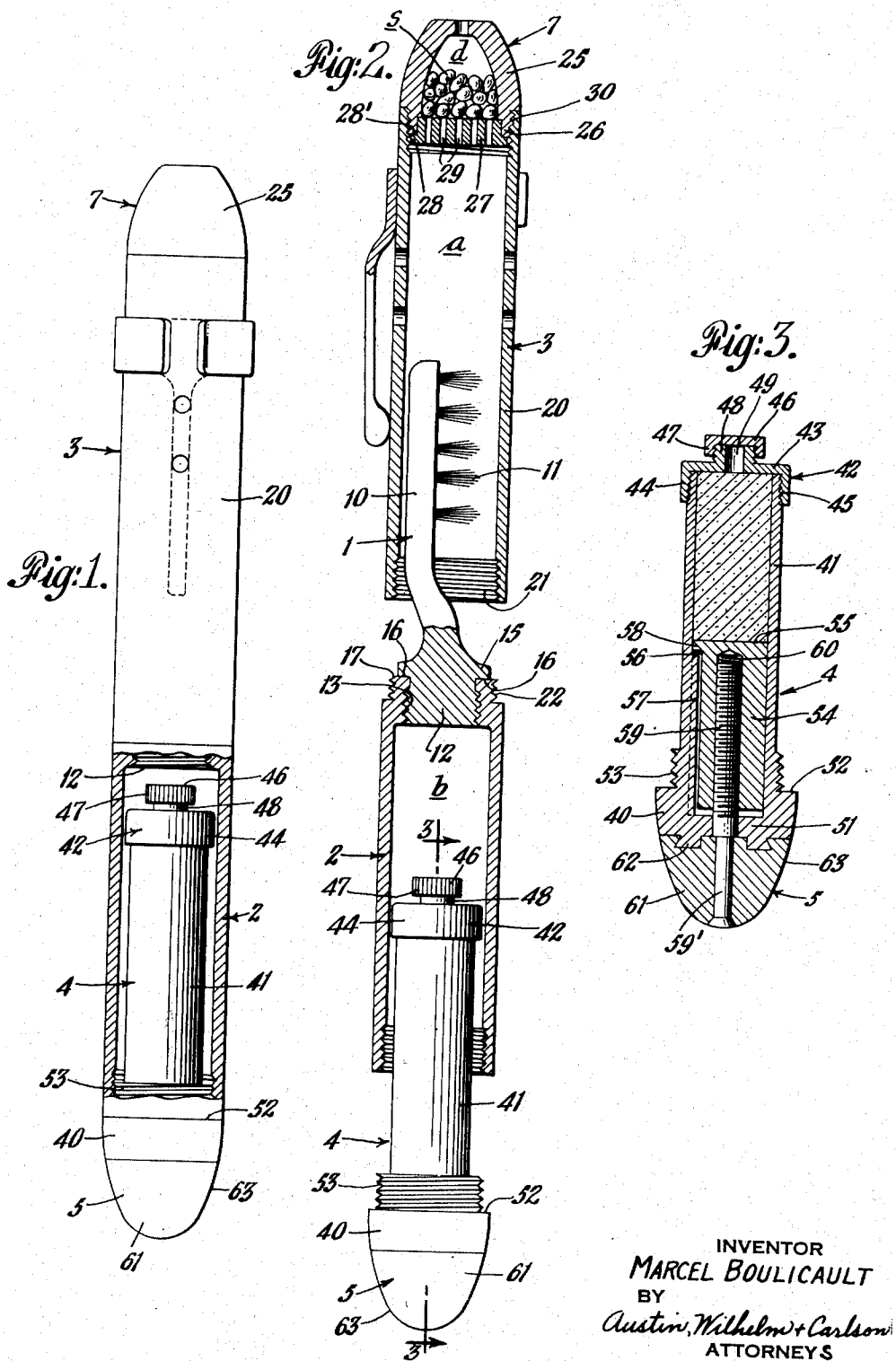


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TEETH CLEANING UNIT

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## TEETH CLEANING UNIT

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1

This invention relates to improved teeth cleaning units and more particularly to a teeth cleaning assembly containing a toothbrush and all accessories for the proper care of the teeth assembled together in a compact and attractive unit which may be conveniently carried in the pocket or purse. This application is a continuation in part of my copending application Serial No. 664,614, filed April 24, 1946 now Patent No. 2,468,733 and my copending application Ser. No. 612,763, filed August 27, 1945 now Patent No. 2,468,732.

