

July 10, 1928.

L. C. CAVANAUGH
FOUNTAIN TOOTHBRUSH
Filed Oct. 23, 1926

1,676,601

Fig. 1.

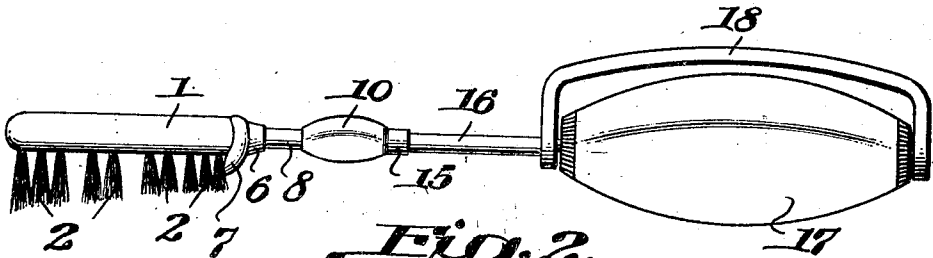


Fig. 2.

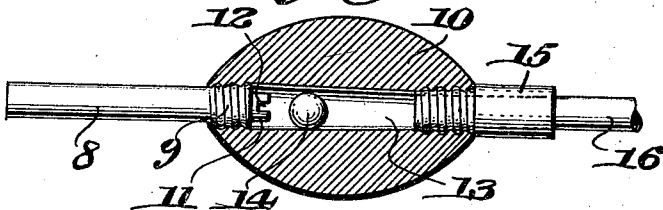


Fig. 3.

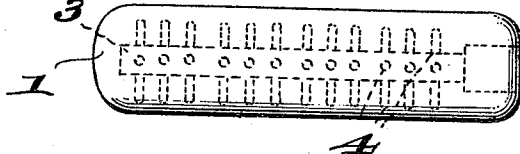


Fig. 4.

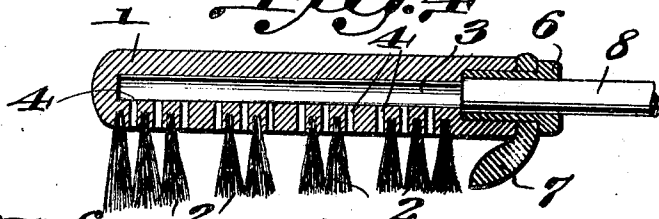


Fig. 6.

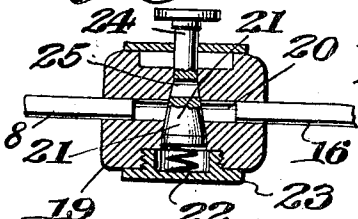
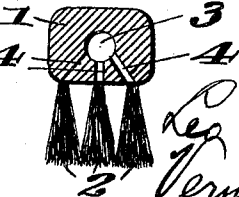


Fig. 5.



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UNITED STATES PATENT OFFICE.

LEO C. CAVANAUGH, OF YOUNGSTOWN, OHIO.

FOUNTAIN TOOTHBRUSH.

Application filed October 23, 1926. Serial No. 143,646.

This invention relates to an improvement in fountain tooth brushes.

The object of this invention is to provide for the home treatment of pyorrhea, trench-mouth, and other diseases of the teeth and gums.

For this purpose, a soft, cleansing, and antiseptic brush is provided for the teeth and gums, which is antiseptically self-filled and may be easily and quickly used for cleansing the teeth.

The brush is made in three main parts which may be detached from each other and fitted in a case or other suitable container for distribution to the public. The brush-head has the bristles thereof arranged in sections or divisions spaced apart from each other to facilitate a thorough cleansing thereof and of the teeth, and the body of the brush-head is made hollow with a plurality of outlet ducts communicating therewith. The brush-head receives an enlarged bushing, which is secured thereto and holds a guard thereagainst to prevent the liquid from the bristles from flowing back on the handle of the brush. A tube is detachably connected with the flanged bushing and at its opposite end it extends into a valve casing containing a ball-valve. This ball-valve operates between the end of said tube and a bushing secured in the opposite side of said valve casing, which latter bushing removably receives a second tube communicating with a flexible bulb which is adapted to contain the liquid used in washing the teeth.

