E. G. WATROUS.

LAVATORY.

APPLICATION FILED JUNE 26, 1909.

1,162,834.

Patented Dec. 7, 1915.

2 SHEETS—SHEET 1.

Fig. 2

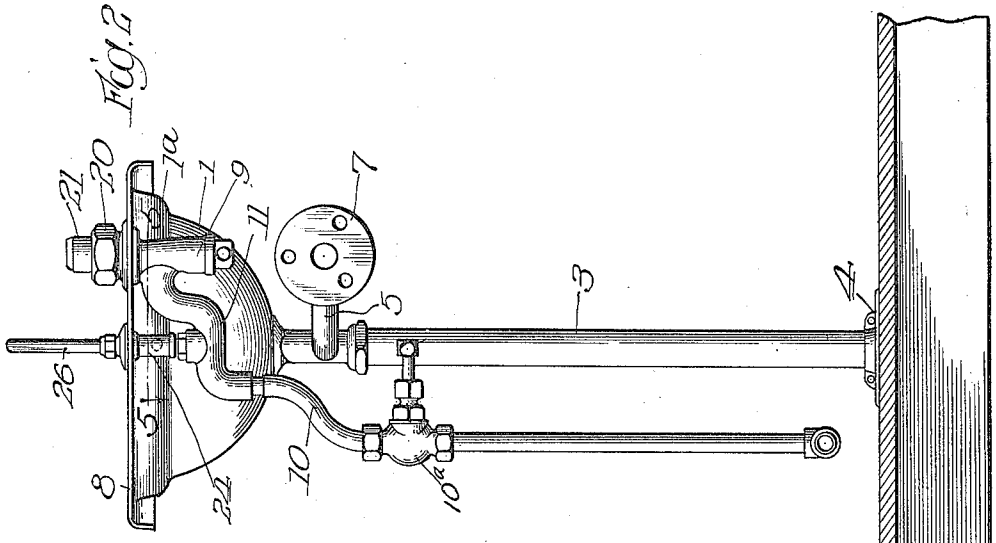


Fig. 3

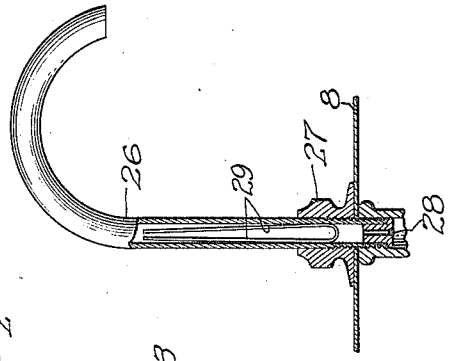


Fig. 1

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2 SHEETS—SHEET 2.

