April 5, 1955 J. A. GLASSMAN ET AL 2,705,335

DISPOSABLE FOUNTAIN TOOTHBRUSH

Filed Feb. 2, 1951

Fig. 1.

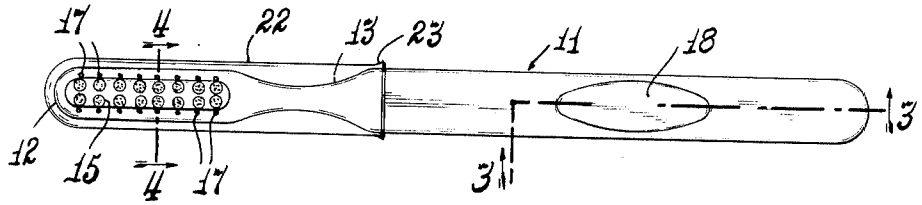


Fig. 2.

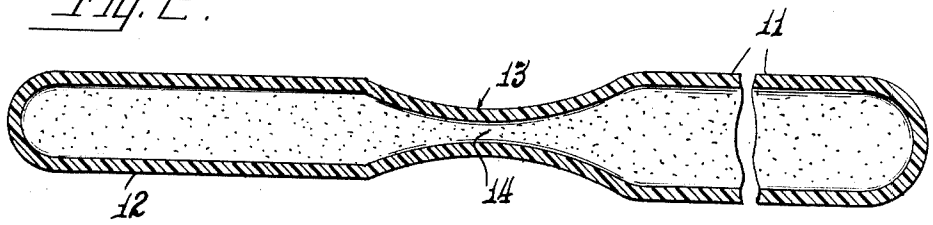


Fig. 3.

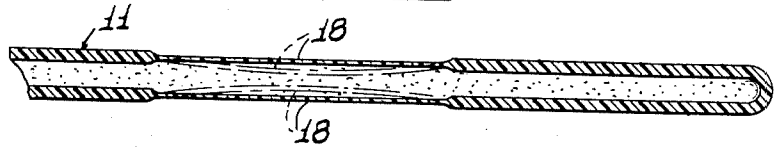


Fig. 4

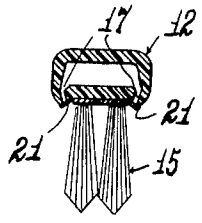
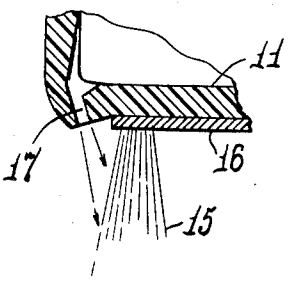


Fig. 5.



INVENTOR.
JACOB A. GLASSMAN
and MURRAY M. HOFFMAN
Elmer L. Quicksall
ATTORNEY

United States Patent Office 2,705,335 Patented Apr. 5, 1955

2,705,335

DISPOSABLE FOUNTAIN TOOTHBRUSH

Jacob A. Glassman and Murray M. Hoffman, Chicago, Ill.

Application February 2, 1951, Serial No. 209,114

3 Claims. (Cl. 15—136)

The invention relates to disposable fountain dispensers and particularly to a rigid container for dispensible material having discharge apertures therein and novel manual means to effect the discharge of material onto an applicator constituting a part thereof.

The invention is disclosed herein as incorporated in the construction of a disposable toothbrush but it is to be understood that the novel features thereof may be embodied in other devices such as a gum massager or other applicator of liquid, powder or paste materials. The invention resides in providing an inexpensive, rigid, one-piece container including an integral diaphragm. The container has a dispensible substance sealed therein and is formed with easily exposed dispensing apertures arranged to direct a selected quantity of the substance dispensed therethrough onto an applicator which may be an integral part of the container. The container is intended to be filled at its source of manufacture and when its contents have been consumed it may be disposed of. An enveloping cover may be fitted over the container for enclosing at least that part thereof containing the applicator so as to provide for its convenient use by travelers.