A handle is connected with the last-mentioned tube and with the bulb for holding the brush and pressing or actuating the bulb.

In using the brush, the bulb tube is withdrawn from the valve bushing and lowered into the antiseptic liquid while the bulb is contracted and, upon release of the bulb, the suction created therein draws the liquid up through the tube into the bulb. Said tube is again fitted into the valve bushing and the brush is ready for use.

By pressing the bulb, the liquid is forced therefrom through the tubes and the opening in the brush head into the mouth and about the teeth and gums.

In the accompanying drawings:—

Fig. 1 is a side elevation of the complete tooth brush;

Fig. 2 is an enlarged vertical section

through the control valve, partly in side elevation;

Fig. 3 is a top plan view of the brush-head;

Fig. 4 is a vertical section therethrough;

Fig. 5 is a horizontal section through said brush-head; and

Fig. 6 is a vertical section through a modified form of the control valve.

The numeral 1 designates the brush-head having the bristles 2 thereof arranged in sections spaced apart from each other, as clearly shown in Figs. 1 and 4. This brush-head 1 is provided with a central chamber 3 having ducts 4 leading downwardly therefrom. The chamber 3 is enlarged at its rear end as at 5 to receive a flanged bushing 6. Mounted upon the flanged bushing 6 and interposed between the flange of said bushing and the brush-head 1 is a guard 7 which depends from the brush-head 1 to prevent any liquid from flowing back from the brush-head along the handle of the tooth brush.

A tube 8 is slidably received in the bushing 6 and has its opposite end screw-threaded as at 9 to screw into a valve casing 10. The extreme end of the tube 8 is in the form of a reduced nipple 11 having notches 12 formed in the sides thereof, as shown in Fig. 2. A duct 13 extends through the valve casing 10 in communication with the tube 8, and this duct 13 normally receives and encloses a ball-valve 14. A bushing 15 is screwed into the opposite end of the duct 13 and is provided with an orifice there-through from the end thereof in position to be engaged and closed by the ball-valve 14. Said ball-valve 14 is adapted to be easily and readily moved from the nipple 11 to the end of the bushing 15.

A bulb tube 16 is slidably and removably fitted into the bushing 15 and at its opposite end it is connected with a flexible hollow bulb 17, communicating with the interior of said bulb. A handle 18 is connected with the bulb tube 16 and the bulb 17 for handling and operating the brush.

In use, the bulb tube 16 is withdrawn from the nipple 11 and dipped into a receptacle containing a cleansing or antiseptic fluid, while the bulb 17 is contracted by the user's hand, and the bulb 17 is released while the end of the tube 16 is submerged in said liquid, creating a suction in the bulb 17.

After being filled, the tube 16 is again inserted into the bushing 15 and the brush is ready for use. When the bulb 17 is pressed or contracted, the liquid forced therefrom through the tube 16 will force the ball valve 14 from its seat in the end of the bushing 15, and against the nipple 11, to allow the liquid to flow around the ball-valve through the notches 12, and the tube 8 into the chamber 3 and through the orifices 4, from where it is discharged into the bristles of the brush or directly onto the user's teeth or gums.

The guard 7 prevents any liquid from draining or flowing back from the bristles of the brush along the handle. When the liquid has been forced out of the bulb 17 and the bulb released by the user's hand, the suction created therein will tend to draw the ball-valve 14 on to its seat in the end of the bushing 15 where it closes communication with the interior of the bulb and tends to prevent any foreign matter from passing thereinto, thus keeping the brush entirely sanitary and clean.

