

(No Model.)

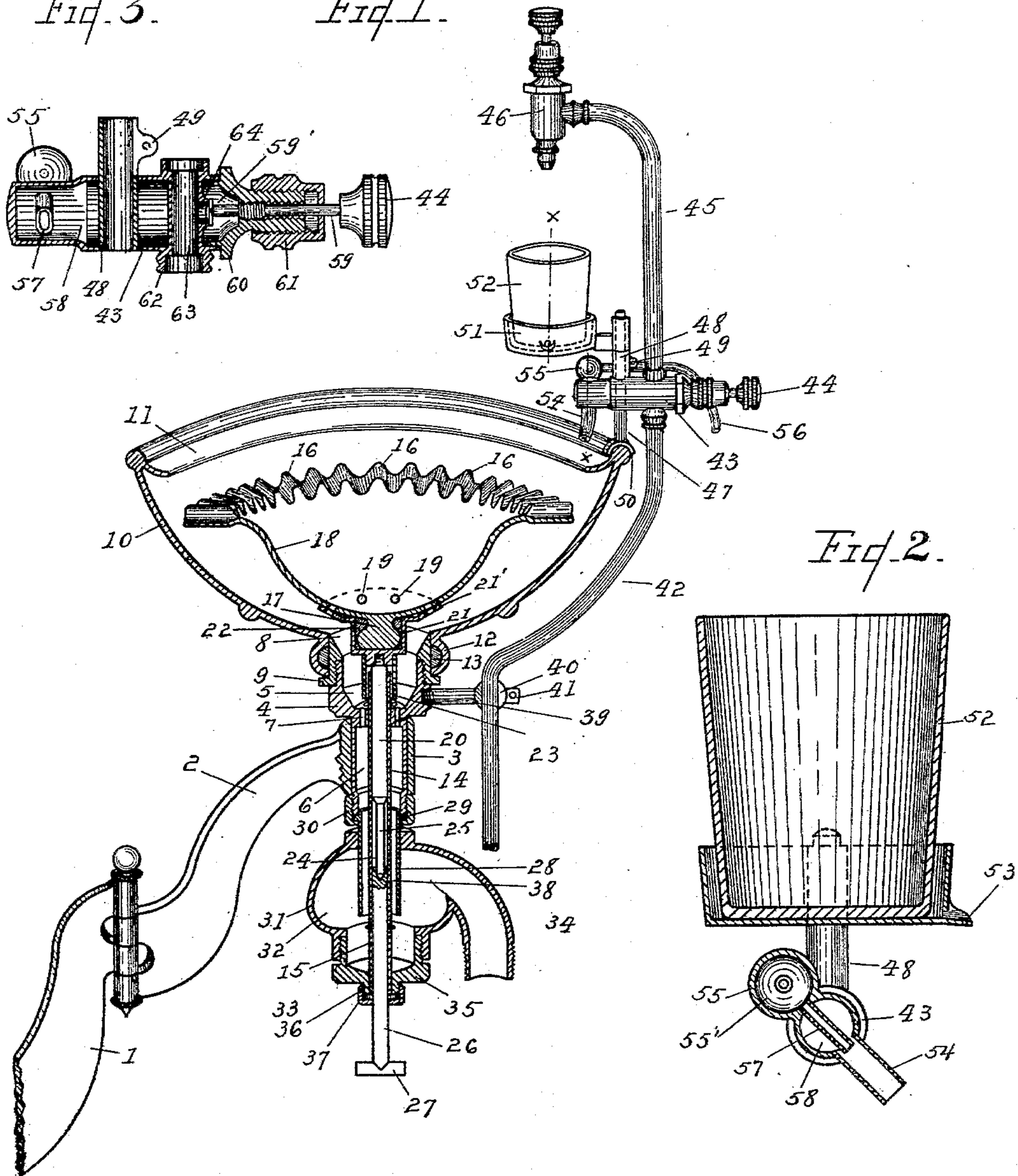
G. E. JOHNSON.
FOUNTAIN SPITTOON.

No. 597,359.

Patented Jan. 11, 1898.

Fig. 3.

Fig. 1.



WITNESSES:

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UNITED STATES PATENT OFFICE.

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FOUNTAIN-SPITTOON.

SPECIFICATION forming part of Letters Patent No. 597,359, dated January 11, 1898.

