An improved toothpaste dispenser is disclosed that has an oblong dispensing aperture that dispenses a length of toothpaste equal to the length of the toothbrush bristles in a single squeeze without moving the toothpaste dispenser along the brush. A tube squeezer is disclosed that assists in the moving of toothpaste within the tube towards the aperture end of the dispensing tube. Further, to assist in keeping the toothpaste toward the aperture end of the tube the dispensing tube is stored in a vertical position by means of a flat cover.
TOOTHPASTE DISPENSER

BACKGROUND OF INVENTION

[0001] This invention relates to an improved toothpaste dispenser. People on a daily basis almost universally use toothpaste dispensers. These improvements can be used for any type of toothpaste. Further, these improvements can be used for other products that are packaged in dispensing tubes and pumps. The current toothpaste dispenser has a circular aperture through which the toothpaste is dispensed when the tube is squeezed or a pump is pressed. This makes the individual user move the dispenser along toothbrush bristles to get the required amount/length of toothpaste deposited onto the toothbrush. In the invention herein disclosed, the aperture is oblong with a length approximately equal to the length of the toothbrush bristles. The individual places the aperture parallel to the toothbrush bristles and with one squeeze of the tube dispenses the required amount of toothpaste onto the toothbrush bristles. There is no necessity to transverse the tube along the toothbrush bristles. This ergonomic friendly tube is easier to use, which is important for the elderly and younger children who do not have good coordination.

[0002] Since the plastic tube has replaced the metal tube almost universally in the market place, it has been difficult to empty the contents of the tube. With the metal tubes, individuals would roll the end of the tube forcing the toothpaste to the aperture end of the tube. They would continue to roll the end of the tube until there were no contents in the tube. The current plastic tubes do not allow the individual to roll up the end of the tube because the tube springs back to the original shape. Thus it is difficult for the individual to empty the toothpaste tube. In the invention disclosed herein the tube contents are emptied by a combination of a cap that the tube is stored on in the vertical position and the use of a tube squeezer that transverses along the tube and forces the contents of the tube toward the aperture. The tube squeezer flattens the tube such that the two sides of the tube walls contact one another forcing the toothpaste within the tube toward the aperture. The tube squeezer remains in a fixed location after it transverses along the tube because of the brake strip of rubber along the blades that contacts the outer surface of the tube. Further, to improve the emptying of the tube, the tube is stored vertically on its cap. This allows the toothpaste within the tube to drain toward the aperture end. This storage position also uses less shelf space and the tube is easier to grasp in this position.

SUMMARY OF THE INVENTION

[0003] This invention is an improved toothpaste dispenser with a flexible tube of an oval or round shape with walls of appropriate diameter and length to create a cavity to hold the product to be dispensed. The tube tapers towards one end where the walls are crimped or welded such that walls meet and create a plane. The end of the tube opposite from the crimped end is closed with a flat or conical shaped top attached to the tube walls. The tube has a dispensing neck with two ends, one end is attached perpendicularly to the top of the tube with a passage way through the top into the cavity. An oblong aperture is in the end of the dispensing neck opposite from the end attached to the top. The tube has a means to enclose the dispensing neck.

[0004] The outside of the toothpaste tube passes through the tube squeezer with two blades, each blade having two edges, the blades are positioned such that the crimped end of the tube fits between the blades and the two blades are angled such that there is less distance between the blades at the edge that is closest to the crimped end of the tube. The blades of the tube squeezer are held in a fixed position by blade supports attached perpendicularly to the blades. On the inner surface of each blade is a brake strip made of a pliable sticky material. This stops the squeezer from slipping down the tube.

[0005] The toothpaste tube can have various means to enclose the dispensing neck: a flat cap with internal friction lock within the cap that meshes with external friction locks on the dispensing neck; a flat cap with internal friction lock within the cap that meshes with external friction lock on the tube; a flat hinged cap hinged to the dispensing neck such that the tube can be stored in the vertical position resting on the hinged cap; and a flat hinged cap hinged to the tube such that the tube can be stored in the vertical position resting on the hinged top.

