This invention relates to fountain brushes. More particularly the invention relates to fountain toothbrushes for self- containing dentifrice in form for ready application.

In my now abandoned application Serial No. 87,902, filed February 8, 1961, there is described a novel, simple in structure, convenient to use fountain brush. The aforementioned fountain brush includes a self-supporting elastic toothbrush handle utilizing a simple sliding engagement with a detachable brush body. The elastic toothbrush handle is compressed to emit, e.g., a dentifrice medium. After compression it will release, the container restores itself to its original shape. The present invention is directed to an improvement over my copending fountain brush particularly useful for children.

The aforementioned invention includes a novel discharge tube disposed conveniently out of the way of the working surface while enhancing the application of dentifrice to the bristles.

While the fountain brush described in my copending application is simple to operate, I have recognized the desire to provide stimuli to encourage children to regularly brush their teeth. I have, therefore, provided for my present invention in a means for attracting the attention of children, e.g., the creation of whistling noises, beeps or bubbles in cooperation with the use of my improved fountain brush. As the container containing the dentifrice is compressed, it causes compression of a second container within the dentifrice. In one embodiment, compression of the second container causes air to be discharged therefrom through an orifice causing a whistling noise. In another embodiment the second container may contain soap and water causing bubbles to be emitted. It is contemplated that the attraction to children of these stimuli will encourage them to regularly use the fountain brush for dental hygiene.

It is therefore an object of the present invention to provide an improved fountain brush particularly useful to children.

In accordance with the present invention, there is provided a fountain brush for simultaneously emitting a plurality of media. A compressible elastic container for an emittable medium is included. The container has an emitting orifice for emitting the medium upon compression. A second compressible elastic container is disposed at least partially within the first container and coupled thereto. The second container has an emitting orifice for emitting a second medium without the first container in pressure response to compression of the first container. A brush body has a brush element extending therefrom. A medium passageway is formed in the body. The passageway communicates with an input port and terminates in an output port in coupling proximity with the brush element. Coupling means are provided for coupling the first container orifice and the body input for adapting the body to receive the medium upon compression of the first container. Discharge means are coupled to the body output port for discharging the first medium upon compression of the first container.

For a better understanding of the present invention, together with other and further objects thereof, reference is made to the following description taken in connection with the accompanying drawings and its scope will be pointed out in the appended claims.

In the drawings:
FIG. 1 is a sectional view of a fountain brush embodying the present invention;
FIG. 2 is an enlarged, fragmentary, side sectional view of a modification of the brush part in FIG. 1 illustrating a novel discharge nozzle;
FIG. 3 is a sectional view taken through line 2—2 in FIG. 1;
FIG. 4 is a front elevational view of a fountain brush embodying this invention.

Referring now to the drawings and with particular reference to FIG. 1, there is here illustrated a fountain brush embodying the present invention. The fountain brush as shown in particularly suitable for applying dentifrice to the teeth. The term dentifrice as used herein includes both toothpaste, a viscous, flowable fluid medium, as well as powder. It will be apparent from the structure that the invention is useful with both media.

As shown in FIG. 1, the fountain brush is generally indicated at 100. The brush includes three major parts, a container-handle 101 in which the dentifrice is stored, a brush body 102 and an inner container 103. Extending from the brush body 102 are a plurality of bristle groups 104.

In operation, dentifrice is emitted to the bristle groups 104 by squeezing the container-handle 101. The compression of the container 101 causes the inner container to be compressed by the transmittal of pressure, through the dentifrice, from the outer container 101 to the wall of the inner container 103 in the preferred embodiment. Compression of the inner container causes air to be discharged therefrom through a whistle or other noise producing device at its open end. It is believed that these latter effects will encourage children to use the fountain brush.

The container 101, as shown, is formed in several coaxial parts with an intermediate cylindrical member 105 extending from the main body and a cylindrical, throat 106 at the emitting end and extending from the member 105. Around the throat 106 is an external thread 107 integrally formed therewith. A threaded cap, such as shown in FIG. 4, may be used to cap the container for storage. It will be apparent that while a threaded coupling is shown for capping the brush, other couplings such as sliding couplings may be also used.

In order to make the device further attractive for children, the threaded cap may be in a shape that is normally attractive to children, e.g., an animal head, popular cartoon or popular child character as will be explained in connection with the description of FIG. 4.

The container may be stored in a self-supporting position on end with the threaded end up in a container, e.g., with a toothpaste tube. The brush part 102 is inserted into the container throat 106 to form a juncture 108. The respective diameters of the brush body 102 and throat 106 at the juncture 108 are chosen so as to provide a seal for the toothpaste under squeezing pressure in order to prevent leakage of the dentifrice from the cylinder 101 to the exterior of the throat 106. The juncture 108 may therefore either be a line-to-line fit or a slight press fit. It is desirable that the brush body 102 be readily manually separable from the container handle 101 for cleaning the brush after use.

The container part, as shown, is an integrally formed, compressible elastic container for an emittable medium such as a dentifrice. The container characteristics is restored to its original shape after compression, as, for example, by squeezing the container. The container is typically formed, for example, from a polyethylene. The dentifrice is emitted to the emitting orifice 117.
In the brush part 102, a passageway extends from an input port 111 through an output port 112 through an input chamber 113. The brush body is formed with an insert member 114 having the input port 111 at its end and communicating with the passageway 110 through the chamber 113 in the member 114. The brush body is preferably integrally formed with a shoulder 115 to provide a stop when inserting the brush into the container. The member 114 is preferably tapered to engage the container in sealed relation to prevent leakage or seepage of fluid.

