Sept. 8, 1925. 1,552,837

P. E. GABEL ET AL

DENTAL APPLIANCE

Filed Aug. 15, 1923 2 Sheets-Sheet 1

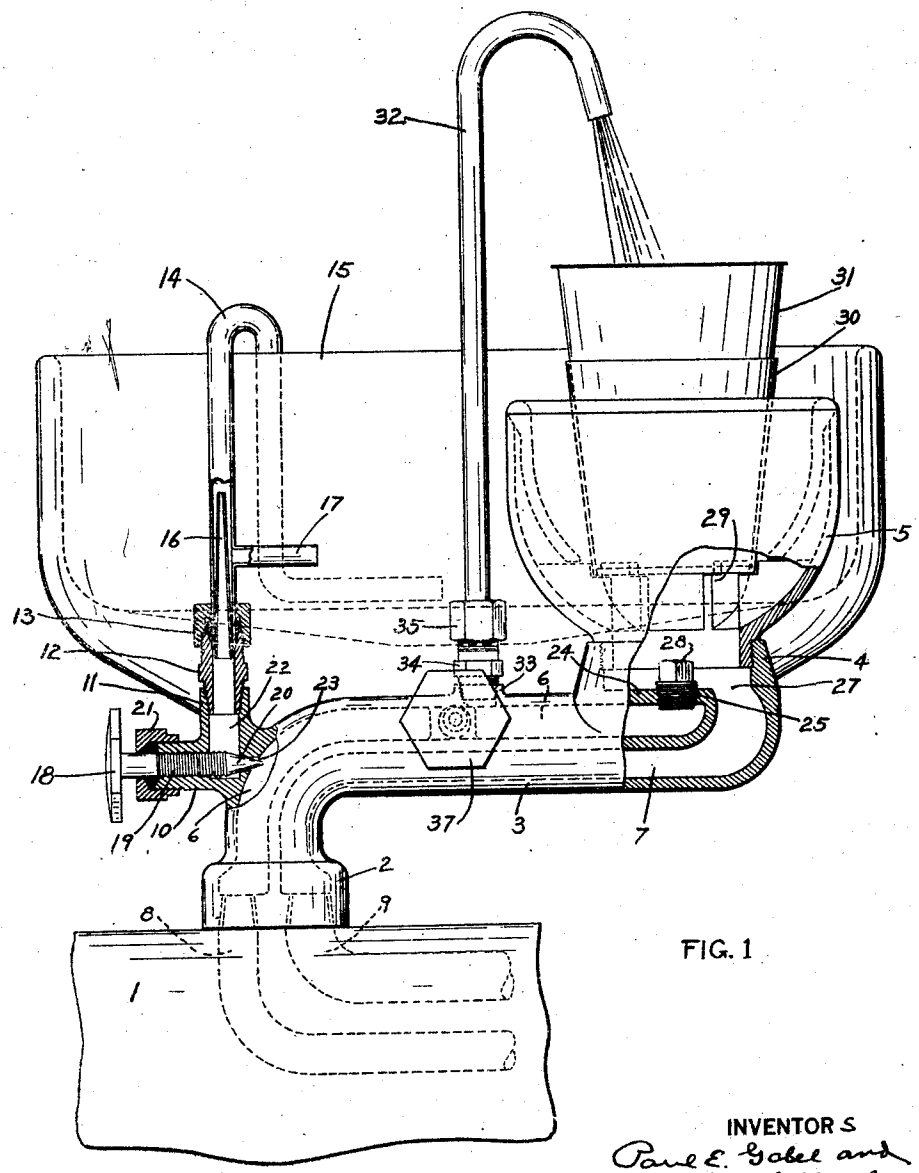

FIG. 1

INVENTORS
Paul E. Gabel and
BY Elmer L. Kingsley,
Horace A. Smith,
Their ATTORNEY

