

**THE JOINT EXAMINATION BOARD**

**PAPER P4**

**Amendment of Specifications for United Kingdom Patents/Applications in Prosecution, Revocation Proceedings or Otherwise**

**Wednesday 4 November 2009**

**10.00 am - 1.00 pm**

*Please read the following instructions carefully. Time Allowed - **THREE HOURS***

1. Please note the following:
  - a. Enter the Paper Number (P4) and your Examination number in the appropriate boxes at the top of each sheet of paper;
  - b. The scripts are photocopied for marking purposes. Please write with a **dark inked pen** on one side of the paper only and within the printed margins, and do not use highlighters in your answer;
  - c. Do not state your name anywhere in the answers;
  - d. Write clearly, examiners cannot award marks to scripts that cannot be read;
  - e. Reasoning should always be given where appropriate. In particular, you are expected to produce a covering letter / note to the client explaining what you have done in order to comply with his instructions and why.
  - f. If one or more Divisional Application(s) are suggested, only main claim(s) need be supplied, there is no need to provide amended specifications.
  
2. Under the Examination Regulations **you may be disqualified from the examination and have other disciplinary measures taken against you if:**
  - a. you are found with unauthorised printed matter or other unauthorised material in the examination room;
  - b. your mobile phone is found to be switched on;
  - c. you copy the work of another candidate, use an electronic aid, or communicate with another candidate or with anyone outside the examination;
  - d. you continue to write after being told to stop writing by the invigilator(s). **NO WRITING OF ANY KIND IS PERMITTED AFTER THE TIME ALLOTTED TO THIS PAPER HAS EXPIRED.**
  
3. **At the end of the examination assemble your answer sheets in question number order and put them in the WHITE envelope provided.** Do not staple or join your answer sheets together in any way. Any answer script taken out of the examination room will not be marked.

This paper consists of 22 sheets including this sheet, and comprises:

Question	[1 sheet]
Client's letter	[1 sheet]
Client's Application GB 0666666.6	[9 sheets]
Official Letter	[1 sheet]
Prior art reference GB 2 222 222A	[5 sheets]
Prior art reference US 3,333,333	[4 sheets]

Question

A United Kingdom patent application comprising the attached specification (identified as GB 0666666.6) has been filed at the UK Intellectual Property Office without any claim to priority.

The UK Intellectual Property Office has now issued the attached Official Letter. You have received brief comments from your client in an e-mail, which is also attached.

Your task is to prepare:

1. a full draft response to the UK Intellectual Property Office in response to the Official Letter;
2. a set of amended claims, if considered necessary;
3. an outline memorandum for your client, explaining the actions you have taken and why. You should provide full reasoning for your actions and provide an outline of future actions that your client could take to secure full protection for their commercial interests as outlined by your client, taking into account that further information may be needed. This future advice should only relate to the invention(s) outlined in the client's letter to you. These notes should also be restricted to patent matters and you are NOT required to consider other matters such as copyright or design protection.
4. If the advice to your client includes a suggestion of filing a divisional application(s) you should draft the corresponding independent claim(s) and your memorandum should explain why filing a divisional is advisable. You should NOT draft a description or any dependent claims for a divisional application.

Note the following:

- (a) You are NOT required in this examination to make any amendments to the description of the client's patent application.
- (b) You should accept the facts given to you and base your answer on those facts. In particular you should NOT make any use of any special knowledge that you may have of the subject-matter concerned, and you must presume that the prior art referred to is exhaustive.
- (c) If you submit any amended claim set and / or divisional claims(s) put these at the top of the answer papers when handing in your answer and number the pages accordingly so as to readily identify the claims or claim sets.

Instructions

Client's letter

T. Bayleaf

Laurel Drive  
Windup Avenue  
Clocksville

V. Broad, esq.  
Wide & Far Patent Attorneys  
Knutsford

Dear Mr Broad,

Thank you for the official letter with the documents that the Intellectual Property Office is using against my application. Obviously, my idea of integrating the toothpaste in the toothbrush is not unique. I still think that my design is different, though, and it has been selling reasonably well over the last year or so. For a start, the GB document is surely not disposable, as it has the multi-part piston arrangement, which is tricky to make – a bit like building a ship in a bottle. With my design the user can squeeze the toothpaste like a conventional tube. The US document, I think, cannot contain enough toothpaste even for a single use, and I doubt that it is easy to inject the toothpaste into the reservoir. In any event the user has no control over the amount of toothpaste applied.

I have incidentally discovered that the sealing tab, although the best design, is not actually necessary; at least if the hole from which the toothpaste emerges into the head and the bristles is small enough: as in US 3333333, any dried crust that forms in storage can easily be burst when the reservoir is squeezed. In fact, I have heard that a toothbrush similar to mine, but without the tab, is about to be launched, so I am keen to prevent that if possible.

