Dec. 9, 1952 G. S. RIDNER, SR 2,620,500

COMBINATION TOOTHBRUSH AND CASE

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Fig. 1.

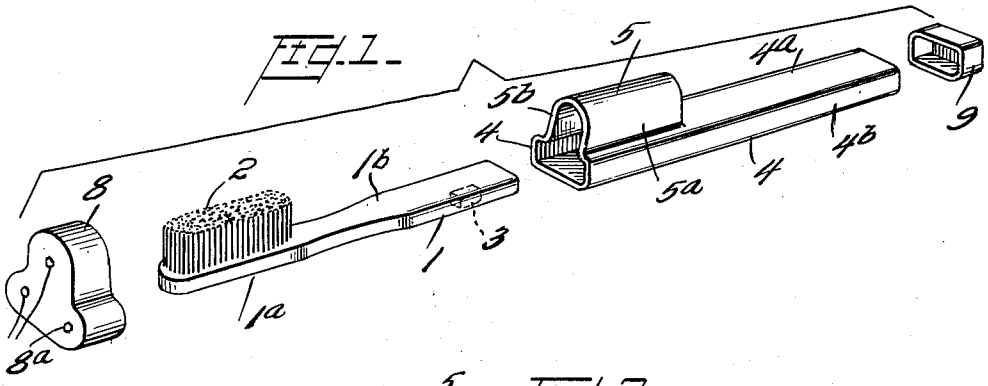


Fig. 2.

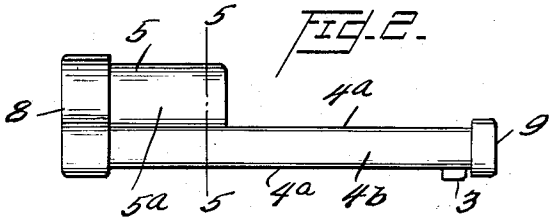


Fig. 3.

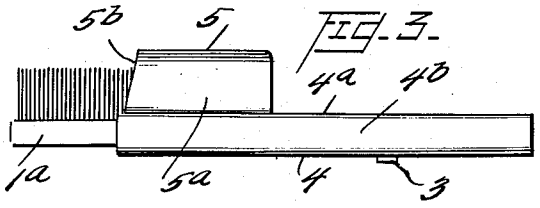


Fig. 4.

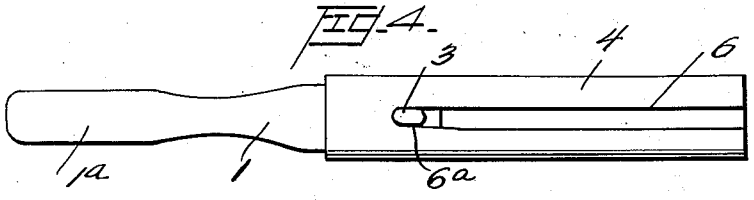
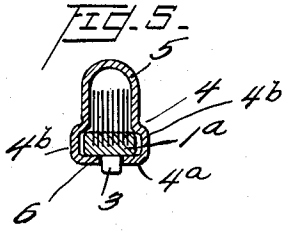


Fig. 5.



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COMBINATION TOOTHBRUSH AND CASE

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2 Claims. (Cl. 15—184)

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This invention relates to collapsible tooth brushes of the general type in which the brush head is slidable into and out of a protective case so as to be conveniently carried in the pocket, in a handbag or in a toilet kit while preserving the sanitary condition of the brush by shielding the bristles against contact with adjacent surfaces or objects.

An important object of my invention is to provide a tooth brush of the foregoing type in which the case, which serves as the handle when the brush is in use, is provided with a hood open at one end through which the brush head is telescoped into and out of the case, the open end of the hood being closable by a cap so that the hood and cap completely surround and protect the brush head when the latter is withdrawn into the case.

The invention has as another object to provide improved means for frictionally locking the brush head against retraction and wobbling when it is moved to extended position ready for use, this object being accomplished in the preferred embodiment of my invention by means of a trackway which cams a side of the brush into binding engagement with a side of the case when the brush head is pushed out.

Still another object of my invention is to provide a tooth brush of the above character in which the open end of the hood forming a part of the case is so constructed that the bristles are progressively urged to and held in upright position as the brush head is slid into its case.

Other objects and advantages will be apparent from the following detailed description of a preferred embodiment of the invention, reference being had to the annexed drawing in which:

Figure 1 is an exploded view of a tooth brush and case;

Figure 2 is a side view of the case with the tooth brush collapsed therein;

Figure 3 is a side view of the case showing the tooth brush partly extended therefrom;

Figure 4 is a bottom view of the case with the tooth brush completely extended therefrom and showing the key-and-slot trackway for frictionally wedging the tooth brush laterally into binding engagement with the side of the case; and

Figure 5 is an end view of the case showing the tooth brush enclosed within the hood.

As shown in the drawing, the tooth brush 1 comprises a brush head 1*a* of flattened transverse cross-section and preferably molded from plastic, having its bristles 2 extending up from one side thereof. The brush head also includes a stub portion 1*b* lying beyond the section occupied

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by the bristles, this portion having a small lug 3 molded thereon and projecting up from the reverse side of the brush head from that which carries the bristles. This lug extends only part of the length of the stub portion and is located adjacent the end of this portion medially of its width.

