United States Patent

[11] 3,586,212

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[54] **TOOTHPASTE TUBE AND TOOTHBRUSH HOLDER ASSEMBLY**
14 Claims, 9 Drawing Figs.

[52] U.S. Cl. 222/93
[51] Int. Cl. B65d 35/24
[50] Field of Search 222/93, 192

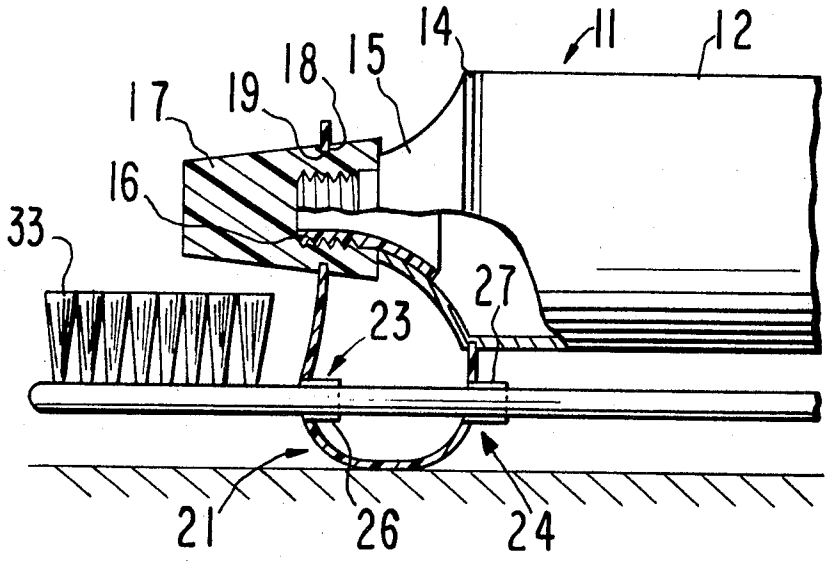
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ABSTRACT: A toothpaste and toothbrush holder assembly is disclosed whereby one end of a flexible hinge strap is mounted near the spout of a conventional toothpaste tube. The other end of the strap is attached to the tube cap. The strap loop contains two slots in which a toothbrush can be mounted so that the toothbrush handle would be parallel to the axis of the tube. Portions of the strap extend into the area of the slot and press against the toothbrush handle holding it tightly within the slot. The slots are positioned on the strap to keep the brush bristles out of contact with the cap, and the axis of the slots can intersect the axis of the seam closing the end of the tube for ease in packing.



