United States Patent [19]

Smith

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[54] **DENTRIFICE APPLICATOR METHOD**

[76] Inventor: **Richard K. Smith,** 5500 Anne Ln., Dayton, Ohio 45459

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[21] Appl. No.: **430,207**

Related U.S. Application Data

[63] Continuation of Ser. No. 181,184, Aug. 12, 1971, abandoned.

[52] **U.S. Cl.** **132/91**

[51] **Int. Cl.** **A61c 15/00**

[58] **Field of Search** ..... 132/91, 90, 89; 128/260, 128/261; 32/1; 118/504, 505; 43/116; 215/31, 100 R; 239/602; 33/87

[56] **References Cited**

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Primary Examiner—G. E. McNeill

Attorney, Agent, or Firm—Biebel, French & Bugg

[57] **ABSTRACT**

Guide means such as a slot is provided in the open end of the neck of a tube of toothpaste so that a user can draw a piece of dental floss through the slot, picking up some of the toothpaste on the floss for application to and between the teeth when they are cleaned.

5 Claims, 7 Drawing Figures

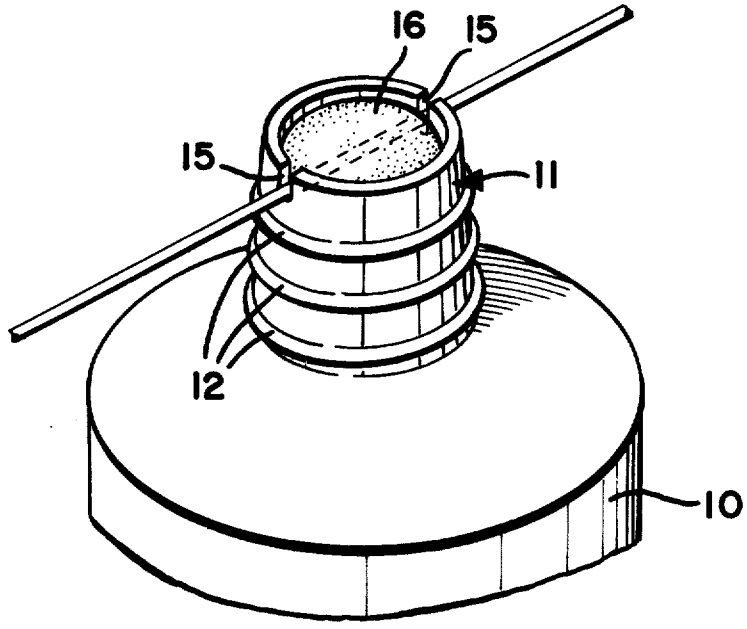


FIG-1

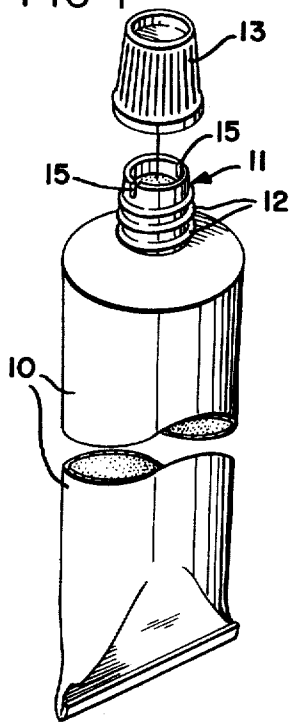


FIG-2

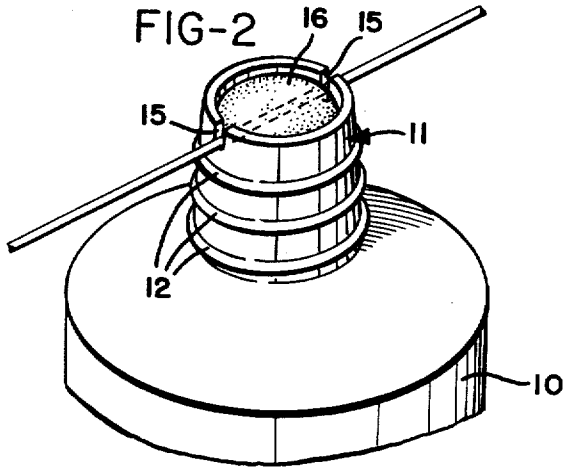


FIG-3

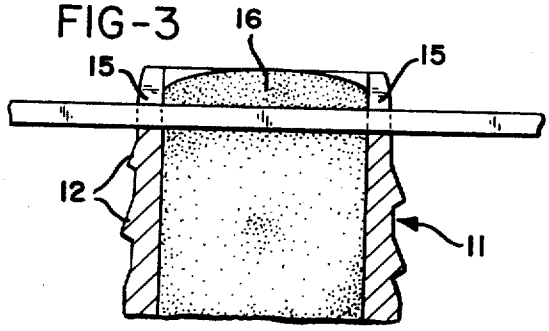


FIG-4

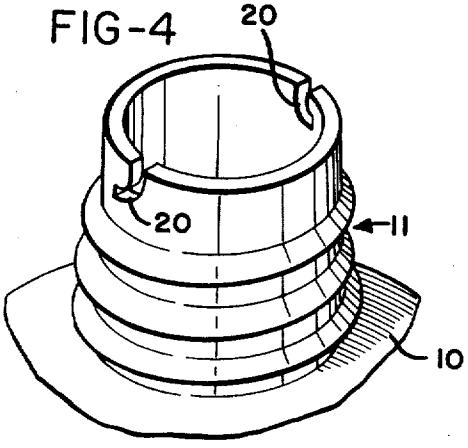


FIG-5

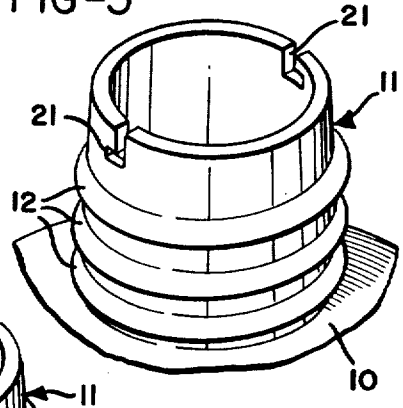


FIG-6

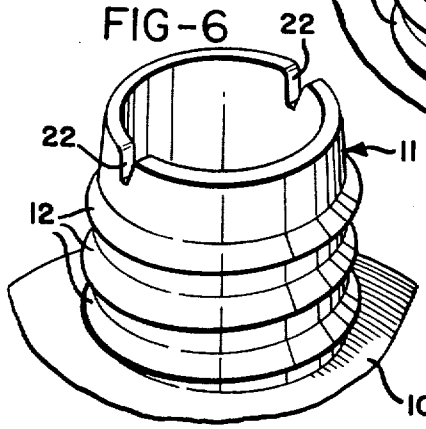
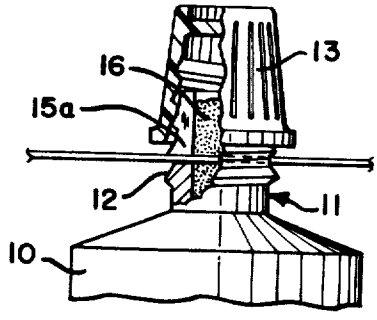


FIG-7



DENTRIFICE APPLICATOR METHOD

CROSS REFERENCE TO RELATED APPLICATION

This application is a continuation of Ser. No. 181,184 filed Aug. 12, 1971, now abandoned.

BACKGROUND OF THE INVENTION

