No. 650,184. Patented May 22, 1900.

H. S. MADDOCK.

WATER CLOSET.

(Application filed Feb. 7, 1894.)

(No Model.) 3 Sheets—Sheet 1.

FIG. 1.

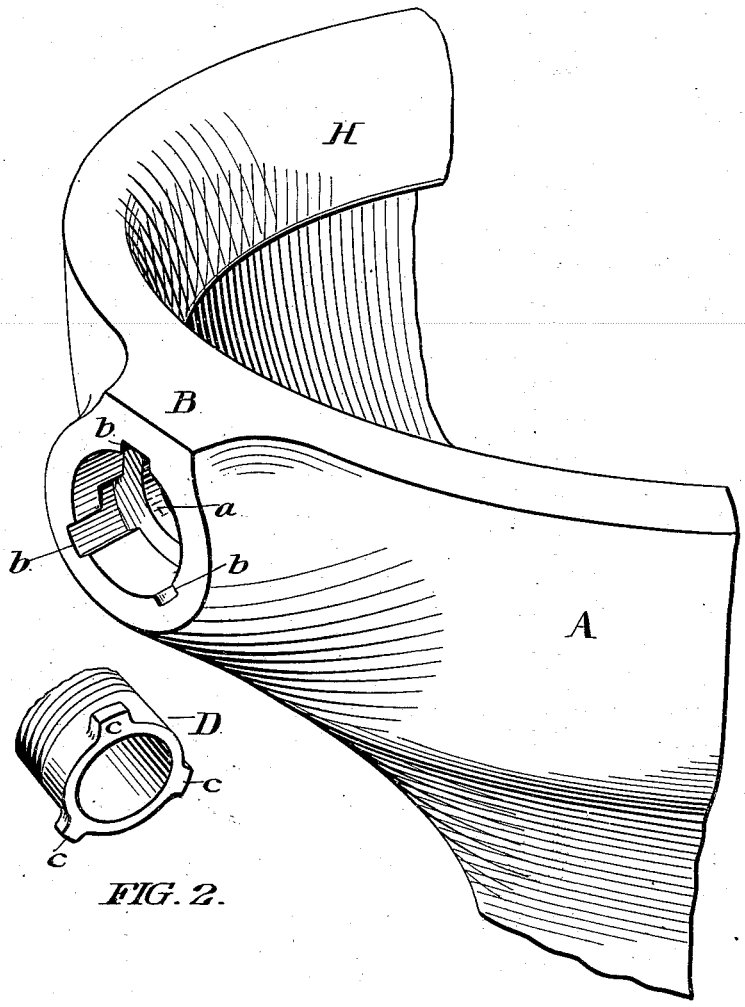

FIG. 2.

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FIG. 5.

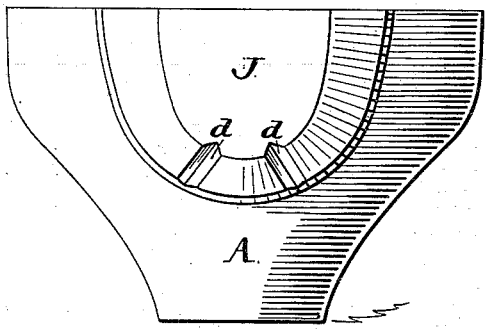
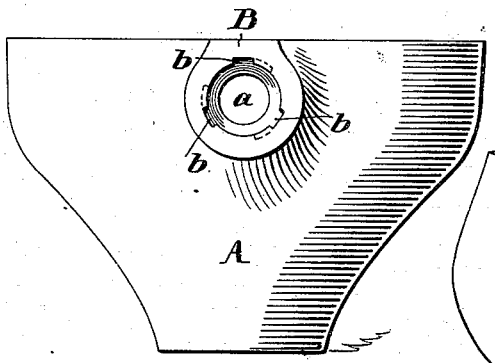


FIG. 4.