I am happy for you to go ahead and submit a reply to the Examiner as I am just going to be incarcerated in a final episode of Big Brother so will not be contactable.

Yours sincerely,

Tim Bayleaf

GB 0666666.6

*[filed 6 June 2006, no priority claim]*

## FIELD OF THE INVENTION

This invention relates to a toothbrush having a supply of  
5 toothpaste sufficient for a single use or a small number of uses  
of the toothbrush and intended to be disposed of when the  
toothpaste has run out.

## BACKGROUND TO THE INVENTION

There exists a long-felt want for a disposable toothbrush;  
10 patents dating back more than fifty years are a testament to this  
need. Unfortunately, toothbrushes designed for this purpose have  
usually been awkward to use. A common type is in the form of a  
kit, which a short brush fitting inside a housing that, when  
removed, can be used as a handle extension. The kit includes a  
15 small tube of toothpaste which can be contained within the  
housing. This is a usable solution but the kit consists of  
several parts and is not always convenient to use, and there is  
not usually enough toothpaste.

It is an object of this invention to provide a disposable  
20 toothbrush which is convenient to use and which addresses at  
least some of the aforementioned problems.

## SUMMARY OF THE INVENTION

In accordance with this invention, there is provided a disposable  
toothbrush comprising an elongate handle having a finger grip at  
25 one end and a bristle-carrying head adjacent the other end of the  
handle. The handle has a reservoir or recess which extends from  
the finger grip to the head and contains toothpaste. The recess  
can be covered by a thin flexible membrane, or occupied by a  
membrane bag, to form the reservoir of toothpaste. The head has  
30 a corresponding passage extending between the handle and an

## Specification of Application

opening at the base of the bristles where the toothpaste will be extruded, when the user presses the membrane.

The toothbrush is thus self-contained and does not need a separate tube of toothpaste, while being simple to manufacture and hence suitable for a single use or at least a small number of  
5 uses before disposal.

#### BRIEF DESCRIPTION OF THE DRAWINGS

In order that the invention may be more clearly understood, embodiments will now be described with reference to the  
10 accompanying drawings, in which:

Fig. 1 is a partly sectioned view of a first embodiment made according to the invention, in which toothpaste is covered by a thin flexible membrane defining a blister cover for a recess provided in a handle for  
15 the toothbrush;

Fig. 2 is a plan view of Fig. 1;

Fig. 3 is a cross-sectional view taken on line 3--3 of Fig. 1;

Fig. 4 is a cross-sectional view taken on line 4--4 of  
20 Fig. 1;

Fig. 5 is a partially sectioned view of a second embodiment of the invention in which a thin flexible membrane defines a self-contained capsule for receiving toothpaste, the capsule being received in a recess  
25 provided in a handle for the toothbrush;

Fig. 6 is a plan view of Fig. 2;

Fig. 7 is a cross-sectional view taken on line 7--7 of Fig. 5; and

Fig. 8 is a cross-sectional view taken on line 8--8 of  
30 Fig. 5.

## DESCRIPTION OF THE INVENTION WITH REFERENCE TO DRAWINGS

A first embodiment of a disposable toothbrush made in accordance with the invention is shown in **Figs. 1 to 4** and is generally indicated by numeral 20. The toothbrush 20 has an elongate handle 22 with a finger grip 24 at one end and a bristle-carrying head 26 adjacent to the other end of the handle. The bristles are provided in tufts extending upwardly (as drawn in Figure 1) and generally indicated by numeral 28. The handle has an elongate shallow recess 30 which extends along most of the length of the handle between the finger grip 24 and the head 26. In the embodiment drawn, the recess 30 is open on the top side of the handle 22, that is, on the same side as the bristles 28. The head 26 has a passage 32 which is L-shaped in section and at one end is in fluid communication with the recess 30, terminating at the other end in an opening 34 (Figs. 2, 4) at the base of the bristles 28.

A supply of toothpaste or dentifrice 36 is provided in the recess 30 which is hygienically sealed by a blister-cover 38 so as to form a reservoir. The cover is made of a thin flexible membrane of a suitable plastics material which can be easily bonded to the plastics material used to fabricate the handle 22. A removable pull-tab 40 covers the opening 34 in the head 26 so as to seal the toothpaste until the toothbrush is required, as shown in Figure 4.

The finger grip 24 has transversely extending ribs 42 and the handle 22 has longitudinally extending ribs 44 on the bottom side opposite from the recess 30.

In use, the toothbrush is grasped with one hand between a thumb 46 and forefinger 48 with the thumb lying on the finger grip 24.

## Specification of Application

Before first use, the pull-tab 40 is removed as indicated by arrow 50 in Fig. 1, to allow the toothpaste to be squeezed out. To this end the thumb 52 and forefinger 54 of the opposite hand glide along the blister cover 38 forwardly toward the head 26 as indicated by arrows 56, thereby extruding the toothpaste 36 through the opening 34. If the user is not too profligate, more than one dose can be extruded, allowing multiple uses before the toothpaste is used up.

