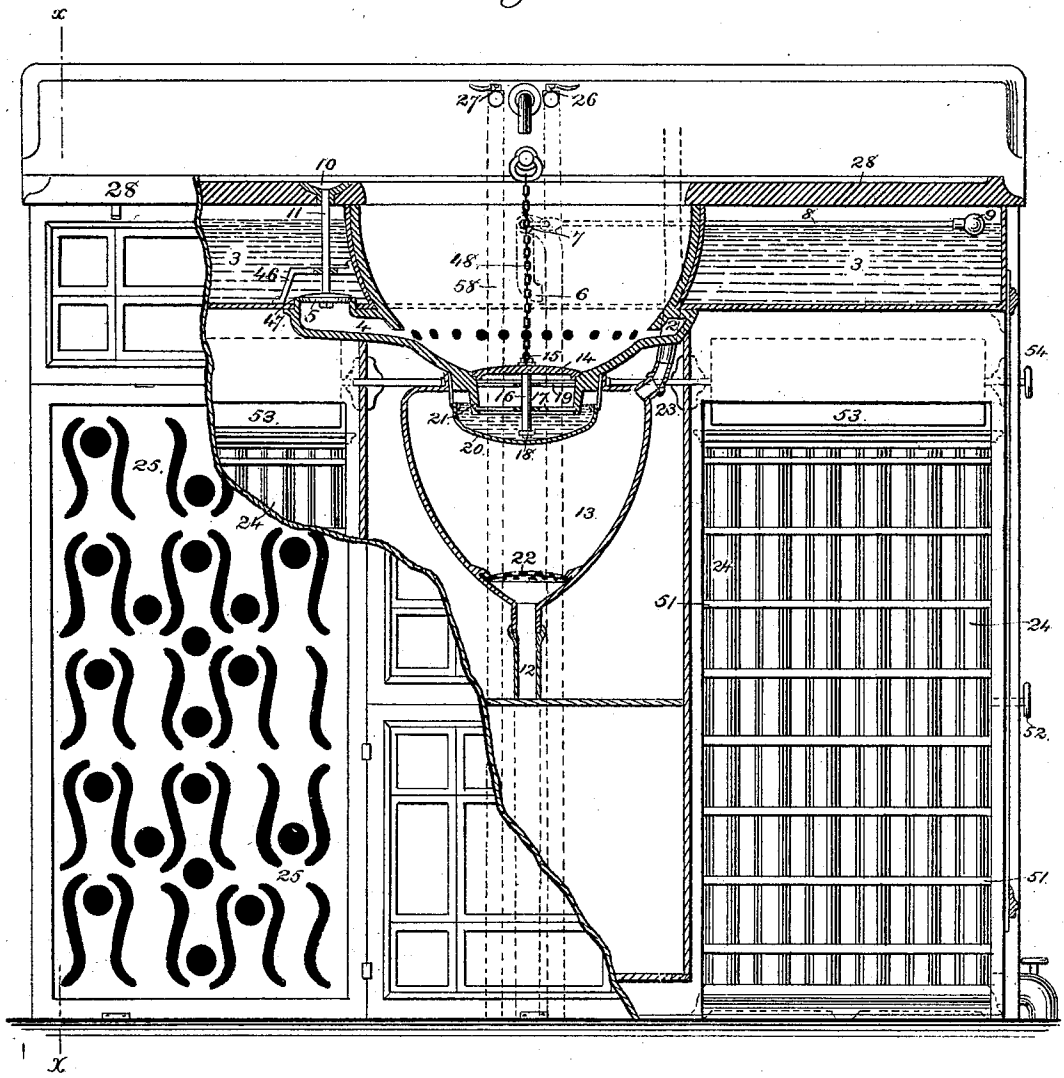
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L. H. McCORMICK.

WASH BOWL.

No. 256,235. Patented Apr. 11, 1882.

Fig. 1.