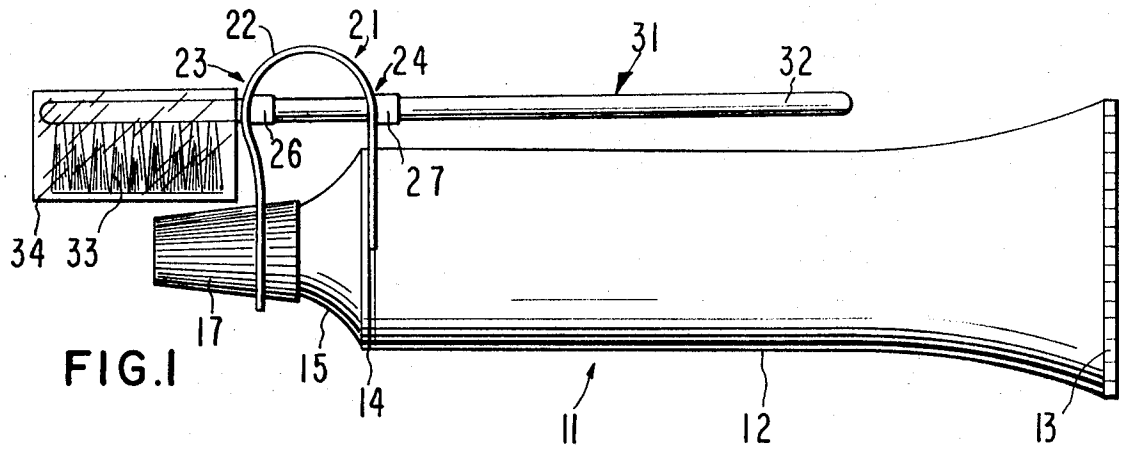


FIG.1

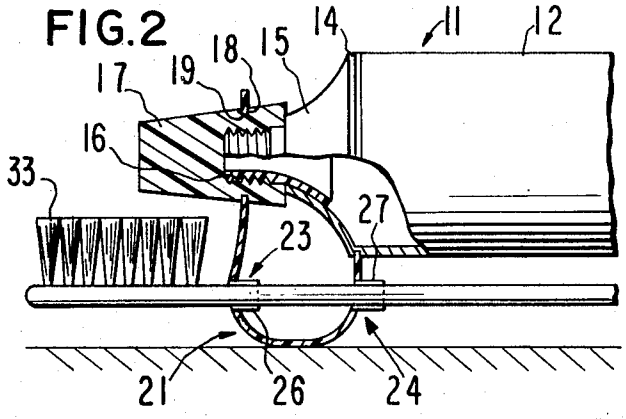


FIG.2

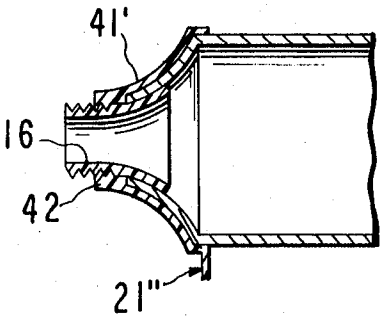


FIG.5

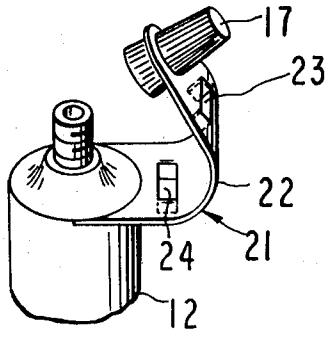


FIG.3

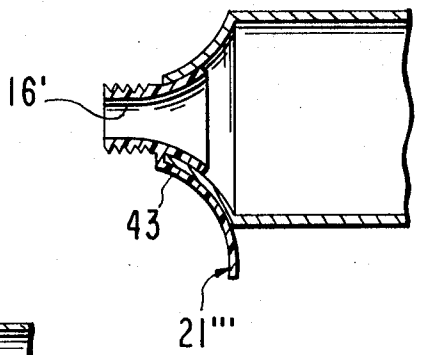


FIG.6

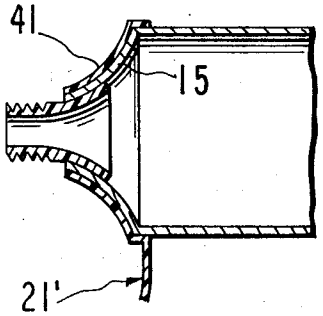


FIG.4

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FIG. 7

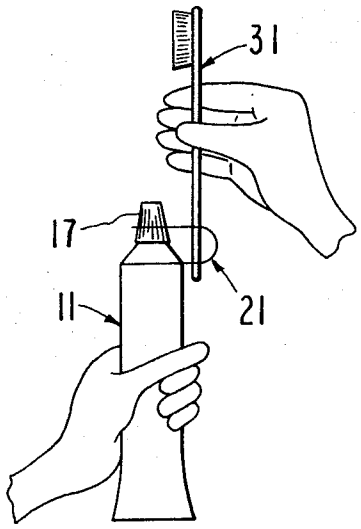


FIG. 8

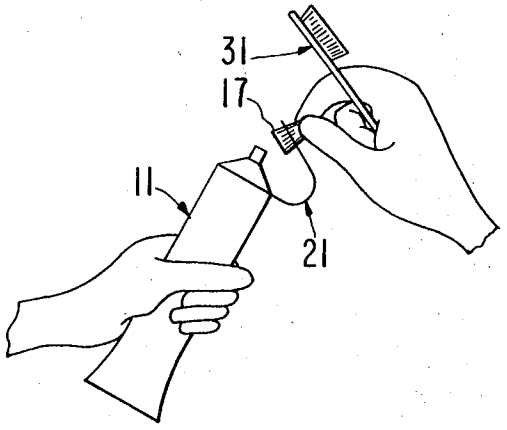
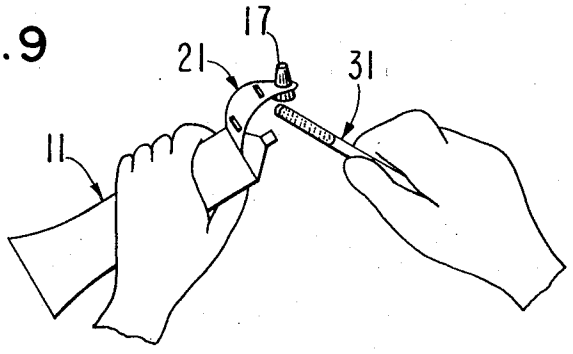


FIG. 9



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TOOTHPASTE TUBE AND TOOTHBRUSH HOLDER ASSEMBLY

BACKGROUND OF THE INVENTION

The present invention relates to a toothpaste tube and toothbrush holder assembly for flexibly connecting a toothpaste tube with a cap in a manner which will provide a means for removably mounting a toothbrush on the flexible connection.