In the past it has been proposed to coat or impregnate dental floss with a medicament or dentifrice, but such efforts have not been successful because of the expense, and the fact that both deterioration and contamination of the medicament or dentifrice were possible. In other arrangements the dental floss has been coiled in a pocket at the end of the tube in annular form with toothpaste passing through the center of the coil and impregnating the floss but this likewise has not been successful.

SUMMARY OF THE INVENTION

In accordance with the present invention a means is provided of insuring the application of a medicament or dentifrice to and between the teeth at practically no added cost and with no danger of deterioration or contamination. Since dental floss can reach places between the teeth that are difficult to reach with a toothbrush, then dental floss with a medicament coating, that is easily applied to the floss, will aid the user in doing a better job in cleaning his teeth. This invention by providing a simple and easy way to apply a proper coating to the dental floss will supply the missing element of proper care of the teeth. Guide means such as one or more slots are provided in the open end of a conventional tube of toothpaste selected by the user to contain the desired medicament. When the user wants to clean his teeth, he places a piece of dental floss in the slot in contact with the paste and draws it through, thereby picking up a thin coating of the paste on the floss. When the teeth are cleaned, the medicated paste is transferred to and between the teeth. At other times the cap is replaced on the tube which thus retains its uncontaminated and undeteriorated condition.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a view in perspective showing the conventional tube of toothpaste with the cap lifted to show incorporation of the present invention.