In a second embodiment of the invention, drawn in **Figs. 5 to 8**, the toothbrush is generally indicated by numeral 60. Similarly to the embodiment drawn in Figs. 1 to 4, the toothbrush 60 comprises an elongate handle 62 having a finger grip 64 at one end and a head 66 at the other end of the handle carrying the bristles 68.

An elongate shallow recess 70 formed in the handle 62 receives toothpaste 72 provided in a capsule 74 made from a thin flexible membrane. The capsule 74 is retained in the recess 70 by a pair of oppositely disposed lips 76, 78 formed in the handle 62 and extending along the length of the recess 70 (Fig. 7). This construction avoids any difficulty sealing the membrane to the handle. As before, the recess with the thin flexible membrane is accessible from one side of the handle for squeezing out toothpaste.

A passage 80 formed in the head 66 is in fluid communication with the recess 70 and terminates in an opening 82 at the base of the bristles 68. The opening 82 forms part of a key-hole slot 84 formed in the head 66 and separates the bristles to provide access to a pull-tab 86. The pull-tab 86 covers an orifice 88 provided at one end of the capsule 74. It will be appreciated that the pull-tab 86 hermetically seals the toothpaste 72 within the capsule 74 before use, which greatly extends the shelf-life of the toothbrush.

The toothbrush 60 also includes transverse ribs 90 on the upper surface of the finger grip 64 and longitudinally extending ribs 92 on the bottom surface of the handle 62 to facilitate grasping of the toothbrush at one end and gliding the other hand forwardly toward the bristle area with the other hand, respectively.

In use, the toothbrush 60 is grasped at one end in the finger grip area 64, the pull-tab 86 is removed, as indicated by arrow 87 and the toothpaste 72 is extruded towards the head 66 by sliding one's fingers forwardly along the exposed surface of the capsule 74.

It will be appreciated that the toothpaste-containing membrane comprising the capsule 74, or the blister cover 38, is sufficiently thin and flexible that it will remain in a collapsed configuration and not resume its original shape. Accordingly, no vacuum is created to suck any dentifrice away from the bristle area. Furthermore, the length and cross-section of the recess are predetermined to accommodate a sufficient quantity of toothpaste for delivery to the bristle area and for average consumption by a user, for a single use or for several.

Several variations may be made to the above-described embodiments of the invention without departure from the appended claims. In particular, it will be appreciated that the toothbrush may comprise a head portion which is separable from the handle portion and will, accordingly, include additional means for securing the head to the handle.

Alternatively or additionally, a housing may be provided encasing the toothbrush to protect it when not in use, e.g. when travelling.



Claims:

1. A disposable toothbrush for single use comprising an elongate handle having a finger grip at one end and a bristle-carrying head adjacent the other end of the handle, a plurality of bristles extending, transversely to the handle on a top side of the toothbrush, from a base for the bristles defined by the head,  

in which the toothbrush has an integral reservoir adapted to receive a predetermined volume of toothpaste sufficient for a single application of toothpaste to the bristle region.
2. A disposable toothbrush according to claim 1, in which the reservoir is located in the handle.
3. A disposable toothbrush according to claim 2, in which the reservoir extends most of the length of the handle, and the head has a passage in fluid communication with the reservoir, extending from the handle to a single opening formed in the head among the bristles.
4. A disposable toothbrush according to any of claims 2 to 3, and having a removable pull tab disposed adjacent to the said opening in the head and adapted to seal any toothpaste in the head, so that upon removal of the pull tab, any toothpaste contained in the reservoir may be extruded through the opening in the head to the bristles.
5. A disposable toothbrush according to any preceding claim, in which the finger grip has transversely extending ribs and the handle has longitudinally

extending ribs on a side of the handle opposite from the reservoir, whereby the finger grip at one end of the handle may be held by one hand to use the toothbrush and the toothpaste may be extruded from the reservoir to the bristles by gliding the other hand, guided by the longitudinally extending ribs, along the reservoir from the finger grip toward the head and into the bristles.

