No. 741,919. PATENTED OCT. 20, 1903.

P. J. MADDEN.

WATER CLOSET.

APPLICATION FILED JAN. 8, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 1

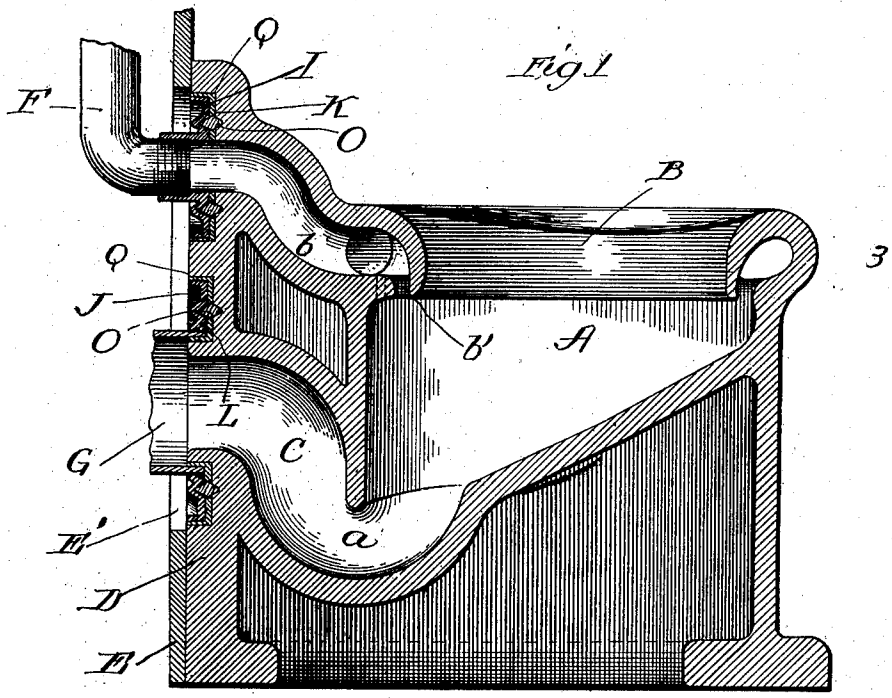
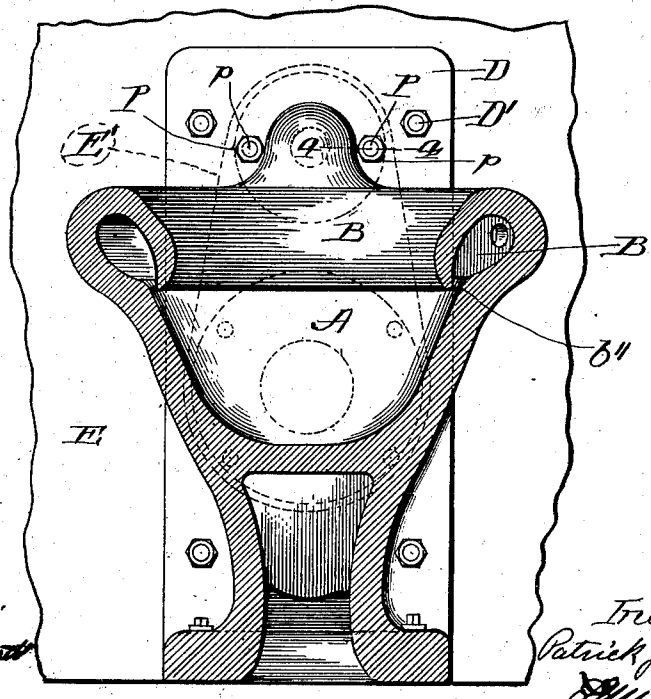


