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(54) **TOOTHBRUSH**

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(57) **ABSTRACT**

A toothbrush comprises a handle, a gripping portion arranged at one end of the handle, a bristle planted portion arranged at another end of the handle and a globular reservoir having an annular opening and a cylindrical portion. The globular reservoir is co-axially fitted to the handle via the cylindrical portion at a position between the gripping portion and the bristle planted portion. The globular reservoir can catch mixed saliva with toothpaste flowing from the bristle planted portion via the handle before reaching and dripping from the gripping portion.

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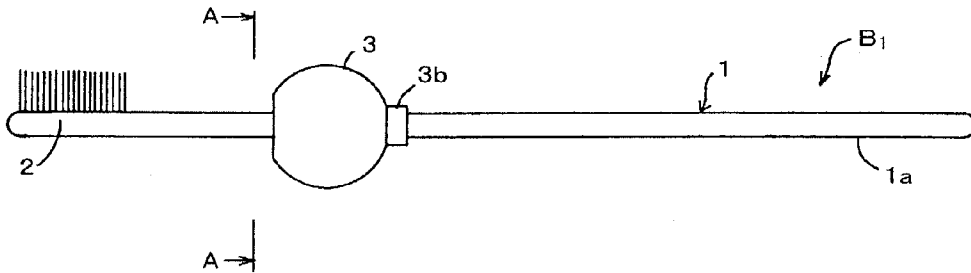