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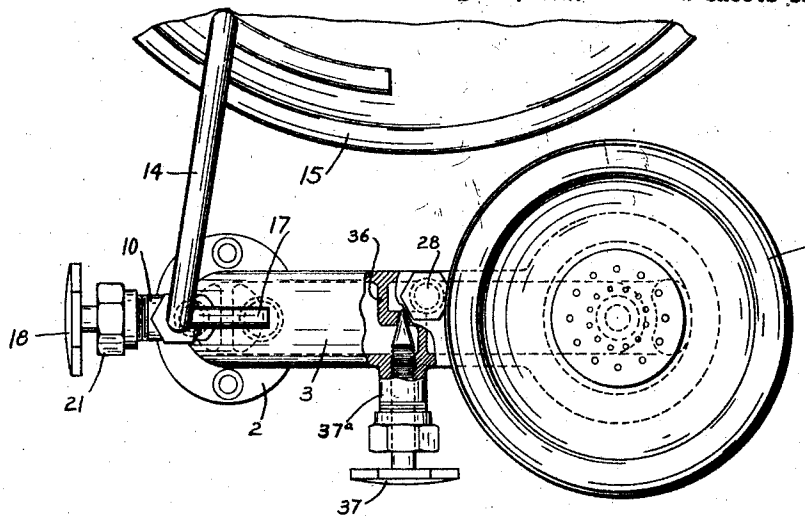

FIG. 3

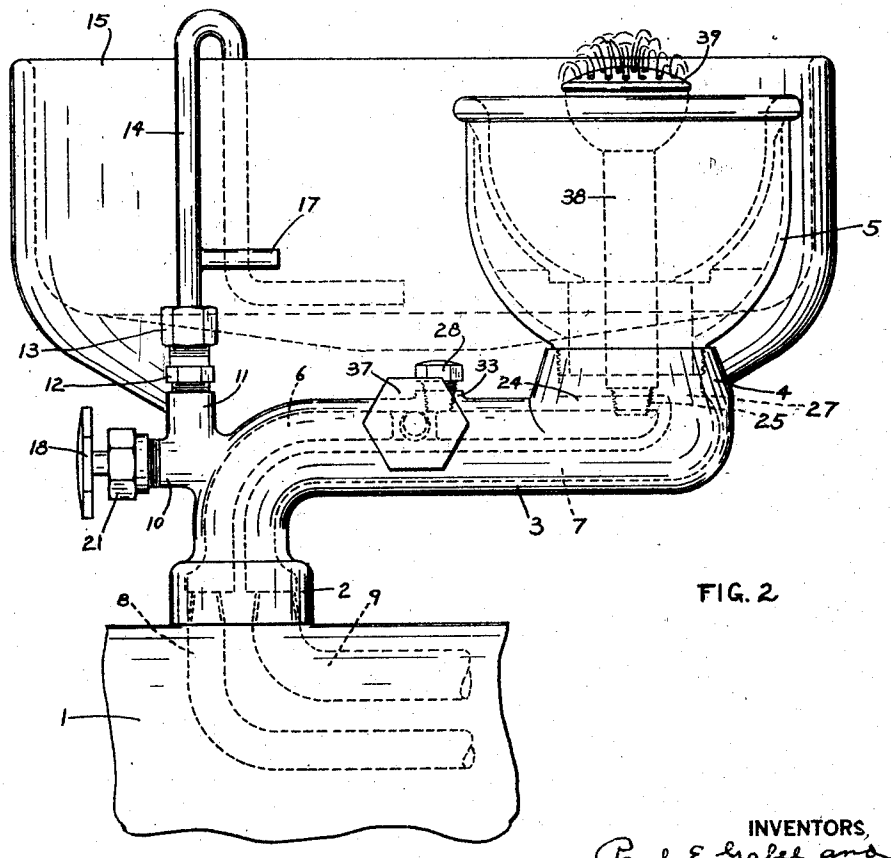

FIG. 2

INVENTORS,
Paul E. Gabel and
Elmer L. Knipling,
BY
Howard P. Smith
Their ATTORNEY

Patented Sept. 8, 1925. 1,552,837

UNITED STATES PATENT OFFICE.

