H. W. MERKEL.

CLOSET FLUSH.

APPLICATION FILED SEPT. 14, 1911.

1,037,034. Patented Aug. 27, 1912

Fig. 1.

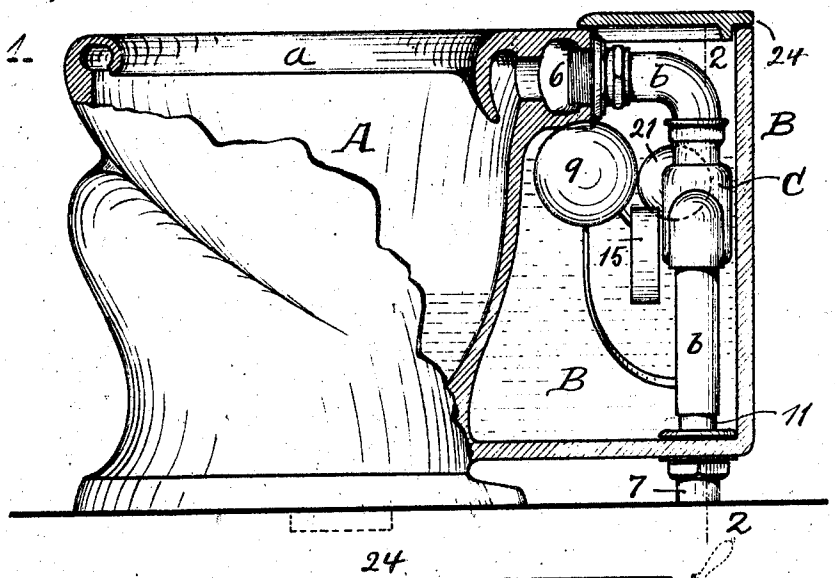


Fig. 2.

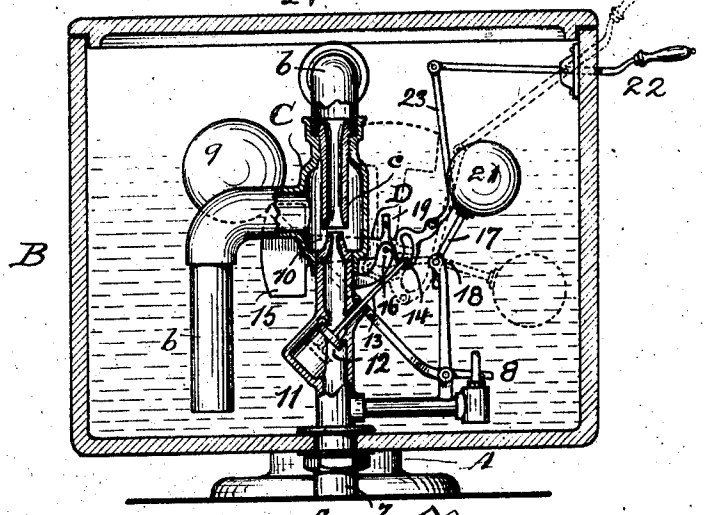
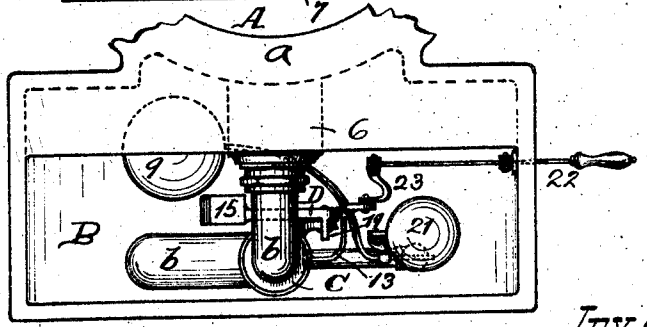


Fig. 3.



Witnesses-
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CLOSET-FLUSH.

1,037,034. Specification of Letters Patent. Patented Aug. 27, 1912.

Application filed September 14, 1911. Serial No. 649,321.

To all whom it may concern:

Be it known that I, HENRY W. MERKEL, a citizen of the United States, and residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented a certain new and useful Closet-Flush; and I do declare the following to be a clear, full, and exact description of the invention, attention being called to the drawing which accompanies this application and forms a part thereof.

Broadly considered closet-flushes may be of two kinds. In one kind water stored in an open tank is used and after released by manipulation of an outlet valve, moves by gravitation and flushes the closet. In the other kind pressure is used to move the water and open tanks are usually omitted. In the first kind the storage-tanks are always above the closet and require conditions permitting their support accordingly which is usually on a wall. Closets must be positioned therefore correspondingly and often positions otherwise suitable cannot be used if the required support for the tank is not available. The second kind requires excessively large supply-mains, especially where possibility exists of simultaneous use of several closets. I have designed a certain closet flush which overcomes these objections as to dependency of the flush-tanks for support in any particular position and as to the requirement of large supply-pipes, so that closets constructed accordingly and provided with my flushing means may be more readily placed without being restricted to certain positions.