FIG. 2 is an enlarged view in perspective of the upper end of a tube of toothpaste showing the present invention using dental floss.

FIG. 3 is an enlarged sectional view showing the present invention using dental tape.

FIGS. 4, 5 and 6 are each enlarged perspective views of an upper end of a tube of toothpaste showing slots of different construction.

FIG. 7 shows a further modified arrangement.

DETAILED DESCRIPTION OF THE INVENTION

Referring to the drawings, **10** is a tube of toothpaste chosen to have whatever medicament is desired by the user. For instance it may contain a fluoride such as stannous fluoride which has been shown to provide increased resistance to tooth decay. It has a neck **11** with the usual threads **12** for receiving a cap **13**.

In accordance with the present invention the end of the neck is provided with guide means such as one or more slots **15**, the preferred embodiment incorporating

two such slots on opposite walls of the neck and diametrically opposed. The slots are of a depth to receive the dental floss and to allow it to be pulled through the slot or slots in contact with the toothpaste **16**, thereby picking up a film or coating of the paste material on the floss. A slot approximately 0.04 inches in width and having a depth of about 0.12 or 0.13 inches is about right for the common varieties of dental floss or tape and the average toothpaste.

FIG. 3 shows an arrangement where the slots **15** are somewhat greater in depth and thus more suitable for use with dental tape. However for simplicity of terminology the term floss here is intended to embrace both floss as such and the somewhat wider dental tape.

In use, a length of dental floss is drawn out of its holder, such as the conventional cartridge of dental floss, in suitable length, for example approximately 12 inches long. If the toothpaste is not already sufficiently up to the top of the neck so that the floss passes through it, the tube is squeezed preferably at the bottom to bring the level of the toothpaste up to about the upper edge of the neck as shown in FIG. **3**. By pulling a length of the floss through the toothpaste, it becomes coated so that upon application in the usual way to clean between the teeth, portions of the toothpaste are deposited in the spaces between the teeth which are normally hard to reach. The floss is discarded after one use and the operation is completed with a fresh piece of floss to prevent contamination of the dentifrice.

Analysis has shown that a 12 inch length of tape drawn through double slots and coated for 10 inches of its length would have approximately 0.004 cubic inch of paste on its surface. If only 70 percent of this material reaches and remains on the tooth surface, then approximately 0.003 cubic inch is available. If the film on the teeth should be approximately 0.005 inch to accomplish the purpose, then the available amount of paste will clean 0.56 square inches of tooth surfaces. This is estimated to be the approximate surface between **8** teeth and tests confirm these assumptions and calculations.

Further, there are seven spaces between eight teeth and the surface area to be cleaned is $7 \times 2 \times 0.3$ inches $\times$ 0.133 inches equaling 0.56 square inches. With 0.003 cubic inches available, this gives a film, 0.003 divided by 0.56 equaling 0.005 inch, thick on each side of each tooth.

The slots do not need to be straight and FIG. **4** is a modification in which the slots **20** have a curving shape. FIG. **5** shows slots **21** which have a right angle shape. FIG. **6** shows slots **22** which taper in width and are wider at their tops than at the bottom, as may be desired.

In FIG. **7** the slot **15***a* is deep enough to allow the cap **13** to be replaced and lightly screwed on, thereby further guiding the floss as it is drawn through the toothpaste.

I claim:

1. A method for applying a measured amount of dentrifice to tooth surfaces between the teeth comprising;

a. selectively applying dentrifice to part of a length of dental floss by

1. manually pulling a length of dental floss from a dry sterile container,
2. inserting said dental floss, at a space from the leading end, between two opposed open-ended slots, each approximately 0.12 to 0.13 inches

deep and approximately 0.04 inches wide, which are formed integrally in the outlet neck of a tube,

3. squeezing said tube until the toothpaste is at the upper edge of the neck, covering said dental floss, and

4. passing the intermediate length of said dental floss through said slots, thereby coating said intermediate length with a measured amount of toothpaste while leaving the leading end and trailing end of the floss free of toothpaste,

b. inserting the coated portion of said dental floss between the teeth, and

c. moving said dentrifice coated dental floss so as to deposit said measured amount of dentrifice to the tooth surfaces between the teeth.

2. A method as defined in claim **1** in which said slots have straight sides parallel to the longitudinal axis of the tube.

3. A method as defined in claim **1** in which said slots have curving side walls.

4. A method as defined in claim **1** in which said slots have a right angle shape.

5. A method as defined in claim **1** in which said slots taper in width away from their open ends.

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