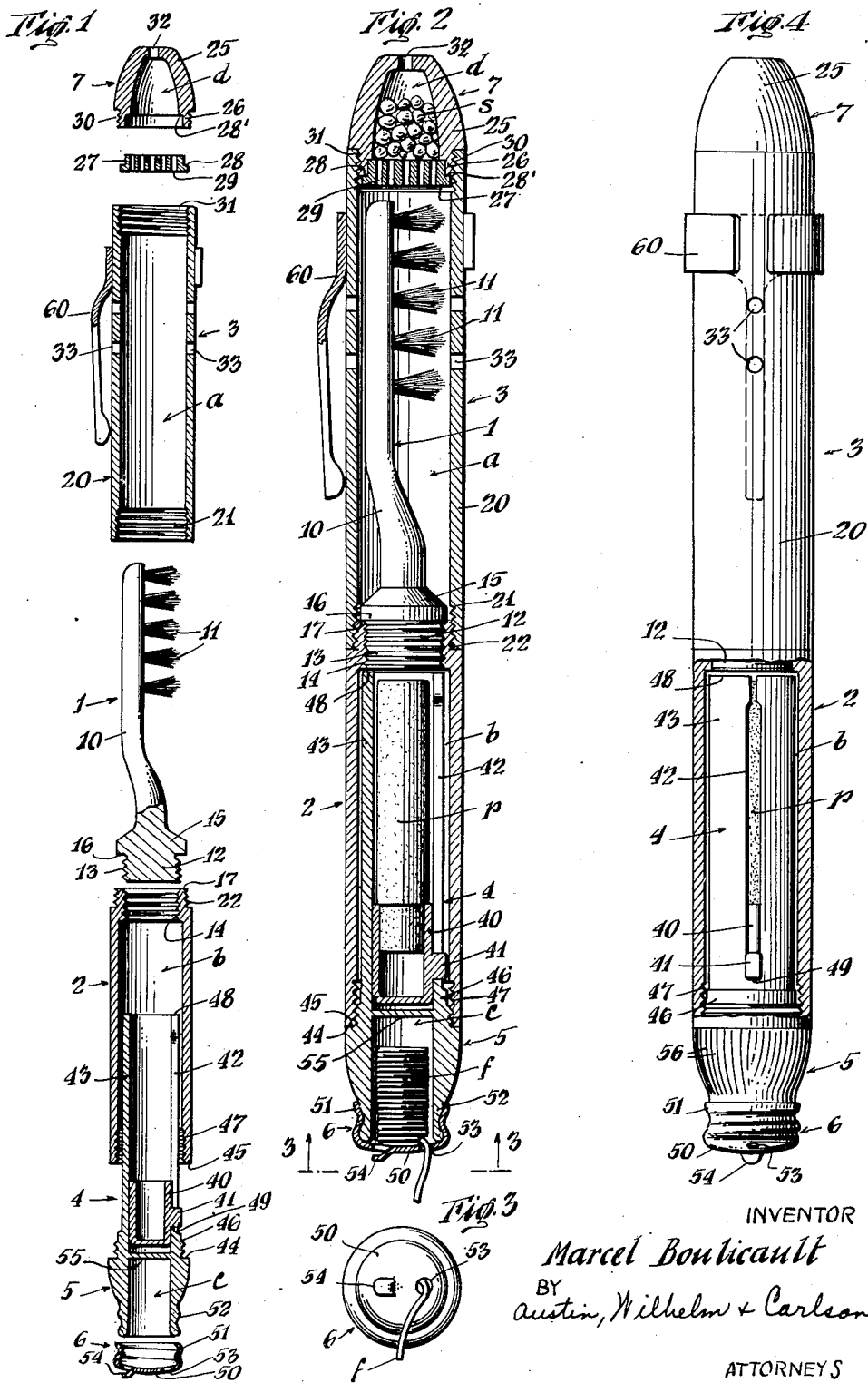


May 3, 1949.

M. BOULICAULT  
TEETH CLEANING UNIT

2,468,732

Filed Aug. 27, 1945



INVENTOR  
*Marcel Boulicault*  
BY  
*Austin, Wilhelm & Carlson*

ATTORNEYS

# UNITED STATES PATENT OFFICE

2,468,732

## TEETH CLEANING UNIT

Marcel Boulicault, St. Louis, Mo.

