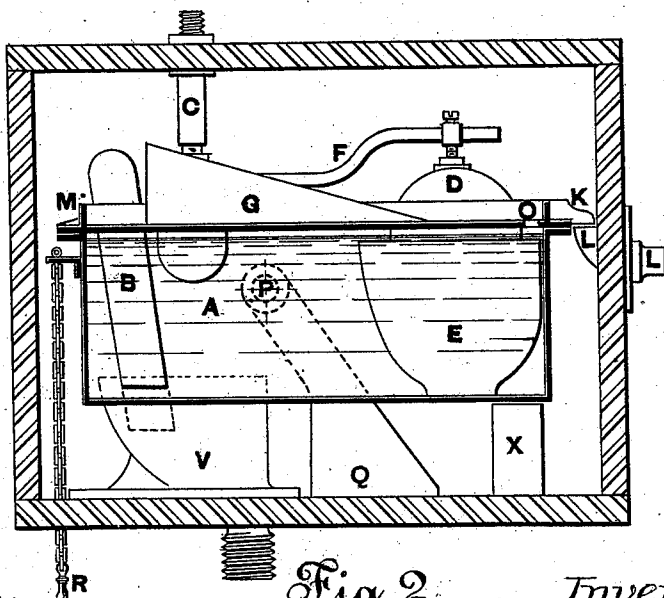
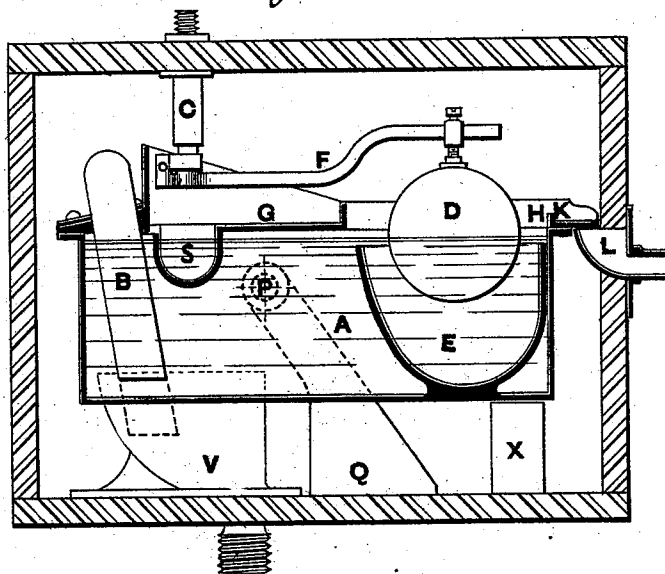
T. & J. HOLT.

FLUSHING CISTERN FOR WATER CLOSETS, &c.

No. 402,246.

Patented Apr. 30, 1889.

Fig. 1.



Witnesses:

Wm. A. Brantner

Frank C. Gruen

Fig. 2.

Inventors:

Thomas Holt
James Holt

by their Atty.

W. D. Johnston

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Fig. 3.