Fig. 2



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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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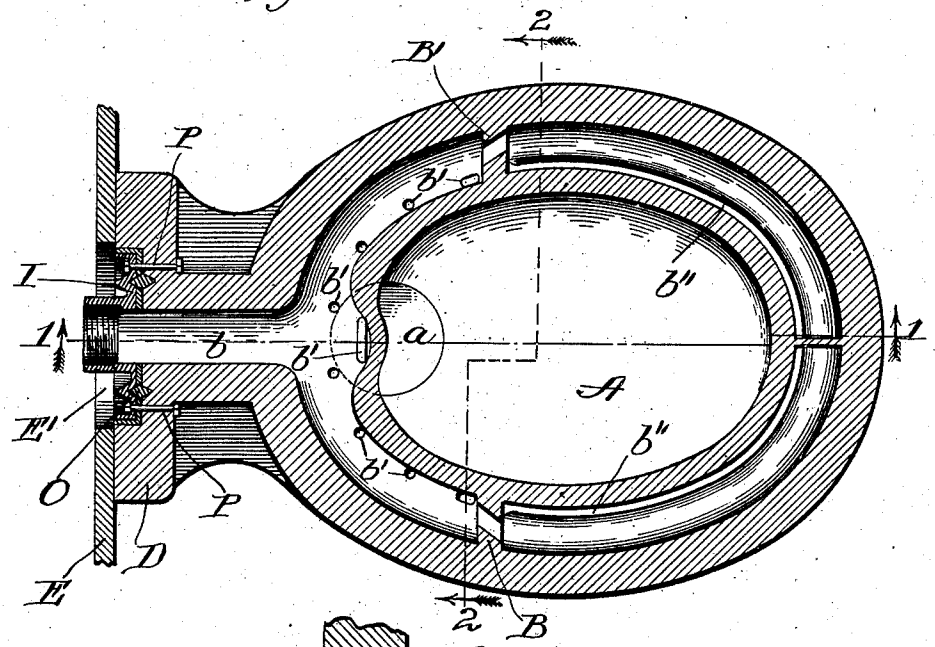
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APPLICATION FILED JAN. 8, 1902.

NO MODEL. 2 SHEETS—SHEET 2.

Fig. 3



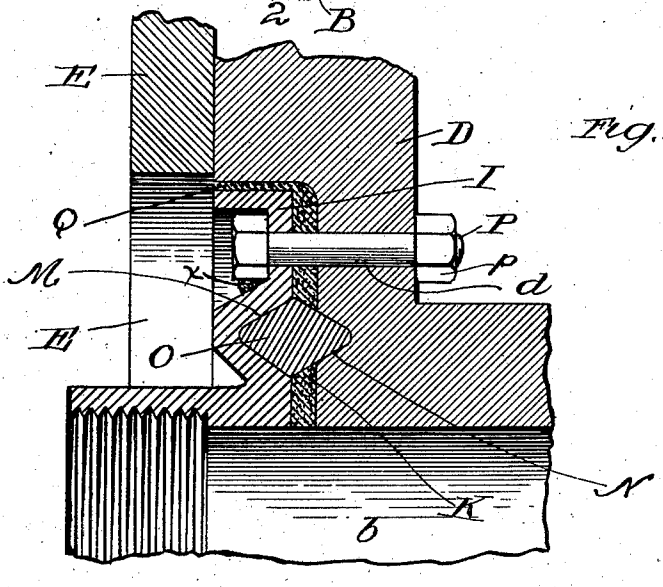


Fig. 4

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No. 741,919. Patented October 20, 1903.

UNITED STATES PATENT OFFICE.

PATRICK J. MADDEN, OF CHICAGO, ILLINOIS.

WATER-CLOSET.

SPECIFICATION forming part of Letters Patent No. 741,919, dated October 20, 1903.

Application filed January 8, 1902. Serial No. 88,894. (No model.)

To all whom it may concern:

Be it known that I, PATRICK J. MADDEN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Water-Closets, of which the following is a specification.

The present invention relates to the hollow rim into which the flushing-water is introduced and by which it is distributed around the bowl and discharged downward thereinto.

The object of the invention is to provide a rim of such construction that at various points around the bowl it will discharge downward thereinto currents or streams of water appropriate in quantity and velocity to the needs or requirements at the several points of discharge. To be more explicit, in most closets of the present day the outlet of the bowl is either at the front or at the back thereof, and in a majority of these it is at the back and communicates with a siphon or other trap which requires a stream of water of considerable volume and velocity to quickly start and thereafter maintain the evacuation until it is completed. In any event there is one part of the bowl which should have discharged into it a greater volume of water or should have the water discharged into it at a greater velocity than other parts, and the object of the present invention is to provide a bowl that will meet these requirements.