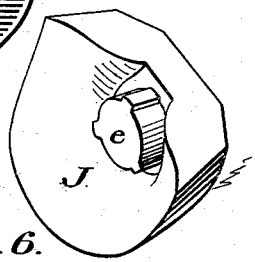
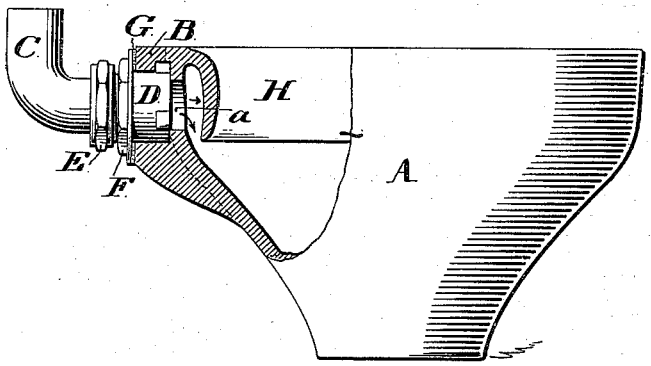


FIG. 6.

FIG. 3.



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WATER CLOSET.

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(No Model.) 3 Sheets—Sheet 3.

FIG. 7.

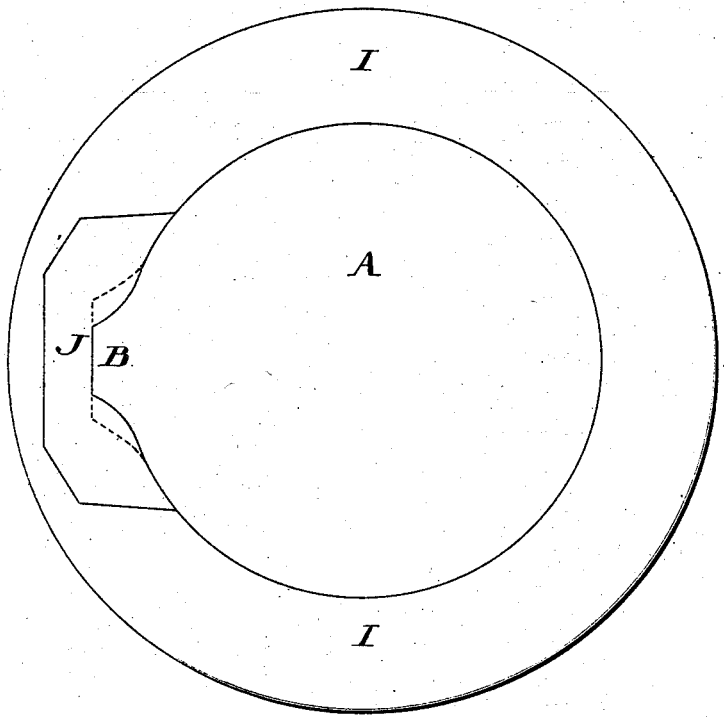
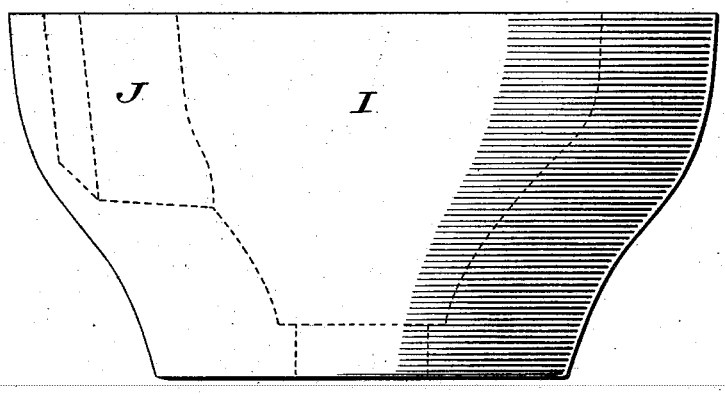


FIG. 8.



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UNITED STATES PATENT OFFICE.

HARRY S. MADDOCK, OF TRENTON, NEW JERSEY.

WATER-CLOSET.

SPECIFICATION forming part of Letters Patent No. 650,184, dated May 22, 1900.

Application filed February 7, 1894. Serial No. 499,380. (No model.)

To all whom it may concern:

Be it known that I, HARRY S. MADDOCK, 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, of which the following is a specification.