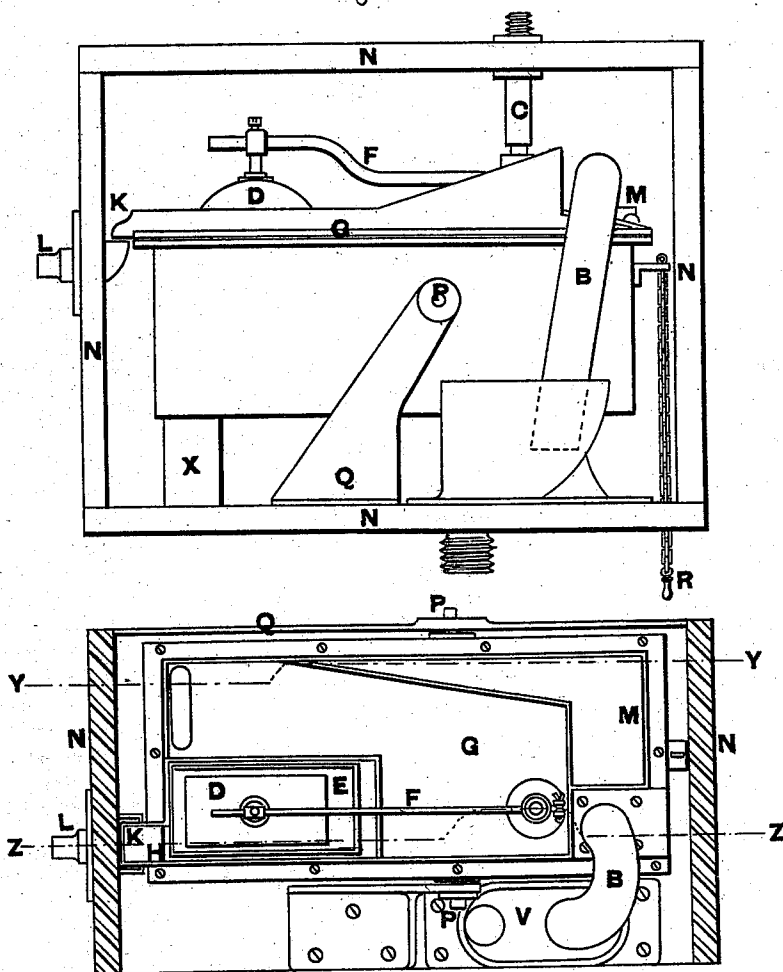


Fig. 4.

Witnesses:

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UNITED STATES PATENT OFFICE.

THOMAS HOLT AND JAMES HOLT, OF LIVERPOOL, COUNTY OF LANCASTER,
ENGLAND.

FLUSHING-CISTERN FOR WATER-CLOSETS, &c.

SPECIFICATION forming part of Letters Patent No. 402,246, dated April 30, 1889.

Application filed March 29, 1888. Serial No. 268,821. (No model.) Patented in England March 31, 1886, No. 4,496.

To all whom it may concern:

Be it known that we, THOMAS HOLT and JAMES HOLT, subjects of the Queen of Great Britain, and residents of Liverpool, in the county of Lancaster, England, have invented certain new and useful Improvements in Flushing-Cisterns for Water-Closets, &c., (for which we have obtained a patent in Great Britain, No. 4,496, March 31, 1886;) and we do hereby declare that the following is a full, clear, and exact description of our invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention has for its object a cheap and serviceable flushing siphon-cistern so arranged that water can only pass into the flush-pipe when the cistern is brought into and is in action, and that all water passing into the flush-pipe must enter by and at the mouth of the siphon, and that when the cistern is not in action no water can possibly enter the flush-pipe, the supply of water to the cistern being by our apparatus stopped before the flushing commences or before the cistern is brought into action.

Referring to the drawings, Figure 1 is a vertical section along line *z z* of Fig. 4. Fig. 2 is a vertical section along line *y y* of Fig. 4. Fig. 3 is an elevation of the rear side of the cistern, showing the long leg of the siphon and the funnel or upper end of the flush-pipe in which it vibrates. Fig. 4 is a plan.

The apparatus, which is inclosed in a suitable casing, consists of a cistern, A, supported on pivots P, located in two brackets, Q. The pivots are fixed nearer one end than the other, and the long end is adapted to rest upon a supporting-block, X, when the cistern is in a level position. The opposite end of the cistern has attached to it a chain or cord, R, provided with a handle, by means of which the shorter end may be tilted downward.

In referring to the two ends of the cistern hereinafter the shorter end will be called the "falling" and the longer the "rising" end.

B represents a siphon, whose short leg extends down into the cistern nearly to its bottom when the cistern is level. Its long leg extends down on the outside of the cistern into a funnel-shaped vessel, V, connecting

with the upper end of the flush-pipe. The siphon is arranged so that the turn will be above the upper edges of the cistern's sides, and consequently any leakage or supply of water into the cistern, when not in action, would overflow the sides before it could get into the flush-pipe. The tilting of the cistern is done in order to bring the upper bend of the siphon below the surface of the water in the cistern, so that the water will charge the siphon and thus empty the contents of the cistern into the flush-pipe.