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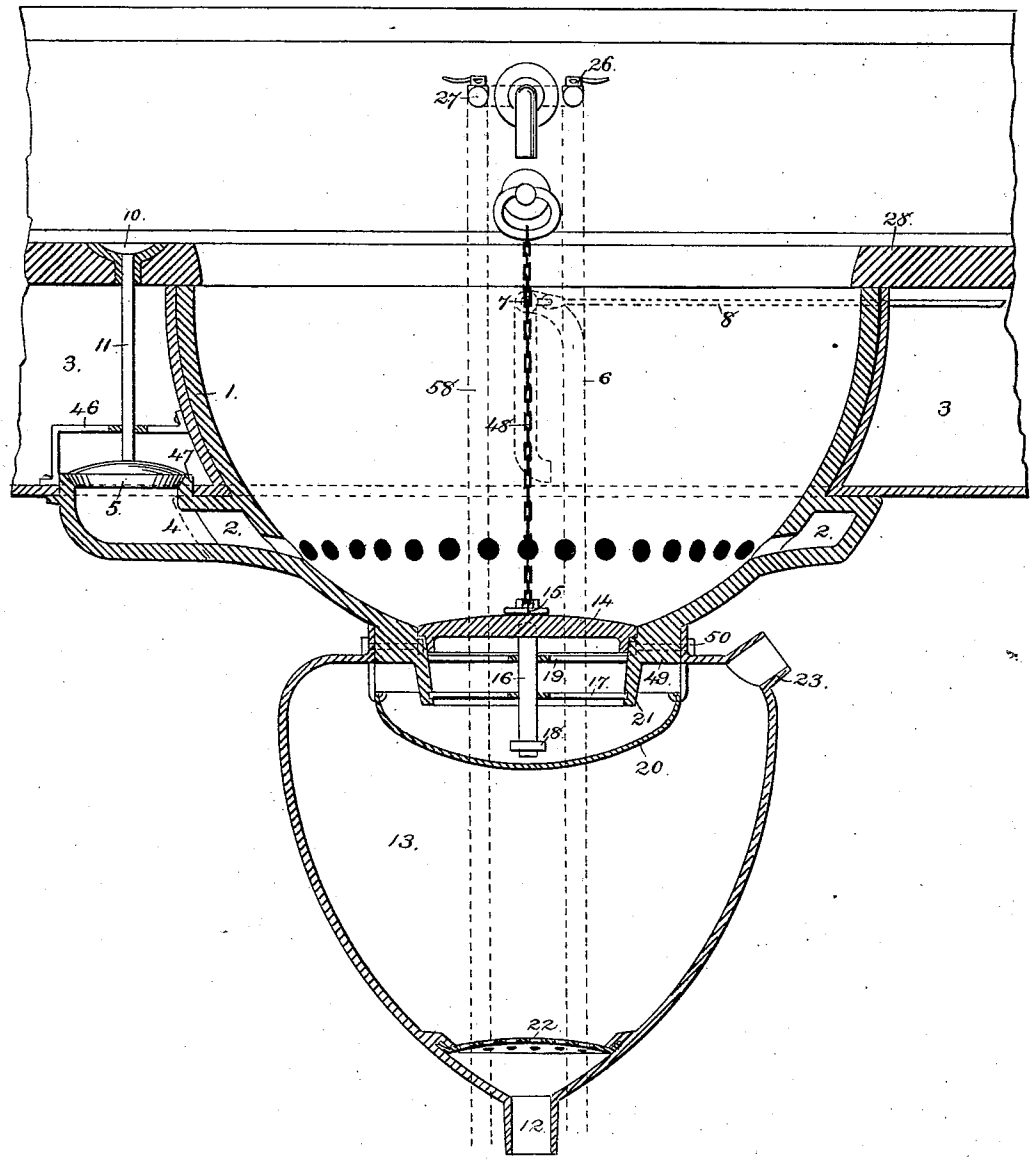
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Fig. 2.