Fig.1

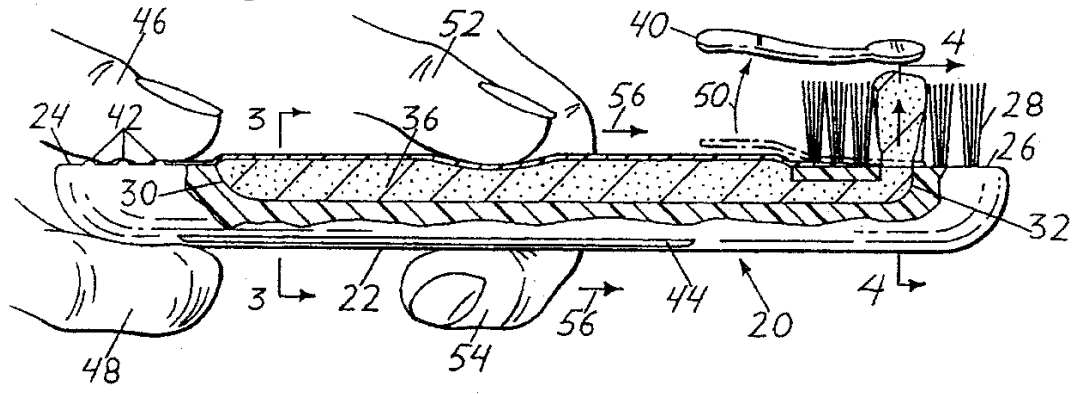


Fig.2

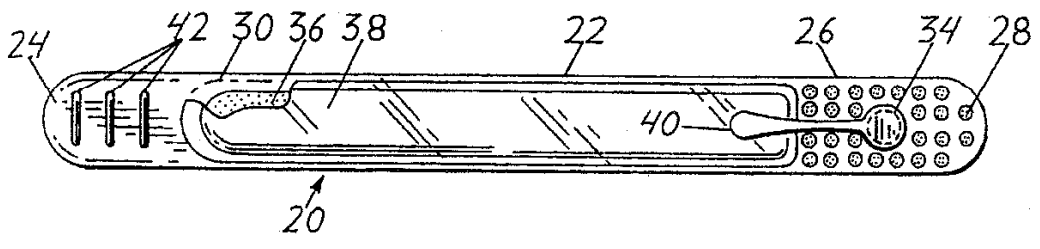


Fig.3

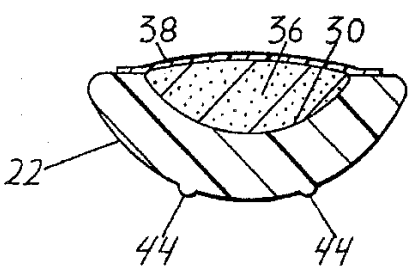


Fig.4

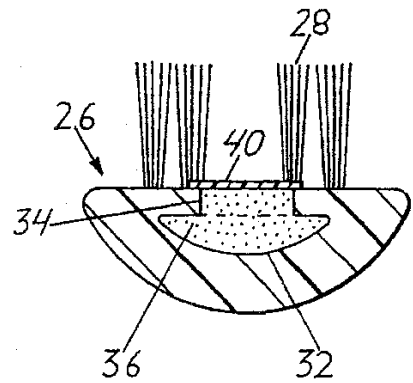


Fig.5

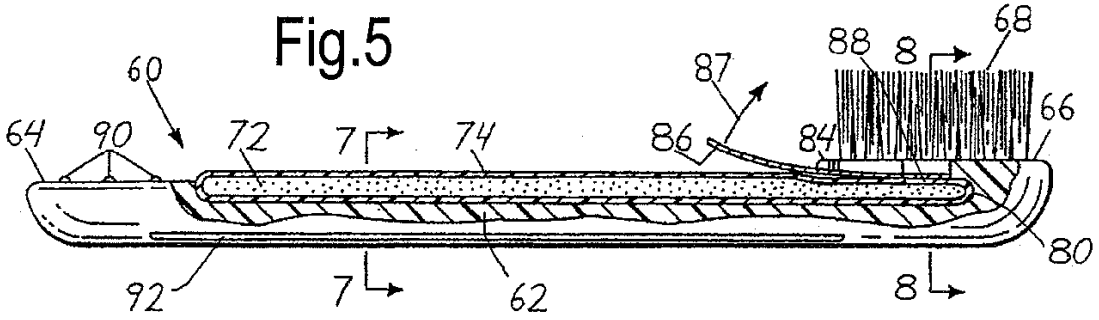


Fig.6

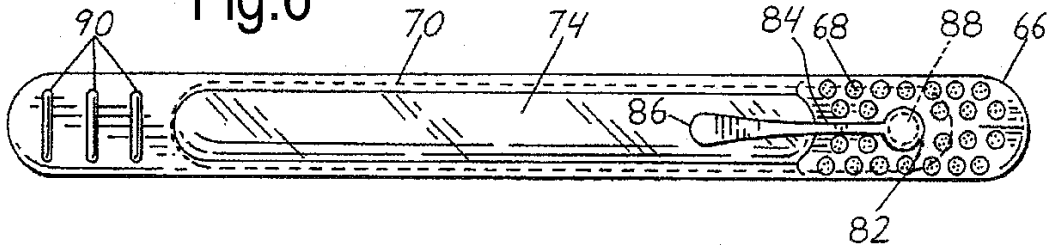


Fig.7

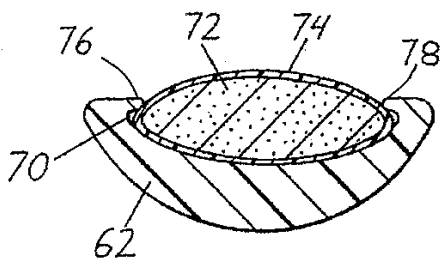
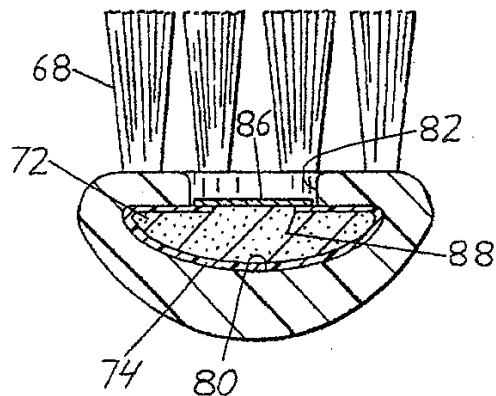


Fig.8



Application no: GB 0666666.6  
Latest date for reply: 28 November 2009

## **Patents Act 1977**

### **Examination Report under Section 18(3)**

#### **Novelty**

The invention as claimed in claims 1 to 3 is not new because it is anticipated by GB 2222222. This document shows a toothbrush with a handle 1 and a head 2, and a reservoir 4, namely the hollow handle, for containing toothpaste. Toothpaste can be squeezed out by the user using the knob 8.

In fact it is doubtful whether claim 1 is distinguished even over an ordinary toothbrush, since the space between the bristles could be described as a "reservoir".

#### **Inventive step**

Claims 4-5 are not inventive: US 3333333 has a flexible toothpaste container or capsule 13 integrated into the toothbrush, and the toothpaste is squeezed out during use. It would be obvious to use such a capsule with the pump of GB 2222222.

#### **Clarity**

There is ambiguity in the specification since claim 1 specifies a single use but the description mentions a multiple-use brush. This makes the claims unclear.

Published 27 July 1999

**GB 2222222 A**

TOOTHBRUSH

FIELD OF THE INVENTION

The invention relates to a toothbrush with a reservoir containing several doses of toothpaste.

BACKGROUND OF THE INVENTION

The standard toothbrush has an elongate handle and a head with bristles upon which a dose of toothpaste is laid for the brushing of teeth. The toothpaste is generally sold in tubes of varying size and it is often inconvenient, particularly when travelling, to have two separate items.

The use of these toothpaste tubes also poses family hygiene problems, for toothpaste is often shared by the various family members and when applying toothpaste onto a particular toothbrush, if it is not as clean as one would wish, dirt or germs lying on it may be passed onto the tube and thereafter onto the next user's toothbrush.