My invention relates to that class of water-closets which are made of earthenware, and especially to means of connecting such water-closets with the metallic pipe furnishing a supply of water to flush the bowl. Heretofore it has been common to join the supply-pipe with the earthenware bowl of such water-closets by interlocking devices constructed upon the ends of the supply-pipe or coupling-pipes therewith connected and within a recess formed in a projection upon the side of the bowl near its top, making the joint water-tight by means of washers or cement packings, or both. The objection to these joints, which are universally considered the best in existence, has been their liability to break owing to the giving way of the earthenware at the joint when strain has been exerted upon the supply-pipe by reason of settling of the building in which the closet was located or other causes. This giving way of the earthenware at this point is due to the fact that in making the earthenware bowls of the closet the practice has been to apply to the wall of the closet at the point of junction of the supply-pipe therewith a ring of clay molded separately from the bowl of the closet. The ware being fired, the earthenware ring is baked fast to the bowl; but the line of junction between the ring and the bowl is always the point of fracture under strain of the supply-pipe, and this fracture so frequently occurs as to form a great objection to this method of construction, as such a fracture at this point entails the purchase of an entire new closet, the expense of which is considerable. To obviate this objection to these joints is the object of my invention, and I effect it by augmenting the wall of the bowl at the point of its juncture with the supply-pipe, thus making the entire earthenware structure integral and homogeneous.

I shall now proceed to describe my invention and the method of practicing the same with reference to the drawings forming a part of this specification, in which—

Figure 1 represents a portion of an earthenware water-closet bowl containing my improvement. Fig. 2 shows a perspective view of a part of the coupling-pipe connecting the supply-pipe with the bowl. Fig. 3 shows a side elevation of a bowl containing my invention with a portion of its wall broken away to give a sectional view of the wall at the point of junction of the supply-pipe and the bowl. Fig. 4 is a rear view of the bowl, showing the socket for the supply-pipe therein. Fig. 5 is a rear elevation of the mold in which the bowl is formed when in process of manufacture, a portion of the wall of the mold being cut away to show the formation of the inner part of the wall against which fits the removable section of the mold. Fig. 6 is the removable section of the mold, in which section is formed the projection of the bowl which contains the socket. Fig. 7 is a plan view of the top of the mold in which the bowl is formed as the mold appears when assembled; and Fig. 8 is a side elevation of the mold, showing a vertical sectional view thereof in dotted lines.

In illustrating my invention I have shown a common form of water-closet bowl and connecting-joint between it and the supply-pipe, and in which A is the bowl, and B that portion of the bowl in which is formed the socket to receive the end of the connecting-pipe which is located therein. C is the supply-pipe, leading from the flushing-tank to the closet. D is the connecting-pipe, by which the supply-pipe is attached to the bowl of the closet. E is a coupling-nut for attaching the end of the supply-pipe to one end of the connecting-pipe. F is a jam-nut. G is the washer. H is the flushing-rim. The construction and connection of this bowl and supply-pipe are so well known as hardly to need explanation here, the bowl being constructed with an aperture *a*, through which the water from the supply-pipe flows into the flushing-rim and the bowl, and the bowl being externally provided with a socket having slots *b b b* with undercut portions, (see Figs. 1, 3, and 4,) into which is passed the end of the connecting-pipe D in such a way that the lugs *c c c* enter the slots

b b b, and when the pipe is brought to its seat it is given a slight turn to the left to bring these lugs in the undercut portions of the slots *b b b*, and thus prevent withdrawal of the connecting-pipe from its socket. The intervening space between the exterior of the connecting-pipe B and the interior of the socket-opening in the bowl is preferably filled with cement, and a washer G being passed over the end of the connecting-pipe is brought closely against the flattened face of the earthenware wall, in which the pipe D is lodged, by the clamping-nut F, thus effecting a water-tight joint. The contiguous end of the supply-pipe C is externally threaded, as well as is the connecting-pipe D, and the ends of these two pipes are brought closely together to effect a water-tight joint by means of the coupling-nut E.

