April 9, 1929. J. L. MACSHANE 1,708,423

STERILIZING TOOTHBRUSH HOLDER

Filed Sept. 12, 1927

Fig. 1.

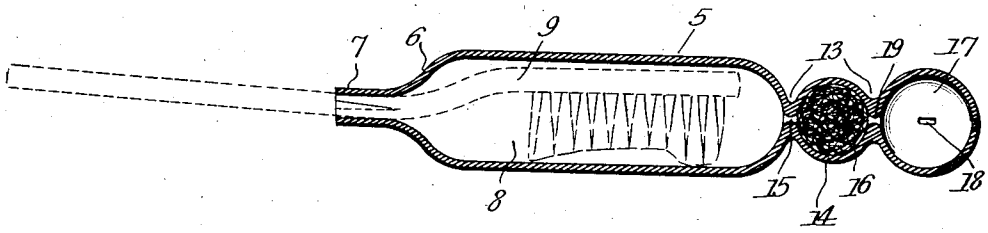


Fig. 2.

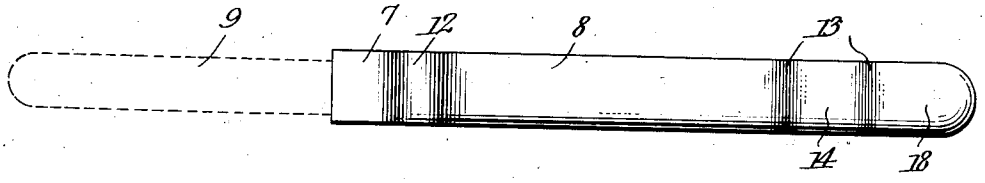


Fig. 3.

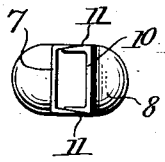
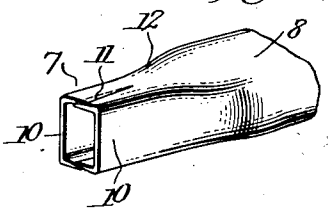


Fig. 4.



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UNITED STATES PATENT OFFICE.

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STERILIZING TOOTHBRUSH HOLDER.

Application filed September 12, 1927. Serial No. 219,135.

This invention relates to new and useful improvements in tooth brush holders and more particularly to a type which will maintain the brush in an absolutely sterile condition when not in use.

The important object of the invention resides in the provision of a tooth brush holder which will prevent contamination of the brush by the provision of a brush chamber in which the brush is housed when not in use and in which the air can be maintained in an absolutely sterile condition.

Another object of the invention is to provide a device of the above character having means associated therewith for forcing sterile air into the brush chamber and contaminated air out of the same.

A further object of the invention is to provide a device of this character which will be easy to maintain in a sanitary condition, can be manufactured at the minimum expense and one which will not interfere with the brush being suspended in the ordinary ways when not in use.

Other objects and advantages of the invention will become apparent during the course of the following description.

In the drawing forming a part of the application and wherein like numerals are employed to designate like parts through the several views:

Figure 1 is a longitudinal section of the invention illustrating a tooth brush stored therein.

Figure 2 is a side elevation of the same.

Figure 3 is an end elevation of the device, and

Figure 4 is a perspective view of one end of the tooth brush holder.

Referring now more particularly to the drawing wherein for the purposes of illustration I have shown one modification of the invention, the numeral 5 designates the improved tooth brush holder in its entirety. This holder is preferably constructed from a single piece of resilient tubing such as rubber, suitably treated to shape the same into individual chambers and a mouth portion as will be hereinafter set forth. In the present illustration I have shown the tubing as being substantially rectangular in cross section to closely approximate the cross sectional shape of the average tooth brush, but it will be obvious that the cross sectional shape of the holder may be varied without departing from the scope of the invention.

One end of this rubber tubing is contracted as at 6 to provide a contracted, elastic, axially extending neck or mouth 7 for a brush chamber designated by the numeral 8. This brush chamber is, of course, of a size to receive the brush head and part of an ordinary tooth brush handle substantially as indicated in dotted lines at 9.

The neck 7 of the holder includes a pair of telescopic sections 10 which are provided by slitting opposite sides of the neck longitudinally as at 11 and then subjecting the neck to such treatment as will cause the slit edges of one section 10 to be normally overlapped by the corresponding edges of the other section as shown in Figures 3 and 4. The slit edges of the two sections 10 are preferably tapered or feathered as shown so that the neck portion of the holder upon its return to shape, after being expanded by the insertion of the brush head, to closely fit around the handle of the tooth brush when the latter is positioned in the holder.

It will be noted that the slits 11 in the neck do not extend throughout the length thereof, but leave a portion 12 of the neck which adjoins the end of the brush chamber, intact or not slit so that that this portion 12 of the neck will be stretched or expanded upon insertion of the head of the brush into the brush chamber 8. The entire holder being constructed of resilient material such as elastic rubber, it will be obvious that after the head of the brush has passed the neck portion, the entire neck portion 7, including the portion 12, will at once contract to its normal size which is preferably of a size to snugly embrace the handle portion of the average tooth brush. Consequently, upon the insertion of a brush in the holder, and after the head of the brush has been inserted within the brush chamber 8, the neck portion of the holder will contract and closely embrace the handle of the brush to exclude the entrance of air into the brush chamber through the neck portion.