Applicant is aware of previous efforts by others to provide fountain dispensers but so far as is known there has been no development of a rigid one-piece disposable container, for a dispensible substance, having an applicator formed as a part thereof and arranged to receive, uniformly distributed thereover, material dispensed upon manipulation of a diaphragm incorporated in the container construction.

It is, therefore, an object of the invention to provide such a disposable dispensing container-applicator combination.

Another object of the invention is to provide an article of manufacture which is not expensive to make and is particularly suitable for easy merchandising.

Another object is to provide a one-piece container having dispensible material therein which container is rigid and has a diaphragm area operable to cause the contents to be dispensed through novelly located dispensing passages therein.

With the foregoing and other objects in view which will appear as the description proceeds, the invention consists of certain novel features of construction, arrangement and combination of parts hereinafter fully described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportion, size and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

For the purpose of facilitating an understanding of our invention, we have illustrated in the accompanying drawings a preferred embodiment thereof, from an inspection of which, when considered in connection with the following description, our invention, its mode of construction, assembly and operation, and many of its advantages should be readily understood and appreciated.

Referring to the drawings in which the same characters of reference are employed to indicate corresponding or similar parts throughout the several figures of the drawings:

Fig. 1 is an elevational view of a toothbrush embodying the features of the present invention.

Fig. 2 is an enlarged planar longitudinal sectional view

of the toothbrush, showing a part of the handle portion broken away.

Fig. 3 is an enlarged vertical longitudinal sectional view taken on line 3—3 of Fig. 1.

Fig. 4 is an enlarged transverse sectional view taken on line 4—4 of Fig. 1 but with an adhesive strip closing the passageways.

Fig. 5 is a fragmentary enlarged sectional view similar to Fig. 4.

Referring to the disclosure in the accompanying drawing, the invention is illustrated as being embodied in the construction of a toothbrush. As shown, the toothbrush includes a handle portion **11**, a head portion **12** and an intermediate connecting neck portion **13**. The three portions **11**, **12** and **13** are hollow and are formed integral and preferably are fabricated from cellulose material such as plastic. The walls of the container, except as described hereinafter, are of sufficient thickness to be non-deformable. It is intended to fill or substantially fill the interior of the toothbrush with a suitable dentifrice either in liquid, powder or paste form. For this purpose the free end of the handle portion will be left open to provide a filling opening and said end may thereafter be heat-sealed or otherwise hermetically closed.

The shank portion **13** is formed with an interior of reduced cross-sectional area, as at **14**, to provide a restricted passage between the handle portion **11** and the head portion **12**.

The head portion **12** is suitably provided with an applicator such as, for example, bristles **15**, which are arranged in tufts and are embedded at their bases in a mounting strip **16**. The strip **16** is secured adhesively at one surface of the head portion **12** as shown. The instant mode for mounting the bristles is preferable because it leaves the container free of any protuberances during the filling operation.

Upon referring to Fig. 1, it will be noted that the strip **16** is of such size as to leave a substantial marginal area of the mounting face of the head portion **12** exposed. This area is provided with a plurality of passageways **17** which are best illustrated in Fig. 5. As there shown, it will be observed that the passageways **17** communicate with the interior of the head portion **12** and are inclined inwardly and downwardly so that any substance ejected therethrough, in a manner to be described presently, is directed against the side surfaces of adjacent tufts of bristles.

Ejection of dentifrice from the interior of the toothbrush handle and head portions through the passageways **17** is best effected by providing thin wall diaphragm areas **18** on either or both faces of the handle portion **11**. The diaphragm areas **18** preferably are so positioned on the handle portion **11** that contact therewith is avoided during normal use of the toothbrush. However, should it be required to eject some of the contents onto the bristles **15**, either or both of the diaphragm areas **18** may be depressed. Such depression of the diaphragm areas causes some of the contents of the toothbrush to pass out of the passageways **17**, and when pressure on the diaphragm areas is released, air is drawn into the interior of the toothbrush, through the passageways **17**, to replace the contents previously discharged. It should be quite evident that substantially all of the contents of the toothbrush can be ejected in the manner recited hereinabove.