There are other additional problems, such as how difficult it is to get toothpaste out when the tube is almost empty, the product that is inevitably wasted, the need to make accessories available not only for toothbrushes but for toothpaste tubes or containers, and in particular the problems derived from the use by the various family members of different types or flavours of toothpaste, which problem is clearly all the greater when going on a trip or travelling both individually and as a whole family.

SUMMARY OF THE INVENTION

The toothbrush of the present invention aims to solve these problems, moreover providing a number of further benefits and advantages.

In particular, the toothbrush of the invention is characterised by having a hollow handle that serves as a reservoir containing toothpaste, in particular multiple doses. The handle leads through a hole or aperture onto the surface of the head where the bristles are fixed, in order for the toothpaste to get out through the hole and reach the bristles when the user so requires.

The inside of the hollow body making up the handle is to this end provided with an axially arranged endless screw made of a suitable material, for instance plastic, the rear end of which is linked to a turning knob driven from the outside, as an extension to or projection from the rear end of the handle proper. Turning the end knob carries a piston to travel along the endless screw, thereby pushing the toothpaste contained in the reservoir forwards, depending upon the extent to which the knob is turned, a greater or lesser quantity of toothpaste will be pushed, this being the dose that will reach the bristles through a hole in the head.

The toothbrush can be further provided with a window through which the quantity of toothpaste remaining in the reservoir can be seen; the user thus knows at all times to what extent the toothpaste has been used up.

The toothbrush can be disposed of when the toothpaste is used up.

#### DESCRIPTION OF THE DRAWINGS

In order to provide a fuller description and contribute to the complete understanding of the characteristics of this invention, an embodiment will now be described by way of example, referring to the attached drawings, in which:

- Figure 1 is a plan view of a toothbrush embodying the invention;
- Figure 2 is a side elevation view of the toothbrush;
- Figure 3 is a rear view of the toothbrush;
- Figure 4 is a longitudinal sectional view of the toothbrush handle showing the endless screw for toothpaste extrusion; and
- Figure 5 is a sectional close view of the head portion showing the communication between the reservoir and the bristles.