The ball-valve shown in Fig. 2 is automatic in its actuation and may be used if preferred, but instead, a hand actuated valve may be used in connection with the invention instead of this automatic valve, which hand valve is illustrated in Fig. 6. The casing 19 is provided with the duct 20 therethrough, communicating with the tubes 8 and 16. A plunger 21 extends upwardly through the casing 19 and is normally held in its upper position by a spring 22 interposed between the lower end of the plunger 21 and a plug 23. The upper end of the plunger 21 terminates in a thumb-piece 24 for forcing the plunger down against the pressure of the spring 22. The plunger 21 is provided with a duct 25 therethrough which, when the plunger is forced downward, communicates with the duct or opening 20 through the valve casing 19, and establishes communication between the tubes 16 and 8.

Since this brush is made in three main parts and easily detachable, the parts may be fitted into a suitable case for distribution or sale to the public. The brush-head is so constructed that it is entirely separate from the handle of the brush and this makes it possible to renew the brush-head often without imposing the expense of securing an entirely new brush.

In fact, the head will be relatively inexpensive and it is entirely possible to have three brush-heads a day, which gives a dry, clean brush at all times. The brush is so constructed that it is self-filling, self-cleansing, and entirely sanitary, and is very simple in construction and operation.

If desired, the bulb tube 16 may be inserted directly into the flanged bushing 6 by close slidable fit for the purpose of syringing out the brush-head before or after using, if

desired. This keeps the head entirely sanitary and clean, and is a simple means of washing it.

I claim:—

1. A fountain tooth brush including a brush-head having a chamber therein, openings extending outwardly from said chamber, a bushing fitted into the chamber, a tube having one end thereof connected with said bushing, a valve casing connected with the opposite end of said tube for controlling the passage therethrough, a second tube having an end thereof slidably and removably received in the opposite side of said valve casing, and a pressure bulb for receiving a liquid connected with the outer end of said last mentioned tube for receiving fluid therethrough and forcing said fluid through the valve casing and tubes into the brush-head.

2. A fountain tooth brush including a brush-head having the bristles thereof spaced apart to provide substantial spaces at intervals thereover, said brush-head having a chamber therein, openings extending outwardly from said chamber adjacent the bristles, a flanged bushing fitted into the chamber, a guard interposed between the flange of the bushing and the head, and depending therefrom in the direction of the bristles for preventing back flow of a liquid therefrom, a tube connected with the flanged bushing and extending outwardly therefrom, a valve casing communicating with said tube, a second tube slidably and removably connected with said valve casing to be detached therefrom, a pressure bulb connected with the outer end of said last mentioned tube, and a handle connected with said bulb, said bulb and tube connected therewith being adapted to be removed from the valve casing for filling the bulb and reinserted therein for forcing a liquid from the bulb through the valve casing and tubes and the openings in the brush-head about the bristles for cleansing and brushing the teeth.

3. A tooth brush including a brush-head, having a chamber therein, openings extending outwardly from said chamber, a bushing fitted into the chamber, a tube having an end thereof fitted into the said bushing, a valve casing connected with the opposite end of said tube, said casing having an opening therethrough, a bushing fitted into the opposite end of said opening, a ball valve mounted in the opening between the ends of the tube and bushing, and liquid supply means connected with the last-mentioned bushing.

4. A tooth brush including a hollow brush head, a tube connected therewith, a valve casing connected with the tube, said casing having an opening therein, a source of liquid supply connected with the opening, and

a ball valve mounted in the opening between the ends thereof.

5 5. A tooth-brush including a brush head having discharge orifices therein, a tube having an end thereof connected with the brush head, a valve connected with the opposite end of said tube for controlling the passage therethrough, a second tube having

an end thereof removably received in the opposite side of said valve, and a container 10 connected with the outer end of the last-mentioned tube for receiving fluid to be forced through the valve and tubes into the brush head.

In testimony whereof I affix my signature.
LEO C. CAVANAUGH.