As has been said above the method of preparing the earthenware socket for the connecting-pipe D has been such as to form a defective union of the earthenware at this point, inasmuch as the socket has been formed in a separate piece of earthenware, which has been simply stuck onto the wall of the bowl, and the firing of the ware has not operated to produce a homogeneous structure at this point. The result has been a comparatively-easy detachment of the earthenware ring or socket from the bowl by reason of any force operating to withdraw the connecting-pipe from the bowl. To overcome this difficulty, I augment the wall of the bowl at the point of connection between it and the connecting and supply pipes. The proportions of this augmentation are clearly exhibited in the drawings in Figs. 1, 3, and 4, the dotted lines in Fig. 3 showing the ordinary thickness of the wall of the bowl and the augmentation thereof. To effect this augmentation has been a matter of difficulty, because of the necessity of forming all earthenware closets in molds of regular forms and sizes. As it is impossible to form a socket such as is found in these structures for the reception of the connecting-pipes in any ordinary mold from which the bowl when formed is withdrawn, I have resorted to the construction for this purpose of a mold shown in Figs. 5, 6, 7, and 8 of the drawings, in which figures I indicates the main body or portion of the mold, and J indicates a removable portion thereof. The part J has formed upon it an inwardly-projecting portion *e*, about which is molded that portion of the bowl containing the socket for the connecting-pipe. This part J fits into the body of the mold I in the manner indicated in Figs. 7 and 8, and the guides or stops *d d* (see Fig. 5) fit into corresponding grooves or slots in the under side of the part J and serve to accurately fix and retain it in its proper position during the process of molding the bowl. The mold being assembled, the plastic clay is placed within it, and the bowl is molded in the usual and well-known manner. When it is sufficiently dry to be removed from the mold, it is placed upside down, and the main body of the mold I is removed from the bowl in a vertical line. This permits the part J to slide out of its place in the mold I, and it remains fixed upon the side of the bowl. The body of the mold being removed, the part J is withdrawn from the bowl in a horizontal direction, and the bowl is thus left completely formed, with the exception of the slight undercuts of the slots or notches *b b b*, which are made in the form indicated in Fig. 1 by means of a small tool suitable for the purpose. I am thus enabled to form the socket for the connecting-pipe integral with the bowl itself, and that portion of the bowl is as strong as any other part thereof, and all extraordinary tendency to fracture at this point is entirely overcome.

It will be readily understood that the essence of my invention is the forming of the walls of the socket for the connecting-pipe integral with the bowl and that any form of connection involving the junction of the connecting-pipe with the bowl at a point within walls integral with the entire bowl embodies my improvement. I do not therefore desire to be limited to the specific form of connection here shown; but

What I claim is—

1. An earthenware water-closet bowl having an integral supplemental socket portion for a water-supply pipe, the structure of the socket portion and main body portion of the bowl being homogeneously continuous across the imaginary plane dividing them, the two forming a homogeneous and jointless article whose particles are substantially uniformly coherent throughout; substantially as shown and described.

2. An earthenware water-closet bowl having an integral supplemental socket portion for the water-supply pipe, the structure of the socket portion and main body portion of the bowl being homogeneously continuous across the imaginary plane dividing them, the two forming a homogeneous and jointless article whose particles are substantially uniformly coherent throughout, and the socket portion tapering from the main body portion of the bowl to the end of the socket portion; substantially as shown and described.

3. An earthenware water-closet bowl having an integral supplemental socket portion for a water-supply pipe, the structure of the socket portion and main body portion of the bowl being homogeneously continuous across the imaginary plane dividing them, the two forming a homogeneous and jointless article whose particles are substantially uniformly coherent throughout, said socket portion having its walls notched to engage with projections on the pipe; substantially as described.

4. An earthenware water-closet bowl, having an integral supplemental socket portion for a water-supply pipe, the structure of the

socket portion and main body portion of the bowl being homogeneously continuous across the imaginary plane dividing them, the two forming a homogeneous and jointless article whose particles are substantially uniformly coherent throughout, in combination with the supply-pipe provided with lateral projections at or near its end to engage with the socket-notches; substantially as shown and described.

HARRY S. MADDOCK.

Witnesses:
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AUBREY LOVE.