In the following specification and particularly pointed out in the claims at the end thereof, will be found a full description of my invention, together with its operation, parts and construction, which latter is also illustrated in the accompanying drawing, in which:—

Figure 1, is a vertical longitudinal section through a closet provided with my flushing means. Fig. 2, in a section taken transversely to the former-section and on a line 2—2 of Fig. 1, illustrates the flushing mechanism. Fig. 3, is a top-view of the tank and rear part of the closet.

In the drawing, A illustrates a closet bowl of conventional shape provided with a flushing-rim *a* around its upper edge whereby the flush-water is properly directed and caused to spread over the inside of the bowl.

B is a storage-tank for the flush-water and *b* is the flush-pipe connecting it with the closet-bowl by means of a nipple 6, projecting from the flushing-rim *a*. This tank is supplied from a pipe 7 controlled in the usual manner by a float-operated cock 8, of which 9 is the float. It will be observed that the flush-water which discharges from tank B, leaves the same at the top from which it follows that said tank does not require a position elevated with reference to the bowl. As a matter of fact it might be lower and may be conveniently supported upon the floor. By preference and in order to have the closet and all its appurtenances self-contained, the tank is supported on the rear-side of the closet and when the closet is made of earthenware or metal, both bowl and tank may form an integral structure. This position of the tank requires that the water is lifted out of it in order to get it into the bowl. For this purpose I provide means operating on the principle of an injector and whereby water is induced to move by a vacuum caused by the suction which a fluid moving under pressure produces. Accordingly I provide such means in connection with the flush-pipe and as shown at C, which means by reason of their function I designate as an ejector. *c* is the throat of this ejector and 10 is the nipple from which the movement-inducing fluid discharges into said throat. This liquid is water derived from the same source which supplies the tank and passes with the water stored therein into the closet so that, as will be seen, the flush from the tank is augmented by directly admitted water and speedily ejected by the forcible action of the same. The effect is practically the same as in a closet with direct pressure-flush with this advantage however that no excessively large supply pipe is needed inasmuch as the water stored in the tank passes in with the directly admitted water. On the other hand and by reason of this directly admitted water, less stored water is needed and a smaller tank may be used.

Nipple 10 is provided at the end of a supply-fitting 11, arranged to permit connection with the supply pipe and also attachment of the float-operated cock 8. Discharge from nipple 10 is controlled by a valve 12 which, when open, permits water to flow through the ejector and starts the action of this latter whereby water stored in the tank is drawn out of it and ejected

into the closet. Actuation of this valve may be by any means, directly manual both for the positive opening and closing of it, or only partly so and as to its opening, it closing automatically after having been opened by direct manipulation. It might also be caused to open automatically as for instance by mechanism actuated by the seat. As shown the valve is opened positively by manually operated means and thereafter closed automatically. For such purpose the end of valve-stem 13 is operatively connected to the slotted end 14 of a lever D, weighted at its other end 15 and pivotally supported at 16. By raising this lever at its weighted end from the position shown in Fig. 1, to the position shown in dotted lines, valve 12 is opened and the flushing operation starts. When so raised lever D is only slightly beyond a balanced position so that when the end of another lever 17 pivoted at 18 contacts with and bears against a projection 19 on lever D, this latter is readily tilted and caused to drop back into its original position whereby it closes the valve. Lever 17 is actuated for this purpose by a weighted float 21 provided at its other end and dropping with the receding level of the water in the tank. This causes also ball-cock 8 to open and admit water to replenish the tank supply. For the manipulation of weighted lever D, to actuate valve 12, I provide a hand-lever 22 connected to lever D by a link 23.

The tank is preferably closed by means of a loosely fitting lid 24.

Having described my invention, I claim as new:

1. In a closet-flush, the combination of a closet bowl and of a storage tank disposed rearwardly of the former, both being of substantially even height, an automatically controlled supply to this tank, a flush-pipe whereby the tank and the closet are in constantly open communication and which pipe with its lower end terminates near the bottom of the tank, its upper, open end being in communication with the upper part of the closet-bowl, an ejector device in communication with this flush-pipe between the ends thereof, a supply to this ejector, a valve which controls this supply, manually operatable means for manipulating this valve to open the supply to the ejector and automatically actuated means for closing this valve.

2. In a closet-flush, the combination of a closet bowl and of a storage tank disposed rearwardly of the former, both being of substantially even height, an automatically controlled supply to this tank, a flush-pipe whereby the tank and the closet are in constantly open communication and which pipe with its lower end terminates near the bottom of the tank, its upper, open end being in communication with the upper part of the closet-bowl, an ejector device in communication with this flush-pipe between the ends thereof, a supply to this ejector, a valve which controls this supply, a stem on this valve, a weighted lever in operative connection with this stem, a hand-lever in operative connection with the weighted lever and whereby the same may be tilted in a manner to effect opening of the valve which controls the ejector supply and a float-controlled lever for returning the weighted lever to its normal position in which it closes the valve which controls the ejector supply.

In testimony whereof, I hereunto affix my signature in the presence of two witnesses.

HENRY W. MERKEL.

Witnesses:
C. SPENGEL,
T. LE BEAN.