(No Model.)

W. SMITH.

WATER CLOSET.

No. 492,947. Patented Mar. 7, 1893.

Fig. 1.

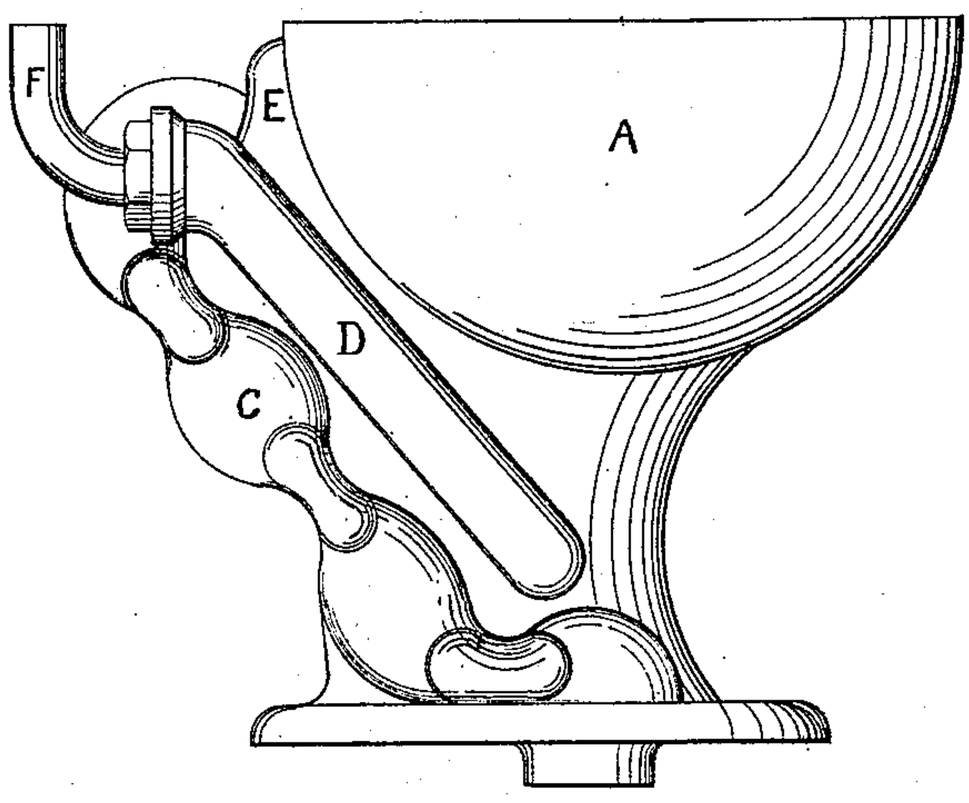


Fig. 2

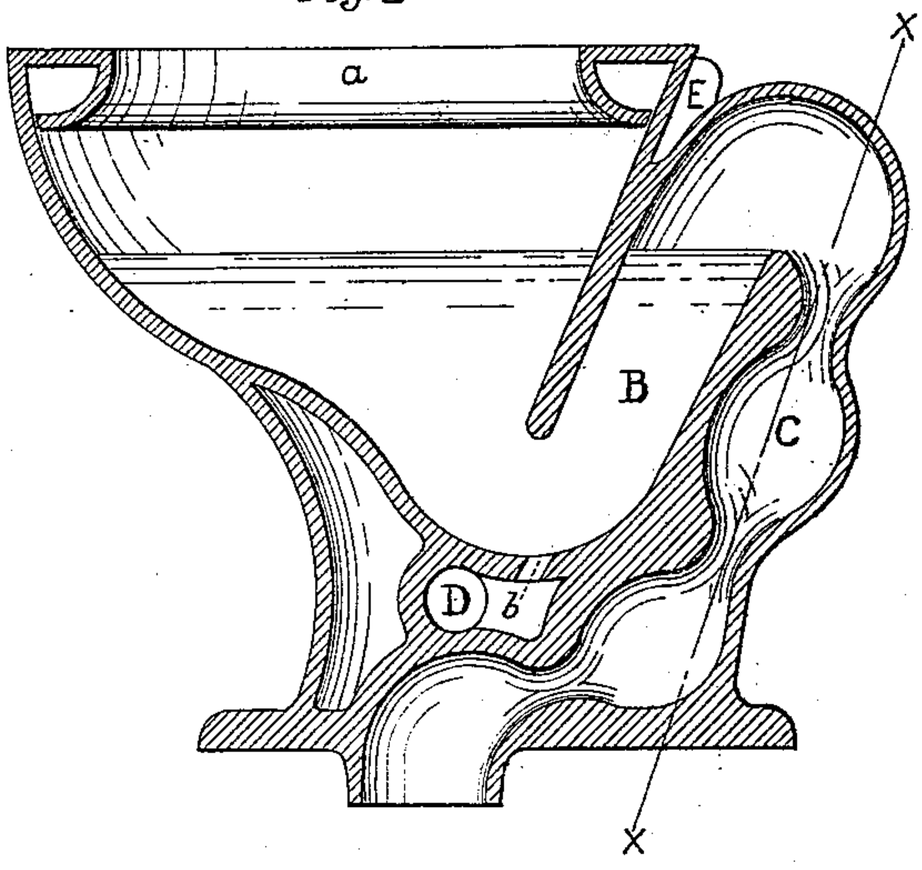


Fig. 3.

