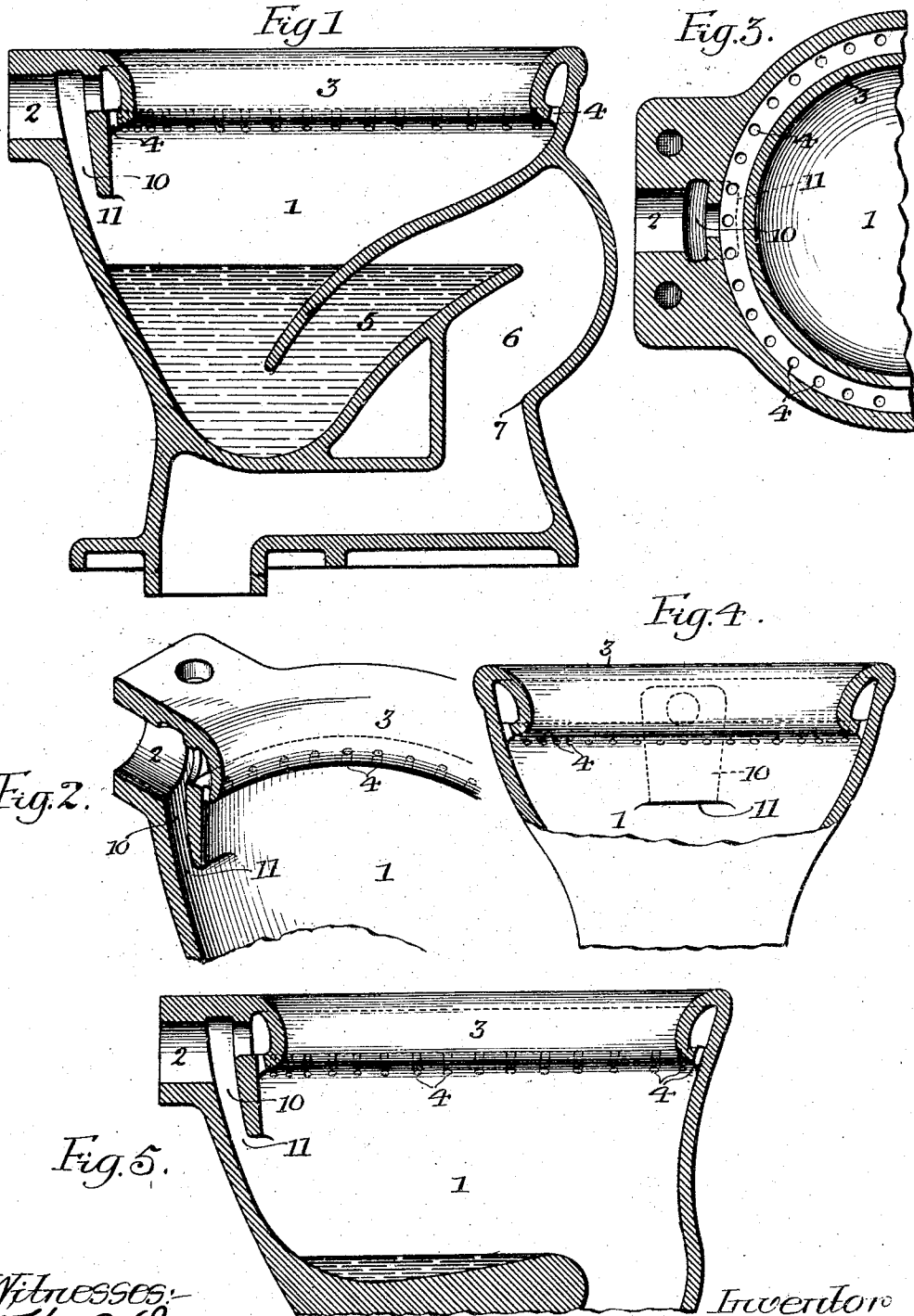


A. COCHRAN.
WATER CLOSET.
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934,422.

Patented Sept. 14, 1909.



Witnesses:
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UNITED STATES PATENT OFFICE.

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WATER-CLOSET.

934,422.

Specification of Letters Patent. Patented Sept. 14, 1909.

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To all whom it may concern:

Be it known that I, ANDREW COCHRAN, a citizen of the United States, and a resident of Trenton, Mercer county, New Jersey, have invented certain Improvements in Water-Closets, of which the following is a specification.

My invention relates to water closet bowls which are emptied by siphonic action; and the object of my invention is to provide an improved form of discharge or outlet for water at the back of the bowl whereby sufficient force is developed at such point in line with the ascending leg of the siphon to insure siphonic action as quickly as possible and clean the contents of the bowl.

A further object of my invention is to provide such discharge opening flush with the surface of the bowl so as to avoid all projecting parts susceptible of retaining foreign matter; to discharge through the same a volume of water greater than that passing through the outlets of the flushing rim; to arrange such discharge above the level of the water seal, and to continue the outlets of the flushing rim entirely around the same so as to insure the washing down and cleansing of the whole inner surface of the bowl, particularly that portion of the same directly above the discharge outlet in the rear wall of the bowl.

My invention is fully shown in the accompanying drawings, in which:

Figure 1, is a sectional elevation of a water closet bowl of the siphonic type having the improvements forming the subject of my invention; Fig. 2, is a sectional perspective view of a portion of the same; Fig. 3, is a sectional plan view of a part of the structure; Fig. 4, is a sectional elevation showing the inner surface of the bowl, and Fig. 5, is a sectional view of another form of closet with which my improvements have been combined.