Application filed June 24, 1897. Serial No. 642,066. (No model.)

To all whom it may concern:

Be it known that I, GEORGE E. JOHNSON, a citizen of the United States, residing at Fort Wayne, in the county of Allen, in the State of Indiana, have invented certain new and useful Improvements in Fountain-Spittoons; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to improvements in fountain-spittoons specially designed and adapted for dentists' use.

The object of my invention is twofold—first, to provide a fountain-spittoon of simple and economical construction having an arrangement of parts that the gold-trap can readily be detached for cleaning and the inner revolving bowl conveniently removed or replaced without detaching or deranging other or adjacent parts thereof, and the outer fixed bowl can readily be replaced when desired; second, to provide a self-cleansing spittoon so constructed and arranged that a single jet or stream of water or washing fluid can be utilized for the threefold purpose of cleansing the fixed bowl, propelling as well as cleansing the inner revolving bowl, and for operating the saliva-ejector.

My invention comprises an upright cylindrical chambered casting loosely mounted in the free end of a dental chair-bracket, an outer liquid-receiving receptacle detachably surmounted upon said casting, an inner revoluble bowl concentric with said outer fixed bowl, a combined gold and water trap suspended from the lower end of said casting and provided with a novel means for cleansing the same, and a saliva-ejector adapted to automatically and simultaneously cleanse both the inner and outer bowls and also to actuate the inner revoluble bowl by the same stream or jet of water by a novel mode of operation.

Similar reference-numerals in the accompanying drawings indicate similar parts throughout the several views, in which—

Figure 1 is a perspective view of my improvement in vertical central section, show-

ing the relative arrangement of the operative parts. Fig. 2 is an enlarged detail of the saliva-ejector and goblet-bracket on the broken line $x x$ of Fig. 1. Fig. 3 is a longitudinal vertical central section of my improved saliva-ejector, showing its internal construction.

The pivoted arm 2 of any proper chair-bracket 1 has a hollow cylindrical head 3, in which my improvement is rotatably mounted. The upright cylindrical casting 4 has its upper end enlarged and provided with a chamber 5, whose bottom has a plurality of vertical conduits or openings 7, leading to and communicating with a second annular chamber 6 in the lower portion of said casting. Both extremities of the casting 4 are externally screw-threaded. Upon the upper end of said casting is mounted by a screw-threaded connection the internally-screw-threaded collar or bushing 8, outwardly flaring upon its upper edge and provided upon its lower edge with an outer annular flange 9, adapted to support the fixed outer bowl 10. The said bowl 10, made of non-corrosive material, preferably of porcelain, has an inner annular flange 11, for the purpose hereinafter specified, and has its bottom provided with a central opening adapted to admit and contain the upper portion of the said collar or bushing 8. An annular pendent flange 12 upon the outer face of said bowl 10 surrounds the said central opening, having upon its inner face an annular groove or recess adapted to be filled with proper cement 13, by which the said bowl is firmly secured to the outer face of the said collar or bushing 8. In a suitable vertical opening in the bottom of said chamber 5 is loosely mounted the sleeve 14, whose upper end extends upward into said chamber 5. A second short vertical sleeve 15 is fixed in the screw-plug 35, hereinafter described, in alinement with said sleeve 14 and is adapted to firmly support the sleeve 14.

The inner revolving bowl or receptacle 18, having a pendent basal lug 17 and a series of perforations 19, surrounding said lug, is supported in position for its rotary movement as follows: In the upper portion of said sleeve 14 is loosely mounted the rod 20, upon whose upper screw-threaded end is fixed by a screw-threaded connection the hollow open-topped

pedestal 21, adapted to receive and contain the said basal lug 17, and is provided with the upwardly-flaring flange 21', adapted to embrace the base of said bowl 18, and is also provided with a series of perforations coincident with the said perforations 19, as shown. The said bowl 18 is rigidly fixed in said pedestal by proper cement 22 and is made of non-corrosive material, preferably of porcelain, and has its rim formed into a uniform series of transverse convolutions 16, adapted to receive the propelling jet or stream of water against their sides at substantially right angles thereto, whereby the said bowl is rotated by a slight flow of water.

While the bowl 18 is shown in Fig. 1 as being adapted to be rotated to the right, it can obviously be rotated with equal facility in the opposite direction by changing the direction of the propelling-jet.