#### PREFERRED EMBODIMENT OF THE INVENTION

The figures show that the toothbrush of the invention comprises, as toothbrushes do conventionally, a handle 1 with a head 2 at one end where the relevant bristles 3 are fixed. However, here the handle 1 is hollow and defines an internal reservoir 4 the rear end of which is closed and the front end of which leads into a hole 5 lying on the surface of the head where the bristles 3 are mounted,. The reservoir 4 is thus connected to the head, and in particular to the bristles 3. The reservoir 4 serves as a toothpaste container, in particular containing a number of doses which the user can push at will directly up to the head, and in particular its bristles 3.

As shown in Figure 4, an endless screw 6 is arranged inside the reservoir 4 supported at one end on a bearing 7 fixed to the inside wall of the tube, whereas its opposite and rear end is linked to an outer drive knob 8 located on the rear end of the handle 1 proper. When the knob 8 is turned, a piston 9 carrying a stopper 10 will travel along the endless screw 6. This causes the toothpaste lying in the reservoir 4 to be pushed forward and emerge through the hole 5 on the head and onto the bristles 3, thereby supplying a dose dependent on how far or the extent to which the knob 8 is turned, as the user sees fit.

The toothbrush can also have a window 11 in order that the quantity of toothpaste remaining inside the reservoir 4 can be seen and the rear end can even have an indication 12 pointing out the direction in which the knob 8 should be turned.

The reservoir defined in the toothbrush handle is substantial, in order that enough doses can be extracted from it for the useful life of the toothbrush to be a disposable item, i.e. so that it can economically be thrown away when the toothpaste it carries has been used up.