Toothpaste tubes and toothbrushes are used daily by most people and yet the tube and brush are typically stored separately. This separate storage involves considerably time in use, and often, particularly during travel, results in loss of one or the other of the articles. Additionally, separation of these articles often results in contamination; the toothbrush bristles and the tube cap can come in contact with foreign matter, and the tube can be left uncapped also permitting drying of the toothpaste.

Many toothpaste dispensers including accommodation for the toothbrush have been proposed in the past. For example, dispensers are described in U.S. Pat. Nos. 1,005,985, 1,385,767 and 3,155,279. These patents do not disclose an arrangement to combine the toothpaste tube, cap and brush whereby the separate members will automatically be maintained together by the user. U.S. Pat. No. 1,501,656 to J. E. Gilda discloses a rigid hinged cap holding assembly for a toothpaste tube and a holder for the brush on the cap holding assembly. The arrangement of the rigid hinged assembly and the simple hooklike members for the brush not only does not tightly hold the brush and position it to avoid contamination but also does not cause the user automatically to assemble the separate elements together.

SUMMARY OF INVENTION

Broadly stated, the present invention, to be described in greater detail below, is directed to a toothpaste tube and toothbrush holder assembly having a toothpaste tube, a tube cap, a flexible hinge strap connecting the tube and the cap, and means on the flexible strap itself for removably mounting a toothbrush on the strap.

The invention can utilize a conventional tube such as a cylindrical, typically soft metal, tube which has been pinched to form a permanent seal at one end and has a spout at the other end and a removable cap for the spout.

One end of the flexible hinge strap is fixed to the tube near its spout end, and the other end of the strap is attached to the cap in a manner which will permit the cap to be removed from and replaced on the spout. The loop which results when the ends of the strap are attached is perforated to form two slots or apertures on opposite sides of the loop, and a toothbrush removably mounted in the slots will extend parallel to the axis of the tube.

This invention has numerous advantages. The assembly prevents loss or contamination of the cap such as by dropping in a wash basin. Both the tube and the brush are stored and used together, advantageous for home use and especially for travel. Furthermore, the assembly can be easily taken from storage and disassembled, ready for use with the brush in one hand and the tube in the other hand. The assembly causes the user automatically to keep the assembly together with the tube closed when not in use. The user cannot conveniently remove the cap until he has removed the brush and cannot conveniently replace the brush until the cap has been replaced. With a toothbrush attached to each tube, the assembly provides a means for the owner of the brush to identify his tube. The cap automatically aligns with the spout to facilitate closing and avoid cross threading, especially advantageous for children. The brush is securely mounted in its holder and will not fall out; it must be pulled out.

In accordance with another aspect of the invention portions of the strap which are cut to make the slots, form flaps which extend into the area of the slot and press against the toothbrush handle holding it securely in place.

In accordance with another aspect of the invention the axis of the strap apertures in cap-closed position is spaced from the cap by a distance greater than the distance from the axis of the handle to the free end of the bristles. Thus, with the brush mounted on the strap with the bristles facing the cap the brush bristles do not touch the tube cap nor will they touch any surface upon which the assembly is laid.

In accordance with still another aspect of the invention the axis of the strap apertures can be aligned to intersect a line along the pinched portion of the tube so that the tube, strap, and brush can be packaged in substantially the same size box as the tube itself.

The flexible hinge strap can be connected to the tube by a number of different constructions. In accordance with one aspect of the invention the strap is shaped to mount directly on the tube in a position which is perpendicular to the axis of the tube. The strap is then mounted on the side of the tube and fixed thereto, typically by heat sealing.

In accordance with another aspect of this invention, the strap is attached to a frustum of a cone, and the spout of the tube extends from the top of the frustum. The frustum of the cone can be secured to the spout end of the tube, integral with the spout or screwed on the spout whereby the strap can be removed and used on any toothpaste tube.

BRIEF DESCRIPTION OF THE DRAWINGS

These and other features and advantages of the present invention will become more apparent from a perusal of the following specification taken in conjunction with the accompanying drawings wherein:

FIG. **1** is a side elevational view of the assembled toothpaste tube and toothbrush holder assembly of this invention.

FIG. **2** is a side elevational view, partially in section, showing the assembly resting with the strap on a horizontal surface.

