

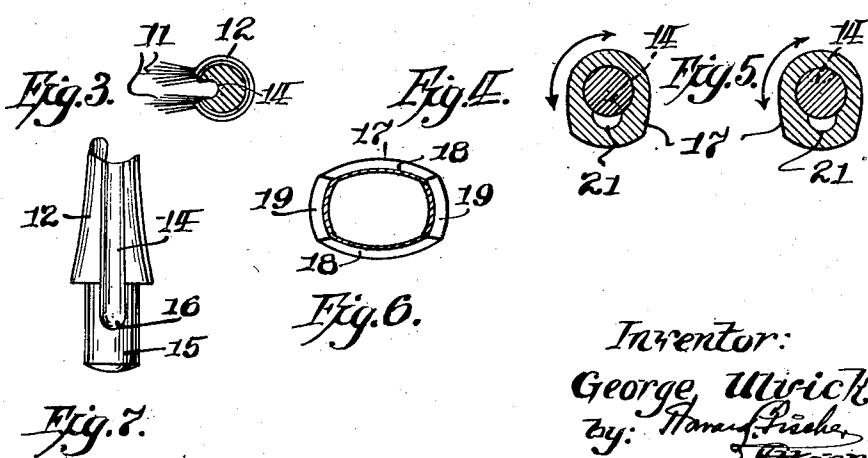
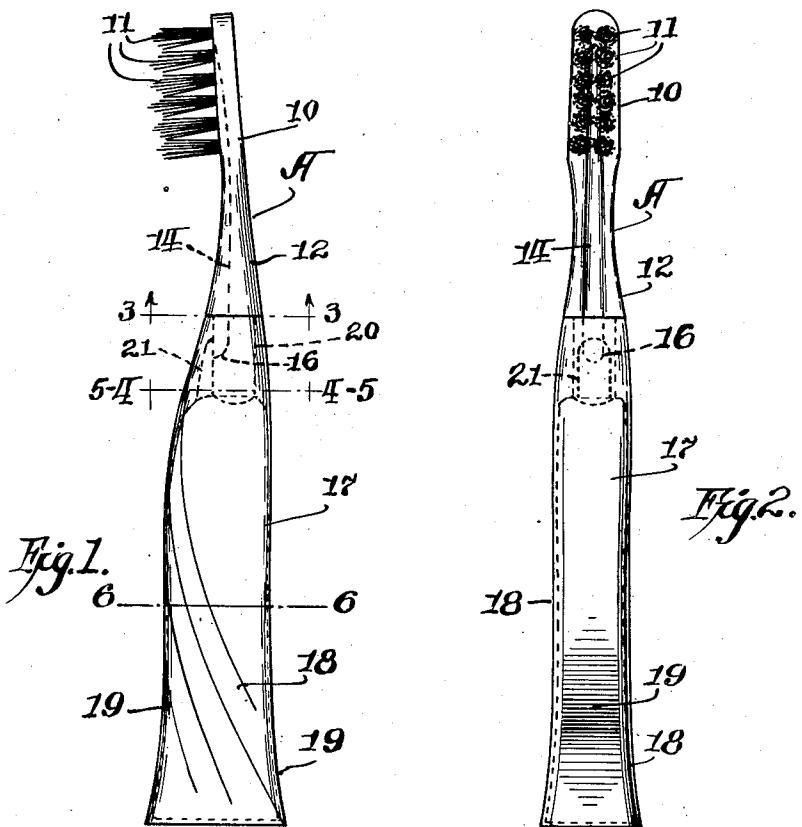
May 11, 1948.

G. ULVICK

2,441,520

FOUNTAIN TOOTHBRUSH WITH HAND-FEED VALVE

Filed July 26, 1943



Inventor:

George Ulwick
by: *Samuel Fischer*
Attorney

UNITED STATES PATENT OFFICE

2,441,520

FOUNTAIN TOOTHBRUSH WITH
HAND-FEED VALVE

George Ulwick, Minneapolis, Minn., assignor of
forty-nine per cent to Howard L. Fischer, St.
Paul, Minn.

