

(No Model.)

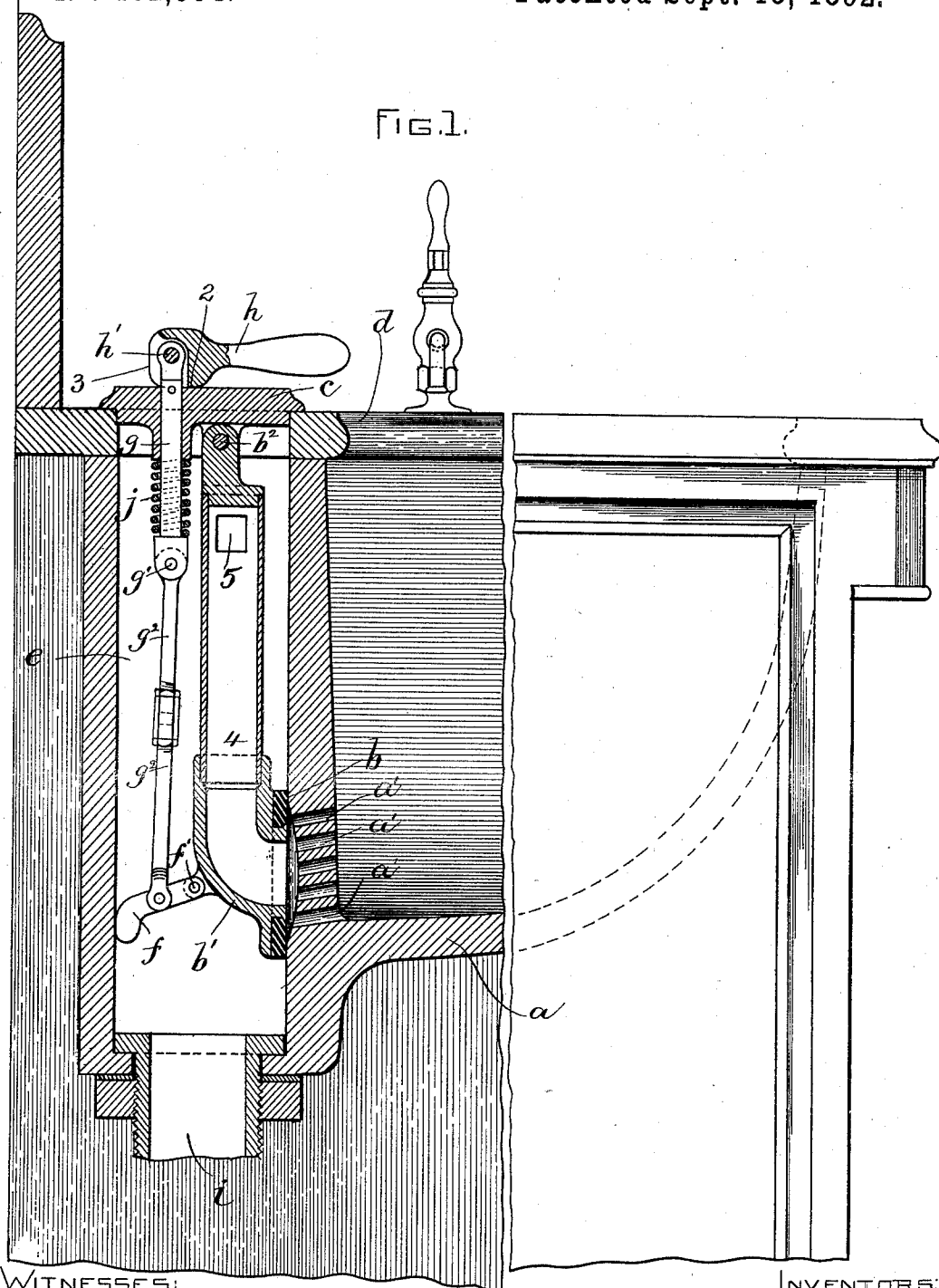
2 Sheets—Sheet 1.

J. L. THURSTON & F. B. HOW.  
OUTLET VALVE FOR SET BOWLS.

No. 482,534.

Patented Sept. 13, 1892.

FIG. 1.