FIG. 1

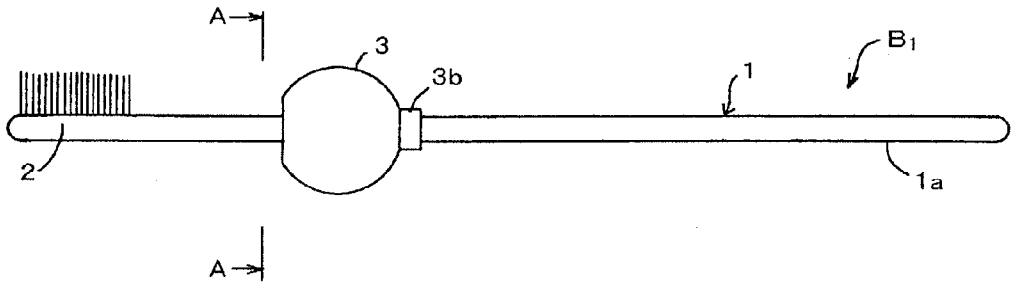


FIG. 2

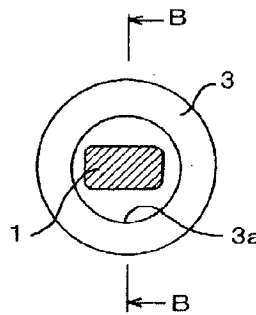


FIG. 3

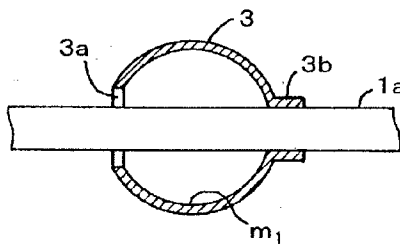


FIG. 4

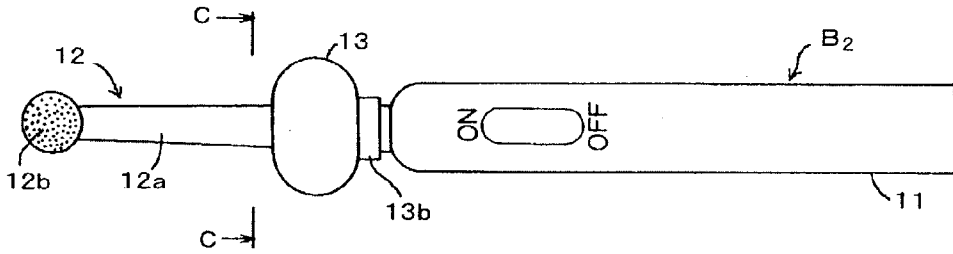


FIG. 5

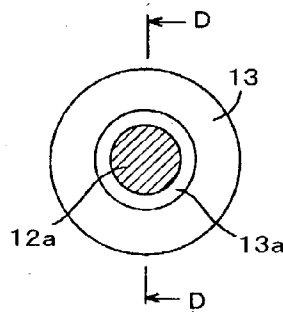


FIG. 6

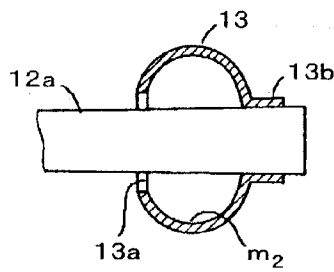
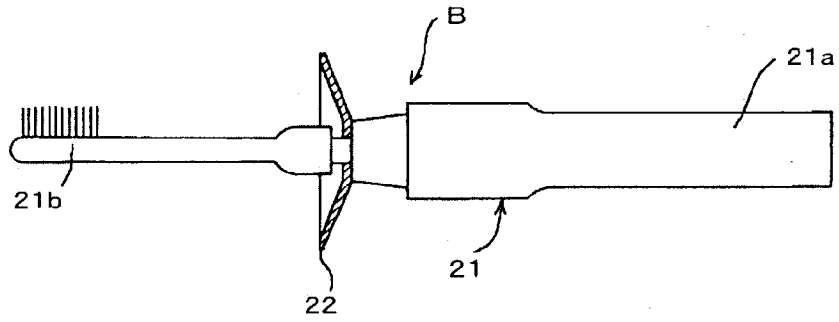


FIG. 7 (PRIOR ART)



## TOOTHBRUSH

### BACKGROUND OF THE INVENTION

#### [0001] 1. Field of the Invention

[0002] The present invention relates to a toothbrush capable of preventing hands or clothes from being contaminated by mixed saliva with toothpaste flowing from a bristle planted portion of the toothbrush along a handle to a gripping portion or dripping from the gripping portion during tooth brushing.

#### [0003] 2. Brief Description of the Prior Art

[0004] As a toothbrush used for such purpose, Japanese laid open utility model No.7-30751 discloses a power toothbrush B having a flange 22 for draining arranged between a gripping portion 21a and a bristle planted portion 21b of a handle 21 as shown in FIG. 7.

[0005] The flange 22 of the power toothbrush B can prevent mixed saliva with toothpaste flowing from the bristle planted portion 21b from flowing further to the gripping portion 21a via the handle 21. Consequently, there are no fears to contaminate a hand gripping the gripping portion or a sleeve with the above-mentioned mixed saliva.

[0006] However, as mentioned above, since the flange 22 of the conventional power toothbrush B merely prevent the mixed saliva with toothpaste from flowing into the gripping portion 21a, the mixed saliva drips from the flange 22 to a clothe or floor, which as a result contaminates the clothe or the floor.

[0007] Particularly when a care-giver or a nurse brushes teeth of a bedridden elderly person, a mentally handicapped person or a patient by using the conventional power toothbrush, mixed saliva with toothpaste dripping from the flange contaminates bedclothes, nightclothes or the like. Such dripping saliva can be caught by a saliva receptacle before reaching bedclothes, nightclothes or the like, but the maneuverability of the receptacle is unreliable and troublesome.

### SUMMARY OF THE INVENTION

[0008] In view of the above-mentioned problems the present invention is carried out to provide a toothbrush capable of catching and storing the mixed saliva with toothpaste flowing from the bristle planted portion via the handle toward the gripping portion, before reaching the gripping portion and dripping from the gripping portion.

[0009] The toothbrush by the present invention comprises a handle, a gripping portion arranged at one end of the handle, a bristle planted portion arranged at another end of the handle and a globular reservoir having an annular opening and a cylindrical portion. The globular reservoir is co-axially fitted to the handle via the cylindrical portion between the gripping portion and the bristle planted portion such that mixed saliva with toothpaste flowing from the bristle planted portion via the handle is introduced into the globular reservoir via the annular opening

### BRIEF DESCRIPTION OF THE DRAWINGS

[0010] FIG. 1 is a side view of a toothbrush by embodiment 1.

[0011] FIG. 2 is a cross-sectional view on an A-A plane in FIG. 1.

[0012] FIG. 3 is a cross-sectional view on a B-B plane in FIG. 2.

[0013] FIG. 4 is a side view of a toothbrush by embodiment 2.

[0014] FIG. 5 is a cross-sectional view on a C-C plane in FIG. 4.

[0015] FIG. 6 is a cross-sectional view of on a D-D plane in FIG. 5.

[0016] FIG. 7 is a side view with a partially cross-sectional view of a conventional power toothbrush.

### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0017] Hereinafter preferred embodiments by the present invention are explained by referring to the drawings.

[0018] (Embodiment 1)

[0019] As shown in FIGS. 1 to 3, a bristle planted portion 2 is arranged at one end of a handle 1 of a toothbrush B<sub>1</sub> and an globular reservoir 3 having an annular opening 3a is co-axially attached to the handle 1.

[0020] Cross sections in a longitudinal direction of a gripping portion 1a of the handle 1, are formed so as to have almost the same oval cross-section. The globular reservoir 3 is detachably attached to the handle 1 by mating a short cylindrical portion 3b of the globular reservoir 3 to the gripping portion 1a. Since the short cylindrical portion 3b is formed so as to mate fittingly to the gripping portion 1a, a watertight contact is formed between the cylindrical portion and the gripping portion. The globular reservoir 3 can be detached and washed after toothbrushing.

