

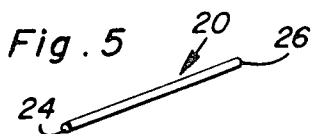
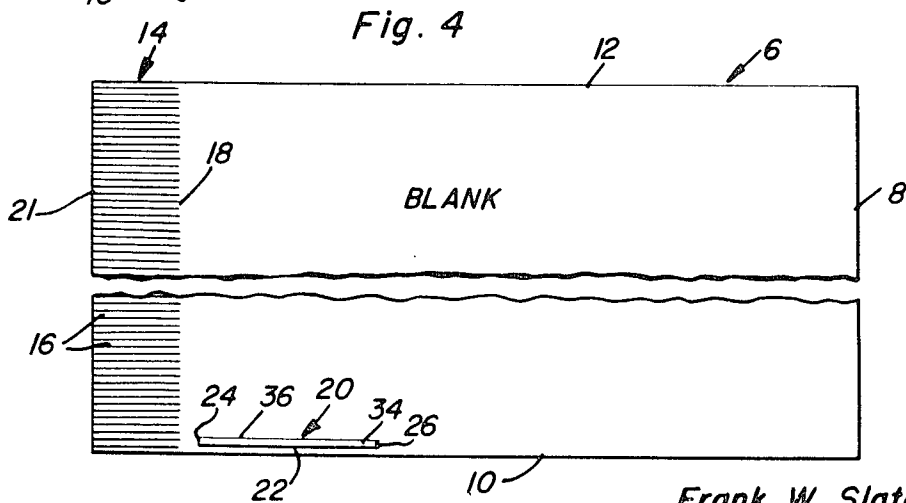
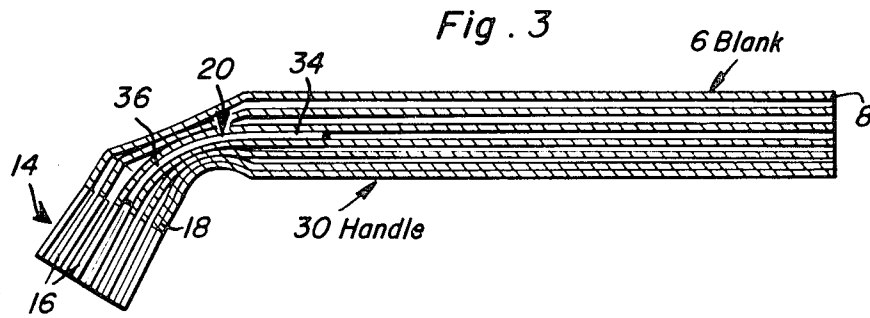
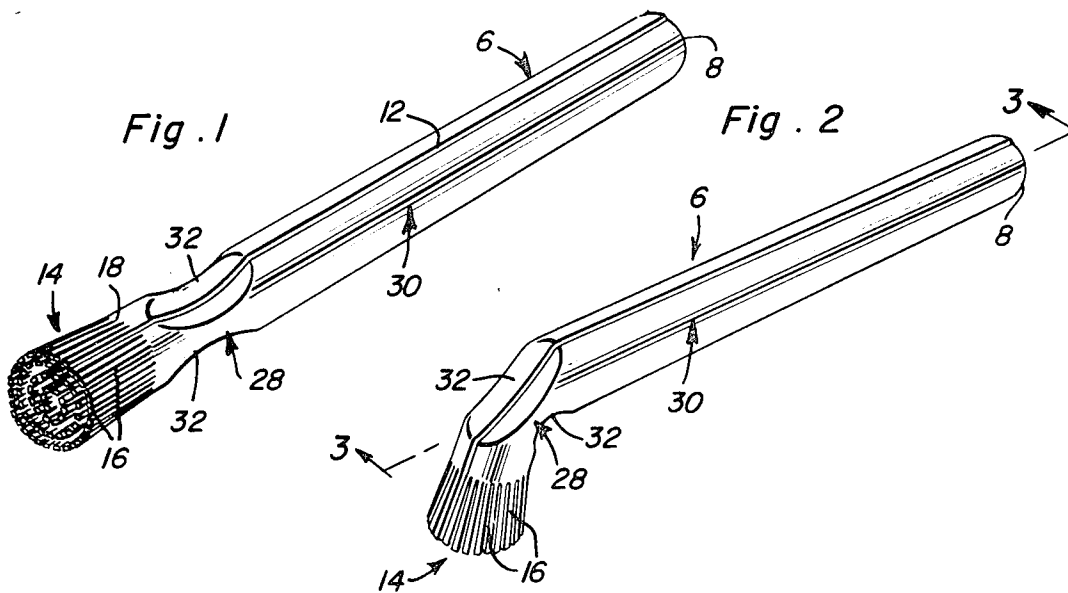
Oct. 5, 1971