The brush head is adapted to be contained within a case 4 when not in use and to be slid outwardly therefrom into fully projected position when the brush is to be used. The case also is preferably made of plastic material and it is of a length slightly exceeding the length of the brush, being open at both ends. The opposed flat top walls 4*a* and the two curved side walls 4*b* are so shaped in transverse cross-section so as to provide a snug sliding fit with the tooth brush. One of the top walls is formed with a hood 5 of less width than the top wall and which extends only part of the length of the case. This hood is adapted to provide a housing for the bristles 2 on the brush head when the brush is retracted into the case. The hood is closed at one end and at its other end opens through one of the open ends of the case. The sides 5*a* of the hood extend parallel and closely adjacent the sides of the bristles and the open end of the hood is cut off at an inclination relative to the plane of sliding movement of the brush as indicated at 5*b* so that the base of the hood where it connects with the bottom wall of the case is longer than the top of the hood, as best shown in Figure 3.

By virtue of this construction it will be apparent that as the brush is slid into the case, the walls of the hood will engage the bristles that may have been pressed out of upright position during use and restore them to erect position. This restoring action, because of the slope of the open entrance end of the hood, is a progressive one, the side walls of the hood first engaging the bristles at their roots and continuing to advance upwardly along the bristles as the brush travels into the case.

The top wall 4*a* of the case opposite the top wall upon which the hood 5 is mounted is provided with a longitudinal slot 6 which extends medially from one end of the case to a point somewhat short of the other end of the case. A side edge of this slot is formed with a cam edge 6*a* which is disposed at a slight angle to the line of travel of the brush. The lug 3 on the stub portion 1*b* of the brush head loosely fits within and is adapted to travel along the trackway provided by the slot 6, the top of the lug projecting a short distance beyond the slot and serving as

a button engageable with one finger of the hand for shifting the brush head outwardly of the case. When the lug 6 rides against the cam edge 6a it will act to wedge a side of the brush 1 into tight binding engagement with the corresponding side of the case and the brush will be firmly held against accidental retraction and free from looseness and wobbling. The brush may be returned to its case simply by pushing upon its outer end.

One end of the case is closed by a cap 8 which is so shaped as to fit over the open end of the case and hood and this cap is provided with ventilation holes 8a to allow the circulation of air through the case. The opposite end of the case is closed by a cap 9 which makes a slip fit with the walls of the case. Thus, when the brush 1 is telescoped into the case and the caps 8 and 9 are slipped onto the ends of the case, the brush is fully protected against soiling and is preserved in a sanitary manner in compact condition in the pocket or a toilet kit.

The present invention is to be distinguished from those in which a lug upon the handle of a tooth brush traveling in a slot in the case makes wedging engagement within the slot. Such a construction is subject to the disadvantage that the small surface of contact between the lug and the sides of the slot is insufficient to tightly hold the brush in extended position and this condition is aggravated by the fact that the lug and slot are exposed to moisture during the use of the tooth brush which lubricates the bearing area between these parts with a consequent reduction in binding efficiency. By virtue of the construction of my combination tooth brush and case, the bearing area between the sides of the brush and case is sufficiently large as to insure a tight frictional lock between these parts and at the same time this bearing area is located upon the inside of the case and unexposed to moisture. Also the urging of the bristles to erect position by a progressive upward wiping motion as the brush is slid into the case results in prolonging the useful life of the brush because the bristles are maintained in upright position during the drying out period following every use of the tooth brush.

While in the above-described embodiment of the invention the tooth brush and case are composed of plastic, nevertheless, these parts may be made from other materials such as metal, hard rubber, etc., if desired. Also the cross-sectional shape of the brush and the case may be varied so long as the area of frictional contact between the side faces of the brush and case is sufficient to result in a tight binding action when these faces are wedged together.

While a preferred embodiment of the combination tooth brush and case of my invention has been set forth, it is to be understood that the invention is not limited to the exact constructions illustrated and described, but modifications of these details may be made within the purview of the appended claims.

I claim:

1. A combination tooth brush and case assembly, said case being of tubular construction open at one end and said tooth brush being of corresponding transverse cross-section to snugly fit within and slide lengthwise into and out of the case through the open end, and a lug upon the tooth brush extending into and adapted to travel within a longitudinal slot in the case, said slot having a cam edge adjacent one end disposed at an angle to the longitudinal travel of the lug whereby a side of the tooth brush is wedged into tight binding contact with a side of the case.

2. A combination tooth brush and case as set forth in claim 1 wherein the tooth brush comprises a brush head having a field of upright projecting bristles and in which the case comprises an open-ended hood extending laterally from and disposed adjacent to the open end of the case, said hood having top and side walls of such length as to completely cover the brush head when the tooth brush is fully retracted into the case, the side walls of the hood terminating at an inclination relative to the upright position of the bristles, whereby all deformed bristles lying laterally beyond the field of bristles are progressively wiped to upright position as the brush head is retracted into the hood.

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