This invention relates to an improved teeth cleaning unit and more particularly to a brush cleaning assembly wherein the toothbrush and all accessories necessary for the proper care of teeth are assembled together in a compact and attractive unit which may be conveniently carried in the pocket or purse.

Proper care of the teeth requires daily brushing and cleaning of the teeth which should be done after each meal. Such preferential care cannot be given to the teeth by most individuals since the necessary implements, such as the tooth brush and accessories used by such individual, are not ordinarily carried by the individual or otherwise are not conveniently available or accessible throughout the day.

It is the purpose of this invention to provide a teeth cleaning assembly which presents in one compact, convenient and attractive unit, a tooth brush with the necessary complement of dentifrice contained in a holder sanitarily housed within a sealed and dustproof compartment in the handle section of the unit. A tubular cover section, detachably secured to one end of the handle section, provides a sanitary and dustproof compartment for housing and containing the brush bristles.

The cover section may also be provided with a compartment wherein moisture absorbent and disinfectant material may be contained which serves to extract the moisture carried on the used brush and maintain the bristles at all times in thoroughly disinfected condition. The unit, including the toothbrush and teeth cleaning accessories, is assembled in a compact and sturdy container of such size and form that it may conveniently be carried in the pocket or purse at all times. The unit can be molded into various attractive forms from available plastic materials, and is so constructed that the bristles are fully protected from dirt, contamination and damage, and maintained at all times in thoroughly sanitary conditions. The teeth cleaning

2

unit assembled in accordance with this invention encourages and makes convenient the proper cleaning and care of the teeth.

In order that a clearer understanding of this invention may be had, reference is made to the accompanying drawing in which:

Fig. 1 is an elevational view of the fully assembled unit showing certain parts broken away to reveal certain structural details thereof.

Fig. 2 is a longitudinal cross sectional view of all the various parts which comprise the improved teeth cleaning unit showing the cover part and the dentifrice holder detached from the handle section; and

Fig. 3 is a longitudinal cross sectional view of the dentifrice holder as the same appears when viewed along line 3-3 of Fig. 2.

Similar reference characters refer to corresponding parts throughout the several views of the drawing and specification.

The improved teeth cleaning unit made in accordance with this invention comprises a brush section 1 permanently fixed or detachably secured to one end of a hollow handle section 2. A hollow cover section 3 contains a brush compartment *a* designed to receive and include the brush section 1. The lower end of the cover section 3 is detachably secured to the handle section at a point adjacent the base of the brush section. The hollow handle section 2 contains a compartment *b* designed to contain a dentifrice holder 4 which telescopes into the hollow handle section 2. The lower end of the dentifrice holder is provided with a head portion 5 designed to be detachably secured to the end of the hollow handle section 2 and provides a closure therefor. The upper end of the removable brush containing section 3 is closed by a dome shaped cap 7 having a compartment *d* designed to contain an agent *s* for drying and sterilizing the brush bristles when contained in the cover section 3.

Referring more particularly to Fig. 2, the brush section 1 comprises a stem portion 10 formed of a suitable plastic to which two or more rows of brush bristles 11 are firmly secured. The base end of the stem portion 2 is provided with a plug portion 12 designed to snugly fit into one end of the tubular handle section 2. The plug portion 12 may be provided with external threads 13 which thread into corresponding internal threads provided at one end of the hollow handle section 2. The brush section 1 can thus be removed when worn and a new brush section substituted. The stem 10 is provided with an

attractively shaped boss portion 15 which caps the plug portion 12 and provides a shoulder 16 which fits neatly over the end 17 of the hollow handle section 2. The stem 10 is of sufficient length to permit easy cleaning of the teeth without insertion into the mouth of any appreciable part of the handle section 2.

The hollow closure section 3 comprises a generally tubular body member 20 into which the brush section 1 is adapted to telescope. The lower end of the body member 20 is provided with internal threads 21 adapted to be screwed into engagement with the external threads 22 provided at the upper end of the handle section 2. The tubular body member 20 is of sufficient length and interior diameter to snugly receive the brush bristles 11, the stem portion 10 and the boss portion 15 of the brush section 1.