To the cistern is fixed a water-tight cover, G, and the sides of the cistern are carried above the top surface of the cover any desired height, generally about one inch; but where the supply-valve C is placed the height is more, the sides being carried up to well inclose the supply-valve, so as to catch any splash that may be caused by delivery of water from the supply-valve onto the cistern-cover and prevent it from going outside of the cistern. The valve C is fixed above the falling end of the cistern, and the float D operating this valve is fixed at the rising end of the cistern. In the cover G, directly under the supply-valve, a depression or hollow, S, is formed to contain water, and this receiving the water from the supply-valve prevents the splash that would otherwise take place. The water is led off across the cover through a port, O, at the rising end into the cistern.

The float D plays in an opening in the cover, which opening is surrounded by a flange to prevent water from passing into the cistern through it. At the rising end of the cistern, and in the side, an overflow-channel, K, is formed by cutting away a portion of the side any desirable width from the top edge of the side, and continuing this cutting in any approved form to over the mouth of a fixed overflow-pipe, L.

In the case of self-acting water-closets and urinals the cistern is so balanced that when at rest it lies in its tilted position, the falling end down, and is brought to its level position by the action of the water-closet or urinal apparatus when being used.

The overflow-channel in the case of self-acting water-closets and urinals is formed in the sides of the falling end of the cistern, and it

may also be at this end in cisterns actuated by a pull, if desired.

A cup or its equivalent, E, is fixed with its open end upward in and at the rising end of the cistern and directly under the opening formed in the cistern-cover to allow the supply-valve float D to pass, and in this cup the float is buoyed. The upper edges of this cup are arranged to be under water when the cistern contains its desired quantity, and, by preference, only just under the surface of the water. When the cistern is tilted, the cup, being carried up, takes along with it its contents and also the float. A portion of the contents of the cup is discharged into the cistern, but sufficient remains to hold up the float and keep the supply-valve closed while the cistern remains tilted.

The operation is as follows: Assuming the cistern to be filled with water just over the top edge of the cup E, then on pulling down the falling end of the cistern A the bend of siphon B is brought below the surface of the water contained in the cistern A. The water falls into the siphon, charges it, and causes the required discharge of the cistern into the funnel V. This takes place whether the cistern be held down, tilted, or allowed to resume its level position. The rising end carries up the cup E and its contents, part of which is discharged into the cistern, and the remaining portion holds up the float, which, by means of the lever F, keeps the supply-valve closed. When the cistern resumes its level position, the cup E and the water in it drop away from the float D, which in falling opens the supply-valve C. The water, being then delivered onto the cistern-cover G, runs along it to the opening O and into the cistern. When the cistern is nearly full, the water falls

into the cup E, lifting the float D and shutting off the supply of water from valve C. The cistern is then ready for another discharge.

If there be any leakage of the supply-valve C, the cistern will fill until the water reaches the overflow-bridge H, over which it will run into the channel K, and thence away by the pipe L.

Should the cistern be tilted when the supply-valve is leaking, the leakage would not run into the lower part of the cistern by the opening O or to the overflow-channel, but in the opposite direction, and if the cistern be tilted a sufficient time the water will run over the edge M of the cistern, and thus give notice of the waste, as well as making inconvenient any use of the cistern until the necessary repair is effected and waste by leakage prevented.

We claim as our invention—

The combination, with the supply-valve of a tilting flushing-cistern, located so as to deliver its water onto the cistern-cover near the falling end, of a cover formed with an opening into the cistern at the rising end, and with its edges extending some distance above the top of the cover, whereby the water of the supply-valve is not allowed to enter the cistern when the cover is in a tilted position.

In testimony that we claim the foregoing as our invention we have signed our names in presence of two witnesses.

THOMAS HOLT.
JAMES HOLT.

Witnesses:

H. HERBERT WEIGHTMAN,
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JAMES GARDNER,
Tattenhall, Nr. Chester, Gentleman.