

[54] BRUSH ASSEMBLY

[76] Inventor: Willis W. Sanders, 524 15th St.,
Santa Monica, Calif. 90402

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Primary Examiner—G. E. McNeill
Attorney, Agent, or Firm—Jack C. Munro

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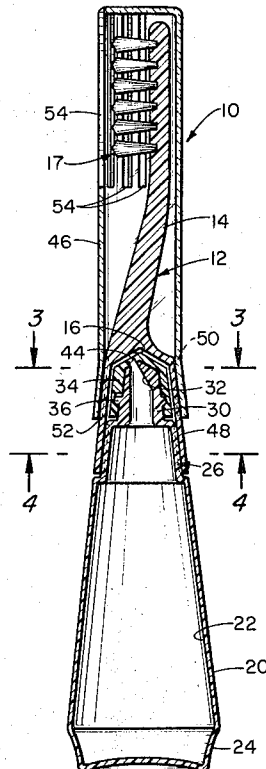
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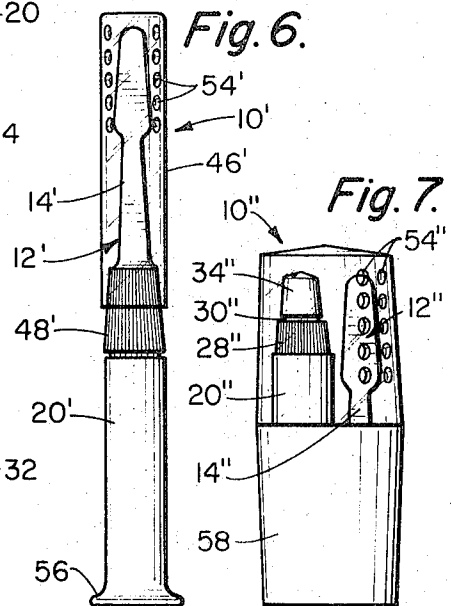
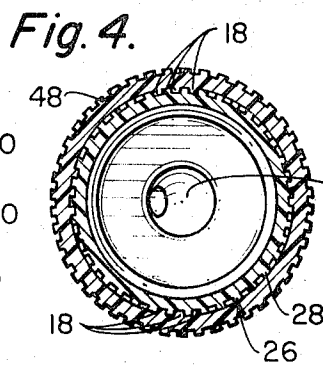
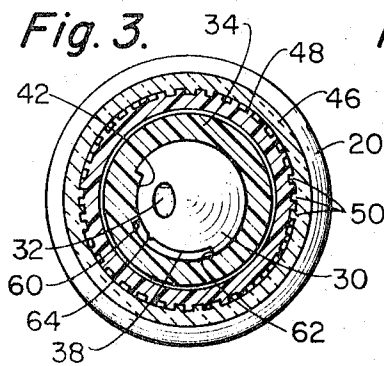
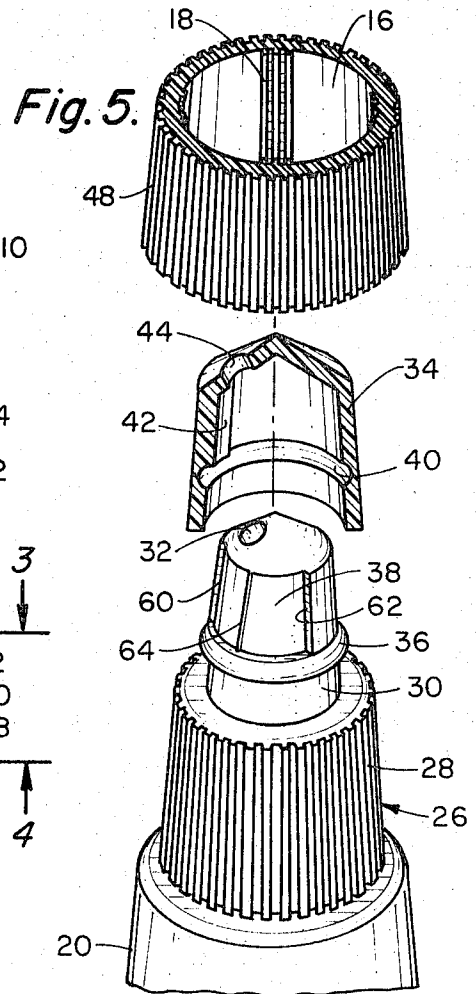
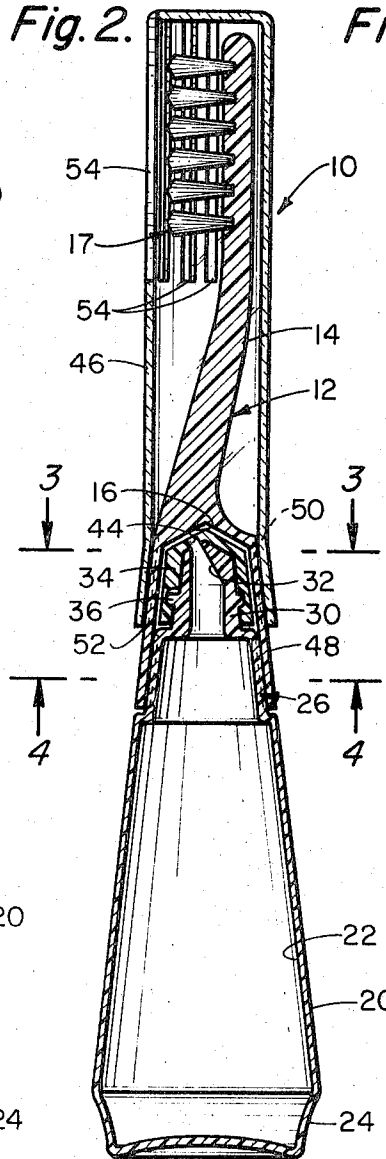
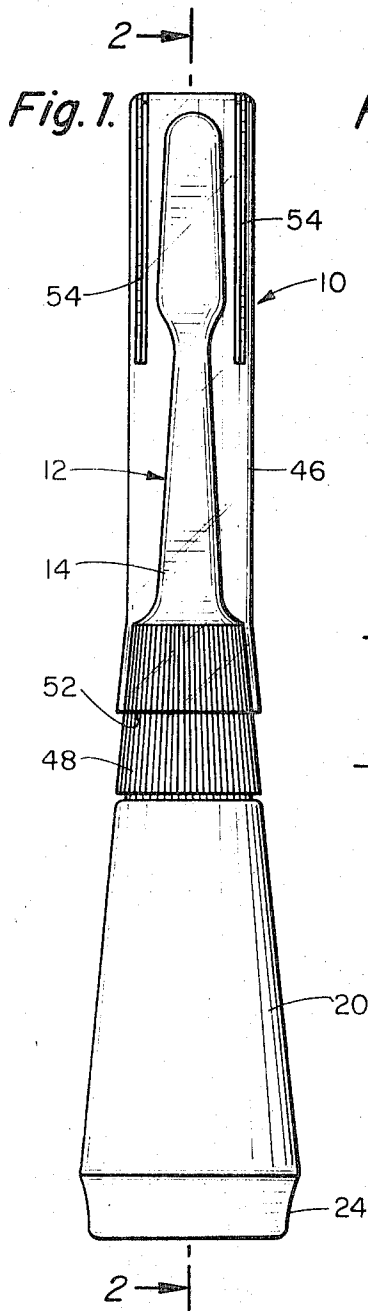
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[57] ABSTRACT