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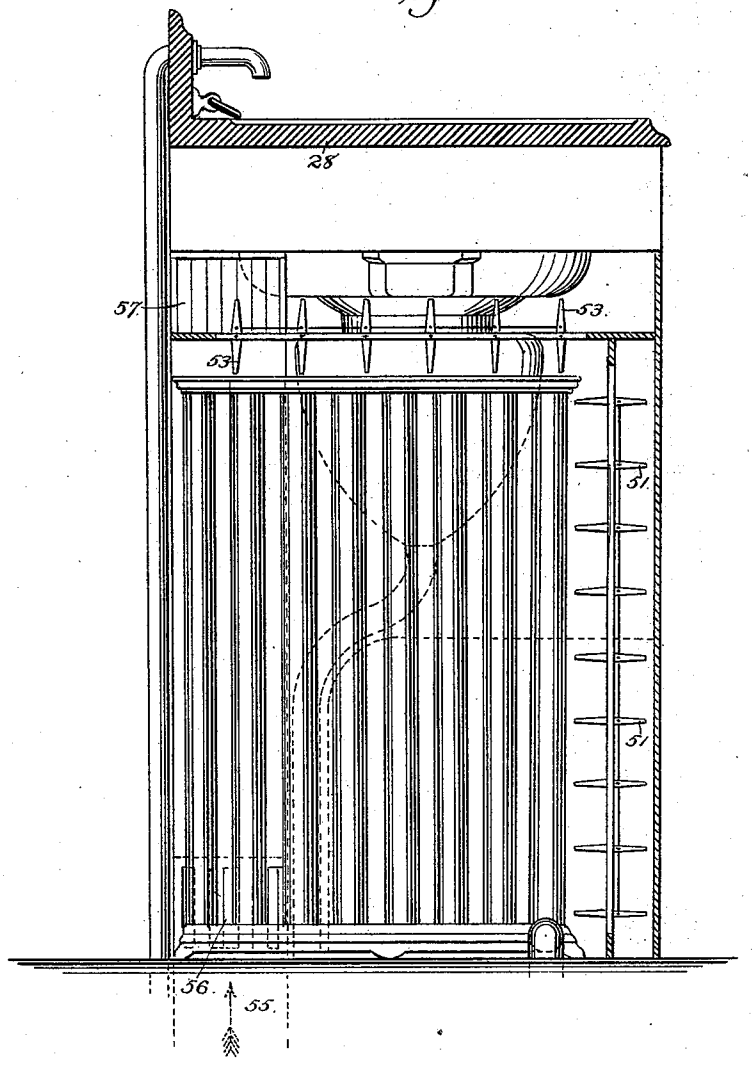
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Fig. 3.