F. W. SLATER

3,609,789

DISPOSABLE TOOTHBRUSH AND METHOD OF MAKING THE SAME

Original Filed Jan. 29, 1968



Frank W. Slater  
INVENTOR.

BY *Dorrence A. Wilson*  
and *Harvey B. Jacobson*  
Attorneys

1

2

3,609,789

**DISPOSABLE TOOTHBRUSH AND METHOD OF MAKING THE SAME**

Frank W. Slater, 1126 E. Maryland, Phoenix, Ariz. 85014

Continuation of application Ser. No. 701,241, Jan. 29, 1968. This application Jan. 12, 1970, Ser. No. 1,978

Int. Cl. A46b 5/02

U.S. Cl. 15—104.94

10 Claims

**ABSTRACT OF THE DISCLOSURE**

A disposable toothbrush formed from a sheet of paper or plastic material rolled or folded into an elongated body and packed in a container similar to a cigarette package. A deformable pin is embedded in the sheet material to hold the bristles at one axial end of the elongated body at an angle to the handle portion when the body is bent at a location spaced from the bristles. The bristles may be coated with a normally dry dentifrice which is water soluble and activated when wetted.

This is a continuation of Ser. No. 701,241, filed Jan. 29, 1968, now abandoned.

This invention relates to a new and improved disposable sheet paper or plastic toothbrush having a bristled head with self-contained water soluble dentifrice and has to do with (1) the expedient method-of-making steps and (2) the novel and structurally distinct brush.

Anyone conversant with the art to which this invention relates is aware that many patents relating to single use sanitary disposable toothbrushes have been devised for use but for one reason or another have apparently not met with widespread adoption, or acceptable use. It is the general object here to provide a brush which is believed to have the features and attending capabilities which will comply with needed manufacturing procedures, one that can be unqualifiedly endorsed for use by retailers, dentists and others and which, more importantly, will meet the needs of users from all walks of life.

Briefly, the brush hereinafter comprehended is an innovation and a contribution to the art in that a pre-cut rectangular piece or blank of suitably rollable paper or sheet plastic is rolled to form a tight cylindrical body or primary portion which provides an appropriate handle and a shank at the outer or forward end of the handle. That end which terminates adjacent the leading end of the shank is shredded or slitted and, when the ribbon-like components are bunched, they provide a bristled brush head. These bristles are sprayed, dipped, or otherwise coated with an appropriate water soluble toothpaste or dentifrice and when wetted and brushed against the user's teeth the desired brushing and cleansing step can be aptly achieved. The sequential method-of-making steps also constitute a significant aspect of the over-all inventive concept and are to be construed accordingly.

The shank is manually or otherwise squeezed to provide diametrically opposite reinforcing finger-grips. Then, too, a short non-corrodible bendable and malleable pin is attached to an edge of the top surface of the blank preparatory to rolling and is progressively wrapped to the axial center point where it extends through the shank, joins the head, shank and handle, and is susceptible of being bent by hand to assume a stay-put position, whereby to set the brush head at a desirably usable oblique angle.