Heretofore rims have been so constructed that the water will pass without entering the outlet or outlets intended for its downward discharge and located in the immediate vicinity of the rim-inlet, and not only this, but in some instances the water enters the rim at such velocity that instead of water being discharged into the bowl through these openings in the vicinity of the rim-inlet a partial vacuum will be created within the rim, with the result that air will be drawn through said openings from the bowl and into the rim.

According to my present invention the rim is so constructed that the water will "back up" in it and fill it in the vicinity of its inlet, so that each and every portion of the water-outlet, even that in the immediate vicinity of said inlet, will receive and discharge into the bowl its full quota of water, according to the design and intention of the builder and the needs of the bowl at various points. To this end I provide the rim upon each side of its inlet and at suitable distances therefrom with chokes or dams, which impede the current to the extent necessary to accomplish the object above described, compelling the water to halt and back up toward the inlet sufficiently to insure an ample supply of water to the rim-outlet, and even to that portion of it lying closest to the rim-inlet, while at the same time permitting a part of it to pass on beyond said chokes or dams to supply the more remote parts of the rim. To still further insure the backing up of the water in the vicinity of the rim-inlet, I provide the rim directly opposite and in line with said inlet with an abrupt wall, against which the entering stream of water strikes and spatters in all directions, and to take advantage of this interruption in the direction of the current I provide the rim with an overhanging portion having a comparatively large outlet located directly over the bowl-outlet, so as to discharge a large and swiftly-moving current directly into the said bowl-outlet. In order to insure a proper supply of water even at the point most remote from the inlet notwithstanding the chokes or dams, the water-passage at the chokes or dams is deflected outward, so that as the water leaves the chokes or dams it will be directed against the outer wall of the rim, and I locate the outlet for the water adjacent to the inner rather than the outer wall.

In the accompanying drawings, which are made a part of this specification, Figures 1 and 2 are vertical sections of a bowl embodying the invention, the sections being taken on the lines 1 1 and 2 2, respectively, Fig. 3. Fig. 3 is a horizontal section thereof cutting the hollow rim and its inlet axially. Fig. 4 is an enlarged section on the line 4 4, Fig. 2.

A represents a water-closet bowl, which may be of any desired type, a bowl of the "wash-down" type being shown. B is the hollow rim thereof, with which the inlet *b* communicates. The rim is provided in its under side with an outlet, through which the water is discharged downward into the bowl. This outlet may be in the form of a series of perforations or in the form of a continuous

slot; but preferably it comprises both—a series of perforations b' in the portion contiguous to the inlet and a continuous slot (or elongated perforation) b'' at the more remote portion, this form being shown in the drawings. In other words, throughout a portion of its extent the rim consists of a hollow tube (the cross-sectional shape of which is immaterial) provided in its under side with perforations b', while throughout the remainder of its extent it consists of an overhanging lip or flange the margin of which is in close proximity to the inner surface of the bowl, a slot b'' being left between them. As shown, the perforation immediately over the outlet a of the bowl is larger than the others and discharges a comparatively large jet or stream of water downward immediately into the said outlet a and into the intake end of the trap C. Other smaller perforations are arranged in rear of this large perforation for washing the back wall of the bowl. I desire to have it understood, however, that the character of the outlet, whether it be a series of perforations or short slots or a long slot, is immaterial so far as the generic feature of the invention is concerned, the essential requirement in this respect being that the rim be provided with an outlet in the immediate vicinity of its inlet and also at each and every other point throughout its entire extent with an outlet that will supply each and every point aforesaid with water in the quantity and at the velocity required. As before pointed out, there is danger that the outlet in the immediate vicinity of the rim's inlet will not receive its full quota of water, and this part of the invention is not concerned with a rim which has no outlet in the immediate vicinity of its inlet. To insure that the outlet in the immediate vicinity of the inlet be supplied with a sufficient quantity of water under suitable pressure, I provide the rim on opposite sides of its inlet and at any desired distances therefrom with chokes or dams B', which impede the water in its rush from the rim-inlet and cause it to back up within and fill that portion of the rim in rear of them. In this way that portion of the rim which is between its inlet and the chokes or dams is filled with water under service-pressure or thereabout, and hence each and every part of its outlet receives its full quota of water. To still further insure this result, I provide the rim with an abrupt wall located immediately opposite and in line with its inlet, and preferably this wall has a concave surface presented toward the inlet. The stream striking this wall is more or less impeded and scattered in all directions, and this insures a full supply of water under sufficient pressure to the rim-outlet which is directly over the bowl-outlet. The chokes or dams B' have openings of sufficient size to permit the passage of enough water to supply the remainder of the rim beyond them, and preferably these openings diverge outward, so as to discharge the water against the outer wall of the rim, the outlet for the water being adjacent to the inner wall thereof.