WITNESSES:

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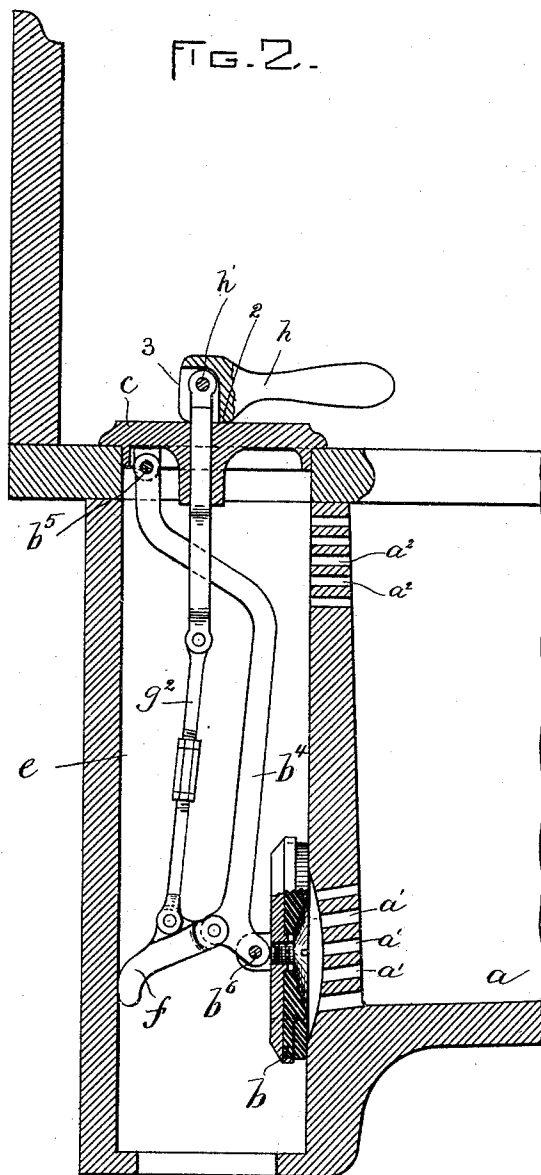
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*H. A. Brown*

*H. A. Hall.*

INVENTORS

*J. L. Thurston*

*F. B. How*

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# UNITED STATES PATENT OFFICE.

JOHN L. THURSTON, OF SOMERVILLE, AND FRED B. HOW, OF BOSTON,  
MASSACHUSETTS.

## OUTLET-VALVE FOR SET BOWLS.

SPECIFICATION forming part of Letters Patent No. 482,534, dated September 13, 1892.

Application filed November 20, 1891. Serial No. 412,502. (No model.)

*To all whom it may concern:*

Be it known that we, JOHN L. THURSTON, of Somerville, in the county of Middlesex, and FRED B. HOW, of Boston, in the county of Suffolk, State of Massachusetts, have invented certain new and useful Improvements in Outlet-Valves for Set Bowls or Basins, of which the following is a specification.

This invention relates to set bowls or basins used for washing purposes in which an outlet-chamber is formed on the rear side of the bowl and communicates with the interior of the bowl through outlet-orifices made in the back wall of the bowl, the water passing from the bowl through said orifices into the chamber, and from thence to the waste-pipe, which is connected to the lower end of the chamber, the valve which controls the escape of water being located in the chamber, and therefore wholly outside of the bowl, so that the interior of the bowl is not obstructed in any way by the valve or the appliances for opening the valve. Heretofore in basins of this class the outlet-valve has been arranged to act directly on a seat surrounding the entrance to the waste-pipe, the chamber being at all times in communication with the interior of the bowl through the outlet-orifices formed in the back of the bowl. This arrangement is objectionable because the interior of the chamber becomes foul by contact with dirty water, the chamber being comparatively inaccessible, so that it is not easily kept clean like the interior of the bowl, and when the water is permitted to flow freely back and forth through the outlet-orifices of the bowl the charge of water in the bowl is liable to be contaminated by its connection with the corresponding quantity of water present in the chamber, there being constant opportunity for the water from the chamber to flow back into the bowl.

Our invention has for its object, first, to obviate this objection and to prevent the backward passage of water from the chamber into the bowl, and, secondly, to provide an improved valve and operating devices therefor adapted to bowls of the class above described.