A toothbrush assembly wherein the toothbrush is to be supportingly retained upon the toothpaste dispenser wherein a ridge assembly is formed upon the shank of the brush with the ridge assembly to cooperate with mating grooves formed in the container thereby non-rotatably connecting the brush and the container, a transparent cover is to be located over the brush when not in use with the cover including a ridge assembly adjacent the opening into the cover with the ridge assembly to matingly cooperate with a groove assembly formed on the exterior surface of the shank of the brush, the container includes a nozzle which is to be movable between an open and a closed position.

5 Claims, 7 Drawing Figures





BRUSH ASSEMBLY

BACKGROUND OF THE INVENTION

The field of this invention relates to brush assemblies and the intercorrelation of a brush and a dispensing container. This invention is found to be particularly useful in a toothbrush and a toothpaste dispensing container. However, it is considerably within the scope of this invention to employ this invention in other environments other than a toothbrush.

Dental hygiene is a desirable habit and is practiced daily by most people in a civilized society. The conventional technique to practice dental hygiene employs a toothbrush and a container which contains dentifrice to facilitate the cleaning of the teeth. The dentifrice is applied on the bristles of a brush and with the addition of a small amount of water, the person can readily brush his teeth.

The conventional structure used employs a brush which has bristles at one end and an elongated shank which is employed as a handle. The container may contain a liquid tooth cleaning substance, a powder, or a paste. The paste is the type of material which has the greatest widespread use. The normal container which is used for toothpaste is a metallic tube which can be squeezed, causing the toothpaste to be ejected from a discharge opening in the tube. A cap is employed to close the discharge opening when the tube is not in use.

The disadvantages of a toothpaste tube and the conventional separate arrangement are many. In the first place, the toothpaste tube becomes contorted into numerous shapes which retards the discharge of the toothpaste. Frequently, the wall of the tube will break during the application of the squeezing force. Further, it is not uncommon for the toothpaste cap to become separated from the tube with the cap being located in an unsanitary area.

