

## A TOOTHBRUSH

### 5 TECHNICAL FIELD

The present invention relates generally to a disposable toothbrush.

### 10 BACKGROUND ART

One type of known disposable toothbrush includes a toothbrush which comprises of a brush head to support the bristles of the brush and a hollow handle for toothpaste. During its operation, by squeezing the side wall of the hollow handle, particularly at the area of pumping will cause a small portion of the toothpaste to flow from the hollow handle to the passageway of the brush head through the passageway entrance and then, directly being dispensed onto the bristles through the opening. However, the hollow handle does not contain any water as a mouthwash after brushing the teeth.

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Another type of known disposable toothbrush comprises of two separate parts which are a brush head and a hollow handle. The brush head is provided with bristles, an opening to allow the distribution of toothpaste and a threaded sleeve in one end. The opening which extends from the base of the bristles through the brush head is designed to have a seal puncturing end at its one end. Besides, the hollow handle contains toothpaste portion and water portion as a mouthwash and being separated by a separator in between. Further, the hollow handle has a threaded spout at one end and a breakable tapered tip at its other end. A sealing membrane closes off the end of the toothpaste portion of the hollow handle. During its operation, when the hollow handle is rotated relatively to the brush head, the threaded spout will cause the seal puncturing end of the opening to cut the seal of the sealing membrane and by merely squeezing the side wall of the toothpaste portion, it will cause the toothpaste to dispense onto the bristles. When the brushing action is completed, the user needs to reverse the handle and bites the tip to drain the water directly into his mouth for oral rinse. However, it is quite difficult to control the amount of usage of toothpaste or water which may lead to waste and spillage.

## SUMMARY OF THE INVENTION

According to the present invention, there is provided a toothbrush for brushing  
5 teeth comprising a brush head having a plurality of bristles and at least an  
opening between the bristles, an elongated cartridge extending from the brush  
head for storing material and having a flexibly resilient wall portion and a  
passageway which connects the elongated cartridge with the opening wherein  
10 the elongated cartridge further comprising a normally closed valve within the  
elongated cartridge which normally closes the passageway such that pressing  
the flexibly resilient wall portion of the elongated cartridge will open the normally  
closed valve to allow the material to flow from the elongated cartridge to the  
passageway through the opening upon the bristles.

15 In an embodiment of the invention, the elongated cartridge is an  
interchangeable cartridge.

In an embodiment of the invention, the normally closed valve includes a stopper  
and a rigid arm whereby pressing the flexibly resilient wall portion of the  
20 elongated cartridge will bring the flexibly resilient wall portion into a contact with  
the rigid arm and thereby pushing the stopper backwardly out of the way.

In an embodiment of the invention, the stopper is in an L-shaped having a base  
and an upstanding portion and the rigid arm which is secured thereto extends  
25 from the upstanding portion of the stopper.

In an embodiment of the invention, the brush head further having an externally  
threaded spout at one end of the body and the elongated cartridge further  
having an inwardly extending threaded sleeve at both ends, whereby rotating  
30 the brush head relatively to one end of the elongated cartridge will thus  
engaging the elongated cartridge firmly to the brush head.

In an embodiment of the invention, the valve normally bears against the end of the threaded sleeve at both ends of the elongated cartridge.

5 In an embodiment of the invention, the elongated cartridge further having a pair of central compartments which is a combination of toothpaste segment and water segment.

10 In an embodiment of the invention, the toothpaste segment and the water segment is separated by a separator as an intermediate partition.

In an embodiment of the invention, the elongated cartridge when connected to the brush head constitutes a handle for manipulating the brush head.

## 15 **BRIEF DESCRIPTION OF THE DRAWING**

For a better understanding of the nature and objects of the invention, reference should be made to the following detailed description taken in connection with the accompanying drawings forming a part of this specification and in which  
20 similar numerals of reference indicate corresponding parts in all the figures of the drawings.

Figure 1 shows an exploded view of the preferred embodiment of a toothbrush.

25 Figure 2 shows a side view of the toothbrush showing how the toothbrush is operated.

Figure 3 shows a side view of a stopper with a rigid arm comprised in the preferred embodiment.  
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## DETAILED DESCRIPTION OF PREFERRED EMBODIMENT

5 Referring to Figure 1, the illustrated toothbrush 11 composes of two parts which are a brush head 13 and an elongated cartridge 23.

The first part, a brush head 13 is a plastic body which is hollow and having a central passageway 15 within it. It comes with plurality of bristles 17 upon one  
10 side of the body and a plurality of openings 19 provided on the same side with the bristles 17 and located between the tufts of the bristles 17. The openings 19 provide communication between the passageway 15 and the outer side of the body. A hollow, externally threaded spout 21 is formed at one end of the body and provides a communication between the passageway 15 and the  
15 elongated cartridge 23.

The second part, the elongated cartridge 23 is designed as an elongated cylindrical member made of flexible resilient wall portion, preferably polypropylene.

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The elongated cartridge 23 has a pair of central compartments to store material which a combination of toothpaste segment 27 and water segment 29 and are separated by a separator 25, as an intermediate partition. Each of the compartment has an identical end wall 37 having an inwardly extending  
25 threaded sleeve 31.

A normally closed valve 33, 35 is located within each of the compartments, which will act as a controller of the elongated cartridge 23 and is closed relative to the threaded sleeve 31. As in Figure 3, the valve includes a stopper 33 which  
30 is designed as a flexible L-shape stopper 33 which normally bears against the end of the threaded sleeve 31 as being in its closed position. The stopper 33 further includes a rigid arm 35 which is secured thereto.