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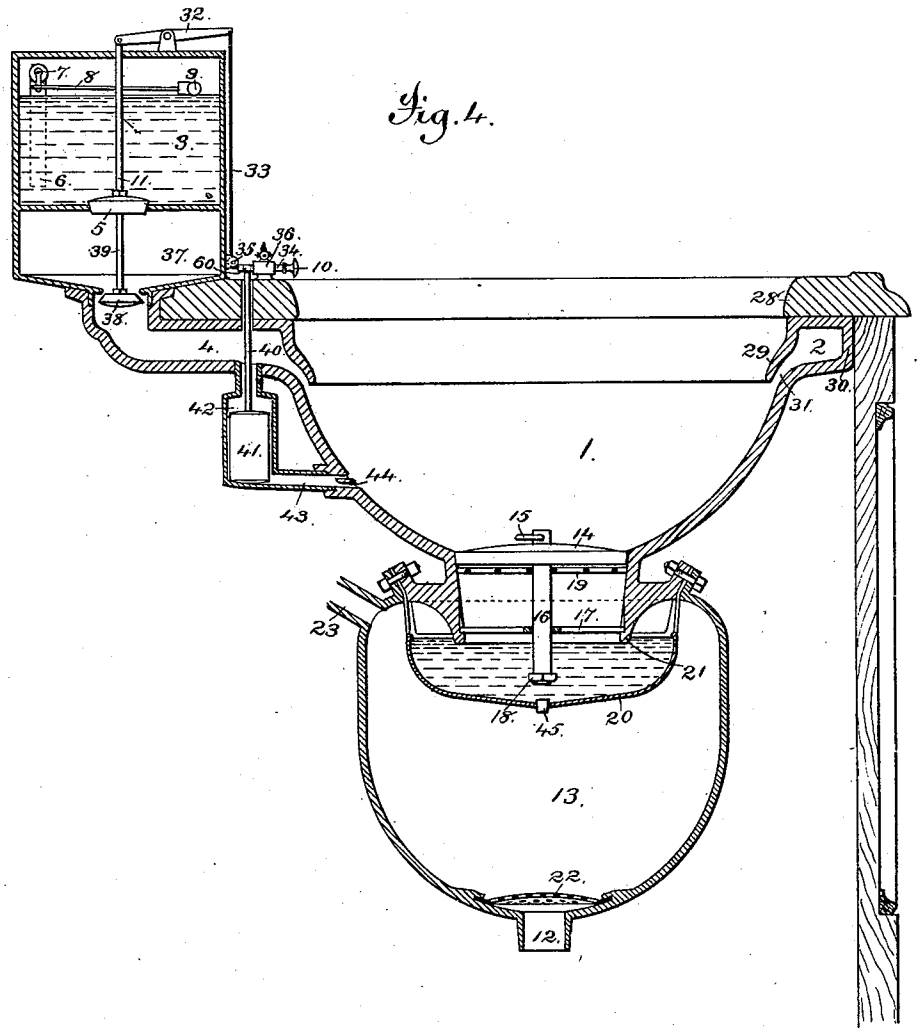
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WASH BOWL.

No. 256,235. Patented Apr. 11, 1882.

Fig. 4.



Attest;
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UNITED STATES PATENT OFFICE.

L. HAMILTON McCORMICK, OF CHICAGO, ILLINOIS.

WASH-BOWL.

SPECIFICATION forming part of Letters Patent No. 256,235, dated April 11, 1882.

Application filed December 9, 1881. (No model.)

To all whom it may concern:

Be it known that I, L. HAMILTON McCORMICK, a citizen of the United States, residing in the city of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Wash-Bowls, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to what are known as "stationary wash-bowls"—that is to say, that class of bowls which are secured to or set into the wash-stand, and into which the water is drawn from a tank or reservoir, and which are emptied through an opening in the bottom communicating with the waste-pipe.

The use of bowls of this class as heretofore constructed is attended with certain inconveniences, the principal of which is the length of time required to fill and empty the bowl, due to the comparatively small size of the supply and waste pipes. These pipes are necessarily of comparatively small size, because large ones would be too expensive, and in the case of the supply-pipe because where the bowl is filled from a faucet or cock, as is usually the case, if a large stream under the pressure usual in water-supply pipes were allowed to run, the water would be caused to slop over the top of the bowl. Another inconvenience attending the use of these bowls in many houses is that, the supply-pipes being small and the pressure light, water will not flow in an upper room if a faucet or cock happens to be open in a lower part of the building. It thus frequently happens that a person in an upper room is obliged to wait a considerable length of time before he can fill his bowl, because some one is drawing water from the pipes in a lower part of the house.

It has also been necessary in the constructions heretofore used to provide an overflow-pipe to conduct away surplus water. This overflow-pipe is always a source of more or less annoyance. It is liable to become clogged, so that it will not operate, in which case damage is liable to be done to the house and furniture. Moreover, sewer-gas in greater or lesser quantity always escapes from these pipes, and this is disagreeable and dangerous. It has also been customary in this class of bowls to place the trap or water-seal at some distance from the bowl, and the bad odors arising from the surface of the pipe between the trap and the bowl have not been prevented from passing out into the room.