Previously there have been efforts to avoid the use of tubes of toothpaste by constructing a toothbrush and dispenser in combination with the dental cleaning substance being conducted to the shank of the toothbrush adjacent the bristle area of the brush. The disadvantage of this type of brush is that the dental cleaning substance tends to become caked and clogs the device and also it is extremely difficult to clean. Therefore, such combination type devices have not received any significant commercial success.

There is a definite need for a device which facilitates the technique of brushing one's teeth, such device eliminating the use of the archaic toothpaste tube with the brush and the tooth cleaning substance container cooperating to form a single unit during use.

SUMMARY OF THE INVENTION

The toothbrush assembly of this invention is to employ a cleaner, such as a squeeze plastic container, which contains a dentifrice which will normally be in the form of a paste. The container includes a discharge nozzle with a cap being mounted upon the container about the nozzle. The cap is rotatable between an open position and a closed position. The container in the area of the cap includes a plurality of closely spaced apart grooves. One end of the shank of a toothbrush includes an opening therein. Formed within the shank within the area of the opening are a plurality of spaced

apart ridges. This end of the toothbrush is to be located over the cap of the container with the ridges cooperating within the grooves in the container so as to prevent rotative movement between the container and the shank of the toothbrush. The free end of the shank of the toothbrush includes a plurality of bristles which is to facilitate the cleaning of the teeth. A transparent cover is to be located over the toothbrush and is to be connected to the shank of the toothbrush through a similar groove and ridge arrangement. The transparent cover includes ventilating apertures adjacent the bristle portion of the toothbrush.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a back view of the assembly of this invention;

FIG. 2 is a cross-sectional view of the assembly of this invention taken along line 2—2 of FIG. 1;

FIG. 3 is a cross-sectional view through the assembly of this invention taken along line 3—3 of FIG. 2;

FIG. 4 is a cross-sectional view taken along line 4—4 of FIG. 2;

FIG. 5 is an exploded isometric view depicting the connecting arrangement between the shank of the toothbrush and the container;

FIG. 6 is a view similar to FIG. 1 but showing a modified form of assembly of this invention; and

FIG. 7 is a view showing the brush assembly of FIG. 6 being contained within a carrying case for travel.

DETAILED DESCRIPTION OF THE SHOWN EMBODIMENT

Referring particularly to the drawing, there is shown in FIG. 1 the toothbrush assembly 10 of this invention being basically composed of a toothbrush 12 and a dispenser 20. The toothbrush 12 includes an elongated shank 14 which terminates at one end into a recessed opening 16 and has mounted at the other end of the shank 14 a plurality of bristles 17. The shank 14 is slightly arcuate in order to facilitate manual grasping thereof.

Formed upon the shank 14 and located within the opening 16 are a plurality of ridges 18. The upper end of the dispenser 20 includes a neck area 26 which has formed circumferentially thereabout a plurality of grooves 28. The opening 16 is adapted to be placed over the upper end of the dispenser 20 so that the ridges 18 matingly cooperate within a portion of the grooves 28. As a result, rotational movement between the dispenser 20 and the shank 14 is prevented and the toothpaste dispenser 20 can then function as a handle during operation of the toothbrush 12. The connecting of the toothbrush 12 to the dispenser 20 is easily accomplished by a simple longitudinal movement of inserting the upper end of the dispenser 20 within the opening 16. The neck area 26 is slightly tapered as is the portion of the shank 14 about the opening 16. The connection then tends to become tighter the farther the dispenser 20 is inserted within the opening 16.

The dispenser 20 includes a chamber 22 interiorly thereof which functions to hold the supply of dentifrice such as paste, liquid or powder. The exterior base of the dispenser 20 is necked in at 24 primarily for appearance. When it is desired to dispense the dentifrice from the chamber 22, the toothbrush 12 is removed from the dispenser 20 and the dispenser 20 is then tipped and then squeezed to cause the dentifrice to

then flow into the discharge opening 32 located within the tip 30. The material of construction of the dispenser 20 will normally be a plastic material which is flexible enough to permit a squeezing action. However, it is considered to be within the scope of this invention that other types of dispensers could be employed such as a pressurized container or even a non-squeeze type of container. If a squeeze plastic type of container is employed, it is recommended that a polypropylene composition be employed so that any aromatics within the dentifrice will not be caused to be transmitted through the walls of the container.

The cap 34 is to be located about the tip 30 with an annular recess 40 located within the cap 34 cooperating with a bead 36 formed upon the tip 30. Also formed within the cap 34 is a longitudinal ridge 42. Located upon the tip 30 is a gap area 38. The gap area 38 is divided into a first section and a second section which is separated by a locking bead 64. The longitudinal ridge 42 is to be located within either the first section or the second section of the gap 38.