[0021] The annular opening 3a is an opening for introducing the mixed saliva with toothpaste flowing from the bristle planted portion via the handle 1 into the globular reservoir 3.

[0022] The globular reservoir 3 is attached to the gripping portion 1a of the handle 1 at a position near to the bristle planted portion 2. As a result, the globular reservoir 3 does not obstruct a gripping hand and does not touch a face of a person to be toothbrushed.

[0023] Since the cylindrical portion 3b of globular reservoir 3 is mated to the handle 1, a favorable attaching position can be selected by sliding the globular reservoir 3. As shown in FIGS. 2 and 3, an internal surface of the globular reservoir 3 has an annular channel m<sub>1</sub> with a semi-circular cross section. The annular channel m<sub>1</sub> is a channel for storing the mixed saliva with toothpaste flowing from the bristle planted portion 2 along the handle 1 to the annular opening 3a.

[0024] Since the toothbrush B<sub>1</sub> by embodiment 1 is arranged in the above-mentioned manner, mixed saliva with toothpaste, flowing from the bristle planted portion 2 via the handle 1, flows into the annular channel m<sub>1</sub> of the globular reservoir 3 and is stored there.

[0025] The stored mixed saliva with toothpaste does not spill from the annular channel m<sub>1</sub> until it reaches a certain

volume, even when the toothbrush  $B_1$  is rotated around its axis or tilted to a certain extent.

[0026] (Embodiment 2)

[0027] As shown in FIGS. 4 to 6, a vibrating brush portion 12 of toothbrush  $B_2$  is detachably attached to a gripping handle 11 and is vibrated by a power source built in the gripping handle 11. A globular reservoir 13 having an annular opening 13a is detachably and co-axially attached to a short handle 12a.

[0028] The globular reservoir 13 is attached to the short handle 12a in the same manner as the reservoir 3 is attached to the handle 1 in embodiment 1.

[0029] A base of the short handle 12a has a circular cross section. The globular reservoir 13 is detachably attached to the short handle 12a by mating a short cylindrical portion 13b formed around an axis of the globular reservoir 13 to the short handle 12a. Since the short cylindrical portion 13b is formed so as to mate fittingly to the short handle 12a, a watertight contact is formed between the short cylindrical portion 13b and the handle 12a. The globular reservoir 13 can be detached and washed after toothbrushing.

[0030] A reference numeral "14" is a switch of the power attached to the handle 11.

[0031] The globular reservoir 13 is attached to the near end of a gripping portion of the handle 11 to the short handle 12a.

[0032] An annular opening 13a is an opening for introducing the mixed saliva with toothpaste flowing from a bristle planted portion 12b via the short handle 12a.

[0033] As shown in FIGS. 5 and 6, an internal surface of the globular reservoir 13 has an annular channel  $m_2$  with a semi-circular cross section. The annular channel  $m_2$  is a channel for storing the mixed saliva with toothpaste flowing from the bristle planted portion 12b along the short handle 12a to the annular opening 13a.

[0034] Functions of the globular reservoir 13 of the toothbrush  $B_2$  by embodiment 2 are the same as the globular reservoir 3 by embodiment 1.

[0035] In embodiments 1 and 2, the globular reservoirs 3 and 13 are arranged at near positions to the bristle planted portions, but they can be arranged at the gripping portions instead.

[0036] As explained above, since the mixed saliva with toothpaste, flowing from the bristle planted portions to gripping portions is trapped by the globular reservoirs so as to prevent from dripping, clothes are prevented from contaminating with the mixed saliva with toothpaste.

[0037] Particularly, when a care-giver or a nurse brushes teeth of a bedridden elderly person, a mentally handicapped person or a patient, by using the toothbrush of the present invention, there are no fears of contaminating bedclothes, nightclothes or the like with mixed saliva with toothpaste dripping from the handle of the toothbrush.

What is claimed is:

1. A toothbrush comprising:

a handle;

a gripping portion arranged at one end of said handle;

a bristle planted portion arranged at another end of said handle; and

a globular reservoir having an annular opening and a cylindrical portion, wherein:

said globular reservoir is co-axially fitted to said handle via said cylindrical portion between said gripping portion and said bristle planted portion such that mixed saliva with toothpaste flowing from said bristle planted portion via said handle is introduced into said globular reservoir via said annular opening.

2. The toothbrush according to claim 1, wherein said cylindrical portion is fittingly mated to said handle so as to form a watertight contact between said cylindrical portion and said handle.

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