May 30, 1967 J. LELICOFF 3,321,796

DISPOSABLE TOOTHBRUSH

Filed Nov. 10, 1964

FIG. 1

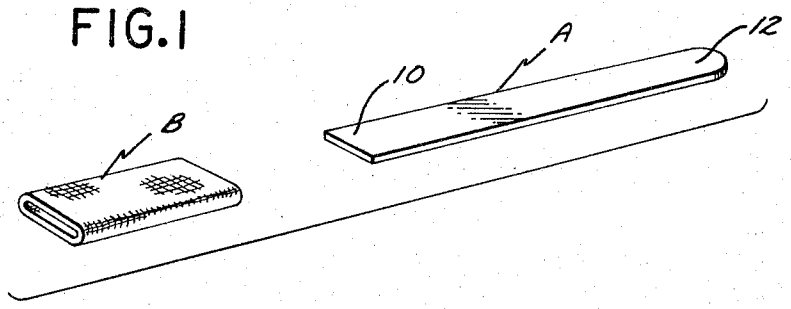


FIG. 2

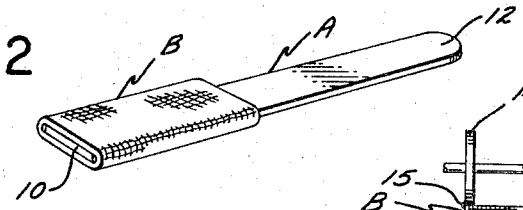


FIG. 3

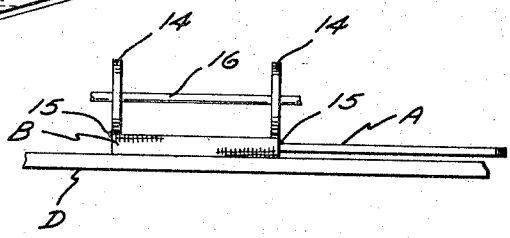


FIG. 4

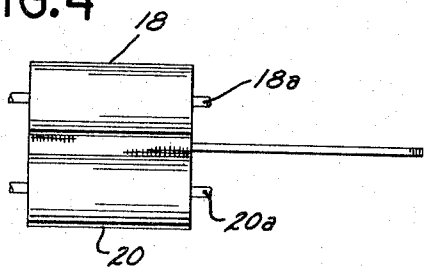


FIG. 7

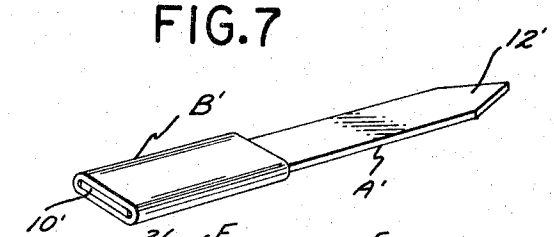
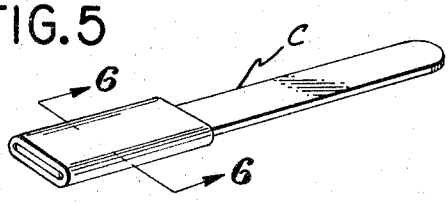


FIG. 5



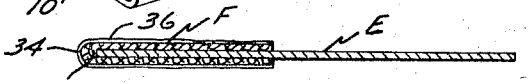


FIG. 9

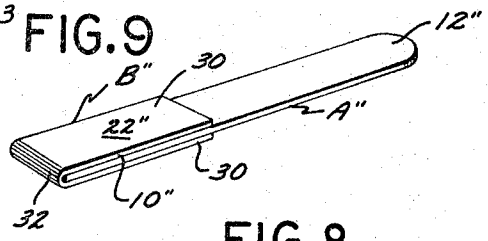


FIG. 6

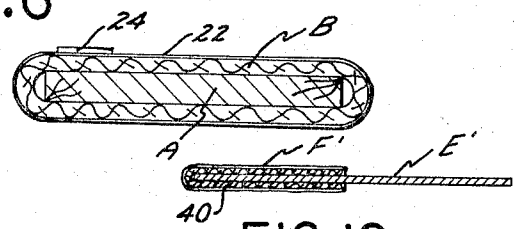


FIG. 10

FIG. 8

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3,321,796

Patented May 30, 1967

3,321,796

DISPOSABLE TOOTHBRUSH

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Filed Nov. 10, 1964, Ser. No. 410,318
13 Claims. (Cl. 15—605)

The present invention relates generally to hygienic devices, and more particularly to an inexpensive disposable toothbrush.

Brushing of one's teeth after each meal has long been recognized as desirable in dental hygiene. However, under present-day living conditions this is not only difficult, if not impossible, to do without considerable inconvenience.

A major object of the preesnt invention is to provide an inexpensive, lightweight, compact, disposable toothbrush in which a dentifrice is incorporated as an integral part thereof.

Another object of the invention is to supply a disposable toothbrush in which a dentifrice is so situated as to offer maximum frictional contact with the teeth.