With the longitudinal ridge 42 located within the first section so that ridge 42 is in contact with wall 60, the opening 44 within the cap 34 is in alignment with the opening 32 and permits discharge of the dentifrice from the container 20. If the cap 34 is rotated so that the ridge 42 is located in the second section and in contact with the wall 62, the opening 44 is not in alignment with opening 32 and therefore discharge of the dentifrice from the container 22 is prevented. Lock bead 64 is provided which causes the ridge 42 to be forcibly moved when passing over the bead 64 and prevents the cap 34 from freely moving between the first section and the second section. In other words, the bead 64 holds the cap 44 in either the opened position or the closed position. It is contemplated that during normal storage during periods of daily use, the cap 34 will be located in the open position but during periods of travel when the assembly 10 of this invention is carried in a traveling bag or suitcase, the cap 34 will then be moved to the closed position to prevent any spillage of dentifrice.

A transparent plastic cover 46 is to be employed to protect the bristles 17 on the toothbrush 12 from coming into contact with foreign material and therefore try to keep the bristles 17 sanitary. The toothbrush 12 is inserted into the cover 46 to the access opening 52. Located adjacent the access opening 52 and formed within the cover 46 are a plurality of longitudinal ridges 50. Formed about the exterior of the shank 14 in the area of the opening 16 are a plurality of closely spaced apart grooves 48. The ridges 50 of the cover are to matingly cooperate with the grooves 48 when the cover is located in position. It is to be noted that the portion of the cover 46 adjacent the access opening 52 is slightly flared so as to provide a slightly tapering fit between the cover 46 and the shank 14.

It is desirable that air enter inside of the cover 46 so as to prevent growth of bacteria therein. For this reason ventilating openings 54 are provided within the upper end of the cover 46.

Within FIGS. 6 and 7 of the drawing, modifications of the assembly 10 of this invention are shown with like numerals referring to like parts. The primary distinction of FIG. 6 is that the assembly 10' is formed of a total height of about thirty percent smaller than the assembly of FIG. 1. The assembly 10' is designed specifi-

cally for traveling to be easily carried on the person or in suitcases. It is to be noted that in both FIGS. 6 and 7 the ventilated openings 54' and 54'' are shown to be circular rather than elongated. Within FIG. 6 the appearance of the dispenser 20' has straight walls rather than the tapered walls of FIG. 1. Additionally the base 56 of the dispenser of FIG. 6 is flared in order to facilitate the locating of the assembly 10' in a vertical position.

In FIG. 7 the assembly 10'' is substantially similar to that of FIG. 6 with the omission of the cover 46'. In its stead a carrying case 58 is employed with the toothbrush 12' being carried separately from the container 20'.

What is claimed is:

1. A brush assembly comprising:

an elongated shank;

a brush having a plurality of bristles connected at one end of said shank, connecting means attached to the other end of said shank, said connecting means includes a recess located within said shank, at least one longitudinal ridge is formed upon said shank and extends within said recess, said recess being inwardly tapered;

a container having an interior chamber to hold a supply of a dentifrice, said container having an aperture therein to permit discharge of said dentifrice from said container, said container being formed of a flexible material to permit squeezing of said container and discharge of said dentifrice; and

first means formed upon said container and located about said aperture, said first means comprising a plurality of longitudinal grooves formed on a tapered member, said longitudinal ridge of said connecting means to be positioned between an adjacent pair of said longitudinal grooves of said first means to lock together said shank and said container and prevent relative rotational movement therebetween, with said connecting means engaging said first means said shank closing said aperture to the ambient.

2. The brush assembly as defined in claim 1 wherein:

there being a plurality of said ridges formed upon said shank and extending within said recess.

3. The brush assembly as defined in claim 2 including:

the exterior of said shank about said recess being formed to include a plurality of circumferentially spaced apart grooves.

4. The brush assembly as defined in claim 3 including:

a cover adapted to be placed over said shank and said brush to protect such against foreign material, said cover having an open end, at least one ridge formed within said cover adjacent said open end, said ridge of said cover being adapted to matingly couple with one of said grooves formed exteriorly of said shank.

5. The assembly as defined in claim 1 wherein:

a cap attached by a second means to said container about said aperture, said cap including an opening therein which is to be in substantial alignment with said aperture to permit discharge of said dentifrice within said container; and

said container including a recessed area adjacent said discharge opening, the interior of said cap includ-

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ing a longitudinal ridge, said longitudinal ridge to be located within said recessed area with the limits of movements between the open position and the closed position being defined by the length of said recessed area, a longitudinal locking bead formed 5

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upon said container and intermediate the width of said recessed area, said locking bead functioning to retain said longitudinal ridge of said cap in either said open position and or said closed position.
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