To a reduced cylindrical extension upon the lower face of said pedestal 21 is rigidly fixed by brazing or other proper manner the pendent sleeve 23, adapted to inclose the upper end of said sleeve 14 without contact therewith, thereby leaving a small annular chamber between the said sleeves 23 and 14, which is filled at its upper portion with air, and thus prevents the liquid contents of said chamber 5 from reaching the bearing of said rod 20 in said sleeve 14. The lower end of said rod 20 has a reduced portion 25, whose lower conical end forms a cone bearing in the upper and adjacent end of rod 26, which has a handle 27 upon its free lower end and is soldered or otherwise fixed in the said sleeve 14, but has its lower end loosely mounted in said sleeve 15. Surrounding said reduced portion 25 of said rod 20 is a small annular oil-chamber 24 to keep said conical bearing properly lubricated. In the lower end of said casting 4 is loosely arranged the upper end of the sleeve 28, provided upon its perimeter with an annular flange 29, abutting the lower end of said casting. This sleeve 28 is secured in position by the coupling 30, which fits upon the lower end of said casting by a screw-threaded connection. To the upper portion of said sleeve 28 is rigidly fixed by brazing or other proper manner the combined water and gold trap 31, having an upper water-compartment 32 and a lower gold-compartment 33, containing mercury in the usual manner and provided with a discharge-pipe 34. The open bottom of the trap 31 is closed by a screw-plug 35, secured therein by a screw-threaded connection, as shown. This screw-plug 35 is centrally apertured to admit the lower end of the said sleeve 15, rigidly fixed therein, and has an internally-screw-threaded annular lug 36, on which is mounted by a screw-threaded connection the stuffing-box 37, which is centrally apertured to loosely admit the said rod 26. As the said sleeve 28 is of greater diameter than the inclosed concentric sleeve 14, an annular outlet-chamber 38 is provided between said

sleeves leading from said chamber 6 to the bottom of said chamber 32 of the said water-trap.

Obviously the trap 31 may be omitted, if desired, in which case the waste-pipe would be attached directly to the lower end of said casting 4, the sleeve 14 would be rigidly fixed in the said casting, and the sleeves 14 and 28 and the rod 26 would be cut off at a suitable distance below the said cone-bearing point. In a screw-threaded perforation in the side of the enlarged portion of said casting 4 is fixed a lateral bracket 39, having a split and apertured head 40, adapted to clamp and firmly secure the upright supply-pipe 42, on which is fixed the valved saliva-ejector body 43.

The horizontal ejector-body 43, Fig. 3, is a hollow shell, closed at its forward end, having its open rear end internally screw-threaded and closed by the screw-plug 60, which has a longitudinal screw-threaded aperture for the valve-stem 59, having upon its outer end a rigid milled nut 44 to operate the same and having upon its inner end the outlet water-valve 59'. The said plug 60 has its outer end externally screw-threaded and is surmounted by the internally-screw-threaded sleeve 61, whose closed end is centrally apertured for the said valve-stem. Approximately midway the ends of said valve-body and in diametric relation therewith is arranged the upright integral pipe 62, in whose outer ends the adjacent ends of the supply-pipe sections 42 and 45 are properly secured. The rear face of said inner pipe 62 is provided with a lateral opening 64, whose outer perimeter is provided with a proper seat for said valve 59', by which water from the supply-pipe is admitted to the interior of said body and thence through the tube 54 to the bowl 18. The supply-pipe 42 has a vertical extension 45, whose overhanging upper end is provided with a proper faucet of ordinary construction 46.

Near the forward end of the ejector-body 43 and in diametric relation therewith is rigidly fixed the upright sleeve 48, having the rear side of its outer portion longitudinally split or slitted and provided with the lateral perforated ears 49, adapted to receive a clamping-screw. In this sleeve 48 is loosely mounted the vertical rod 47, which passes diametrically through said ejector-body and is provided upon its lower end with a semicircular flange or shoe 50, adapted to snugly fit the semicylindrical rim of said bowl 10 for the purpose of more rigidly securing the same in position. Upon the upper extended end of said rod 47 is pivoted or swiveled a goblet-holder 51 for the goblet 52, having a suitable drainage-spout 53, Fig. 2. The forward end of said ejector-body 43 has upon its lower surface an obliquely-arranged discharge-tube 54. In approximately diametric alignment with said tube 54 and integral with said body 43 is arranged the globular saliva-receptacle 55, having a chamber 55', provided with a lateral opening for the discharge end of the saliva-convey-