FIG. **3** is a perspective view of the spout end of the tube showing the toothbrush removed from the strap and the cap removed from the spout.

FIG. **4** is a cross section view of the spout end of the tube axis showing another embodiment of the invention.

FIG. **5** is a cross section view similar to FIG. **4** of another embodiment of the invention.

FIG. **6** is a cross section view similar to FIG. **4** of still another embodiment of the invention.

FIGS. **7**, **8** and **9** are perspective views which demonstrate a progression of steps in the use of this invention.

DESCRIPTION OF PREFERRED EMBODIMENTS

While it will be appreciated that the present invention can apply to numerous types of containers with covers or caps and associated operative members for use with the contents of the container, the invention is particularly suited and directed to a toothpaste tube and toothbrush holder assembly, and for illustrative purposes will be described with respect thereto.

Referring now to the drawings with particular reference to FIGS. **1**, **2** and **3** the toothpaste tube and toothbrush holder assembly in accordance with this invention includes a tubular body portion **11** having a cylindrical side surface **12** which is pinched closed at one end **13** along a line that intersects the axis of the tube. At the end opposite the pinched end **13** the tubular body is connected at a seam **14** to a tapered conical surface **15** provided with a threaded spout **16** at its small diameter end. A cap **17** provided with internal threads cooperates with the threaded spout **16** to close the spout end of the tube.

A flexible hinge strap **21** is connected between the tube and the cap for connecting the cap to the tube and for supporting the handle of a toothbrush **31**. This strap **21** such as of plastic, typically polypropylene, includes a central loop portion **22** provided with a pair of apertures **23** and **24** receiving the toothbrush handle. One end of the strap **22** is connected such as by a heat seal to the tube at the seam **14** and the other end of the strap is connected to the cap **17**.

In the embodiment illustrated connection between the strap **21** and the cap **17** permitting rotation of the cap with respect to the strap for screwing onto and off of the spout is accomplished by means of an annular groove **18** in the cap which receives an apertured end of the strap **21**. The aperture **19** in the strap has a diameter slightly greater than the inside diameter of annular groove **18** so that the cap **17** can be pressed into aperture **19** of the strap **21** to locate the strap in the groove **18**.

Apertures **23** and **24** in the strap are formed by cutting and slotting the strap leaving a portion of the strap at the edges of the slots in the form of strap flaps **26** and **27** which bear against the handle **32** of the toothbrush inserted therein.

The strap is connected to the tube body in an azimuthal location such that the axis of the apertures **24** and **25** when the cap is in closed position is aligned parallel to the axis of the tube and intersects a line through the pinched end **13**, and the apertures **24** and **25** are located on the strap such that in the cap-closed position the distance between the cap **17** and the axis of apertures **24** and **25** is greater than the distance from the handle axis to the free ends of the bristles **33** on the end of the toothbrush **31**. With this construction the bristles of a toothbrush mounted in slots **24** and **25** are spaced from the cap **17**. A bristle cover **34** can be provided to cover the bristles **33**.

The slots **24** and **25** are spaced close to the bending portion of the strap **22** so that in cap-closed position the strap tends to close the slots **24** and **25** to create and additional holding force on the toothbrush handle provided therein.

In assembled position the toothbrush handle **32** extends through the slots **24** and **25** and the bristles are directed toward the cap **17** but are out of contact therewith. In this assembled position it will be noted as particularly illustrated in FIG. **2** that not only is the toothbrush out of contact with the cap but also that the toothbrush does not come in contact with any supporting surface on which the assembly may be positioned. Regardless of the azimuthal location of the strap and brush when the assembly is set down, the head and bristles of the brush will not contact anything other than the strap **22**.

Referring now to FIGS. **7**, **8** and **9**, there are illustrated sequential steps in the use of this invention. As shown in FIG. **7** for a right-handed person the assembly with the tube, closed cap, and brush are held in the left hand, and with the right hand the toothbrush is removed from the slots in the strap. The cap can then be unscrewed with the fingers of the right hand as illustrated in FIG. **8** and toothpaste squeezed onto the brush as illustrated in FIG. **9**. At the end of the operation the cap must be screwed onto the tube before the toothbrush can be inserted into the slots **24** and **25** since the axis of these slots is not aligned with the axis of the tube until the cap is replaced.

It will be appreciated that other forms of caps such as caps snapping on the spout can be utilized with this invention.

With the axis of the slots **24** and **25** in cap-closed position intersecting the line through the pinched end **13** the largest transverse dimension of this assembly is not substantially greater than the largest transverse dimension of the tube itself so that the assembly can fit into standard size packages designed for the tube itself.