Fig. 4

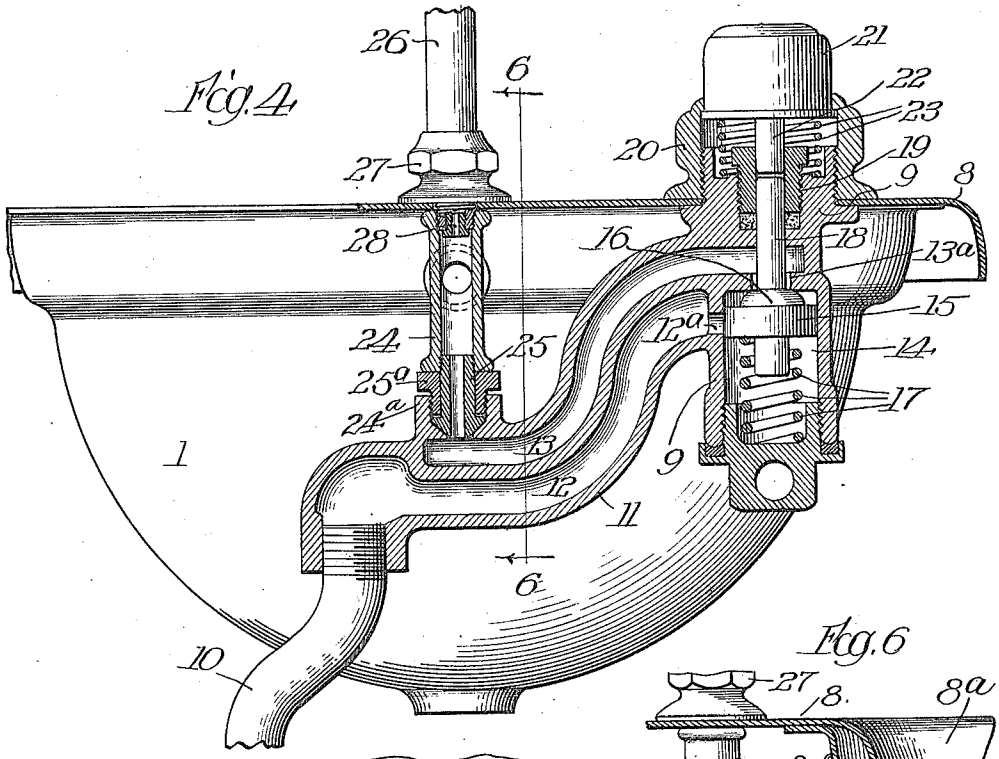


Fig. 6

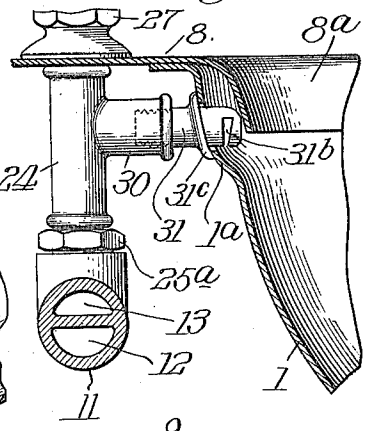


Fig. 5

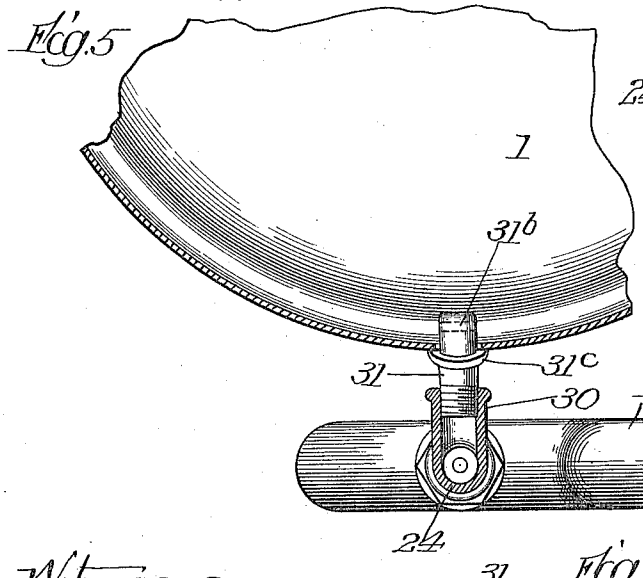
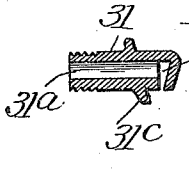


Fig. 7



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LAVATORY.

1,162,834. Specification of Letters Patent. Patented Dec. 7, 1915.

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To all whom it may concern:

Be it known that I, EARL G. WATROUS, a citizen of the United States, residing at Chicago, Cook county, Illinois, have invented certain new and useful Improvements in Lavatories, of which the following is a specification.

My invention relates to lavatories and is particularly designed as a dental lavatory for use on sleeping cars and the like, and the object thereof is to provide a simple and efficient device of this character which shall moreover be compact and sightly.

Speaking in general terms, my new dental lavatory comprises essentially a suitable bowl equipped with novel means for providing both a bowl flush and a water supply which by preference are simultaneously obtained by the operation of a single valve device.

My new lavatory is also provided with securing means which are adjustable whereby the lavatory may be readily installed in different constructions of railroad cars.

Other novel and advantageous features of construction and mode of operation will be apparent from the description hereinafter given.

In the drawings Figure 1 is a side elevation of the dental lavatory showing in section a portion of the car in which it is installed; Fig. 2 a sectional elevation on the line 2—2 of Fig. 1; Fig. 3 a detail view of the supply pipe or goose neck showing a portion in section; Fig. 4 a sectional elevation on the line 4—4 of Fig. 1 but on a larger scale; Fig. 5 a sectional plan on the line 5—5 of Fig. 2; Fig. 6 a section on the line 6—6 of Fig. 4; and Fig. 7 a detail view of the jet for the bowl flush.