PAUL E. GABEL AND ELMER L. KNIPPLING, OF DAYTON, OHIO.

DENTAL APPLIANCE.

Application filed August 15, 1923. Serial No. 657,469.

To all whom it may concern:

Be it known that we, PAUL E. GABEL and ELMER L. KNIPPLING, citizens of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Dental Appliances, of which the following is a specification.

This invention relates to new and useful improvements in dental appliances, and has particular reference to a combination bubbling fountain and sanitary cup holder which is readily convertible from one use to the other so that the preference of the patient for either one may be easily met. It also enables the bubbling fountain and cup filling tubes to be controlled by a single valve.

In the accompanying drawings illustrating our invention, Figure 1 is a side elevational view, partly broken away, of our dental appliance as it appears when the sanitary cup holder is employed. Figure 2 is a similar view of our dental appliance showing the use of the bubbling fountain in place of the sanitary cup. And Figure 3 is a top plan view thereof.

Throughout the specification and drawings, similar reference characters denote corresponding parts.

In the accompanying drawings illustrating our invention, the numeral 1 designates an arm of a dental unit, to which there is secured the upright base portion 2 of a double-bend tubular casting 3. The latter terminates at its upper end in an enlarged inwardly tapering base 4 which is internally threaded to receive the externally threaded bottom part of an upwardly and outwardly flaring cup holder 5 preferably constructed of porcelain.

Formed in the casting 3 is a water inlet hole 6 and a drain hole 7 for communication at their lower ends with tubes 8 and 9 respectively in the arm 1 of the dental unit. On the outer portion of its first bend, the tubular casting 3 has an offset part 10 from which there projects upwardly a flushing-tube receiving portion 11. Screwed into the latter is a threaded coupling sleeve 12 in which there is firmly secured, by means of a nut 13, the lower end of a Venturi flushing and saliva ejecting tube 14. At its upper end this tube is bent over the edge of a cuspidor bowl 15, and then projects downwardly and laterally within it for the purpose of thoroughly flushing it. Opposite its Venturi portion 16, the tube 14 has a lateral projection 17 to receive a saliva-ejector (not shown).

The entrance of water into the tube 14 for both its flushing and saliva-ejecting purposes, is controlled by a single valve 18. The latter, which is of the screw type, has an externally threaded stem 19 and a conical inner end 20. The lateral offset portion 10 of the tubular casting 3 is internally threaded to receive the stem of the valve 18, and externally threaded to receive a cap nut 21. A hole 22 extends downwardly from the vertical portion 11 of the offset part 10 of the tubular casting, for communication through an opening 23 in the wall of the latter, with the water inlet hole 6 in the casting. The conical end 20 of the valve 18 is adapted to open and close this opening 23 when the valve is turned in one direction or the other, for the purpose of admitting water to, or preventing it from entering, the tube 14. When water is admitted to this tube, it will flush the cuspidor bowl 15 and at the same time, if desired, draw saliva from the mouth of the patient through the attachment of the saliva-ejecting device to the lateral projection 17 of the tube. The important feature of the construction is, that the single valve 18 will control the flow of water for both flushing and saliva-ejecting purposes, as against the two-valve construction which is at present employed.

The means for readily converting the device into a bubbling fountain or a cup holding one, will now be described. Just below the internally threaded part of the cup-holding base 4 of the tubular casting 3, is an integral web 24 which has a central screw-threaded opening 25 which communicates with the water inlet hole 6. This web also has a side opening 27 through which waste water from the cup-holder 5 may freely flow into the drain hole 7 in the casing 3.

