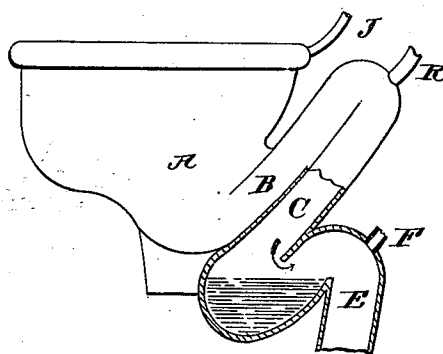
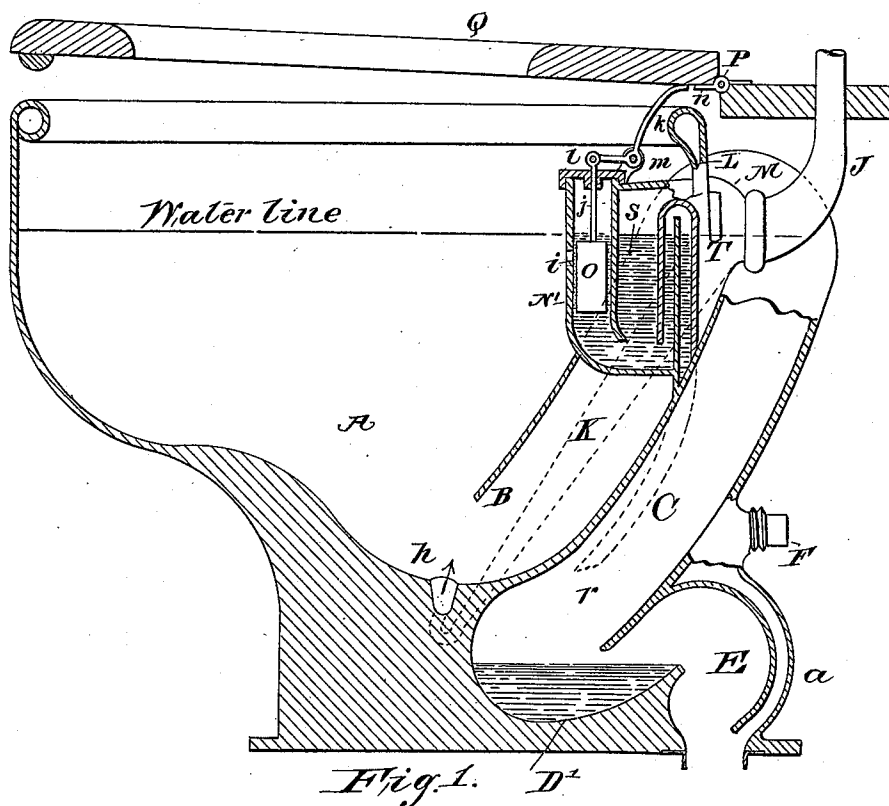


(No Model.)

E. C. STOVER.
SIPHON WATER CLOSET.

No. 562,047.

Patented June 16, 1896.



Witnesses,
J. Kennedy.
Wally Phelps

Fig. 2.

Inventor,
Edward C. Stover
by W. P. Phelps Jr
his atty

UNITED STATES PATENT OFFICE.

EDWARD C. STOVER, OF TRENTON, NEW JERSEY.

SIPHON WATER-CLOSET.

SPECIFICATION forming part of Letters Patent No. 562,047, dated June 16, 1896.

Original application filed July 16, 1892, Serial No. 440,234. Divided and this application filed November 4, 1892. Serial No. 450,953. (No model.)

To all whom it may concern:

Be it known that I, EDWARD C. STOVER, a citizen of the United States, and a resident of the city of Trenton, county of Mercer, and State of New Jersey, have made certain new and useful Improvements in Siphon Water-Closets, of which the following is a specification, the same being a division of an application filed by me July 16, 1892, Serial No. 440,234.

My invention relates to that class of water-closets in which the bowl is siphoned out by priming the longer leg of the siphon principally with water received through the flushing-pipe, and is applicable both to closets which employ the up-jet and those which employ the down-jet.

The object of my invention is to provide such closets with improved devices for starting, operating, or terminating this siphoning action.

In the accompanying drawings, Figure 1 shows one form of applying my invention to an up-jet closet in connection with a flushing-tank. Fig. 2 is a detail showing the sealing device which terminates the action of the siphon as applied to down-jet closets.

Same letters indicate similar parts in the different drawings.