Referring to the present embodiment of my invention as illustrated in the drawings, the same comprises a bowl 1 of suitable shape and dimensions and having at its bottom a suitable drain or outlet passing through a trap shown at 2 which communicates with an outlet pipe 3 leading downwardly and connected to some suitable drain, such outlet pipe 3 also serving to assist in supporting the bowl, for which purpose it is supplied at its lower end with a foot flange 4 resting upon or secured to the floor. The bowl is also held or secured in position by means of an arm or bracket 5 which is here shown as secured to the casing of the trap and adapted to project toward the side wall of the car shown at 6 to which it is attached preferably through the medium of the fastening flange 7. While this arm or bracket 5 may be straight where the side wall of the car always presents a fastening surface, the same may be made with an off-set shown in Fig. 2 which gives a greater range of attaching surface than is provided by the straight arm or bracket inasmuch as such off-set bracket may be swung around until it assumes a position where an attaching surface is assured. This feature is of importance where the dental lavatory is installed in sleeping cars already in use, where such dental lavatory is commonly placed at one end of a line of the ordinary lavatories.

The bowl 1 is provided at its upper edge with an outwardly-turned horizontal flange, best shown in Fig. 6, to and upon which is secured a horizontal plate 8 having downwardly-turned flanges at its outer and inner edges, that at its inner edge, shown at 8^a in Fig. 6, extending downward within the bowl 1 to form an annular space or chamber around the upper edge of the bowl, such chamber being open to the bowl around its lower end and constituting an open rim-flush.

The bowl is provided with both a bowl flush and a water supply which is here shown as under the control of a single valve operated by pressure upon a button exposed on the top surface of the bowl structure. To this end I secure to the under-side of the plate 8 forming the top thereof and at the rear of the bowl a valve casing 9 which communicates with a water supply pipe 10 through a conduit formed in an extension 11 of such casing. This casing extension is provided with double passages 12 and 13, the former of which constitutes the inlet passage to a valve chamber 14 through a side port 12^a and the latter of which constitutes the outlet passage therefrom through port 13^a to the bowl flush and supply device for the bowl hereinafter referred to. The communication to and from the valve chamber is governed by a single valve of the combined piston and puppet type, the piston portion 15 thereof governing port 12^a and the puppet valve portion 16 governing port 13^a. This valve travels vertically in the valve chamber and is held upwardly against its seat to normally close said ports by means of the spring 17. The valve is provided with an upwardly extending stem 18 which projects partially

through a screw plug 19 which is seated in a central bore in the valve casing 9 and rests at its lower end against and confines a packing surrounding the valve stem 18. The valve casing 9 is provided with an exteriorly threaded upper end which extends through a circular opening in the horizontal plate 8 of the bowl structure and is engaged by a clamping nut 20 which serves to clamp said plate between the nut and an angular flange formed upon the valve casing 9 immediately below the plate, and thereby firmly secure the valve casing to the bowl structure. A push button 21 is guided in the circular opening in the upper end of the nut 20, and is provided at its lower end with an outwardly-projecting flange which is engaged by an internal shoulder formed in the nut 20, to prevent vertical displacement of the push button 21 by the spring 23 which is confined within the nut 20, beneath the push button, and exerts an upward pressure upon the latter. A central stem 22 depending from the push button projects into the central hole in the screw plug 19, adjacent the upper end of the valve stem 18, so that upon depressing the push button 21 the valve stem and valve will be forced downward and thereby open the ports 12^a and 13^a and permit a free passage of the water from the supply pipe 10 through the passage 12 and valve casing to the passage 13 leading to the bowl. A suitable valve 10^a is provided in the supply pipe 10, for entirely cutting off the supply of water when desired.

The passage 13 in the curved extension 11 of the valve casing 9 communicates with the bowl through the medium of a short vertical pipe 24 having an inwardly-projecting horizontal extension 30, best shown in Fig. 6, the two together forming a T-fitting. At its lower end the pipe 24 is secured to the valve casing extension 11 by the means shown in Fig. 4, where it will be seen that said extension is provided with an upwardly-projecting internally threaded boss 24^a whose internal bore terminates at its lower end in a conical seat in which fits the correspondingly-shaped lower end or head of a short plug or tube 25 having a reduced body portion forming an annular shoulder above its conical lower end. This tube 25 is confined in the boss 24^a by a nut 25^a, and projects at its upper end through and above said nut and is exteriorly threaded and has screwed upon it the internally threaded lower end of the pipe 24. In this manner and by these means the lower end of the pipe 24 is securely connected to the valve casing extension 11, with its interior in communication with the passage 13 therein through the reduced central bore of the tube 25. At its upper end the pipe 24 is screwed upon, or has screwed into it, the reduced and exteriorly threaded lower end of the gooseneck delivery pipe 26 whose forwardly and downwardly curved discharge end projects over the bowl 1, as shown in Figs. 1, 2 and 3. Near its lower end, immediately above the horizontal plate 8 of the bowl structure, this gooseneck 26 is provided with nut 27, having a clamping flange fitting tightly upon the top of the plate 8, so that by turning said nut the plate 8 may be clamped tightly between said flange and the upper end of the pipe 24, and the goose-neck structure be thereby firmly secured to the bowl structure, with its interior communicating with the interior of the pipe 24, and consequently with the passage 13 leading to the valve casing and water supply.