During operation as in Figure 2, a person may merely attach the brush head 13  
35 to either end of the elongated cartridge 23 by rotating the brush head 13

relatively to the elongated cartridge 23. When then brush head 13 and the elongated cartridge 23 are engaged, the user may simply depress the side wall of the elongated cartridge 23. This will cause the rigid arm 35 to deform inwardly and thereby pushing the stopper 33 backwardly out of the way which causes the stopper 33 to be opened up. This will allow the passage of the toothpaste or the water through the spout 21 into the passageway 15, then outwardly through openings 19 and upon the bristles 17. When the finger pressure is released, the stopper 33 will automatically close over the end of the threaded sleeve 31 to its normal position.

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This toothbrush 11 is a very practical item because it can be used for a couple of times a day. It does not require recapping after it is used even though there is still remaining toothpaste inside the elongated cartridge 23. The valve 33, 35 which is always in a closed position will prevent the toothpaste from hardening unless during operation.

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Besides that, by having a valve 33, 35 inside the elongated cartridge 23, the user can control the amount of usage. For example, by applying a little pressure in the water segment 29 of the elongated cartridge 23 that causes the valve 33, 35 to open up, the user may soften the toothpaste on bristles. This may induce the extraction of bubble to make the brushing of teeth easier and enjoyable thus avoiding any friction and pain. Besides, after brushing, the water may be discharged directly into the user's mouth by just squeezing the water segment 29.

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In addition, if an elongated cartridge 23 is dispensed form the brush head 13, a second elongated cartridge 23 can be used subsequently to the used brush head 13. Therefore, it is possible to market the brush head 13 with several elongated cartridge 23.

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In addition, the entire combination 11 may be made of suitable inexpensive plastic material that in several situations, it may be used only once and then be disposed of after usage.

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While particular example of the present invention has been shown and described, it is apparent that changes and modification maybe made therein without departing from the invention in its broadest aspect. The aim of the appended claims, thereof, is to cover all such changes and modifications which

5 fall within the scope of the invention.

**CLAIMS:**

1. A toothbrush (11) for brushing teeth comprising:  
5 a brush head (13) having a plurality of bristles (17) and at least an opening (19) between the bristles;  
an elongated cartridge (23) extending from the brush head (13) for storing material and having a flexibly resilient wall portion; and  
10 a passageway (15) which connects the elongated cartridge (23) with the opening (19);  
wherein the elongated cartridge (23) further comprising a normally closed valve (33, 35) within the elongated cartridge (23) which normally closes the passageway (15) such that pressing the flexibly resilient wall  
15 portion of the elongated cartridge (23) will open the normally closed valve (33, 35) to allow the material to flow from the elongated cartridge (23) to the passageway (15) through the opening (19) upon the bristles (17).
2. The toothbrush (11) as claimed in claim 1, wherein the elongated  
20 cartridge (23) is an interchangeable cartridge.
3. The toothbrush (11) as claimed in claim 1, wherein the normally closed  
25 valve (33, 35) includes a stopper (33) and a rigid arm (35) whereby pressing the flexibly resilient wall portion of the elongated cartridge (23) will bring the flexibly resilient wall portion into a contact with the rigid arm (35) and thereby pushing the stopper (33) backwardly out of the way.
4. The toothbrush (11) as claimed in claim 3, wherein the stopper (33) is in  
30 an L-shaped having a base and an upstanding portion and the rigid arm (35) which is secured thereto extends from the upstanding portion of the stopper (33).
5. The toothbrush (11) as claimed in claim 1, wherein the brush head (13) further having an externally threaded spout (21) at one end of the body

and the elongated cartridge (23) further having an inwardly extending threaded sleeve (31) at both ends, whereby rotating the brush head (13) relatively to one end of the elongated cartridge (23) will thus engaging the elongated cartridge (23) firmly to the brush head (13).

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6. The toothbrush (11) as claimed in claim 5, wherein the valve (33, 35) is normally bears against the end of the threaded sleeve (31) at both ends of the elongated cartridge (23).

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7. The toothbrush (11) as claimed in any one of the preceding claims, wherein the elongated cartridge (23) further having a pair of central compartments which is a combination of toothpaste segment (27) and water segment (29).

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8. The toothbrush (11) as claimed in any one of the preceding claims, wherein the toothpaste segment (27) and the water segment (29) are separated by a separator (25) as an intermediate partition.

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9. The toothbrush (11) as claimed in any one of the preceding claims, whereby the elongated cartridge (23) when connected to the brush head (13) constitutes as a handle for manipulating the brush head (13).

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**ABSTRACT**

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**A TOOTHBRUSH**

The present invention relates generally to a disposable toothbrush. There is a known disposable toothbrush comprises of a brush head and a hollow handle where the hollow handle further contains toothpaste and mouthwash. However, the hollow handle remains opened once used and sometimes the material is unfinished, leading to wastage. The present invention discloses a disposable toothbrush (11) comprising of a brush head (13) and an elongated cartridge (23). The brush head (13) has a plurality of bristles (17) and multiple openings (19) between the bristles (17). The elongated cartridge (23) has a pair of central compartments which contain toothpaste and water. The toothbrush (11) comprises a passageway (15) to connect the elongated cartridge (23) with the openings (19). The elongated cartridge includes a normally closed valve (33, 35) within it to close the passageway (15) and also to control the dispensing of toothpaste and water.

( Figure 2 )