A feature of the present invention is the provision of an inexpensive fountain dispenser having an applicator, such as bristles **15**, affixed thereto, which is inexpensive to construct and may be disposed of when the contents are consumed. Prior to use, the passageways **17** may be closed by any suitable means such as, for example, by adhesively securing a strip of material **21** thereover. This strip is of such character that it may be easily and quickly removed by the user.

Another feature of the present invention is the provision of means whereby the disposable toothbrush may be conveniently carried in a pocket, purse or luggage without danger of inadvertent ejection of the contents. To this end, a transparent substantially tubular cap **22** is provided for enclosing the head and neck portions

of the toothbrush. The free innermost end **23** of said cap preferably is of a size as to snugly embrace the handle portion **11** where it merges with the neck portion **13**.

Although the foregoing description and disclosure is specifically concerned with the construction, use and adaptability of a toothbrush of a specific character, it should be understood that the invention may be incorporated in any related type of dispensing device having applicators associated therewith. For example, the tufts of bristles **15** may be conveniently substituted for by a sponge rubber or other gum massage unit or the tufts of bristles may be formed integral with the head portion **12** in a manner common to brushes now in use. The provision of a one-piece dispensible container having an applicator attached thereto is not difficult to manufacture and as a result it provides a container and applicator for its contents, which container may be disposed of when empty.

It is believed that our invention, its mode of construction and assembly, and many of its advantages should be readily understood from the foregoing without further description, and it should also be manifest that while a preferred embodiment of the invention has been shown and described for illustrative purposes, the structural details are nevertheless capable of wide variation within the purview of our invention as defined in the appended claims.

What we claim and desire to secure by Letters Patent of the United States is:

1. A fountain toothbrush comprising a one-piece hollow body, said body having for the most part rigid nondeformable walls and including a handle portion and a head portion connected by a neck portion, the inside surfaces of the walls of the neck portion being closely spaced so as to define a restricted passage connecting the interiors of the handle and head portions, a depressible portion in the handle portion, an applicator member having a strip which is adhesively secured to the head portion, said member including tufts of bristles, and the head portion having a plurality of dispensing passages communicating with the interior of the hollow body substantially surrounding the applicator, said passages being inclined inwardly toward the bristles to direct contents from within the hollow body against the side surfaces of said bristles.

2. A fountain toothbrush comprising a one-piece hollow body, said body having for the most part rigid nondeformable walls and including a handle portion and a head portion connected by a neck portion, the inside surfaces of the walls of the neck portion being closely spaced so as to define a restricted passage connecting the interiors of the handle and head portions, a depressible portion in the handle portion, an applicator member having a strip which is secured to the head portion, said member including tufts of bristles, and the head portion having a plurality of dispensing passages communicating with the interior of the hollow body substantially surrounding the applicator, said passages being inclined inwardly toward the bristles to direct contents from within the hollow body against the side surfaces of said bristles.

3. A fountain toothbrush comprising a one-piece hollow body containing a dentifrice, said body including a handle portion and a head portion connected by a neck portion, at least a part of the handle portion being resiliently deformable, the inside surfaces of the walls of the neck portion being closely spaced to define a restricted passage connecting the interiors of the handle and head portions, tufts of bristles carried by the head portion, and the head portion having a plurality of dispensing passages communicating with the interior of the hollow body substantially surrounding the tufts of bristles, said passages being inclined inwardly toward the bristles to direct the contents from within the hollow body against the side surfaces of said bristles.

References Cited in the file of this patent

UNITED STATES PATENTS

1,142,566	Jackson	June 8, 1915
1,176,996	Templeman	Mar. 28, 1916
1,192,668	Miles	July 25, 1916
1,335,896	Hyde	Apr. 6, 1920
1,676,857	Cheron	July 10, 1928
1,891,624	Graff	Dec. 20, 1932
1,899,301	Babasin	Feb. 28, 1933
1,902,859	Joseph	Mar. 28, 1933
2,317,002	Ulvick	Apr. 20, 1943
2,324,789	Mayeux	July 20, 1943
2,550,190	Greenberg	Apr. 24, 1951