Application July 26, 1943, Serial No. 496,233

1 Claim. (Cl. 15—138)

1

2

This invention relates to a toothbrush designed to contain in the handle the dentifrice. The toothbrush is made entirely of plastic and includes two portions, namely: a hollow flexible plastic handle and a brush portion which supports the bristles and which is provided with a grooved shank. The groove in the shank of the brush portion provides a longitudinal recess extending from the handle to and between the bristles so as to direct the dentifrice from the reservoir of the handle to the bristles.

The brush portion with its supporting shank is formed with a bearing portion which is adapted to be supported in the open end of the handle so that the brush and shank may be rotated into the desired position in relation to the handle.

The bearing portion of the shank which extends into the handle is adapted to fit the opening in the handle to act as a closure for the same. Thus the dentifrice within the handle is sealed therein.

The handle is formed with an internal passageway on one side of the bearing provided for the shank.

This passageway extends longitudinally to the handle and is shorter than the bearing formed therein, while the groove in the shank extends to a point within the bearing in the handle to overlap the passageway formed in the handle. Thus, when the brush portion with the shank is rotated into a position to align the passageway and the groove, the opening is formed leading from the reservoir of the handle so that the dentifrice may be pumped out of the same by pressing the sides of the handle and causing the dentifrice to run along the groove to the bristles of the brush.

The toothbrush reservoir may be closed by rotating the brush and shank portion so that the groove in the shank goes out of alignment with the passageway in the bearing end of the handle. In this closed portion, the end of the shank acts as a closure so that the dentifrice contained in the reservoir of the handle will neither run out or can it be dispensed out of the handle until the brush portion is rotated to align the groove in the shank with the groove or passageway in the bearing of the handle. In this manner I provide a simple form of valve for closing the reservoir of the toothbrush without the necessity of any extra parts than those provided in the formation of the brush and shank portion and the forming of the body of the handle with its bearing in the open end thereof. The end of the shank projects into the handle and holds the bristles

of the toothbrush in the desired position for brushing the teeth or in a closed position.

The body of the handle is formed of plastic with a thin wall so as to provide a flexible handle portion which may be wider in one cross-sectional direction than the other to form comparatively flat sides on the broad sides of the handle which are adapted to be squeezed toward each other in the active pumping of the dentifrice from the handle. When the brush portion is set at open position in relation to the handle and it is desired to dispense the dentifrice to the bristles, the brush portion is held in a downwardly direction while the handle portion extends in an upwardly inclined position. Then by pressing the side walls of the handle toward each other the dentifrice may be pumped out in the quota desired and carried down the open groove in the shank to the bristles.

20 The feature of my brush resides in providing a toothbrush wherein the dentifrice may be of semi-liquid or of such a liquid state as to be easily dispensed out of the handle, and in the very important feature of providing an open groove formed in the open shank of the brush portion which may be easily cleansed by washing after the brush has been used to clean the teeth. And, if it is desired, the user of the brush may close the handle by rotating the brush portion, thereby providing a simple inexpensive structure for the entire toothbrush, as well as providing a valve for closing the same without any movable working parts except the rotation of the shank of the brush portion in relation to the handle.

25 In the drawings for the entire specification Figure 1 is a side view of my toothbrush.

Figure 2 is an edge view looking toward the longitudinal groove formed in the shank.

Figure 3 is a section on the line 3—3 of Figure 1.

Figure 4 is a section on the line 4—4 of Figure 1 showing the parts in open position.

Figure 5 is a similar section to Figure 4 with the parts shown in closed position.

40 Figure 6 is a section on the line 6—6 of Figure 1.

Figure 7 is a detail of a portion of the shank of the brush section.

The toothbrush A is formed of two main parts, one of which includes the brush head and its supporting shank and the other consisting of a hollow flexible handle which is adapted to support the liquid or semi-liquid dentifrice. The brush then may be used for other than dental purposes as will be later set forth.

3

The toothbrush A includes brush head 10 having a series of tufts of bristles 11 and a shank portion 12 which is formed with an open longitudinally extending groove along which the dentifrice is adapted to travel from the handle of the brush when the same is dispensed.