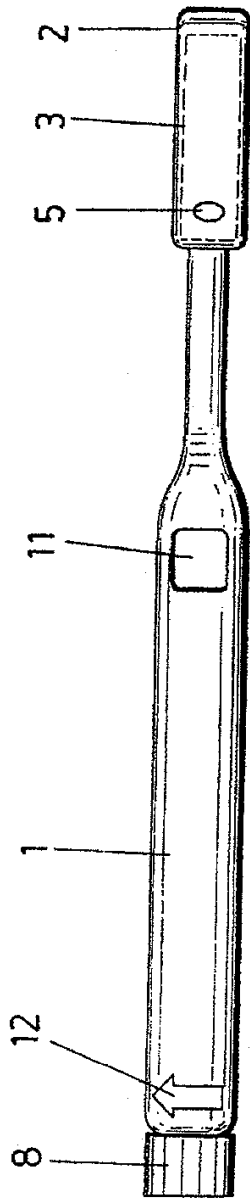


FIG-1

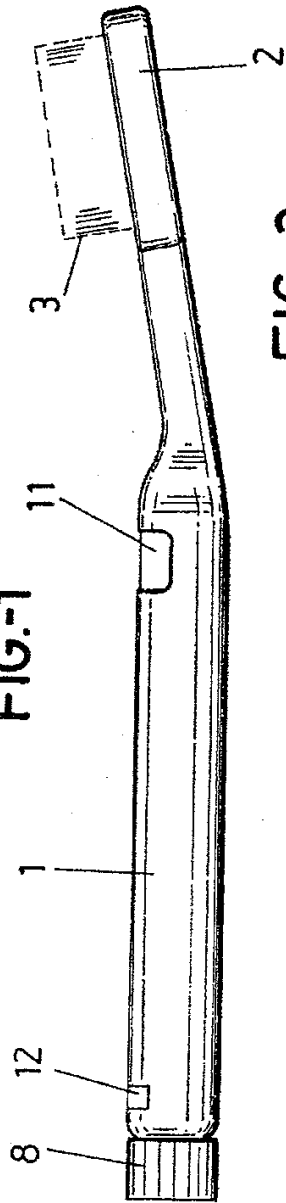


FIG-2

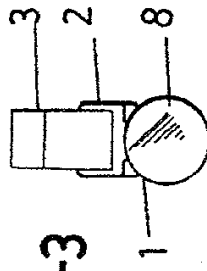


FIG-3

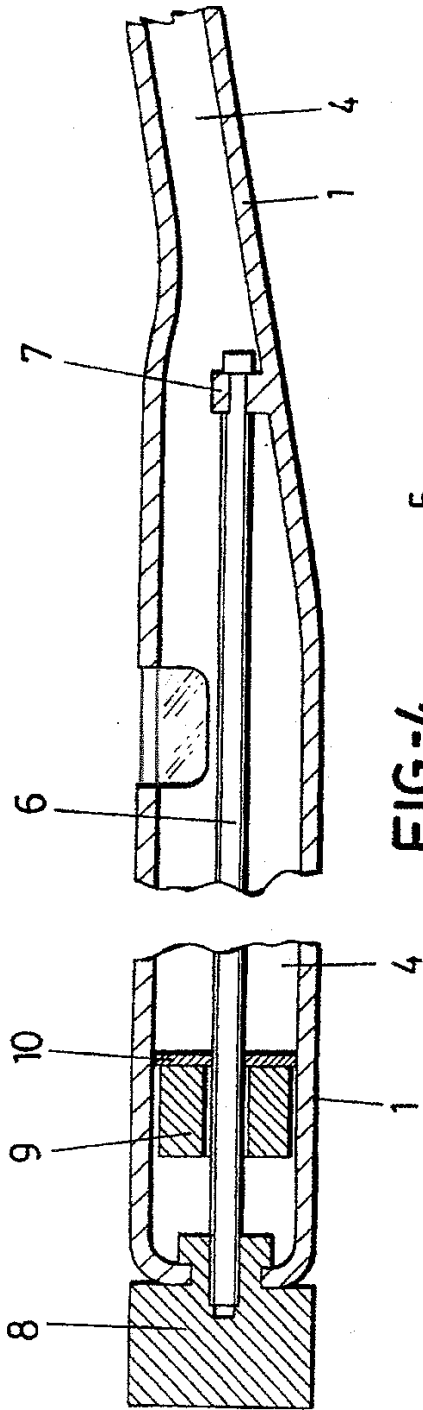


FIG.-4

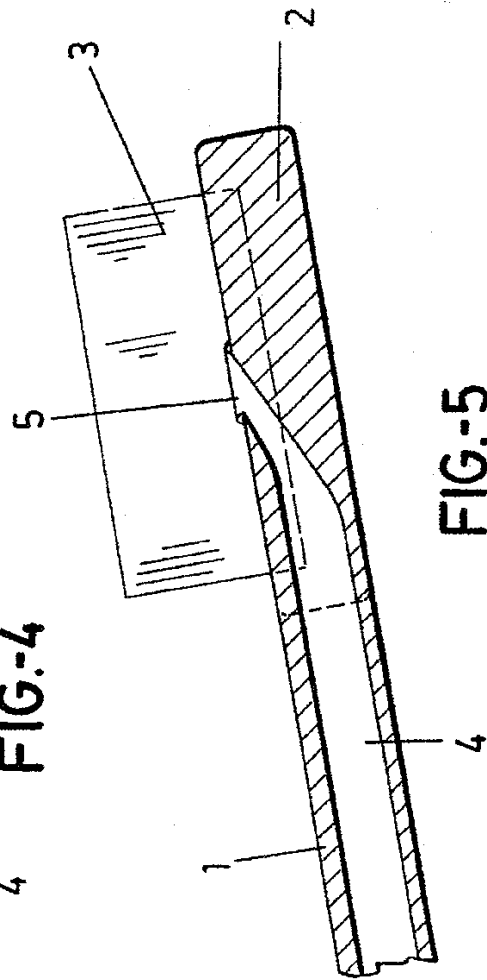


FIG.-5

Issued (published) 23 August 1967

## **US 3,333,333 A**

### BRIEF DESCRIPTION OF THE INVENTION

#### 1. Field of the Invention

- 5 This invention relates to brushes for use in cleaning teeth and particularly to low-cost disposable brushes.

#### 2. Prior Art

10 The desirability of a low-cost, disposable toothbrush has long been recognized, and a number of brushes have been proposed in the past. One type has a sponge scrubbing surface impregnated with dentifrice and a rigid handle; another type is made of a composite of materials. Because of the manner in which they are constructed and assembled, such disposable toothbrushes have been too costly. Also, because the dentifrice used does not stay fresh or is not arranged for convenient dispensing, the brushes have not been entirely satisfactory.

#### 15 SUMMARY OF THE INVENTION

Principal objects of the present invention are to provide a toothbrush that can be conveniently formed of low-cost materials in a single molding operation and that will include a dentifrice holder from which dentifrice will be conveniently and automatically dispensed during a brushing operation.

- 20 Other objects are to provide a disposable toothbrush that can be easily equipped with a moist dentifrice and with the dentifrice holder being constructed so that the bulk of the dentifrice will be kept in a moist usable condition for an extended period of time.

25 Principal features of the invention include a one-piece handle, bristle and dentifrice dispenser construction, all made out of economical plastic material and formed in a single molding operation. The handle is made rigid and the bristles and the dentifrice holder, which sits among the bristles, are flexible. The dentifrice holder is made hollow and has a small orifice opening through which dentifrice is inserted into the holder and through which the dentifrice is discharged during a brushing operation.

Additional objects and features of the invention will become apparent from the following detailed description and drawing, disclosing what is presently contemplated as being the best mode of the invention.

#### THE DRAWING

- 5 The sole Figure is a perspective view, taken from above and at one end and looking down onto the bristles and dentifrice holder and dispenser.

#### DETAILED DESCRIPTION

10 The disposable toothbrush is shown generally at 10. The brush is made of one piece and preferably is injection-molded out of polyethylene or other suitable low-cost plastic material.