ing tube 56, the other end thereof being adapted to be placed in the patient's mouth in the usual manner. While the saliva-receptacle 55 is shown as cast integral with the said ejector-body 43, it may be made separate therefrom and united thereto in any proper manner. The said saliva-receptacle has a discharge suction pipe or tube 57, which passes diametrically through the water-chamber 58 of said ejector-body and has its free end concentrically arranged within the inner end of the discharge tube or pipe 54, leaving a proper contracted annular space about the free end of said suction-pipe for the passage and circulation of the water under pressure, which thereby creates by suction a vacuum in the said chamber 55' and the said suction-pipe 57 and draws out the contents of the saliva-conveying tube 56 and tends to keep it free. My improved saliva-ejector thus acts as a jet-pump whose capacity is dependent upon the size and pressure of the actuating jet or stream. To secure the most efficient action of the said pumping jet or stream, the free end of the said suction-pipe should be arranged just within the throat of the discharge-pipe 54. As the discharge end of the suction-pipe 57 is encircled by an annular stream of water under pressure the film of viscid saliva and mucus drawn therefrom by suction will be enveloped by the discharging-jet in said pipe 54 and carried therefrom with no appreciable tendency to adhere to the sides thereof, as would be the case were the saliva-film annular to the propelling-jet. To quickly and thoroughly cleanse the saliva-conveying tube and mouthpiece, the operator simply closes the discharge end of said pipe 54 temporarily with his finger, thereby forcing the stream or jet of water back through said saliva-tube and out at the mouthpiece thereof. The motive power of said actuating jet or stream is not exhausted in operating the said saliva-ejector, but is subsequently further utilized in propelling the inner revoluble bowl in the manner presently to be described.

To remove the inner revolving bowl 18, the operator simply elevates the rod 20 by means of the said rod 26, carrying with it the surmounted pedestal until he can insert his fingers between the perimeters of the said bowls, after which he can readily lift it out of the fixed bowl without derangement of the inclosing parts. The said bowl 18 can of course be as readily replaced when desired. To detach or replace the outer fixed bowl 10, the said inner bowl having been first removed as described, the operator unclamps the said rod 47 by loosening the said holding-screw in the ears 49 of the sleeve 48, after which the said rod can be readily elevated until the shoe 50 is disengaged and out of the way of the adjacent rim of said bowl, which is then rotated until the cemented collar or bushing 8 is detached from its screw-threaded connection with the upper end of said casting 4.

Thus when either of said bowls become broken their removal and replacement is quickly and conveniently accomplished without the assistance of a skilled workman. The water-trap can also be readily cleaned by the convenient removal of the screw-plug 35.

It will be seen that as the convolutions 16 are radial the impact of the propelling-jet will strike them at substantially a right angle, whereby part of said jet or stream will pass into the bowl 18 and out at the perforations 19 and a part will constantly be deflected outwardly against the inner surface of the fixed bowl 10. Thus the same jet which propels the revolving bowl 18 will also automatically and simultaneously cleanse both of the said bowls. The inner annular flange 11 of the outer bowl prevents any splashing out or overflow of the outwardly-deflected portion of said liquid jet.

As the goblet-holder 51 is pivoted above the saliva-ejector, it is free to swing clear in either direction.

I do not hereby limit myself to the precise details of construction above described, as they may be indefinitely varied without departing from the spirit and scope of my invention. For example, the flange 11 of the fixed bowl 10 may be omitted, if desired. The goblet-holder rod 47 may be arranged at or near the end of the ejector-body 43 instead of intermediate the supply-pipe 45 and the saliva-receptacle 55. The lower portion of the rod 26, with the sleeve 15 and the stuffing-box 37, may be omitted, in which case the lower end of sleeve 14 is soldered or otherwise rigidly secured to said sleeve 28. Obviously the discharge siphonic tube 57 may be arranged in a horizontal position and discharge-pipe 54 properly bent to give the desired direction or inclination to the propelling-jet.