[0006] In the preferred embodiment of this invention the dimension of the oblong aperture in the end of the dispensing neck is equal or near equal to the length of the toothbrush bristles. The oblong aperture in the end of the dispensing neck can also be utilized with hard case or pliable toothpaste dispensing pumps.

[0007] This invention discloses a method of dispensing toothpaste onto a brush wherein the toothbrush is parallel to the aperture in the dispensing neck of the toothpaste dispenser and the toothpaste dispenser dispenses a length of paste equal or near equal to the entire length of the toothbrush bristles.

[0008] Further, this invention discloses a method of emptying a toothpaste tube by use of a tube squeezer and a stand up toothpaste tube that rests on the cap of the toothpaste tube in the vertical position.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] FIG. 1 is an isometric drawing of the tube, top, cap and tube squeezer.

[0010] FIG. 2 is an isometric drawing of the tube with a molded top, cap and tube squeezer.

[0011] FIG. 3 is a side view of the top and removable cap.

[0012] FIG. 4 is a top view of the removable cap.

[0013] FIG. 5 is the top view of the top with the oblong aperture.

[0014] FIG. 6 is the side view of the top and hinged cap.

[0015] FIG. 7 is the top view of the top and the bottom view of the hinged cap.

[0016] FIG. 8 is the end view of the tube squeezer.

[0017] FIG. 9 is the top view of the tube squeezer.

[0018] FIG. 10 is the side view of the tube squeezer.

DESCRIPTION OF THE PREFERRED EMBODIMENT

[0019] FIG. 1 depicts the invention wherein the tube 6 has the flexible walls 6 which are tapered to meet and are
crimped or welded to close the end of the tube at 5. The tube squeezer 4 slips over the end of the tube 6 and compresses the tube walls 1 together forcing the toothpaste within the tube toward the other end of the tube. The tube squeezer 4 transverses down the tube as the contents of the tube are emptied. This figure also shows the top 7 that is connected to the tube walls 1. The dispensing neck 2 projects from the top 7. The cap 3 is shown in this figure removed from covering the dispensing neck. When installed the cap 3 covers the dispensing neck 2 and the aperture contained therein and creates a flat stable surface for the tube to rest upon.

[0020] FIG. 2 shows the preferred embodiment of the tube 6 with the top 7 and the dispensing neck 2 molded in one piece with the tube walls 1.

[0021] FIG. 3 shows an alternate implementation of the top 7. In this embodiment the top 7 is connected to the top of the tube by the thread 8. The dispensing neck 2 extends from the top 7. The friction lock 10 contained on the top edge of the top 7 connects with the friction lock 11 of the cap 3 to secure the cap to the top. Within the cap 3 is a receiver 9 that has the same shape as the dispensing neck 2. FIG. 4 shows the top view of the removable cap 7 wherein the dispensing neck 2 creates the oblong aperture 13. The dimension of this aperture 13 should be the approximate length of the toothbrush bristles that the toothpaste is to be deposited upon. This figure also depicts the threads 8 which are used to connect the top to the tube. FIG. 5 shows the bottom view of the cap 3 with the receiver 12 that mates with the dispensing tube 2 in FIG. 3 covering the end and keeping the toothpaste clean and fresh.

[0022] FIG. 6 is the preferred embodiment of the top 7 and the cap 3. In this embodiment these are hinged together by hinge 14. Because of this hinge the top and cap cannot become separated. When the cap 3 is closed the receiver 12 mates with the dispensing neck 2. The threads 8 connect the top 7 with the tube. The friction lock 11 in the cap 3 locks with the corresponding friction lock 10 in the top 7 when the cap is closed. FIG. 7 is the top view of the preferred embodiment of the top 7. The oblong aperture 13 is at the end of the dispensing neck 2. This aperture allows for the fast and accurate dispensing of the necessary amount of toothpaste. The hinge 4 in FIG. 7 connects the top 7 to the cap 3. The receiver 12 has the same shape as the dispensing neck 2.