A is the hopper of the closet-bowl, provided with a siphon, of which the shorter leg is designated by B and the longer leg by C. The mouth of the siphon is partially sealed by the pocket D', which serves as a partial trap for the mouth of the siphon, sealing the mouth and setting up a siphonic action as soon as the water rises enough to submerge the lower end of the partition between the siphon and the discharge-pipe E and unsealing the mouth of the siphon as soon as the level of the water in said pocket falls below the said partition. The discharge-pipe is vented by the vent *a*, leading to the pipe F, which connects with the outer air.

J is a flushing-pipe which leads to the closet and supplies the same with water from a siphon supply-tank (not shown) with which its upper end is connected.

The flushing-pipe J, when used with an up-jet closet, as shown in Fig. 1, separates into branches, one of which, K, leads to the bottom part of the bowl, which it enters at *h*, send-

ing water up the shorter leg of the siphon, as indicated by the arrows, another of which, L, leads to the flushing-rim, and a third branch, M, leads to the plunger-chamber N', in which plays the plunger O, as hereinafter described, under the action of the seat Q.

The aperture *i* is provided through the side of the plunger-chamber N', into the hopper of the bowl, below the water-line. The plunger O is connected by the rod *j* to the bent lever *k* at *l*. The end of the lever rests against the seat Q, and the lever is pivoted at *m* to a lug on the plunger-chamber. The seat depresses the outer end of the lever *k* to raise the plunger. The seat Q is hinged to the rest of the framework, as shown at *p*. This plunger is intended for the purpose of the withdrawal of air from the flushing-pipe by suction, thereby starting into action the flushing-tank without the use of a pull-rod or any similar device and without any mechanical connection between the seat and the flushing-tank.

The operation of the plunger is as follows: The parts being in their normal position, the plunger O is below the water-line, the bowl A, leg B, plunger-chamber N', and branches K and L of the flushing-pipe J being filled with water to the water-line shown in the drawings. The rest of the flushing-pipe J and branch L, including the branch M and the upper part of the plunger-chamber N', are filled with air. As soon as the seat Q is depressed it depresses the end of the lever *k* and raises the plunger O, allowing water to fill the chamber N' below it. As soon as the seat Q is raised the plunger O falls by its own weight, forcing the water ahead of it until the siphon T is primed, when the chamber N' begins to siphon out, thus producing a suction on the air in the flushing-pipe J, and thereby starts the action of the siphon-tank, with which said pipe is connected, by reason of the fact that the pressure of the air in the pipe J becomes less than that of the atmosphere on the water in said siphon-tank.

The plunger O and its connection with the seat Q may be omitted and the device rendered automatic by producing a suction on the air in the flushing-pipe J, by reason of the fact that the siphon T, leading from the plun-

ger-chamber, is of small diameter, compared with the main outlet through the siphon B C. It is obvious that when the water-line of the bowl is raised so as to overflow into the longer leg of both siphons the siphon T becomes easily primed and begins to act, whereas the large quantity of air in the siphon-leg C renders the same difficult to prime. The siphonic action of the plunger-chamber being once started, the suction on the air of the flushing-pipe J is produced in the same way as described for the plunger. As thus employed, my invention is applicable to any sort of sanitary appliance or similar article which requires automatic flushing.

As before stated, and as will be readily seen in the drawings, the pocket D' unseals itself after the flushing ceases.

The action of the down-jet in connection with the pocket D', as illustrated in Fig. 2, will be readily understood without further explanation.

It will be readily understood by persons actually engaged in the manufacture of siphon water-closets that the pocket D' and the up-jet or down-jet have a great interaction upon each other and render the action of the closet very much quicker and thorough than is the case when only one of these devices is employed. This arises from the fact that when the pocket alone is employed, without an up-jet or down-jet, the siphonic action will not begin until the water in the hopper has risen enough higher than the overflow-point to expel the air which lies above the pocket, and therefore the action of the siphon is slow.

The jet by driving the air of the siphon before it without regard to the level of the water in the hopper starts the siphon at the very beginning of the flushing. On the other hand, the presence of the pocket renders the jet itself more thorough by preventing the air from scattering and creeping back to break the siphonic action before it becomes well started.

I claim—

1. A siphon water-closet provided with a plunger-chamber, which communicates with the flushing-pipe above the water-line, and devices whereby the plunger in said chamber is raised by the depression of the seat, and which also communicates with the longer leg of the siphon of the bowl, by means of an auxiliary siphon, which is primed by the falling of said plunger, through its own weight, when released by the seat, whereby the flushing action is started, substantially as described and for the purposes specified.

2. In water-closets and other sanitary appliances, an auxiliary chamber connected with the flushing-pipe and with the hopper and provided with a siphon, the longer leg of which opens into the main outlet and overflows at the same water-line and is of smaller diameter than said main outlet, and means for starting the action of said siphon, substantially as described and for the purposes specified.

EDWARD C. STOVER.

Witnesses:

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J. KENNEDY.