It is the object of the present invention to provide a wash-bowl and a means of filling and emptying the same which shall be free from these defects, and the use of which will not be attended with these inconveniences.

To that end the invention consists in a wash-bowl having an annular chamber in and extending around its sides, said chamber opening downward and inward toward the bottom of the bowl, into which chamber the water for filling the bowl is introduced.

It also consists in providing a small tank or receptacle beneath the bowl, into which the waste water is first drawn and from which it flows to the sewer or other outlet.

It further consists in various details of construction and combinations of parts by which an overflow-pipe is dispensed with and yet all possibility of an overflow prevented, and also all escape of odor from the waste-pipe prevented, all of which will be hereinafter fully described, and pointed out in the claims.

In said drawings, Figure 1 is a front elevation, partly in section, of a wash-stand in which is embodied one form of this invention. Fig. 2 is a detail, showing the bowl and outlet-receptacle upon an enlarged scale. Fig. 3 is a transverse vertical section upon the line *x x* of Fig. 1. Fig. 4 is a longitudinal vertical section, showing the invention applied in a different manner.

In the walls of the bowl and near its bottom is formed the annular chamber 2. This chamber, as shown in Fig. 1, extends entirely around the bowl and opens inward and downward toward the bottom of the bowl. This opening may be composed of a series of perforations, as shown in Fig. 1, or it may be a continuous aperture. The water to fill the bowl is introduced into this annular chamber from the tank 3 through the pipe 4 by the opening of the valve 5, which, as shown, is an ordinary reciprocating valve held in its position by bracket 46 and operated through rod 11. A hinged or other approved form of valve may, however, be used. The water, upon entering the chamber 2, will fill it and flow outward into the bowl from all sides.

The tank 3, as shown, extends entirely around the bowl, and is placed immediately beneath the slab or top 28 of the stand, and is capacitated to hold several bowlfuls of water. The size and form of this tank may of course be varied to suit different forms of stands, it being only necessary that the top of the tank shall be on about a level with the top of the bowl, and that it should be of a size sufficient to hold at least one bowlful of water.

The tank is supplied with water from the pipe 6, which is of the usual size of pipes employed for distributing water to the different rooms in houses, and consequently delivers but a comparatively small stream of water. This pipe 6, which is so shaped as to introduce the water at the bottom of the tank, as shown, is provided with the cock 7, to which is attached the arm 8, carrying the float 9, which float, it may be remarked, should be made either in the form of a cylinder, as shown, or in some other form which will afford a large amount of buoyancy and yet occupy very little space vertically, so as to allow the water to rise as near as may be to the top of the tank. It will now readily be seen that as the water flows into and rises in the tank the float 9, riding upon its surface, will operate the cock 7, which should be so adjusted that when the water has risen to within a short distance of the top of the tank the supply will be entirely cut off. When the surface of the water in the tank is lowered, as will be the case when the bowl is filled, the float falling with it will again open the cock, so that water will again flow in until the normal level is reached. These devices thus form an automatic governor for controlling the height to which the water shall rise in the tank. This tank and the provisions just described insure a supply of water for the bowl at all times, even if water is being drawn from the pipes in a lower part of the house.

When it is desired to fill the bowl the valve 5 is raised by means of the knob 10 and connecting-rod 11. The valve 5 and pipe 4 are of large size, and the chamber 2 and its inward opening are of such capacity that the water will pass rapidly out of the tank and the bowl be filled without the hinderance of more than a few seconds. Any sediment which may have settled to the bottom of the tank is prevented from being drawn into the bowl by the projecting end 47 of the pipe 4, which rises slightly above the bottom of the tank. In rushing into the bowl rapidly the water is prevented from slopping over by reason of the downward inclination of the opening in the chamber 2 and the fact that it rushes in simultaneously from all sides.

In a bowl thus constructed and filled all necessity for an overflow-pipe is avoided, as no matter how long the valve 5 is kept open the water in the bowl can only rise to a level of the surface of water in the tank, which, as already explained, must always be below the top of the bowl.