The bowl is provided with a vertical back D in the form of a slab, the rear face of which is adapted to fit against a wall or partition E, behind which are the water-supply and soil pipes, portions of which are shown at F and G, respectively. The back may be secured to the wall by bolts D' or other suitable devices, the bolts being preferably screwed into tapped openings in the wall when the latter is made of sheet metal, as in jail construction. The wall is provided with an opening E' large enough to permit the passage of the flanges I and J on the water-supply and soil pipes, respectively, so that while said pipes are located on the back of the wall said flanges may be drawn through the opening and into contact with the back of the bowl in its position against the front of the wall. Preferably the bowl is provided with recesses or depressions K and L for receiving the flanges I and J, respectively, and in this event the flanges will be drawn completely through the wall and will be in front thereof when secured in place. The flanges and the back of the bowl within the recesses are provided with annular grooves M and N, respectively, disposed opposite each other and preferably of truncated V shape in cross-section, for receiving an elastic packing-ring O of substantially diamond shape in cross-section. The flanges are perforated for the passage of securing-bolts P, the heads of which occupy recesses in the backs of the flanges, whereby they are held against rotation, and preferably the heads of the bolts are secured to the flanges by small quantities of solder, as shown at x, or other means that will hold them against being accidentally knocked out while the parts are being assembled and that will at the same time allow them some lateral movement in order that they may accommodate themselves to the positions of the openings d in the back of the bowl through which they pass, so that by turning nuts p onto them the flanges may be drawn forcibly against the back of the bowl, the packing-rings making tight joints. Preferably a body of cement is placed in the recesses, so that the flanges will be embedded in it, as shown at Q.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. A water-closet bowl having a hollow rim provided with an inlet for water, and provided in the vicinity of said inlet with an outlet for discharging water downward into the bowl, and chokes or dams within the rim at suitable distances from the inlet for damming up the water in the vicinity of the inlet, substantially as described.

2. A water-closet bowl having a hollow rim provided with an inlet for water and provided in the vicinity of said inlet with an out-

let for discharging water downward into the bowl, said rim having, directly opposite said inlet, an abrupt wall, and chokes or dams within the rim at suitable distances from the inlet for damming up the water in the vicinity of the inlet, substantially as described.

3. A water-closet bowl having a hollow rim provided with an inlet for water, and chokes or dams within the rim at suitable distances from said inlet, that portion of the rim lying upon the inlet side of the chokes or dams having an overhanging portion provided in its under side with an outlet-opening located in the immediate vicinity of the rim-inlet and also immediately over the bowl-outlet, substantially as described.

4. A water-closet bowl having an outlet, a hollow rim, provided with a water-inlet, and chokes or dams within the rim at suitable distances from said inlet, that portion of the rim lying upon the inlet side of the chokes or dams being in the form of a tube having in its under side perforations, one of said perforations of comparatively large size being located directly over the outlet of the bowl, substantially as described.

5. A water-closet bowl having a hollow rim, provided with a water-inlet, and chokes or dams within the rim at suitable distances from the inlet, that portion of the rim lying upon the inlet side of said chokes or dams being in the form of a tube having perforations in its under side, and that portion lying upon the opposite side of said chokes or dams being in the form of an overhanging lip terminating in proximity to the inner surface of the bowl, substantially as described.

6. A water-closet bowl having a hollow rim, provided with a water-inlet, and chokes or dams within the rim at suitable distances from the inlet, the openings through said chokes or dams being divergent, substantially as described.

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