Novelty is also predicated on the aforementioned reinforced but bendable shank and, in addition, on that aspect of the concept wherein diametrically opposite portions of the shank are provided with concaved surface

portions which are squeezed together to reduce the cross-sectional dimension of the shank and to provide finger-grips and also to facilitate bending the shank from its normal straight position to the position required in order to dispose the brush head at the desired oblique angle.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operations as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

FIG. 1 is a view in perspective of the complete ready-to-use toothbrush, that is, before the brushhead has been angled to a more desirable position for use.

FIG. 2 is also a view in perspective based on FIG. 1 and showing the bristled brushhead bent to a suitable angle and which may be varied if desired.

FIG. 3 is a central longitudinal sectional view taken approximately on the plane of the section line 3—3 of FIG. 2, looking in the direction of the arrows.

FIG. 4 is a top plan view of the paper or plastic blank or sheet from which the complete ready-to-use toothbrush is constructed.

FIG. 5 is a view in perspective of the reinforcing insert or pin.

Keeping in mind the method and article aspects of the over-all concept attention is first invited to FIG. 4 wherein the numeral 6 designates an appropriately elongate substantially rectangular blank of sheet material. This material may be a suitable grade of rollable paper or, if the manufacturer prefers, plastic material such as lends itself to the method of manufacture desired. One transverse edge or marginal portion is denoted at 8, one lengthwise marginal edge at 10 and the spaced parallel second lengthwise marginal edge at 12. These edges 10 and 12 are herein designated as first and second edges. The entire transverse end portion 14 at the left is slitted or shredded to define a multiplicity of flexible bristles 16 ranging from the connected end portions 18 to their free tip portions 21. It will be evident from this view alone that the sequential method steps can be carried out to transform the blank or sheet progressively and in a manner to provide the finished ready-to-use brush. An important feature and also involved in the method-of-manufacture is the reinforcing insert, more specifically, the elongated bendable pin 20. This pin is laid proximal and parallel to the edge portion 22, and adhesively or otherwise attached so that it has one end 24 terminating short of the line of the brush bristles 18 so as not to interfere therewith and the other end 26 so located that the desired rolling and shank forming step can be expeditiously and reliably accomplished.

In practice the pin-equipped blank 6 is rolled or coiled round and round upon itself beginning with the first lengthwise edge 10 and moving the reinforcing pin 20 from its initial to its final stage as illustrated in FIG. 3. The properly rolled and shredded sheet provides the main body portion of an appropriate but relatively short handle. The second edge portion 12 is fastened in place in any suitable manner.

Considering both the method steps and also the finished ready-to-use brush it will be evident that the portion between the forward end of the handle and the bristled head constitutes a connecting shank 28, that is, an appropriate connection between the handle 30 and bristled brushhead which is formed from the aforementioned slitted end portion and is accordingly again referred to here by the numeral 14. The shank is provided with diametrically opposite concave portions 32 which are substantially as long as the shank 28 and which provide conveniently usable finger-grips and also reduce the cross-sectional dimension of the shank 28. In the finished

product one end portion 34 of the pin is anchored in the forward end portion of the handle 30. The other half portion 36 is axially terminated in the shank 28 and is slightly short of the line 18 determining the length of the flexible bristles.

It is within the purview of the concept to spray, dip or coat all of the bristles with an appropriate toothpaste which is allowed to dry but is water soluble when wetted.

It follows that a simple pin-equipped rectangular shredded blank of the type illustrated in FIG. 4 is expeditiously transformed in a step-by-step manner to provide the end product, that is the normally straight ready-to-use disposable toothbrush illustrated in FIG. 1. In actual practice the ready-for-use brushes will be stacked in an appropriate package similar, for example, to a package containing cigarettes (not shown).

It is reiterated that the reinforcing pin is of requisite length and cross-section and is manually bendable and is made from ductile or malleable material with the result that the normal brush which is straight as shown in FIG. 1 with the bristles 16 substantially parallel to the longitudinal axis of the handle 30, can be manually bent so that the end portions stay put in the manner shown in FIG. 3 with the bristles at an obtuse angle to the longitudinal axis of the handle to provide the ready-to-use brush of FIG. 2.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention.