It is to be remarked that it is not essential that the chamber 2 should be located in the exact position shown in Fig. 1. It may be nearer the bottom of the bowl, or in the same plane as the bottom of the tank, or even a short distance above such plane.

The waste-pipe 12, which is of the usual size of waste-pipes of this class, is enlarged just below the bowl so as to form a chamber, 13, of sufficient size to hold one or more bowlfuls of water. The opening in the bottom of the bowl which communicates with this chamber is of much greater size than the pipe 12, so that when the valve 14 is raised for the purpose of emptying the bowl the water flows out in a few seconds and accumulates in the chamber 13, from which it more slowly passes through the pipe 12. By this arrangement the bowl can be emptied almost instantly, no matter how small the waste-pipe. Aside from the delay and consequent inconvenience avoided by this rapid emptying of the bowl, the impurities in the water are prevented from settling upon its sides and bottom, and the necessity of washing it is avoided. The outlet in the bottom of the bowl is here shown as controlled by a valve, 14, which may be held to its seat by its own weight or by a spring coiled around its stem 16. Such a valve, it is thought, will be best for the purpose, though it is evident that an ordinary plug, or a plug held in place in the same manner as the valve, as shown in Fig. 2, might be used.

The valve is lifted by a chain or cord, 48, attached to the ring 15 in its top, and is kept in its proper position and its return to its seat insured by the rod 16, secured to its underside and extending downward through an opening in the bar 17. A nut, 18, on the lower end of the rod 16 prevents the valve from being removed from the bowl and insures its always being in place, so as to close the opening and prevent the escape of gas. Instead of having this valve reciprocate, as shown, it may be hinged and made to swing either up or down.

Should the valve be made to swing downward, the opening in the bottom of the bowl will have to be modified slightly and the parts 17 and 19 will be omitted.

A coarse screen, 19, is placed in the outlet of the bowl, just beneath the valve, to prevent any small article which may be dropped into the bowl from being carried beyond reach.

The bottom of the outlet in the bowl is closed by a water-seal, which, in conjunction with valve 14, is calculated to entirely prevent the escape of gas or bad odors into the room. The location of this seal at the immediate outlet of the bowl leaves no unclean surface whatever above it from which such odors or gas can originate, as is the case in the old construction, and the seal, in addition to the valve, will prevent the passage of any gas from below. This seal consists of the pan 20, so placed that its upper edge surrounds and extends slightly above the lower edge, 21, of the outlet-opening. The water in the pan 20 will thus always extend above the edge 21, and no opening will

be left for the passage of gas from the pipe 12 or chamber 13.

The bottom of the pan 20 is provided with an aperture, in which is fitted the plug 45. The pan can by the withdrawal of the plug be readily emptied when it is desired to remove or clean it.

The part of the bowl surrounding the opening in its bottom extends downward a short distance, forming a shoulder, 49, to which is fitted and secured the upper end of the receptacle 13, the fastening being accomplished by bolts 50. The bolts 50 also pass through two or more upward extensions of the pan 20, and serve to suspend it in position.

In the lower part of the chamber 13 is placed the fine screen 22, which will prevent the passage of anything except water into the waste-pipe. In order that this screen may not act to retard the water too much, it is placed in the chamber 13 at a short distance above the end of the pipe 12, so that it can be made of considerable area.

At 23 is shown a branch, to which a pipe may be attached for conducting the sewer-gas to a chimney or to some point in the open air.

To provide a means for heating the water in the tank 3, the steam-pipes 24, used for heating the room, are arranged within the casing of the stand beneath the tank, as shown in Figs. 1 and 3. The casing 25 of the stand will in such case be made of metal, and provided with perforations, so as to permit the heat to pass outward into the room.

The openings through the casing are controlled by the register 51, operated by the knob 52. A register, 53, operated by knob 54, is also provided to shut the heat off from the tank when it may be desired to have the water remain cool.