What I desire to secure by Letters Patent is—

1. In a fountain-spittoon a saliva-ejector consisting of a hollow body or shell having a valved connection with the water-supply pipe, and a discharge-pipe in operative relation with the liquid-receiving bowl or receptacle, and provided with a saliva-receiving vacuum-chamber having an inlet-opening for the saliva-conveying tube, and an outlet suction-tube arranged within said discharge-pipe as shown, and adapted to be encircled by the outflowing jet, whereby the contents of said chamber will be withdrawn by the suction of said jet, substantially as described.

2. In an apparatus of the class described, a saliva-ejector consisting of a hollow body or casing having a valved connection with the water-supply pipe, and an inclined discharge-pipe, in combination with a saliva-receptacle having a vacuum-chamber, an inlet-opening for the saliva-conveying tube, and provided with a suction-tube so arranged within said body and discharge-pipe as to drain said receptacle by the suction of the outflowing water

in said discharge-pipe, substantially as described.

3. A saliva-ejector consisting of a cylindrical body 43 having a fixed diametric supply-pipe section 62 provided with a valved lateral opening to the chamber 58, an outlet-valve 59 seated in said opening and provided with a valve-stem mounted by a screw-threaded connection in the adjacent end of said body, an inclined discharge-pipe 54 and an integral saliva-receptacle 55 having an inlet-opening for the conveying-tube and provided with a suction outlet-tube 57 within said chamber 58 and having its discharge end arranged in concentric relation with said discharge-pipe 54, substantially as described.

4. In a dental cuspidor a saliva-ejector having a suction-tube and a water-chamber, the said chamber having a reduced discharge-pipe, the free end of the suction-tube being arranged in the throat of the discharge-pipe to provide a contracted annular passage therein as and for the purpose specified.

5. In a fountain-spittoon the combination of a fixed outer bowl properly mounted in a supporting-bracket; an inner bowl rotatably mounted in said outer bowl in concentric relation therewith, having its perimeter convoluted as shown and adapted to be rotated by the saliva-ejector-operating jet; and a saliva-ejector having a valved connection with the water-supply pipe, a discharge-opening, and a saliva-receptacle having a vacuum-chamber provided with an inlet-opening for the saliva-conveying tube, and a discharge suction-tube so arranged in said discharge-opening as to produce a vacuum in said chamber by the discharging-jet, whereby the said jet is adapted to simultaneously cleanse and actuate the said revolving bowl and operate the said saliva-ejector, substantially as described.

6. The combination in a self-cleansing spittoon of an outer fixed bowl of non-corrosive material; an inner revolving bowl arranged in concentric relation therewith, having a convoluted perimeter to receive the propelling-jet as described; and a suitable saliva-ejector adapted to simultaneously actuate said inner

bowl and cleanse said inner and outer bowls, all substantially as described.

7. In a spittoon, the casting 4 chambered as described and provided upon its upper end with the screw-threaded cap 8 having an annular flange 9 for the purpose specified; a pendent tube 28 suspended from the lower end of said casting by the screw-threaded coupling 30; the water-trap 31 rigidly fixed upon said tube 28 having a water-chamber 32 and a gold-deposit chamber 33, and provided upon the bottom thereof with the screw-threaded plug 35; in combination with the outer bowl 10 fixed as described upon the collar 8; the inner bowl 18 revolvably mounted within said outer bowl, and provided upon its perimeter with a series of convolutions to receive the impact of the actuating-jet; and a proper saliva-ejector adapted to simultaneously actuate said revoluble bowl and cleanse said inner and outer bowls, substantially as described.

8. In a fountain-spittoon a revoluble bowl concentrically mounted in an outer fixed receptacle and provided upon its perimeter with a series of radial convolutions adapted to receive at approximately a right angle the impact of the actuating or propelling jet, and adapted to so deflect the said jet laterally as to simultaneously cleanse both the revoluble bowl and the said fixed receptacle, substantially as described.

9. The combination in a dental cuspidor of an outer fixed bowl; an inner revoluble bowl concentrically pivoted therein, having a convoluted perimeter adapted to receive the impact of the propelling-jet, and so reflect the same as to simultaneously cleanse both the inner and outer bowls; and a saliva-ejector adapted to supply the said propelling-jet, substantially as described.

Signed by me at Fort Wayne, Allen county, State of Indiana, this 21st day of June, A. D. 1897.

GEORGE E. JOHNSON.

Witnesses:

DUDLEY CAMPBELL,
MAUDE MERILLAT.