When it is desired to use the appliance as a cup holder, a plug 28 is screwed into the central hole 25 in the web 24, and upon radial notched-ledges 29 formed on the lower interior part of the cup-holder 5, a tapering metal sleeve 30 supporting a paper cup 31 is placed. (See Figure 1.) For the purpose of delivering water to the latter, a faucet tube 32 is provided. Formed on the

top of the casting 3 near the cup-holder is a tubular projection 33 which receives a coupling sleeve 34 in which the lower end of the faucet tube 32 is held by a coupling nut 35. This tubular projection is over an opening in the wall of the tubular casting that communicates with the water inlet hole 6. A double bend partition 36 extends across the latter in front of the tubular projection opening and has a portion running lengthwise of the tubular casting that contains an opening which is uncovered and closed by the needle point end of a screw valve 37, similar to the valve 18, which is screwed transversely into the casting through a lateral projection 37^a on it. When the valve 37 is turned to withdraw its needle point end from the opening in said partition, water will flow through the hole 6 into the faucet tube 32, and from the bent-over end of the latter, into the cup 31.

Now when it is desired to use a bubbling fountain in the appliance, the coupling sleeve 34 and the tube 32 are removed from the tubular casting 3. The plug 28 which closed the central hole 25 in the web 24 of the cup-holder, is removed therefrom after the cup-holding band 30 and cup 31 are lifted out. This plug is then screwed into the tubular projection 33 in the casting. A fountain tube 38 having a lower externally threaded end adapted to be received by the central hole 25 in the web portion 24 of the cup-holder, is then screwed into said hole. This tube is provided with an enlarged apertured top 39 which is preferably constructed of porcelain, and from which water will bubble when the valve 37 is again turned on, since the tubular projection 33 is now closed by the plug 28 and the hole 25 in the web portion 24 of the cup-holder is open to said tube. (See Figures 2 and 3.)

It will now be seen that by changing the plug 28 from the hole 25 in the web 24 of the cup-holder 5 to the projection 33 on the tubular casting 3, and vice versa, our appliance may be readily prepared to receive the bubbling fountain or sanitary cup attachments hereinbefore described. Furthermore, the flow of water through the bubbling fountain tube 38 or the faucet tube 32 will be controlled by the single valve 27 in place of a separate valve for each attachment. The device may be economically constructed, and can be easily attached to a dental unit for use in proximity to the cuspidor bowl 15 as in the present instance.

We do not wish to be limited to the details of construction and arrangement herein shown and described, and any changes or modifications may be made therein within the scope of the subjoined claims.

Having described our invention, we claim:

1. In a device of the type described, the combination with a tubular supporting member containing a liquid inlet passage and a liquid drain passage, of a cup-holder mounted on the outer end of said member, said member containing a hole near the cup-holder, a web in the cup-holder having an inlet opening through which the liquid may flow into the cup-holder from the liquid inlet passage in the supporting member and an outlet opening communicating with the drain passage in said member, and a plug insertible in either the inlet opening in said web or in the hole in the supporting member for the purpose specified.

2. In a device of the type described, the combination with a tubular supporting member containing a liquid inlet passage and a liquid drain passage, of a cup-holder mounted on the outer end of said member, said member containing a hole near the cup-holder, a web in the cup-holder having an inlet opening through which the liquid may flow into the cup-holder from the liquid inlet passage in the supporting member and an outlet opening communicating with the drain passage in said member, a plug insertible in either the inlet opening in said web or in the hole in the supporting member, and a fountain tube adapted to be inserted in the inlet opening in the web of the cup-holder when said plug is inserted in the hole in the supporting member.

3. A dental appliance comprising a tubular casting, a cup-holder secured on the outer end of said casting and communicating therewith, said tubular casting containing a liquid-inlet passage and a liquid-drain passage extending parallel with, and below, the latter passage, a faucet projecting from the liquid-inlet passage upwardly and over the cup-holder, and a web in the cup-holder having a central opening through which the liquid may flow into the cup-holder from the liquid-inlet passage in the tubular casting, and having a side opening through which the waste liquid may flow from the cup-holder into the drain passage in the tubular casting.

In witness whereof we have hereunto set our hands this 13th day of August, 1923.

PAUL E. GABEL.
ELMER L. KNIPPLING.