Application August 27, 1945, Serial No. 612,763

7 Claims. (Cl. 132-84)

1

This invention relates to an improved teeth cleaning unit and more particularly to a teeth 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 toothbrush 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 toothbrush with the necessary complement of dentifrice contained in a dispenser sanitarly housed within a sealed and dustproof compartment in the handle section of the unit. The handle section is also provided with a dental floss compartment from which dental floss may be conveniently dispensed. 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 condition. The teeth cleaning 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 drawings in which:

Fig. 1 is a longitudinal cross sectional view of all the various parts which comprise the improved teeth cleaning unit arranged in exploded view.

2

Fig. 2 is a longitudinal cross sectional view of the teeth cleaning unit with all parts thereof in assembled position.

Fig. 3 is an end view of the fully assembled unit as the same appears when viewed along line 3-3 of Fig. 2; and

Fig. 4 is a perspective view of the fully assembled unit showing certain parts broken away to reveal certain structural details thereof.

Similar reference characters refer to similar 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 inclose 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 dispenser 4 which telescopes into the hollow handle section 2. The lower end of the dentifrice dispenser 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 head portion 5 of the dentifrice dispenser has a hollow interior providing a compartment *c* for dental floss. The head portion 5 is provided with a cap closure 6 for containing the dental floss *f* within the compartment *c*. 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 Figs. 1 and 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 10 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 14 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 portion 26, the closure plate 27 being frictionally retained in position by the surrounding depending flange 26. 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 31 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.

As shown in Figs. 1, 2 and 3 the dentifrice dispenser 4 may be of the ejector type adapted to contain the dentifrice in the form of a solid stick *p*. The lower end of the dentifrice stick *p* seats in a cup shape receiver 40. A stud 41 projects from the side wall of the cup receiver 40 and through a slit 42 extending longitudinally along the side wall of an enclosing tubular protective sleeve 43. The lower end of the tubular sleeve 43 has an enlarged hollow head portion 5 presenting an exterior shoulder 44 designed to abut against the lower end 45 of the hollow tubular handle section 2. A collar portion 46 immediately above the shoulder portion 44 is designed to snugly fit into the lower end of the hollow handle section 2 and may be externally threaded to match the corresponding internal threads 47 formed on the interior of the hollow handle section 2.

The head portion 5 has a hollow interior providing a compartment *c* adapted to snugly receive a spool of dental floss *f*. The compartment *c* is closed at one end by a partition wall 55 and is closed at the other end by a closure cap 6 which has an end wall 50 and a threaded flange 51 designed to be threaded over the threaded end 52 of the head portion 5. The end wall 50 of the closure cap 6 is provided with a suitable pin hole 53 through which the end of the dental floss may be withdrawn, the end wall 50 also being provided with a projection 54 having a sharp edge by means of which predetermined lengths of the dental floss *f* may be cut off.

When this improved teeth cleaning unit is to be used, the cover section 3 is removed from its telescoped position over the brush section 1 by unscrewing the lower end of the cover section 3 from the upper end of the handle section 2. The dentifrice dispenser 4 is removed from the handle section 2 by unscrewing the head portion 5 of the dispenser 4 from the lower end of the handle section 2. It will be appreciated that the outer surface of section 5 may be suitably knurled as at 56 to provide a firm finger grip. The proper quantity of dentifrice *p* may be readily deposited on the brush bristles 11 by first moistening the bristles and stroking the bristles over the projecting end of the dentifrice stick. The cup shape dentifrice receiver 40 may be manipulated by the projecting stud 41 so that the upper end of the dentifrice stick *p* projects a convenient distance from the upper end 48 of the protective sleeve 43. When the proper quantity of the dentifrice has been deposited on the brush bristles 11, the stud 41 may be returned to its seating position against the closed end 49 of the slot 42, in which position the dentifrice stick *p* will be fully contained and housed in the protective sleeve 43 as shown in Fig. 2. The dentifrice dispenser 4 can then be returned to its housed position within the compartment *b* of the hollow handle section 2 by telescoping the protective sleeve 43 of the dispenser into the compartment *b* and then turning the head portion 5 so as to screw the threaded collar portion 46 into the threaded end of the handle section 2. The handle section 2 provides a convenient handle which can be firmly and conveniently gripped by the hand during brushing of the teeth. When the teeth brushing operation has been completed the closure cover 3 is returned to its telescoped position over the brush section 1 and screwed or frictionally secured to the upper end of the handle section 2, thereby protecting the brush bristles 11 from contamination.