A still further object of the invention is to furnish a disposable toothbrush having a portion which may be used to massage the gum areas between the teeth.

Another obect of the invention is to provide a disposable toothbrush that can be fabricated from standard, commercially available materials, requires no elaborate plant facilities for the production thereof, and can be retailed at a sufficiently low price as to encourage its widespread use.

Still another obect of the invention is to supply a disposable toothbrush of such structure that a number of them may be disposed in a compact package, and as such are most adaptable to merchandising through coin-operated vending machines, and the like.

These and other objects and advantages of the present invention will become apparent from the following description thereof, and from the accompanying drawing illustrating the same, in which:

FIGURE 1 is a perspective view of the two components comprising the disposable toothbrush of the present invention;

FIGURE 2 is a perspective view of the two components shown in FIGURE 1 after they have been assembled;

FIGURE 3 is a side elevational view of the toothbrush shown in FIGURE 2, with the sleeve ends thereof adhered to the elongate member that serves as a handle;

FIGURE 4 is a side elevational view of one of the toothbrushes, showing the sleeve adhered to the elongate member being passed between two rolls to deposit a layer of dentifrice on at least two flat, longitudinally extending sides thereof;

FIGURE 5 is a perspective view of a first form of the completed disposable toothbrush;

FIGURE 6 is a transverse cross-sectional view of the disposable toothbrush, taken on the line **6—6** of FIGURE 5;

FIGURE 7 is a first modified form of the toothbrush;

FIGURE 8 is a perspective view of a second modified form of the device;

FIGURE 9 is a longitudinal cross-sectional view of a third modified form of the toothbrush; and

FIGURE 10 is a longitudinal cross-sectional view of a fourth modified form of the device.

Referring now to the drawing, and particularly to FIGURES 1 and 2 thereof for the general arrangement of the invention, it will be seen to include an elongate, flat, rigid member A, preferably formed from wood or other material softer than tooth enamel, that serves as a handle, the first and second end portions of which are identified

by the numerals **10** and **12** respectively. Member A is of substantial width, as shown in FIGURE 1. The end portion **12** is preferably semi-circular to add an attractive appearance to the finished disposable toothbrush, generally referred to by the letter C and as shown in FIGURE 5.

The toothbrush C also includes an elongate sleeve B that is preferably formed from a woven cotton fabric, or the like. However, if desired, the sleeve B can be formed from a high wet-strength paper, or like material. The dimensions of sleeve B are so selected as to permit snug engagement with the end portion **10** of member A, by extending thereabout in the manner shown in FIGURE 2.

After assembly of the member A and sleeve B as above described, each assembly is slidably supported on a flat surface D (FIGURE 3). The assemblies are sequentially moved under two spaced rotating wheels **14** which are mounted on a common shaft **16** that is rotated by conventional power means (not shown). For the sake of simplicity, only one of the assemblies is shown in FIGURE 3 of the drawing. The two wheels **14** are constantly supplied with a liquid glue or other suitable adhesive, and are so spaced from the upper surface of the supporting surface D that as the individual assemblies (FIGURE 2) are sequentially moved under these wheels, glue is wiped therefrom onto the ends of the sleeve B as beads **15** to adhere the sleeve to each elongate member A.

The sleeve B of each of the assemblies is passed between two spaced rollers **18** and **20** as shown in FIGURE 4. A paste dentifrice is fed from the exterior surfaces of rollers **18** and **20**, and wiped off onto the exterior surfaces of each sleeve B as a layer **22** (FIGURE 6). Rollers **18** and **20** are supported on shafts **18***a* and **20***a*, respectively, that are driven by conventional power means (not shown). If desired, the layer **22** of dentifrice may be enveloped in a film **24** of a water soluble material such as dextrine or a carboxy methyl cellulose. The film **24** would not only serve to maintain the dentifrice **22** in a sanitary condition, but prevent the dentifrice from flaking off the exterior surface of the sleeve B, should the sleeve be subjected to a frictional or jarring action. The film **24** is pliable and is not adversely affected by friction or jarring actions.

In use, the above described device is grasped by the handle or elongate member A and the dentifrice-coated sleeve B is brought into frictional contact with the teeth. The sleeve B need not be moistened prior to use for the saliva in the mouth is sufficient to dissolve the film **24** and plasticize the solidified dentifrice **22**. After use the toothbrush should be discarded.

A first modified form of the toothbrush is shown in FIGURE 7 that is identical in construction to the device previously described, other than the handle or elongate member A′ is provided with a pointed end **12′**, which may be used to massage the gums between the teeth. The elements in this first modified form of the invention common to the first form thereof are identified in the drawing by the same numerals, but to which primes have been added.

A second modified form of the invention is shown in FIGURE 8, which is the same as that illustrated in FIGURE 2, except that the sleeve B″ is a double-over strip of a woven fabric, or a high wet-strength paper. The strip B″ is defined by two longitudinally extending legs **30** that are adhered to the end portion **10″** of the handle or elongate member A″. The exterior surfaces of legs **30** are coated with a layer of dentifrice **22″**. The legs **30** are connected by an integral web **32** (FIGURE 8) that is in abutting contact with the extremity of end portion **10″**.