The opposite upper end of the body member 20 is closed by the dome shaped closure cap 7 having a hollow dome shaped body portion 25 and a depending flange 26 adapted to be inserted into the upper end of the tubular body 20 of the brush containing body member 20. The hollow body portion 25 provides a compartment *d* adapted to contain a drying and disinfectant agent's. The lower end of the dome shaped body portion 25 is closed by detachable closure plate 27 having a peripheral shoulder 28 which seats against an internal shoulder 23 within the flange portions 26, the closure plate 27 being frictionally retained in position by the surrounding depending flange 25. The closure plate 27 may be provided with a series of holes or perforations 29 providing communicating passageways between the drying and disinfectant compartment *d* and the brush containing compartment *a*. The flange portion 26 may be externally threaded as at 30 to match with internal threads provided at the upper end of the brush containing body member 20. Thus the dome shaped closure cap 7 may be detached and the drying and disinfectant agent's contained in the compartment *d* removed and replenished by simply removing and replacing the closure plate 27.

The dentifrice holder 4 illustrated in Figs. 2 to 3 may be advantageously incorporated into various forms of teeth cleaning units which have a tubular handle section presenting an open end designed to be closed by a suitably shaped cap member which forms a part of the dentifrice holder, and wherein the tubular handle section is designed to receive and contain the dentifrice.

The dentifrice holder 4 is a self contained unit designed to be filled with dental paste from time to time as required. The holder 4 comprises a head portion 5 shaped to conform and harmonize with the tubular handle section 2 of the teeth cleaning unit with which it is to be associated. The head portion 5 has a base part 40 from which a tubular containing part 41 projects. The containing part 41 is shaped and designed to telescope into the tubular handle section 2 of the teeth cleaning unit. The tooth paste is contained within the containing part 41.

The upper end of the containing part 41 may be closed by a primary cap 42 having a top wall 43 and a depending flange 44 having a threaded connection 45 with the upper end of the tubular containing part 41. The closure cap 42 is provided with a secondary closure cap 46 having a threaded flange 47 adapted to have threaded engagement with a neck portion 48 associated with the primary closure cap 42. The neck por-

tion 48 of the primary closure cap 42 is provided with a central passage 49 therein through which a ribbon of dental paste may be extruded when the secondary cap 46 is removed. It will be appreciated that the containing part 41 may be filled from the top by removing the primary cap 42. The containing section 41 may be filled and replenished as required from a large size dental paste tube, as selected by the user.

The base portion 40 of the head section 5 is provided with a bottom wall 51 which closes the lower end of the containing part 41. The base portion 40 is also provided with an intumed shoulder 52 designed to seat against the end of the tubular handle section of the teeth cleaning unit to which it is to be applied. The lower end of the containing part 41 may be provided with an exterior friction or threaded surface 53 to frictionally engage the adjacent end of the tubular handle section 2 of the unit.

Means are provided for positively ejecting the dental paste through the cap passage 49 when the secondary cap 46 is removed. As shown in Fig. 3, a piston block 54 is provided which snugly fits within the tubular containing part 41 and is designed to reciprocate therein. The piston block 54 is provided with a flat top wall 55 which forms the movable bottom wall of the paste containing cavity. The piston block 54 is prevented from rotating within the tubular containing part 41 by providing the piston block 54 with a longitudinally extending groove 56 into which an inwardly projecting rib 57 associated with the tubular containing section is designed to track. The rib 57 extends longitudinally of the casing wall 41 and its upper end is positioned below the snug fitting platform portion 58 of the piston block 54 so that no dental paste may reach the guide rib 57 or the groove 56 in which it moves.

The piston block 54 is vertically reciprocated by means of a threaded stud member 59 which extends into a threaded hole 60 extending axially into the piston block 54. The lower end of the threaded stud 59 is secured as by stud extension 59' to a dome shaped knob 61 forming a part of the head section 5. The knob 61 is permanently but rotatably secured to the base portion 40 by a circular rib 62 which snugly fits into a corresponding circular groove in the adjacent surface of the knob 61. The circular rib 62 is shaped to provide a locking connection with the knob 61, permitting the knob 61 and its associated threaded stud 59 to be freely rotated on the base portion 51 of the holder. The outer surface 63 of the knob 61 and base portion 40 may be suitably knurled to supply a firm finger grip.

It will be appreciated that by rotating the knob 61, the piston block 54 may be reciprocated within the tubular containing part 41 as desired to eject any desired amount of dental paste. The dentifrice holder is designed to be associated with the hollow handle section of a teeth cleaning unit, and may be shaped and patterned to artistically conform to the teeth cleaning unit with which it is associated. The tooth paste is fully protected from drying and contamination. The dentifrice holder may be conveniently filled and refilled by the user with his preferred type of dentifrice paste.