When a building is not heated by steam the hot air from the furnace may be conducted by the pipe 55 (shown in dotted lines in Fig. 3) into the casing of the stand, so as to warm the water in the tank. To do this the register 56 in the pipe 55 will be closed, so as to compel the hot air to pass through the register 57 close beneath the tank. To shut the hot air off from the tank, registers 57 and 53 will be closed and register 56 opened, when the hot air will pass outward into the room without coming in contact with the tank.

The cock 26 is connected with the supply-pipe 6, and is designed to be used for drawing water for drinking and other purposes than washing. The cock 27 is connected with a hot-water pipe, 58, it being understood that the hot air or steam is intended to be used for heating the water in the tank only when hot water cannot be obtained from the ordinary source, or when there is no connection with a boiler.

For the purpose of making the slab 28 easily removable so as to gain access to the tank, the rod 11 may be screwed into or otherwise detachably connected with the valve 5, so as to be readily backed out, and the pipes leading to the faucets 26 27 should pass up back of the slab and be bent over upon its top, if necessary, to bring the faucets into the proper position.

In the construction shown in Fig. 4 the apparatus for emptying the bowl and conducting the water away is substantially the same as that already described. The bowl and the apparatus for filling it, although operating in substantially the same manner and embodying some portions of the same invention as that just described, are in construction somewhat different. The annular chamber 2, into which the water flows from the tank, is in this case located at the top of the bowl, and is formed by the flange 29, which projects inward and downward from the top of rim 30, which rises from the upper edge of the bowl. The water flows into the chamber thus formed from the pipe 4 and passes into the bowl through the downwardly-inclined opening 31. The tank 3, with which pipe 4 is connected, is in this case situated above the bowl, as shown in the drawings, and is kept filled to a certain height by the supply-pipe 6, the flow in such pipe being controlled by the automatically-operated cock 7, in the manner already explained. When the bowl is to be filled the valve 5 is raised by means of the rod 11, which is connected with the knob 10 by means of the lever 32, cord or chain 33 passing around pulley 35 and secured to rod 34, which slides in a bearing in post 36, and to the end of which knob 10 is attached. The result of this operation is that the water flows from tank 3 until the supplemental tank 37, into which valve 5 opens, is filled. As valve 5 is of very large size, this will be effected almost instantly. Tank 37 has an opening in its bottom which communicates with pipe 4, which opening is controlled by valve 38, connected to valve 5 by rod 39. Valve 5 opens upward and valve 38 opens downward, and as the two are arranged to operate together it is evident that when valve 5 is opened to permit the water to flow from tank 3 into tank 37 valve 38 will be closed so as to prevent the flow of water from tank 37 into pipe 4, and vice versa. As soon, therefore, as tank 37 has become filled, which, as before said, will be almost instantly, the knob 10 will be released, when valve 5 will at once drop and close the passage between tanks 3 and 37. At the same time valve 38 will be opened and the water will pass from tank 37 through pipe 4 into the bowl. Valve 38 and pipe 4 being of large size, this passage will occupy but a few seconds.

It is to be remarked that tank 37 is of just sufficient capacity to hold one bowlful of water and no more.

To prevent the possibility of a second bowlful of water being let in before the first is let out of the bowl, thus causing an overflow, an automatically-operated device is provided which prevents the valves 5 and 38 from being opened when the bowl is full. The rod 34 is provided with an opening, 60, which,

when the valve 5 is closed, will be directly over the end of a rod, 40, which passes downward through the slab or top of the stand, and at its lower end is attached to rests upon the float 41 in the chamber 42. The lower end of this chamber connects by the pipe 43 with an opening, 44, in the side of the bowl. The result of this arrangement is that when the bowl is filled the water passes through opening 44 and pipe 43 into chamber 42 and causes the float 41 to rise, which carries the upper end of rod 40 into the opening 60 of rod 34 and locks it in position, so that it cannot be moved to open valve 5 until the bowl is emptied and the float 41 allowed to fall.