What is claimed as new is as follows:

1. The method of making a single use disposable toothbrush consisting in providing an elongated blank of readily rollable sheet material of predetermined size and shape in plan, uniformly slitting and shredding one transverse end portion of said sheet in a manner to provide a multiplicity of ribbon-like flexible brush bristles, rolling and wrapping said slitted sheet round and round upon itself and fastening one free longitudinal edge portion in a manner to provide a coiled cylinder and to (1) transform the slitted end portion into a bristled brushing head (2) to transform the main body portion into a handle and to (3) provide a junctional connecting shank between said head and handle respectively, pinching and squeezing said shank at diametrically opposite places to decrease the cross-sectional dimension of the shank and to form opposed concave finger grips and finally, bending the shank to position the head at a readily usable angle relative to the axis of the handle.

2. The method steps defined in and according to claim 1, and, in addition, the step of inserting a relatively short malleable and bendable pin which functions as a core and which is caused by proper placement and retention to reach from the handle to the bristled head thereby to axially bridge the shank.

3. The method steps set forth in claim 2, and wherein the inserted and self-retained pin is optionally bent midway between its ends to assume and maintain a longitudinally bowed state, whereby to set and hold the head at whatever oblique angle is desired.

4. The method steps set forth in claim 1, and wherein said bristles are coated with normally dry but water

soluble dentifrice which is readied for use when wetted by a user.

5. As a new article of manufacture, a pocket-size single-use toothbrush which is readied for use when wetted disposable sheet material, one end portion of said rolled piece of sheet material being provided with a multiplicity of flimsy narrow ribbon-like bristles which are clustered and bunched together and defining a bristled applicator head, the major portion of said piece of sheet material constituting a relatively short handle, and a shank between and joining said applicator head and handle, said head extending angularly relative to the longitudinal axis of said handle, said shank being compressed by squeezing in a manner to provide diametrically opposed arcuate finger grips and to reduce and minimize the cross-sectional dimension of said shank.

6. The toothbrush defined in and according to claim 5, and, in combination, a reinforcing head angling and setting pin embodied in said shank with end portions projecting into the head and handle, respectively.

7. The toothbrush defined in and according to claim 6, and wherein said pin is made of bendable but stay-put malleable material and is capable of being manually bent and longitudinally bowed to assume a desired curvature and to locate the brush head at an angle most suitable for use.

8. The toothbrush defined in and according to claim 7, and wherein the ribbon-like bristles are all fully coated with a normally dry water soluble toothpaste which is activated for use when wetted.

9. A toothbrush made of sheet material comprising an elongated handle portion formed from a plurality of layers of said sheet material, said layers of sheet material being extended at an angle to the handle portion terminating in an applicator head portion longitudinally slit to form bristles, and reinforcing means embedded in a shank portion between said layers of sheet material for maintaining said angle between the handle and head portions, said reinforcing means including a curved pin extending only through the shank portion between the handle and head portions in longitudinally spaced relation to the bristles.

10. A method of making a toothbrush from a single blank of sheet material having a handle portion and a slitted end portion, comprising the steps of: forming said blank into an elongated body of layers with the slitted end portion forming bristles substantially parallel to the longitudinal axis of the handle portion; embedding a bendable reinforcing element between said layers spaced from the slitted end portion to reinforce a shank portion between the slitted end portion and said handle portion; and bending the shank portion to deform the reinforcing element thereby holding the bristles at an angle to the longitudinal axis of the handle portion.

#### References Cited

##### UNITED STATES PATENTS

759,490	5/1904	Yates	15—143
2,254,365	9/1941	Griffith et al.	15—172 X
2,750,614	6/1956	Collins et al.	
2,813,286	11/1957	Strader.	

DANIEL BLUM, Primary Examiner

U.S. Cl. X.R.

15—167, 172, 187, 225; 300—21