The improved teeth cleaning unit disclosed in this application need not be substantially larger than a good sized fountain pen and thus can be conveniently carried in the pocket or purse. All necessary implements for the proper care of the

teeth may be variously and conveniently arranged as indicated, and maintained in a fresh and sterile condition for individual and personal use. The dentifrice, contained in the holder above described, is fully protected against contamination in the dentifrice compartment of the hollow handle section. This improved teeth cleaning unit, having associated therewith all the necessary teeth cleaning accessories, makes convenient and encourages the proper care of the teeth.

While certain novel features of the invention have been disclosed herein and are pointed out in the annexed claims, it will be understood that various omissions, substitutions and changes may be made by those skilled in the art without departing from the spirit of this invention

What is claimed is:

1. A dentifrice holder designed to be associated with the tubular handle section of a teeth cleaning unit, said holder comprising a head section having a closure portion designed to provide a closure for the open end of said tubular handle section and a knob portion rotatably mounted on said closure portion, said closure portion having an external shoulder designed to abut the open end of said tubular handle section to form a substantially flush joint between the handle section and head section, a tubular casing extending from said closure portion adapted to be housed within said tubular handle section, a plunger within said casing having a body portion and a head portion, said head portion presenting a relatively flat and unbroken dentifrice contacting surface and a smooth periphery, said tubular casing presenting a smooth walled dentifrice container section designed to snugly receive the head portion of said plunger and a lower section designed to contain the body portion of said plunger, a primary closure for the open end of said dentifrice containing section through which the same may be filled with dentifrice, said primary closure having a dentifrice discharge opening, a secondary closure for said discharge opening, a stud element terminating within the body portion of said plunger for reciprocating the plunger in said casing whereby the flat unbroken face of the head portion thereof may be operated to forcibly eject the dentifrice through the discharge opening in said primary closure, means associated with the body portion of said plunger and the lower section of said tubular casing for retaining said reciprocable plunger against rotation, and means connecting said knob portion to said stud element.

2. A teeth cleaning unit comprising a hollow tubular handle section having an open end, a brush section extending from the other end of said tubular handle section, and a dentifrice holder adapted to be detachably secured to the open end of the handle section, said holder comprising a head section having a closure portion providing a closure for the open end of said tubular handle section and a knob portion rotatably mounted on said closure portion, said closure portion having an external shoulder designed to abut the open end of said tubular handle section to form a substantially flush joint between the handle section and head section, a tubular casing extending from said closure portion adapted to be housed within said tubular handle section, a plunger within said casing having a body portion and a head portion, said head

portion presenting a relatively flat and unbroken dentifrice contacting surface and a smooth periphery, said tubular casing presenting a smooth walled dentifrice container section designed to snugly receive the head portion of said plunger and a lower section designed to contain the body portion of said plunger, a contracted dentifrice discharge opening at the upper end of said dentifrice container section, a stud element terminating within the body portion of said plunger for reciprocating the plunger in said casing whereby the flat unbroken face of the head portion thereof may be operated to forcibly eject the dentifrice through said discharge opening, means associated with the body portion of said plunger and the lower section of said tubular casing for retaining said reciprocable plunger against rotation, and means connecting said knob portion to said stud element.

3. A teeth cleaning unit comprising a hollow tubular handle section having an open end, a brush section extending from the other end of said tubular handle section, and a dentifrice holder adapted to be detachably secured to the open end of the handle section, said holder comprising a head section having a closure portion provided a closure for the open end of said tubular handle section and a knob portion rotatably mounted on said closure portion, said closure portion having an external shoulder designed to abut the open end of said tubular handle section to form a substantially flush joint between the handle section and head section, a tubular casing extending from said closure portion adapted to be housed within said tubular handle section, a plunger within said casing having a body portion and a head portion, said head portion presenting a relatively flat and unbroken dentifrice contacting surface and a smooth periphery, said tubular casing presenting a smooth walled dentifrice container section designed to snugly receive the head portion of said plunger and a lower section designed to contain the body portion of said plunger, a primary closure for the open end of said dentifrice container section through which the same is filled with dentifrice, said primary closure having a dentifrice discharge opening, a secondary closure for said discharge opening, a stud element terminating within the body portion of said plunger for reciprocating the plunger in said casing whereby the flat unbroken face of the head portion thereof may be operated to forcibly eject the dentifrice through the discharge opening in said primary closure, means associated with the body portion of said plunger and the lower section of said tubular casing for retaining said reciprocable plunger against rotation, and means connecting said knob portion to said stud element.

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