Nothing relating to the specific construction of the apparatus shown in Fig. 4 is herein claimed, as this subject-matter will form the basis of a future application for Letters Patent.

It is evident that the invention herein described may be applied to bath-tubs as well as wash-bowls.

When the heating apparatus heretofore described is used all danger of the water in the tank becoming frozen is avoided; but when such heating apparatus is not used, if it is thought that the water in the supply-tank will be liable to freeze in any particular case the tank can be jacketed with some non-conducting substance, or it may be provided with a suitable casing and be packed in sawdust or the like substance.

The principal advantages possessed by the bowl herein described may be fully stated as follows: It can be filled and emptied without the annoyance of long delay. There is always a supply of water at hand, so that there is never occasion to wait for faucets or cocks to be closed in other parts of the house. All danger of an overflow is prevented, and the necessity of an overflow-pipe, with its attendant evils, is avoided. All danger of the water slopping over the edge of the bowl by reason of a large head is avoided, and all possibility of gas or smell passing into the room is prevented.

What I claim is—

1. A wash-bowl having in its sides, near its bottom, an annular chamber provided with an inward opening which is inclined toward the bottom of the bowl, into which the water for filling the bowl is introduced, substantially as described.

2. The combination of a bowl, as 1, a supply-pipe, as 6, a tank, as 3, adapted to hold a supply of water for immediate use, so positioned that the height of the water in the tank governs the height to which it will rise in the bowl to prevent overflow, and communicating with the bowl by a large pipe, as 4, and an automatically-operated cock, as 7, by which the flow of water into the tank is stopped when a certain height is reached, substantially as described.

3. The combination of the tank adapted to contain a supply of water for immediate use, and so located that the height of the water in the tank governs the height to which it will rise in the bowl and prevent overflow, the pipe of large size connecting the tank with the bowl, the entrance to which is controlled by a valve or plug, and the bowl having its walls provided with the annular chamber with its opening inclined toward the bottom of the bowl, all substantially as described.

4. The combination of the bowl, the tank, situated in close proximity thereto and adapted to hold a small supply of water, as described, and the connecting-pipe, as 4, having its receiving end projecting above the bottom of the tank, to prevent the drawing out of sediment and to form a seat for the valve 5, substantially as described.

5. The combination, with the waste-pipe, as 12, provided with the enlargement or chamber 13 just below the bowl, of the bowl provided with an outlet-opening larger than the waste-pipe, whereby the water will pass so rapidly from the bowl as to accumulate in the said chamber, substantially as described.

6. The combination of the bowl, the waste-pipe having the chamber for the accumulation of the water, and the water-seal located between the bowl and chamber, substantially as described.

7. The combination of the bowl having the outlet-opening in its bottom, a valve, as 14, a stem, as 16, provided with a nut or head, as 18, and a bar, as 17, through which the valve-stem extends and by which its removal is prevented, all substantially as described.

8. The combination of the bowl having in its sides the annular chamber with the inward opening inclined toward the bottom of the bowl, and having the larger outlet for waste water in its bottom, the tank adapted to contain a supply of water for immediate use, located in close proximity thereto, and communicating with said chamber by the large pipe, as 4, and the waste-pipe provided with the chamber 13, for the accumulation of the outflowing water, all substantially as described.

9. The combination of the stand, the bowl, the tank arranged beneath the slab or top of the stand, and the steam-pipes located within the casing of the stand, beneath the tank, substantially as described.

10. The combination of the stand, the bowl, the tank located beneath the slab or top of the stand, the steam-pipes arranged within the casing of the stand, beneath the tank, and the register 53, for controlling the heating of the water in the tank, substantially as described.

11. The combination of the stand, the tank, the steam-pipes located within the stand, and the registers 53 and 51, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

L. HAMILTON McCORMICK.

Witnesses:
J. A. HOVEY,
ANTHONY N. JASBERA.