Heretofore in closets of this type the construction has been such that the entrance of the jet of water to induce siphonic action necessitated the use of a projection or enlargement on the interior of the closet at the rear wall of the same. The presence of said projection was such that any dirt which might collect on the same could not be rinsed or flushed away owing to the fact that the projection prevented the continuation of the an-

nular row of perforations leading from the flushing rim around the rear of the closet.

In the construction of a closet of the above described type in accordance with my invention, I eliminate the projection providing a nozzle for the jet of flushing water, (which may or may not be used for flushing purposes,) and provide a passage having an outlet flush with the rear wall of the bowl for such purpose. In addition, I continue the annular row of openings leading from the flushing rim completely around the bowl.

In the drawings herewith, 1 represents a water closet bowl having a water inlet 2 and the usual rim 3 arranged to receive a certain portion of the water for flushing the bowl; such rim having outlets 4 in its under wall whereby the water entering the same may flow down against the side walls of the bowl during the flushing operation, thereby maintaining the same in a perfectly clean condition. In my improved construction, the row of perforations extends entirely around the bowl.

My improvements are applied principally to closets of the well-known siphonic type such as shown in Fig. 1, in which 5 represents the ascending leg of the siphonic discharge, and 6 the descending leg which is provided with the usual projecting portion 7 designed to cause the water to shoot across said descending leg, thereby creating a vacuum and pulling the contents of the bowl and the water discharged therein out of the same. When the main volume of such discharge has taken place, the remaining water will enter the bowl and form a water seal; the height of which is determined by the inner wall of the discharge leg of the siphon.

In view of the sanitary regulations of the various cities of the country, I provide a closet having a particularly deep water seal, thereby insuring against foul odors passing from the discharge outlet, and with such volume of water it becomes desirable to insure the formation of the vacuum and the inducing of the siphonic action as quickly as possible. To this end, I provide the rear wall of the structure with a passage communicating with the water inlet 2 and receiving the greater quantity of the main supply of water from said inlet; such passage discharging into the bowl 1, directly opposite the ascending leg of the siphon; such

discharge being in the form of a flat stream and as close against the rear wall of the bowl as it can be brought. This passage will have a contracted nozzle or opening 11 leading into the bowl from the back wall of the same, as shown in Figs. 1 and 4, which wall is entirely smooth adjacent said opening, without any projection in the contour of the same due to such opening, so as to render the accumulation of dirt or other foreign matter around the same impossible, and the water rushing from this opening is discharged in such position as to force the contents of the bowl up the ascending leg of the siphon whereby a sufficient volume under sufficient head or force will be discharged into the descending leg as to close the same and create the vacuum before referred to; thereby insuring siphonic action. The other portion of the main supply discharges through the apertures in the bottom of the rim surrounding the bowl in the manner heretofore known, washing down completely the whole surface of said bowl.

It will be noted that the outlet or opening 11 is above the level of water in the bowl forming the seal so that it can never come in contact with the contents of the bowl and will always be kept clean by the water discharging from it as well as that flowing from the openings of the flushing rim directly above it and cascading over that portion of the wall immediately above said opening 11.

In Fig. 5, I have shown a form of wash-out closet with which my improved form of flushing rim construction and nozzle is combined, the discharge of a large volume of water at the rear of the bowl materially assisting the cleansing of the closet.

My improved construction of closet permits the use of much less water in flushing the same; practice showing that it can be made to operate with at least two gallons of water less than that used with closets of the ordinary jet siphon type.

My improved closet may be constructed as readily as other closets of the same general type and is superior to them in its operation.

I consider it broadly new to provide means for delivering water entirely around the bowl from a flushing rim, with means for discharging a large supply at one point from the surface of such bowl. I also consider it broadly new to provide the opening for such large supply above the water seal and flush with the surface of the bowl, to dispose it directly opposite the ascending leg of the siphon discharge, and to so connect it with the inlet of water that the volume discharging from such passage shall be greater than that discharging from the flushing rim.

I claim:

1. A water closet bowl having a wall with a smooth inner surface free from projection, a flushing rim having a series of openings entirely surrounding said bowl through which water may be delivered to the inner surface of said wall, said bowl having at its rear central portion a substantially vertical passage with an outlet opening through the wall of the bowl above the level of water therein for delivery to said bowl in the same direction as the delivery from the flushing rim, and a water inlet supplying the flushing rim and the rear passage leading to the bowl, the front wall of the latter serving to divert the incoming water whereby said passage receives directly under initial pressure a large volume of water sufficient to eject the contents of the bowl.

2. A water closet bowl of the siphon type having a wall with a smooth inner surface free from projection, a flushing rim having a series of openings entirely surrounding said bowl through which water may be delivered to the inner surface of said wall, a passage formed in the rear wall of said bowl having an outlet opening through the wall of the bowl above the level of water therein for delivery to said bowl in the same direction as the flow from the rim, and a water inlet formed in the rear wall of said bowl for supplying the flushing rim and the rear passage leading to the bowl, said passage receiving directly under initial pressure a larger volume of water than that passing to the flushing rim, whereby the contents of the bowl may be promptly ejected and siphonic action induced and maintained.

3. The combination of a water closet bowl having a wall with a smooth inner surface free from projection, of a flushing rim for said bowl having a series of discharge outlets through which water may be delivered to said inner surface of the bowl, said bowl having a passage at the rear for discharging water in the same direction as that discharged from the outlets of the flushing rim, and an inlet for water communicating with said flushing rim and with the passage at the rear of the bowl, the latter receiving under initial pressure a volume of water greater than that passing through the flushing rim, and said passage having its outlet flush with the inner surface of the wall of the bowl and opening into the latter above the water seal.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

ANDREW COCHRAN.

Witnesses:

WM. E. SHUPE,
WM. A. BARR.