The end 15 of the shank 12 of the brush head 10 acts as a stopper to close the handle 17 when it is desired. Groove 14 extends between the bristles 11 and terminates at the point 16 short of the extreme end of the core end 15.

The handle 17 is formed of plastic or other flexible material and the wall handle is comparatively thin so that the sides of the handle may be easily flexed or particularly the wide flat sides 18 of the handle. The narrow sides 19 of the handle are more rigid and may be made with a thicker wall than the sides 18.

The handle 17 is formed with a cylindrical opening 20 in to which the core 15 frictionally fits. Thus the brush head is supported by and rotatably connected to the handle 17.

A short longitudinal internal groove 21 is formed in the wall of the opening 20. The groove 21 is adapted to overlap the end 16 of the groove 14. Then the grooves 14 and 21 are aligned as illustrated in Figures 1, 2 and 4. When the grooves are thus aligned, the liquid dentifrice may be dispensed out of the handle 17 into the groove 14 and to the bristles 11 by holding the brush A with the bristles downward and the handle 17 projecting upward. The operation of dispensing the liquid from the handle 17 is simple and is accomplished by squeezing the side walls 18 towards each other whereupon the amount of liquid will be dispensed out of the handle 17 along the groove 14 to the bristles and air will be admitted when the pressure against the side walls 18 is relieved after which the operation may be repeated until as much liquid as is desired has been dispensed to the bristles 11.

The reservoir of the handle 17 may be closed by rotating the brush head 10 on the bearing core end 15 to move the grooves 14 and 21 out of alignment as illustrated in Figure 5. When the grooves are out of alignment the core member 15 acts as a stopper to close the container or handle 17.

A feature of my toothbrush resides in providing a simple inexpensive construction formed of two plastic parts, namely: the brush head and the hollow handle 17. The valve is formed by the aligning and disaligning of the grooves 14 and 21. There are no moving parts to clog or get out of order. In fact, each of the two main parts, the brush head and the hollow handle, can be formed integral as separate units so that the handle 17 may be used like a bottle container for liquid dentifrice or similar material that is de-

4

sired to be dispensed to a brush head. In fact, this brush may be used as a liquid soap dispenser and for other similar purposes. The size and shape of the handle may be varied as may be desired. This is also true of the brush head.

In using my brush, it will be apparent that it is entirely sanitary as all of the dentifrice may be washed from the shank of the brush as it has been used and the handle may be closed by simply rotating the brush. Further, the handle may be easily opened to dispense dentifrice from the same by rotating the brush head to align the overlapping grooves 14 and 21.

In my brush, a series of different brush heads 15 may be used with the same handle by interchanging the same at any time. Further, the handles 20 may be supplied as containers with stoppers (not shown) so that a series of filled handles may be supplied for use with the brush head when the old handle is empty. With my brush, no toothpaste tube is required, nor do I require any metal as my brush is composed entirely of plastic material which may be readily and economically molded to the desired shape.

25 I claim:

A toothbrush of the character described including, a one piece flexible dentifrice carrying body having an open neck portion, the internal wall defining the neck portion being formed with 30 an inwardly facing groove having one of its ends opening into the body and its opposite end terminating spaced from the free end of said neck portion, and a bristle supporting head having a part rotatably mounted within the neck portion 35 of the body, said bristle supporting head being formed with a longitudinally extending outwardly facing groove having one of its ends terminating adjacent the brush bristles and its opposite end extending along the rotatably mounted 40 part of the head so as to be moved into and out of alignment with the groove formed in the neck portion of the body during rotative movements of the bristle carrying head relative to said body.

GEORGE ULVICK.

45

REFERENCES CITED

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

50

UNITED STATES PATENTS

Number	Name	Date
457,826	Meeker -----	Aug. 18, 1891
737,471	Platner -----	Aug. 25, 1903
743,582	Stein -----	Nov. 10, 1903
55 1,068,372	Thomas -----	July 22, 1913
2,226,663	Hill et al. -----	Dec. 31, 1940
2,269,513	Born et al. -----	Jan. 13, 1942
2,306,482	Livingston -----	Dec. 29, 1942