[0023] FIGS. 8, 9, and 10 show the tube squeezer 15. This consists of two blades: upper blade 16 and lower blade 17 as shown in FIG. 8. Spacer 19 separates these blades a fixed distance equal to the dimension of the collapsed tube. An opening 18 is created between the two blades at least as wide as the collapsed tube. The tube is inserted within the opening 18 and the tube squeezer transverses towards the aperture along the tube moving the contents within the tube in the same direction. FIG. 9 is a top view of the tube squeezer 15, which depicts the top blade 16. The side view of the tube squeezer depicted in FIG. 10 shows that the upper blade 16 and the lower blade 17 are angled such that the distance between the blades is less at the exit end where the opening 18 is than at the entrance end 19. Further, the upper and lower blades at the entrance end 19 are flared outwardly so as to accept the toothpaste tube as the tube squeezer transverses. On the inner sides of the blades 19 are the brake strips 20. These brake strips are made of a pliable sticky material such as a rubber product. These brake strips stop the tube squeezer from slipping down the tube.

I claim an improved toothpaste dispenser comprising:
1. A flexible tube of an oval or round shape with walls of appropriate diameter and length to create a cavity to hold the product to be dispensed, and the walls taper towards one end where they are crimped or welded such that they meet and create a plane;

The end of the tube opposite from the crimped or welded end is closed with a flat or conical shaped top secured to the tube walls;

A dispensing neck with two ends, one end is attached perpendicularly to the top with a passage way through the top into the cavity;

An oblong aperture in the end of the dispensing neck opposite from the end attached to the top; the aperture length being equal or near equal to the length of the toothbrush bristles;

A means to enclose the dispensing neck. The same invention as in claim 1 wherein the top containing the dispensing neck is connected to the tube by means of a thread connection.

2. The same invention as in claim 2 wherein the aperture has different shapes to accommodate different viscosity pastes.

3. The same invention as in claim 1 wherein the means to enclose the dispensing neck is a flat cap such that the tube can be stored in the vertical position resting on the cap, the cap has an internal friction within the cap that meshes with a friction lock on the dispensing neck.

4. The same invention as in claim 1 wherein the means to enclose the dispensing neck is a flat cap such that the tube can be stored in the vertical position resting on the cap, the cap has an internal friction lock within the cap that meshes with external friction lock on the tube.

5. The same invention as in claim 1 wherein the means to enclose the dispensing neck is a flat hinged cap such that the tube can be stored in the vertical position resting on the hinged cap, the hinged cap is hinged to dispensing neck.

6. The same invention as in claim 1 wherein the means to enclose the dispensing neck is a flat hinged cap such that the tube can be stored in the vertical position resting on the hinged cap, the hinged cap is hinged to tube.

7. The same invention as in claim 1 wherein the dimension of the oblong aperture in the end of the dispensing neck is equal to the length of the toothbrush bristles.

8. An improved hard case or pliable toothpaste dispensing pump with oblong aperture in the end of the dispensing neck.

9. The same invention as in claim 8 wherein the dimension of the oblong aperture in the end of the dispensing neck is equal or near equal to the length of the toothbrush bristles.

10. A tube squeezer with two blades each blade having two edges, the blades are positioned such that the crimped end of the tube fits between the blades and the two blades are angled such that there is less distance between the blades at the edge that is closest to the crimped end of the tube, the blades of the tube squeezer are held in fixed position by
blade supports attached perpendicularly to the blades, along the surfaces of the blade which contact the tube is a brake strip made of a pliable sticky substance.

11. A more efficient and ergonomic method of dispensing toothpaste onto a brush wherein the toothbrush is parallel to the aperture in the dispensing neck of the toothpaste dispenser and the toothpaste dispenser dispenses a length of paste equal or near equal to the entire length of the toothbrush bristles.

12. A method of emptying a toothpaste tube by use of a tube squeezer and a stand up toothpaste tube that rests on the cap of the toothpaste tube in the vertical position.

13. An improved method of dispensing a fluid or paste onto a toothbrush utilizing one or more of the following improvements: an oblong aperture, a hinged standup friction fit cap and a tube squeezer.

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