To these ends the invention consists, first, in the combination, with a bowl or basin having an outlet-chamber communicating with

the lower portion of the bowl through outlet-orifices, of a clapper-valve supported in said chamber and formed to cover said outlet-orifices, and thereby prevent communication between the chamber and bowl, the chamber being always open to the waste-pipe, so that there can be no accumulation of water in the chamber sufficient to cause a back action or flow of the water from the chamber into the bowl.

The invention also consists in the improvements hereinafter described in the construction of the valve and its operating devices, all of which I will now proceed to describe.

In the accompanying drawings, forming part of this specification, Figure 1 represents a partial sectional view and partial side elevation of a set bowl or basin and its casing, the bowl being provided with an outlet controlling-valve embodying our invention. Figure 2 represents a similar view showing a modification.

The same letters and figures of reference indicate the same parts in both the figures.

In the drawings, *a* represents a set bowl or basin, which may be of any suitable form, and is provided at its rear portion with a series of outlet-orifices *a'*, which are here shown as extending through the rear wall of the basin, said wall being substantially vertical. The outer surface of the wall surrounding the outlet-orifices is substantially flat and serves as a seat for a valve *b*. Said valve is a ring or washer of some suitable compressible material and is affixed to a holder or arm *b'*, which is pivoted at *b<sup>2</sup>* to an ear secured to the casing or other fixed support in any suitable way. I have here shown the said ear as formed on a cap *c*, which is fitted in an orifice in the slab or casing top *d* above the bowl, said cap covering the opening through the slab, which opening communicates with a vertical chamber *e*, the walls of which are formed on and are integral with the back of the bowl *a*.

*f* represents an arm, which is pivoted at *f'* to an ear on the holder *b'*.

*g* represents a rod or plunger fitted to move vertically in a guide in the cap *c*. To the lower end of the plunger *g* is pivoted at *g'* a rod *g<sup>2</sup>*, which connects the plunger *g* to the arm *f*.

$h$  represents a cam-lever, which is pivoted at  $h'$  to the upper end of the plunger  $g$  and is formed to bear upon the upper surface of the cap  $c$ . The cam-lever  $h$  has two faces 2 and 3, which are at different distances from the pivot  $h'$ , the face 2 being farther from the said pivot than the face 3, so that when the cam-lever occupies a horizontal position, as shown in the drawings, the face 2, bearing upon the cap  $c$ , will cause the elevation of the pivot  $h'$  and plunger  $g$ , thus causing the connecting-rod  $g^2$  to raise the swinging end of the arm  $f$  and press said arm against the rear wall of the chamber  $e$ . This movement of the arm  $f$  forces the lower end of the holder  $b'$  and the valve  $b$  thereon firmly against the rear wall of the bowl  $a$ , thus causing the valve to tightly fit the seat surrounding the outlet-passages  $a'$ , so that no water can escape between said valve and the seat. When the cam-lever  $h$  is raised to a vertical position, its face 3 bears on the cap  $c$  and permits the depression of the plunger  $g$  and rod  $g^2$  from the position shown in the drawings, the arm  $f$  being thus caused to swing downwardly and release the pressure it previously exerted upon the valve-holder  $b'$ , so that said holder is free to separate from its seat, and thus permit the water to escape from the basin through the outlet-passages  $a'$  into the lower portion of the chamber  $e$ , from which the water escapes through a waste-pipe  $i$ .

$j$  represents a spring interposed between a shoulder on the under side of the cap  $c$  and a shoulder formed on the plunger  $g$ . Said spring acts to depress or force downwardly the plunger and the connecting-rod, thus normally depressing the swinging end of the arm  $f$ , so that when the lever  $h$  is raised the spring  $j$  insures the movement of the arm  $f$  necessary to release the pressure of the valve against its seat.

In Fig. 1 we have shown the valve-holder  $b'$  as made tubular in form and provided with a water way or passage 4, adapted to receive water from the outlets  $a'$ , said passage having at its upper end one or more outlet-ports 5, located considerably higher than the basin-outlets  $a'$ . The holder  $b'$  is thus adapted to serve as a stand or overflow pipe, the water from the basin entering the holder and passing upwardly in the passage 4 until it overflows from the ports 5, said ports being arranged below the top of the basin, so that they prevent the basin from overflowing in case too much water is allowed to enter the basin.