For the purpose of properly reducing the supply of water admitted from the pipe 24 to the goose-neck 26 I provide a reducing plug 28 which is screwed into the extreme lower end of the goose-neck structure 26, within the upper end of the pipe 24. The passage through this plug is of such size relatively to the passage through the tube 25 in the lower end of the pipe 24 as to cause a proper division of the water supply between the goose-neck 26 and the horizontal extension 30 of the pipe 24 leading to the bowl 1. This extension 30 of the pipe 24 is internally threaded and has screwed into it the outer end of the delivery and distributing nozzle 31 shown in Figs. 5, 6 and 7. As best shown in Fig. 7, this nozzle consists of a short tube or pipe projecting through an orifice in the side of the bowl 1 and provided with an internal passage 31^a which terminates at its inner end, within the bowl, in a vertical slit 31^b which is flared or widened from its lower end upward, as shown. A flange 31^c is formed upon the nozzle piece 31, at an angle to its axis, so as to fit snugly against and be soldered or otherwise secured to the outer surface of the bowl. The particular shape of the delivery orifice or slit 31^b of the nozzle causes the greater portion of the water issuing therefrom to be directed laterally around the bowl, behind the depending flange or rim 8^a, and the smaller portion of the water to escape downwardly over the surface of the bowl. This tends to distribute the water over the entire surface of the bowl and cause it to flow downwardly over the same in a thin film, to the central outlet in its bottom. To still further facilitate this distribution of the water over the surface of the bowl I deflect the latter inward slightly below the horizontal plane of the delivery nozzle, as shown at 1^a in Fig. 6, to thereby form a slight circumferential shoulder upon the inner surface of the bowl at that point, which tends to support the water issuing laterally from the sides of the slit or orifice 31^b and cause it to travel around the bowl, above said shoulder and behind the rim 8^a, and the more gradually

escape over said shoulder and flow downward over the surface of the bowl to the outlet.

As will be understood from the foregoing, when the push button 21 is depressed the water supply will be admitted through the valve casing and passage 13 to the pipe 24, and will flow thence through the extension 30 and nozzle 31 to the interior of the bowl 1, and be distributed over the surface of the latter in the manner explained, and will also flow upward through the reducing plug 28 into the goose-neck delivery pipe 26 and escape therefrom into the bowl. It is desirable that the water shall be admitted to the interior of the bowl through the nozzle-piece 31 at a considerable pressure, in order that it may be distributed as nearly as may be over the entire inner surface of the bowl in the manner explained; but it is not desirable that the water shall issue from the goose-neck delivery pipe 26 at such pressure, since it would not only be an unnecessary waste of water for it to do so, but it is often desirable to catch the water issuing from such pipe in a glass. To reduce the pressure and supply of water issuing from the pipe 26, therefore, I have provided the reducing plug 28 in the latter, as heretofore explained. With no further provision, however, the water would issue upward through said plug and pass through the pipe 26 in a minute stream at high pressure, making more or less objectionable noise and issuing from the delivery end of the pipe with more or less objectionable force. To overcome these objections I insert in the pipe 26, above the plug 28, a reversely-bent piece of wire 29, or other equivalent device, as shown in Fig. 3, with which the minute stream of water issuing upward through the plug 28 at high pressure comes in contact and by which it is broken up and its impetus destroyed, with the result that the pipe 26 becomes filled with a larger column of water, at low pressure, which flows gently and quietly from its delivery end into the bowl or receptacle held to receive it.

Having thus fully described my invention, I claim:

1. In a lavatory, the combination, with the bowl and the drain pipe thereof, of a lateral arm connected to said pipe and having an off-set whereby the outer end thereof may be swung to a suitable position for attachment to a side wall.