After the brush bristles 11 have been used they are wet with moisture and otherwise somewhat insanitary. This condition is met by the provision of a drying agent *s* of high moisture absorption qualities contained within the compartment *d* of the dome shape closure cap 7. Material such as silica jell has been found to be a suitable drying agent. Moisture vapors from the brush bristles pass from the compartment *a* through the apertures 29 in the closure plate 27 and these vapors are absorbed by the drying agent *s* contained within the compartment *d*. If desired, a small pin hole opening 32 may be provided in the upper end of the dome shape body portion 25 of the closure cap 7 and one or more similar pin shaped openings 33 may be provided in the tubular wall of the body member 20 of the cover section 3, thereby providing for ventilation of the brush bristles 11. The drying agent *s* contained in the compartment *d* also preferably contains a suitable disinfectant designed to give off disinfectant vapors which pass through the apertures 29 in the closure plate 27 and disinfect the used brush bristles housed in the compartment *a*. Thus the brush bristles are not only dried and kept dry when not in use, but the bristles are kept in a thoroughly disinfected condition. The construction of the cover section 3 is such that dirt and foreign matter is also prevented from entering the compartment *a*.

It will be further noted that no moisture carried by the brush bristles housed within the compartment *a* can reach or enter the fully sealed denti-

5

frice compartment *b*, or the dental floss compartment *c*. The dentifrice compartment *b* provides a sealed enclosure which protects the dentifrice stick *p* from contamination and drying. The dentifrice compartment *b* can be made in generous proportions so that the dentifrice cartridge *p* can be made in a size to contain several days' supply of dentifrice.

The main parts of the teeth cleaning unit, such as the cover section 3 comprising the body member 20, the dome shape closure member 25 and the perforated plate 27 can be conveniently and economically formed from suitable plastic resins. The stem section 10 and its associated plug portion 12 and boss portion 15 as well as the handle section 2 may also be economically formed of plastic resins. The dentifrice dispenser 4 including the cup shape receiver 40, the protective sleeve 43, and the head portion 5 thereof, may be economically molded from plastic resins. The closure cap 6 for the head portion 5 may be made either of plastic resins or a non-corroding metal as desired. The plastic resins from which the main parts of the unit above described may be formed are selected both from the standpoint of their formability and moldability as well as intrinsic beauty. Numerous plastic resins, such as phenolic or urea resins or styrene plastics, are available to the art. The selected resin may be given any desired color tinge to make the unit either opaque or transparent. The parts may be proportioned and streamlined to make the unit attractive and beautiful without detracting from its highly utilitarian and hygienic purposes.

If desired the handle section 3 may be provided with a suitable pocket clip 60 of any desired shape or form to retain the unit in the wearer's pocket. The entire unit need not be larger than a good sized fountain pen and thus can be conveniently carried in the pocket or purse. This hygienic instrument promotes and encourages frequent cleaning of the teeth which is a necessary requisite to oral hygiene. All necessary implements for the proper care of the teeth are compacted within this attractive unit and the implements are maintained in fresh and sterilized condition for individual and personal use. The dentifrice compartment *b* is of generous size and designed to contain a selected dentifrice sufficient for several days' use. While the dentifrice dispenser 4 is designed to contain the dentifrice in stick form, it will be appreciated that the dentifrice compartment *b* is designed to contain a powdered or paste dentifrice contained within a suitable dispenser. The dentifrice sticks or cartridges may be supplied or sold in dozen lots, packed in a convenient carton, and from which supply the user may periodically replenish the dentifrice to be contained in compartment *b*.

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 teeth cleaning unit including in combination, a brush section and a hollow handle section, said brush section comprising a brush stem supporting the brush bristles secured at one end thereof to one end of said hollow handle section, said hollow handle section being open at the opposite end thereof and having a compartment for the reception of dentifrice, a dentifrice dispenser having a dentifrice receiving casing adapted to removably telescope into the dentifrice

6

compartment of said hollow handle section, said dentifrice dispenser having a head portion as a part thereof providing a closure for the lower end of said handle section, said dentifrice dispenser being bodily removable from said handle section for application of dentifrice to the brush bristles of said brush section as secured to one end of said handle section.

2. A teeth cleaning unit including in combination, a brush section and a hollow handle section, said brush section comprising a brush stem supporting the brush bristles detachably secured at one end thereof to one end of said hollow handle section, said hollow handle section being open at the opposite end thereof and having a compartment for the reception of dentifrice, a dentifrice dispenser having a dentifrice receiving casing adapted to removably telescope into the dentifrice compartment in said hollow handle section, said dentifrice dispenser having a hollow head portion as a part thereof providing a closure for the lower end of said handle section, said dentifrice dispenser being bodily removable from said handle section for application of dentifrice to the brush bristles of said brush section as secured to one end of said handle section.