We do not limit ourselves, however, to the tubular construction of the holder  $b'$ , and the same may be made solid, if preferred, in which case the outlet-passages  $a'$  will be entirely obstructed when the valve is pressed against its seat.

It will be observed that the described construction is very simple and effective and that the valve and its operating devices when supported by the cap  $c$ , as here shown, may

be readily applied to and removed from the basin and its casing. We do not limit ourselves, however, to this manner of supporting the valve and its operating devices, and may support said devices in any other suitable way.

In Fig. 2 we show the swinging valve-holder in the form of a slide-rod  $b^1$ , which is bent backwardly or offset near its upper end and pivoted at  $b^3$  to the rear portion of the cap or cover  $c$ , the valve  $b$  being pivoted at  $b^2$  to the power portion of the holder  $b^1$ . The bent or offset form of the upper portion of the holder  $b^1$  and its pivotal connection to the rear portion of the cap  $c$  enable the holder and valve to swing backwardly by gravitation sufficiently to separate the valve from its seat when the arm  $f$  is depressed. In this construction the back of the bowl  $a$  is provided with overflow-orifices  $a^2$  in its upper portion, which permit the water to overflow into the chamber  $e$ .

It will be observed that by providing the chamber  $e$  with a clapper-valve arranged to bear on the outer surface of the back of the bowl  $a$  and to cover the outlet-orifices thereof we so completely separate the interior of the chamber  $e$  from the interior of the bowl as to prevent any backward flow of water from the chamber to the bowl. Hence there can be no contamination of the water freshly introduced into the bowl by contact of such water with the walls of the chamber  $e$ .

This improvement may be applied to bathtubs and pantry-sinks.

The chamber  $e$  may be made of metal in a separate piece from the bowl  $a$  and suitably attached to the bowl.

We claim—

1. The combination, with a water-receptacle  $a$ , having an outlet-chamber  $e$ , communicating with the lower portion of the receptacle through one or more outlet-orifices, of a cap or support at the upper end of said chamber, a swinging arm or valve-holder pivoted to said cap and depending therefrom into the chamber, a clapper-valve supported wholly by said arm and arranged to bear on the back of the bowl and close the outlet-orifices therein, and a valve-operating device supported by said cap and adapted to move said arm to force the valve against the back of the receptacle, the said cap, arm, valve, and valve-operating device being adapted to be applied and removed together, as set forth.

2. The combination, with a water-receptacle  $a$ , having an outlet-chamber  $e$ , communicating with the lower portion of the receptacle through one or more outlet-orifices, of a cap or support at the upper end of said chamber, a swinging arm or valve-holder pivoted to said cap and depending therefrom into the chamber, a clapper-valve secured to the lower portion of said arm and arranged to bear on the back of the receptacle and close the outlet-orifices therein, a rod or plunger fitted to move vertically in said cap and provided at

its upper end with an operating device, whereby it may be moved vertically, an arm or strut pivoted at one end to the lower portion of the valve-holder and arranged to bear at its other end against the rear wall of the chamber, and a rod connecting said arm or strut with the plunger, as set forth.

3. The combination of a water-receptacle having an outlet-chamber communicating with the lower portion of the receptacle, a tubular arm pivoted to a support at the upper end of said chamber, said arm having its lower end arranged as an inlet to coincide with the said outlet-orifices and having an outlet above said inlet, an annular valve surrounding said inlet, and means for moving the valve-holder to press said valve against the wall of the receptacle, as set forth.

4. The combination of a cap or plate formed to be engaged with a fixed support, an arm or valve-holder pivotally connected to

said plate and having a valve on its swinging end, an arm pivoted to said holder and arranged to bear at its swinging end on a fixed surface near the valve, and an operating device supported by the plate, whereby said arm may be moved to press its swinging end against said surface, and thereby press the valve against its seat, the said valve-holder, valve, arm, and operating device being supported by the cap or plate and applied and removed therewith, as set forth.

In testimony whereof we have signed our names to this specification, in the presence of two subscribing witnesses, this 18th day of November, A. D. 1891.

JOHN L. THURSTON.  
FRED B. HOW.

Witnesses:

C. F. BROWN,  
A. D. HARRISON.