2. In a lavatory, the combination, with the bowl and the drain pipe thereof having the trap interposed in it, of a lateral arm connected to said trap and having an off-set whereby the outer end thereof may be swung to a suitable position for attachment to a side wall.

3. In a lavatory, the combination, with a bowl having a water supply pipe and a bowl flush, both discharging into said bowl of a single valve device for controlling the supply of water to both the pipe and the bowl flush, means for reducing the pressure of the water supplied to the pipe relatively to that supplied to the bowl flush, and means within the supply pipe for breaking up and destroying the impetus of the jet or column of water admitted to said pipe by the reducing means.

4. In a lavatory, the combination, with the bowl 1, of the water supply pipe 26, a reducing means interposed in the water supply passage leading to said pipe, and the bent wire 29 located in the pipe 26 for breaking up and destroying the impetus of the jet of water admitted to said pipe through said means.

5. In a lavatory, the combination, with a bowl having a bottom outlet, of a distributing nozzle arranged to discharge into said bowl and having an orifice in the form of a slit, wedge-shaped in section with a restricted portion in position to discharge water substantially direct to the outlet and with side portions to discharge the water laterally around the upper inner surface of the bowl.

6. In a lavatory, the combination, with a bowl having a bottom outlet, of a distributing nozzle arranged to discharge therein and consisting of a pipe section having on one side an extension which is turned across the open end thereof to form therewith a discharge orifice, wedge-shaped in section for discharging water substantially direct to the bowl outlet and also laterally around the upper inner surface of the bowl.

7. In a lavatory, the combination, with the bowl 1, of the vertical pipe 24 connected at its lower end with the water supply and having the inwardly-projecting extension 30, the distributing nozzle 31 secured in said extension 30 and projecting into the bowl, the goose-neck delivery pipe 26 connected to the upper end of the pipe 24, and the reducing plug 28 in the lower end of said pipe 26.

8. In a lavatory, the combination, with the bowl 1, the horizontal plate 8 secured to its upper edge and having the downwardly-extending flange 8^a around its inner edge, constituting an open rim-flush for the bowl, the T-fitting 25—30 connected at its lower end with the water supply, the distributing nozzle 31 secured to the arm 30 of the fitting and projecting into the bowl 1 behind the rim 8^a, and the goose-neck delivery pipe 26 having the reduced and threaded lower end passing through the plate 8 and screwed into the upper end of the pipe 24.

9. In a lavatory, the combination, with the bowl 1 having the horizontal top plate 8, of the valve casing 9 located beneath the plate 8 and having a threaded upper end, the nut 20 screwed upon the upper end of

said casing and serving to clamp the latter to the plate 8, a valve in the valve casing controlling the water supply connections, and the push button 21 movable within the nut 20 for operating said valve.

10. In a lavatory, the combination, with the bowl 1 having the horizontal top plate 8, of the valve casing 9 located beneath said plate 8 and having a threaded upper end, the nut 20 screwed upon the upper end of the casing 9 and serving to clamp the latter to the plate 8, the valve located in the valve casing and having the upwardly-extending stem 18, the spring 17 confined beneath the valve and operating to press it upward, the push button 21 confined within the nut 20 and having the depending stem 22 coöperating with the valve stem 18, and the spring 23 confined beneath the button 21 and operating to press the same upward.

11. In a lavatory, the combination with the bowl 1 having the horizontal top plate 8, of the goose-neck delivery pipe 26 secured to the plate 8 at the back of the bowl 1 and having connection with the water supply at its lower end, a bowl-flush also connected with the water supply at the back of the bowl, a valve casing 9 secured to the plate 8 at one side of the pipe 26, a valve in said casing controlling the water supply both for said pipe and the bowl-flush, and a push button 21 above the plate 8 for operating said valve.

12. In a lavatory, the combination, with the bowl 1 having the horizontal top plate 8, of the goose-neck delivery pipe 26 secured at its lower end to the plate 8 at the back of the bowl and having connection with the water supply beneath said plate, a bowl-flush also connected with the water supply at the back of the bowl, the valve casing 9 located beneath the plate 8 at one side of the pipe 26 and having a threaded upper end, the nut 20 screwed upon the upper end of the casing 9 and serving to clamp the latter to the plate 8, a valve in the valve casing for controlling the water supply both to the pipe 26 and the bowl-flush, and the push button 21 confined in the nut 20 for operating said valve.