The brush 10 includes a handle 11, which is made sufficiently rigid to allow the brush to be held and manipulated, and rows of bristles 12, formed of the same plastic as the handle 11, but made pliant enough to bend on the handle during use, thereby avoiding damage to tender mouth tissue. The bristles 12 project in rows from the end of one face  
15 of handle 11, and are preferably tapered inwardly from the handle outwardly to their tips.

A tall conical dentifrice holder and dispenser 13 also projects from the face of the handle from which the bristles extend. Like the bristles, the dentifrice holder and dispenser is made pliant and will bend during use of the brush. The holder and dispenser 13 is made hollow and is of a generally conical configuration, with the base at the handle and the tip  
20 at about the plane of the bristle tips. A small opening 14 at the tip provides access to the interior of the holder and dispenser, and the interior of the holder and dispenser is enlarged to provide a storage area for enough dentifrice to ensure proper brushing.

The holder and dispenser 13 is positioned on the longitudinal center line of the handle and preferably between the row of bristles at the end of the handle and the next  
25 adjacent row.

In use, the air-tight package (not shown), in which the toothbrush is dispensed to ensure sanitation, is first removed. Thereafter, the brush is used in conventional fashion by moving it back and forth, up and down, or in circular motions, with respect to the teeth. As the brush is moved, the bristles clean the teeth in conventional fashion, bending as  
30 necessary for clearance and straightening to move into recesses and openings. The dentifrice holder and dispenser acts as a bristle, bending and straightening, and with the tip moving into recesses and openings. However, as the holder and dispenser is bent and as it is moved over the teeth in its bent condition, the dentifrice contained therein is

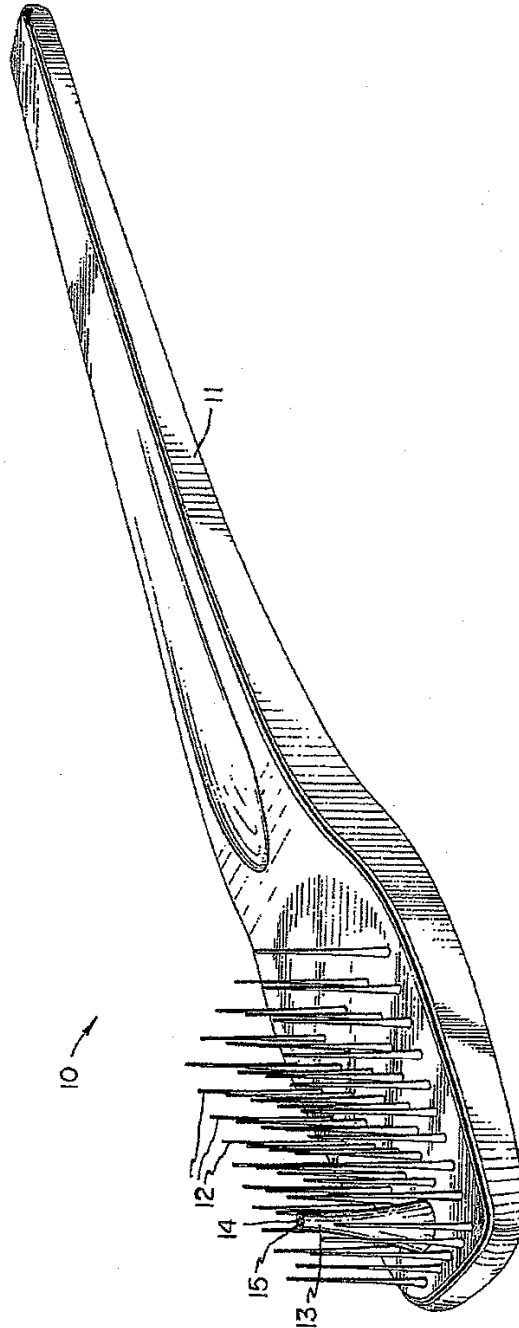
squeezed through the opening 14 to be picked up by the bristles and to be used in the cleaning operation. The positioning of the holder and dispenser 13 between the rows of bristles, as specified, ensures maximum movement of the holder and dispenser over the teeth and maximum discharge of the dentifrice contained therein.

- 5 The small opening 14 provides a means whereby dentifrice 15 can be injected into the holder and dispenser 13 during production of the toothbrush 10, and through which dentifrice can be expelled, as has been described. After the dentifrice has been injected into the holder and dispenser, a small portion of the dentifrice at the opening 14 will dry out to some extent, thereby keeping air from getting into the larger interior of the holder and dispenser to dry out the bulk of the dentifrice. Naturally, the air-tight package (not shown) will also limit the amount of dentifrice that may dry out, but in any event, only a relatively small portion at opening 14 can harden.

- 15 The toothbrush herein described is a very low-cost item, even if made of bio-degradable plastic, since it is readily produced with a single molding process. It is complete and ready for use, even including its own supply of fresh dentifrice, and it can be readily handled.

22/22

U.S. Patent 23rd. August 1967



US 3,333,333