3. A teeth cleaning unit including in combination, a brush section, a hollow handle section having a compartment for containing dentifrice, a closure section having a compartment adapted to telescopically receive said brush section, said brush section comprising a brush stem supporting the brush bristles along a substantial part of the length thereof, said brush stem having means at one end thereof for securing said brush stem to one end of said hollow handle section, a dentifrice dispenser having a dentifrice receiving casing adapted to removably telescope into the dentifrice compartment in said hollow handle section, said dentifrice dispenser having a head portion as a part thereof, providing a closure for the lower end of said handle section, and means associated with said cover section for detachably securing one end thereof to said handle section, said dentifrice dispenser being bodily removable from said handle section for application of dentifrice to the brush bristles of said brush section as secured to one end of said handle section.

4. A teeth cleaning unit including in combination, a brush section, a hollow handle section having a compartment for containing dentifrice, said brush section comprising a brush stem supporting the brush bristles along a substantial part of the length thereof, one end of said brush stem being detachably secured to one end of said hollow handle section, a dentifrice dispenser having a dentifrice receiving casing adapted to removably telescope into the dentifrice compartment in said hollow handle section, said dentifrice dispenser having a head portion as a part thereof providing a closure for the lower end of said handle section, a cover section closed at one end and open at the other end providing a compartment adapted to be telescoped over said brush bristles and a compartment for containing a drying agent, and a perforated wall in said cover section separating the brush receiving compartment from the compartment containing the drying agent, said dentifrice dispenser being bodily removable from said handle section for application of dentifrice to the brush bristles of said brush section as secured to one end of said handle section.

5. A teeth cleaning unit including in combination, a brush section, a hollow handle section having a compartment for containing dentifrice,

7

said brush section comprising a brush stem supporting the brush bristles along a substantial part of the length thereof, one end of said brush stem having an enlarged portion secured to and providing a closure for one end of said hollow handle section, a dentifrice dispenser having a dentifrice receiving casing adapted to removably telescope into the dentifrice compartment in said hollow handle section, said dentifrice dispenser having a head portion as a part thereof providing a closure for the lower end of said handle section, a hollow cover section closed at one end and open at the other end, a perforated wall in said cover section dividing the interior thereof into a brush receiving compartment and a compartment for containing a drying agent, and means associated with the open end of said cover section for detachably securing the cover section to the handle section, said dentifrice dispenser being bodily removable from said handle section for application of dentifrice to the brush bristles of said brush section as secured to one end of said handle section.

6. A teeth cleaning unit including in combination, a brush section, a hollow handle section having a compartment for containing dentifrice, a hollow closure section opening at one end thereof and closed at the other end thereof, said closure section having a perforated dividing wall therein defining a brush receiving compartment and a compartment for a drying agent, said brush section comprising a brush stem supporting brush bristles along a substantial part of the length thereof, one end of said brush stem having an enlarged portion secured to one end of said handle section providing a closure for one end thereof, means associated with the open end of said cover section for detachably securing the cover section to said handle section adjacent the enlarged portion of the brush stem, and a dentifrice dispenser having a dentifrice receiving casing adapted to removably telescope into the dentifrice compartment in said hollow handle section, said dentifrice dispenser having a head portion as a part thereof providing a closure for the lower end of

8

said handle section, said dentifrice dispenser being bodily removable from said handle section for application of dentifrice to the brush bristles of said brush section as secured to one end of said handle section.

7. A teeth cleaning unit including in combination a brush section, a hollow handle section having a compartment for containing dentifrice, a hollow closure section open at one end thereof and closed at the other end thereof, said closure section having a dividing wall therein defining a brush receiving compartment and a compartment for a drying agent, said brush section comprising a brush stem supporting brush bristles along a substantial part of the length thereof, one end of said brush stem having an enlarged portion detachably secured to one end of said handle section providing a closure therefore, means associated with the open end of said cover section for detachably securing the cover section to said handle section adjacent the enlarged portion of the brush stem, a dentifrice dispenser having a dentifrice receiving casing adapted to removably telescope into the dentifrice compartment in said hollow handle section, said dentifrice dispenser having a head portion as a part thereof providing a closure for the lower end of said handle section, said dentifrice dispenser being bodily removable from said handle section for application of dentifrice to the brush bristles of said brush section as secured to one end of said handle section.

MARCEL BOULICAULT.

## REFERENCES CITED

The following references are of record in the file of this patent:

## UNITED STATES PATENTS

Number	Name	Date
206,791	Hopfen	Aug. 6, 1878
1,473,766	Healy	Nov. 13, 1923
1,642,620	Merrill	Sept. 13, 1927
2,233,522	Fickle	Mar. 4, 1941