13. In a lavatory, the combination, with the bowl, of a valve casing secured thereto at its rear side and provided with the integral expansion 11 containing the inlet passage 12 connected with the water supply pipe 10, and the outlet passage 13 leading to the bowl, a valve in the valve casing for controlling communication between the passages 12 and 13, and a supply pipe and bowl-flush for the bowl having connection with the passage 13.

14. In a lavatory, the combination, with the bowl, of a valve casing secured thereto at its rear side and having the extension 11 containing the inlet passage 12 connected with the water supply pipe 10, and the outlet passage 13, a valve in the valve casing for controlling communication between said passages, a pipe 24 secured at its lower end to the extension 11 and communicating with the passage 13, and having a lateral branch 30 leading to a bowl-flushing nozzle within the bowl, and a supply pipe 26 for the top of the bowl, secured to the upper end of the pipe 24.

15. In a lavatory, the combination, with the bowl 1 having the horizontal top plate 8, a valve casing 9 secured to said plate at the rear of the bowl and at one side of the middle line thereof, and having the integral extension 11 leading inward to the middle line of the bowl and containing the inlet passage 12 communicating with the water supply pipe 10 and the outlet passage 13 leading to the bowl, a valve in said valve casing for controlling communication between said passages, the water supply pipe 26 for the top of the bowl secured at its lower end to the plate 8 at the middle of the rear side of the bowl, the pipe 24 connecting the lower end of the pipe 26 with the passage 13 in the valve casing extension 11, and a bowl-flushing nozzle connected with the pipe 24 and projecting into the rear side of the bowl.

16. In a lavatory, the combination, with the bowl 1 having the horizontal top plate 8, of the valve casing 9 secured to said plate at the rear of the bowl and at one side of its middle line, and having the extension 11 leading inward to the middle line of the bowl and containing the inlet passage 12 connected with the water supply pipe 10, and the outlet passage 13 leading to the bowl, a valve in the valve casing controlling communication between said passages, the supply pipe 26 for the top of the bowl having a base 27 resting upon the top of the plate 8 and a threaded extension projecting downward through said plate, the pipe 24 screwed at its upper end upon such depending extension of the pipe 26 and serving to clamp the latter to the plate 8, said pipe 24 being connected at its lower end to the valve-casing extension 11, in communication with the outlet passage 13 thereof, and having a lateral branch 30, and a bowl-flushing nozzle connected with said branch 30 and projecting into the bowl.

17. In a lavatory, the combination, with the bowl having the horizontal top plate 8, of the valve casing 9 secured to said plate at the rear of the bowl and at one side of the middle line thereof, and having the integral extension 11 leading inward to the middle line of the bowl and containing the inlet passage 12 and outlet passage 13, and provided upon its upper side at the middle line of the bowl with the internally-threaded boss 24a, the plug 25 seated in said boss and having the reduced body portion and the

exteriorly-threaded upper end, the nut 25ª confining the plug 25 in the boss 24ª, the T-shaped pipe 24—30 screwed upon the upper end of the plug 25, the supply pipe 26 for the top of the bowl having the base 27 resting upon the top of the plate 8 and the screw-threaded extension projecting through said plate and screwed into the top of the pipe 24, the bowl-flushing nozzle 31 connected with the branch 30 of the pipe 24 and projecting into the rear side of the bowl, and a valve in the valve casing 9 controlling communication between the passages 12 and 13 in the extension 11.

18. In a lavatory, the combination, with the bowl 1 having the horizontal top plate 8, of the valve casing 9 having a threaded upper end projecting upward through the plate 8 at the rear of the bowl and at one side of the middle line thereof, and provided with the integral extension 11 leading inward to the middle line of the bowl and containing the inlet passage 12 and outlet passage 13, the nut 20 screwed upon the upper end of the casing 9 and serving to clamp the latter to the plate 8, a valve within the casing 9 for controlling communication between the passages 12 and 13, a push button 21 confined within the nut 20 for operating said valve, the supply pipe 26 for the top of the bowl having the base 27 resting upon the top of the plate 8 at the rear of the bowl and provided with the threaded extension projecting downward through said plate, the pipe 24 screwed upon said extension and serving to clamp the pipe 26 to the plate 8, said pipe 24 being suitably connected at its lower end to the valve-casing extension 11, in communication with the passage 13 therein, and provided with the lateral branch 30, and a bowl-flushing nozzle connected with said branch and projecting into the rear side of the bowl.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."