A third modified form of the invention is shown in FIGURE 9 which includes an elongate handle E, preferably formed from wood or a like material, on one end of which a sleeve F is adhered that is formed from a woven fabric or a high wet-strength paper. The sleeve F has two projecting tapered end portions **33** and **34** that may be so disposed as to overlap one another as shown in FIGURE 9, to form a closed end, and are held in place on handle E by an adhesive (not shown). The sleeve F is coated with a solidified dentifrice **36** in the same manner as with the sleeve B.

A fourth modified form of the invention is shown in FIGURE 10 that includes a handle E′ and a sleeve F′ of a woven fabric or high wet-strength paper that is in the form of a narrow cup that snugly engages an end portion of the handle. The cup-shaped sleeve F′ is held in position on handle E′ by an adhesive or other conventional means (not shown), and is coated with a layer of dentifrice **36′** in the same manner as sleeve F shown in FIGURE 9.

The fourth modified form of the invention as shown in FIGURE 10 may also be formed by dipping an end portion of the handle E′ into a solution of acetone and cellulose acetate. Other low boiling point solvents for cellulose acetate may be substituted for acetone if desired. The handle E′ is then withdrawn and the coated end portion **40** allowed to dry. The coated end portion **40** is thereafter dipped into a caustic solution whereby the cellulose acetate is transformed into cellulose. The coating of cellulose is then allowed to dry.

Thus a layer of cellulose is adhered to an end portion of the handle E′ in the same manner as the sleeve shown in FIGURE 10, except that the coating of cellulose is not woven. A dentifrice F′ is applied to this cellulose-coated end portion **40** of handle E′ as previously described.

The modified forms of the invention are used in the same manner as the preferred form thereof, and accordingly a description of the use thereof need not be repeated.

Although the present invention is fully capable of achieving the objects and providing the advantages hereinbefore mentioned, it is to be understood that it is merely illustrative of the presently preferred embodiments thereof and I do not mean to be limited to the details of construction herein shown and described, other than as defined in the appended claims.

I claim:

1. A disposable toothbrush, including:

(a) an elongate rigid member of relatively substantial width having first and second end portions, which member is formed from a material that is softer than tooth enamel and will do no damage thereto if brought into frictional contact therewith;

(b) a sheet of soft non-water-soluble material that covers at least two opposite sides of said first end portion;

(c) holding means for maintaining said sheet in a fixed position on said member;

(d) a layer of solid dentifrice that covers at least a portion of the exterior surface of said sheet;

(e) a film of water soluble material that envelopes said layer of dentifrice and sheet to prevent flaking of said dentifrice from said sheet prior to use of said toothbrush.

2. A toothbrush as defined in claim **1** wherein said sheet is in the form of a sleeve that extends about said first end portion.

3. A toothbrush as defined in claim **2** wherein said material is dextrine.

4. A toothbrush as defined in claim **2** wherein said material is a carboxy methyl cellulose.

5. A toothbrush as defined in claim **1** wherein said sheet is formed from a woven non-metallic fabric.

6. A toothbrush as defined in claim **1** wherein said sheet is formed from a high wet-strength paper.

7. A toothbrush as defined in claim **1** wherein said holding means comprise a plurality of beads of non-water-soluble glue that engage said member and the ends of said sheath.

8. A toothbrush as defined in claim **1** wherein water soluble material is dextrine.

9. A toothbrush as defined in claim **1** wherein water soluble material is a carboxy methyl cellulose.

10. A disposable toothbrush, including:

(a) an elongate rigid member having first and second end portions, which member is formed from a material that is softer than tooth enamel and will do no damage thereto if brought into frictional contact therewith;

(b) a doubled-over strip of a soft non-water-soluble material that covers two opposite sides of an end portion of said member;

(c) holding means for maintaining said strip in a fixed position on said end portion;

(d) a layer of a dentifrice covering at least a portion of the exterior surface of said strip; and

(e) a film of water soluble material that envelopes said layer of dentifrice and strip to prevent flaking of said dentifrice from said sheet prior to use of said toothbrush.

11. A toothbrush as defined in claim **10** in which said water soluble material comprises dextrine.

12. A disposable toothbrush, including:

(a) an elongate rigid member having first and second end portions, which member is formed from a material that is softer than tooth enamel and will do no damage thereto if brought into frictional contact therewith;

(b) a cup of soft non-water-soluble material that is slidably mounted on said first end portion;

(c) holding means for maintaining said cup in a fixed position on said first end portion; and

(d) a layer of dentifrice that covers at least a portion of the exterior surface of said cup; and

(e) a film of water soluble material that envelopes said layer and cup to prevent flaking of said dentifrice from said cup prior to use of said toothbrush.

13. A toothbrush as defined in claim **12** in which said water soluble material comprises dextrine.

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