Referring now to FIGS. **4**, **5** and **6**, there are alternative constructions for the attachment of the strap to the tube. As shown in FIG. **4** the strap **21'** is connected at one end to the large diameter end of the frustum **41** of a cone which is inserted over the conically tapered portion **15** of the tube.

As an alternative construction to that shown in FIG. **5** the frustum **41'** of the cone is provided on its smaller diameter end with a cylindrical extension **42** threaded internally for screwing onto the threads of the spout **16**.

The constructions in both FIGS. **4** and **5** provide a strap assembly that can be utilized for connecting tube and cap and toothbrush and which can be transferred from tube to tube.

As an alternative construction illustrated in FIG. **6** the connection portion **43** between the strap **21'''** and tube can be integral with the spout portion **16'** of the tube. In the formation of this construction the inner end of the spout portion **16'** can be inserted into the end of the tube and flared for permanent location therein before the other end of the tube is pinched closed. Similarly, in the embodiment in FIG. **5** the connection **41'** between the tube and strap **21''** can be a strap extension portion rather than a completely enclosed frustum of a cone.

Not only does the strap provide the connection between the tube and cap and support for the toothbrush but also the axis of the cap is properly oriented with respect to the axis of the tube when moved into closed position thereby avoiding cross threading of the cap threads.

Although certain embodiments of the present invention have been shown and described, it will be appreciated that other adaptations and modifications can be made without departing from the true spirit and scope of the invention as measured by the appended claims.

We claim:

1. A tube and a brush assembly comprising:
- a brush having an elongated handle;
- a tube closed at one end and provided with a spout at the other end;
- a cap adapted for closing and sealing the end of said spout; and
- a flexible hinge strap means connected at one end thereof to the spout end of the tube and at the other end thereof to said cap for permitting movement of said cap between a closing and sealing position on said spout and an open position spaced from the end of said spout,
- said strap having a pair of spaced-apart apertures aligned on an axis extending along the body of the tube and adapted to receive said brush handle when said cap is in closed position.

2. The assembly of claim **1** with portions of said strap forming flaps which movably extend into said apertures for holding the brush handle therein.

3. The assembly of claim **1** wherein said brush is a toothbrush and said axis of said apertures is spaced from said cap when in closed position by a distance larger than the distance from the axis of the toothbrush handle to the free end of the toothbrush bristles.

4. The assembly of claim **1** with the flexible hinge strap connection at the spout end of said tube made directly to the side of the tube.

5. The assembly of claim **1** including means connecting said hinge strap to said spout.

6. The assembly of claim **1** including a frustum of a hollow cone connected to and integral with the flexible hinge strap with the tube spout extending from the smaller diameter end of said frustum.

7. The assembly of claim **6** including a threaded connection between said spout and said smaller diameter end of said frustum.

8. The assembly of claim **6** wherein said spout and said smaller diameter end of said frustum are integrally connected.

9. The assembly of claim **1** with the hinge strap attached to and integral with the spout of said tube; said spout partially inserted into the neck of said tube and flared on the inside thereof.

10. The assembly of claim **1** wherein said one end of said tube is pinched closed along a line intersecting the axis of said tube and the axis of said apertures.

11. A tube and cap assembly comprising:
- a tube closed at one end and having a spout at the other end;
- a cap cooperating with the spout to seal the tube; and
- a flexible hinge strap with the tube attachment means at one end and cap attachment means at the other end, whereby the cap is movably held in the vicinity of the tube spout,
- said strap having means for supporting a brush handle.

12. The assembly of claim **11** wherein said supporting means includes a pair of spaced-apart apertures in said strap substantially aligned on an axis extending along the body of the tube when the cap is connected to said spout.

13. A toothbrush tube and brush assembly comprising:
- a tube closed at one end and having a spout at the other end,
- a flexible hinge strap attached to the spout end of said tube,

a cap rotatably mounted on said strap and adapted for connection to said spout,

said strap having spaced-apart slots whereby a line drawn through said slots is parallel to the axis of said tube when said cap is connected to said spout, and

a toothbrush releasably mountable in said slots,

said strap having portions forming flaps which movably extend into said slots whereby the toothbrush is tightly held therein.

14. A toothbrush holder for a toothpaste tube having a spout at one end and a cap for closing the spout comprising, in

combination:

a flexible hinge strap,

means for attaching one end of said strap to the toothpaste tube, and

means for attaching the other end of said strap to the cap for the tube said strap having at least one aperture in the hinge portion for receiving and supporting the handle of a toothbrush parallel to the axis of the toothpaste tube to which said assembly can be attached.