The end of the brush chamber 8 opposite the contracted neck 7 is contracted as at 13 at spaced points to provide a medicament or sterilizing chamber between said contracted portions. The contraction of the tube at these points is not sufficient to close communication between the brush chamber 8 and the medicament chamber 14 and there is left a passage or space 15 between these two chambers. Within the medicament chamber

is positioned a pad or wad of absorbent material 16, preferably sterilized absorbent cotton, which is saturated with a sterilizing agent or disinfectant. The end of the tubing opposite the neck 7 is suitably formed into a pressure bulb 17 having an opening or slit 18 through which air is permitted to enter from the atmosphere and which is adapted to be closed by a finger of the operator when compressing the bulb portion 17. This bulb communicates with medicament chamber 14 through a passage 19 extending through the outermost contracted portion 13 of the tube. This elastic bulb 17 serves when compressed, to force atmospheric air through the medicament chamber 14 and thence via passage 15 into the brush compartment 8 and through the bristles of the brush, thereby forcing the contaminated air which has entered with insertion of the brush back through the neck 7 between the walls thereof and the brush handle, thereby leaving nothing but sterile air in the brush compartment and the tooth brush free from contamination when not in use. The walls of the neck 7 are adapted to snugly embrace the brush handle in a substantially air tight manner, but being resilient will expand under pressure to permit the escape of air in the brush chamber upon compression of the bulb 17.

Ventilation of the brush chamber 8 when a brush is disposed therein is obtained only through the medicament chamber and bulb 17 via the opening 18, as a consequence of which any atmospheric air tending to seep into the brush chamber 8 must first pass through the sterilizing chamber 14 before obtaining entrance to the brush chamber.

It is, of course, obvious that the absorbent material 16 and sterilizing agent may be introduced into the sterilizing chamber 14 through the opening in either end of the holder, but if desired, the sterilizing chamber and pressure bulb 17 may be constructed separate from the brush chamber and detachably connected thereto by any suitable means. Furthermore, it is obvious that the pressure bulb 17 may be detachably connected to the sterilizing chamber 14 in any suitable manner.

It is also within the scope of my invention to construct the brush chamber 8 of sufficient length to be adapted to enclose the entire tooth brush, including its handle, in an air-tight manner, in which case the contractile neck 7 would be constructed to close upon itself in an airtight manner, instead of around the handle of the brush as disclosed in the specific embodiment herein illustrated.

Various other changes in the shape, construction and arrangement of the various parts may be resorted to without departing from the scope of appended claims.

Having thus described the construction and operation of the holder, what I claim is:

1. A sterilizing tooth brush holder comprising the combination of a chamber adapted to hold a tooth brush in an air tight manner, means carried by said chamber to permit the insertion of said brush and the outlet of air under pressure, and means associated with said chamber for forcing sterile air into said chamber and exhausting vitiated air.

2. A sterilizing tooth brush holder comprising a closed brush chamber having a contractile mouth adapted to permit the insertion of the brush into said chamber, said chamber adapted to hold a tooth brush therein in an air tight manner, and means associated with said chamber for forcing sterile air into the chamber and vitiated air out through said contractile mouth.

3. A sterilizing tooth brush holder comprising the combination of a closed brush chamber having a contracted expansible neck normally of a size to snugly receive the handle of a tooth brush in an air-tight manner and expansible to admit the head of said brush through said contracted neck into said chamber, and means associated with said chamber for forcing sterile air into said chamber and vitiated air out between the handle of the tooth brush and said contracted expansible neck.

4. A sterilizing tooth brush holder comprising a closed brush chamber having a contractile mouth adapted to close about the handle of a brush inserted therein in a substantially air tight manner, and means associated with said chamber for forcing sterile air into said chamber and vitiated air out through said contractile mouth.

5. A sterilizing tooth brush holder comprising a closed brush chamber having a resilient mouth adapted to close about the handle of a brush inserted therein in a substantially air tight manner, a sterilizing chamber communicating with said brush chamber, and means associated with said sterilizing chamber for forcing sterile air into said brush chamber and vitiated air out through resilient mouth.

6. A sterilizing tooth brush holder comprising a closed brush chamber having a contractile mouth adapted to close about the handle of a brush inserted therein in a substantially air tight manner, a sterilizing agent chamber communicating with said brush chamber, and a pressure bulb communicating with said sterilizing agent chamber for forcing sterile air into said brush chamber and vitiated air out through said contractile mouth.

7. A sterilizing tooth brush holder comprising a one-piece resilient tubular holder one end of which provides a brush chamber having an expansible mouth, the other end of said holder providing a disinfectant chamber communicating with the brush

chamber and a pressure bulb communicating with said disinfectant chamber.

8. A tooth brush holder comprising a one-piece resilient tubular holder one end of which provides a brush chamber, said holder having a contracted resilient tubular mouth normally of a size to snugly receive the handle of a tooth brush in an air tight manner and expansible to admit the head of said brush into said chamber, and said neck being provided with opposed longitudinal slits in a portion of its length and formed into a pair of telescopic sections adapted to facilitate the insertion of the brush head into said chamber.

In testimony whereof I have hereunto set my hand.

JAMES LEE MACSHANE.