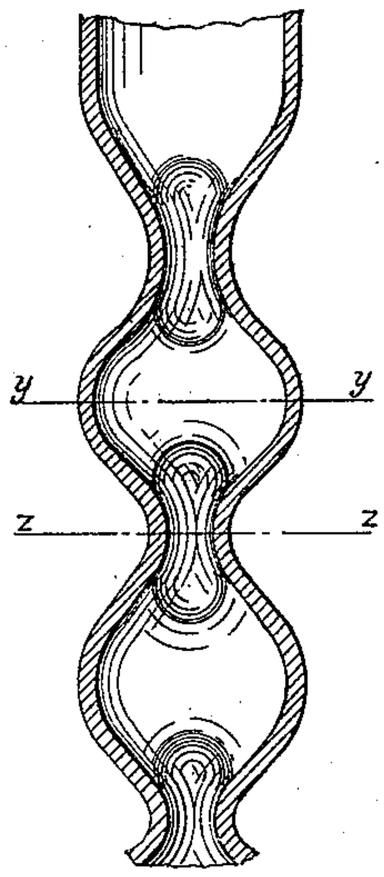
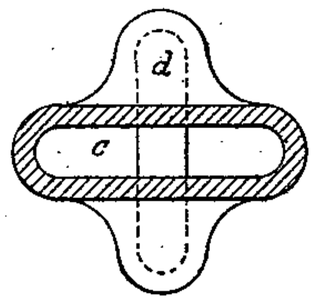


Fig. 4.



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WATER-CLOSET.

SPECIFICATION forming part of Letters Patent No. 492,947, dated March 7, 1893.

Application filed October 25, 1892. Serial No. 449,966. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM SMITH, a citizen of the United States, residing at Trenton, in the county of Mercer and State of New Jersey, have invented certain new and useful Improvements in Water-Closets; and I do hereby declare the following to be a full, clear, and exact description of my said invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to water closets, and particularly to that class of water closets in which the contents of the bowl are discharged partially or wholly by siphonic action.

In water closets in which the discharging of the contents of the bowl is dependent upon siphonic action it is found that if the descent of the water through the down limb of the exit passage be too rapid, the water will become commingled with air, and the water lacking the requisite density, perfect siphonic action will not be produced, and the contents of the bowl will be only partially discharged. In the efforts heretofore made to overcome this difficulty, and produce an effective siphonic action various devices have been resorted to, such as lengthening and curving the down limb of the exit passage, as instanced in United States Letters Patent No. 376,311, or forming abrupt deflections therein whereby the down limb is given a zigzag form, as instanced in United States Letters Patent No. 423,182. But in lengthening and curving the discharge limb the closet is generally made bulky, cumbersome, and costly, and is uncertain in operation unless molded to very exact and uniform measurements; while closets made with abrupt deflections in the down leg of the exit passage have a practically uniform diameter throughout the exit passage; and when in operation the descending column of water instead of practically preserving its integrity, a requisite to perfect siphonic action, is inevitably broken to a considerable extent, and becomes correspondingly inefficient.

The object of my invention is to obviate the use of a lengthened and curved down limb of the exit passage, thus reducing the bulk and cost of the closet, and by presenting a continuously and gradually changing diameter of the down limb while affording a uniform area of discharge, to preserve the integrity of the descending column of water while retarding its flow.

I shall now proceed to describe my invention with reference to the accompanying drawings, in which my improvement is shown as applied to an earthenware closet of the siphon jet pattern, and in which

Figure 1 shows a side elevation of a closet containing my improvement. Fig. 2 shows a central vertical sectional view thereof from the front to the back of the closet. Fig. 3 shows a section of a portion of the down limb of the exit passage taken on the line *x*—*x* in Fig. 2; and Fig. 4 shows in full lines a horizontal cross section of the down limb on the line *y*—*y* in Fig. 3, and in full and dotted lines a horizontal cross section of the same on the line *z*—*z* in Fig. 3.

In the drawings A is the bowl of the closet.

B is the up limb of the exit passage.

C is the down limb or discharge portion thereof.

D is the passage through which water is conveyed from the supply pipe F to the jet *b* so located at the lower end of the up limb as to direct a stream of water through the center of said limb in the common and well known manner.

E is a passage leading from the upper end of the passage D, and conveys water from the supply pipe F to the flushing rim *a*. The channel in the down limb is long and narrow in cross section, as shown at *c* in Fig. 4, and the diameters of the channel are changed several times throughout the length of the down limb, the greater diameter of one section of the channel being transverse or at right angles to the greater diameter of a contiguous section of the channel, as appears at *c* and *d* in Fig. 4, one diameter changing to the diameter of the next section by a curved surface, as indicated in Fig. 3. By the use of this construction of the down limb the contents of the bowl are discharged in a comparatively solid column of water which is constantly changing its form in its descent through the down limb of the exit passage by reason of the chain like form of the passage,

and is so retarded in its flow as to prevent a partial disruption of the column and commingling of air therewith, and consequent feebleness of siphonic action.

Having thus described my invention, I claim as new—

1. A water closet, having a siphon exit passage of varying diameters and of equal discharge area throughout its length; substantially as shown and described.

2. A water closet having a siphon exit passage of relatively long and short diameters, the long diameter of one section of the passage being transverse to the long diameters of the contiguous sections of the passage; substantially as shown and described.

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Witnesses:

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