In operation the container 101 is filled with a suitable dentifrice. The brush part 102 is inserted into the throat 106 of the container-handle 101. The throat is preferably resilient for receiving the brush part in desirable engagement and in sealed relation.

By compressing the wall of the container 101, the dentifrice is forced under pressure through the container emitting orifice 117, the brush part input port 111, input chamber 113 and passageway 110 out through the discharge port 112. The brush may be held at a desirable angle to cause the dentifrice to flow along the brush. Note that the port 112 is in coupling proximity with the bristles 104.

When the brush has been used for dental hygiene, the brush part 102 may be removed for flushing with water and the container capped. The brush, however, performs satisfactorily by merely rinsing with water after use and storage without removing the brush part 102. Since the container 101 promptly restores itself to its original shape, the brush may be stored simply by setting it on end in the manner common with bottles.

A single container-handle may be used for a plurality of brush parts. When the container is emptied it may be refilled. When the brush part is worn away, a replacement may be inserted in place.

Mounted within the container-handle 101 is a second compressible elastic container 103. The container 103 is coupled to the container-handle 101 through a whistle 120 shown in Fig. 1, at the surface 126 shown in Figs. 1 and 2. Fig. 2 is a section taken through the container-handle at line 2—2 in Fig. 1. The inner container 103 is preferably cylindrical in shape. Like the outer container, the inner container is preferably an integrally formed compressible elastic container for an emittable medium, for example, as for a solution of soap and water or air. The inner container characteristically is restored to its original shape after it is compressed. It is compressed in response to compression of the outer container 101.

The compressive forces are transmitted through the emittable medium stored in the container-handle 101 from the wall of the container-handle 101 to the wall 121 of the inner container 103.

The inner container 103 has a closure 122 formed in one end. At its opposite end it is opened, and in the preferred embodiment is bonded to a whistle 120. The whistle 120 has a central opening therein 123 which provides an emitting orifice for the inner container 103. The whistle 120 and inner container unit may be press fitted into the opening 124 or bonded along the walls of the opening 124 at the surface 126 to the container-handle 101. As shown in Fig. 1, the container-handle 101 preferably has a flat bottom 125 so that the entire unit may be stored in an upright position in contrast to a toothpaste tube.

While the inner container 103 has been described in conjunction with a whistle 120, it will be apparent that with slight modifications the inner container may be adapted to dispense a soapy solution in the form of bubbles, or made to provide noises other than a whistling sound that might be attractive to children.

The brush part shown in section in Fig. 3 illustrates a novel discharge nozzle 130 with a pair of opposed discharge channels 131 and 132 communicating with a main discharge channel 133. The height of the nozzle, as shown, is below the working surface of the brush and formed from a relatively soft material such as rubber or soft plastic.

The channels 131 and 132 form an angle A with respect to the upper surface as shown of the brush body 102 to direct the dentifrice along the working surface of the brush. The angle A may be varied from 0° to 45° for directing the flow of dentifrice along the brush. An angle of 45° has been found to be particularly useful.

Referring now to FIG. 4, there is here illustrated the fountain brush of FIG. 1 with the cap 135 in place. As shown, the cap has an animal head 136 at its upper extreme. The animal head or other type of caricature will aid in making the fountain brush appear more pleasant.

The fountain brush of the present invention eliminates the need for toothpaste tubes and caps. The brush can be refilled and a single container utilized by a plurality of users, each with his own brush insert. The brush is simple, compact and extremely portable. Proper dental hygiene can be practiced at all times. The brush easily fits suit or pants pockets, purses, lunch boxes, school bags, etc. Magnets may be attached to the brush or cover to provide ready storage against ferromagnetic members. In addition, the brush may be modified to provide valving action as illustrated in my copending application U.S. Ser. No. 87,902 filed February 8, 1961.

While there have been described what are at present considered to be preferred embodiments of this invention, it will be obvious to those skilled in the art that various changes and modifications may be made therein without departing from the invention, and it is, therefore, ained in the appended claims to cover all such changes and modifications as fall fairly within the true spirit and scope of the invention.

What is claimed is:

1. A fountain toothbrush for simultaneously emitting a plurality of media, comprising:
   a compressible, elastic container for an emittable, dentifrice medium, said container having an emitting orifice for emitting said medium upon compression of said container;
   a second compressible, elastic container disposed at least partially within said first container and coupled thereto, said second container having an emitting orifice for emitting a second medium without said first container in pressure response to compression of said first container;
   a brush body having a brush element extending therefrom, a medium passageway being formed in said body communicating with an input port and terminating in an output port in coupling proximity said brush element;
   coupling means for coupling said first container orifice and said body input port for adapting said body to receive said first medium upon compression of said first container;
   discharge means coupled to said body output port for discharging said first medium upon compression of said first container, said second container being compressed in pressure response to said first container compression whereby said plurality of media are simultaneously emitted, said emitting orifice of said second container being so oriented as to extend away from said brush element.

2. A fountain toothbrush for simultaneously emitting a plurality of media, comprising:
   a compressible, elastic container for an emittable, dentifrice medium, said container having an emitting orifice for emitting said medium upon compression of said container;
   a second compressible, elastic container disposed at least partially within said first container and coupled thereto, said second container having noise means coupled thereto including an emitting orifice for producing audible noise as air from within said second
container is discharged from said second container through a second orifice in pressure response to compression of said first container;

4. A fountain toothbrush for simultaneously emitting a plurality of media, comprising:

a brush body having a brush element extending therefrom, a medium passageway being formed in said body communicating with an input port and terminating in an output port in coupling proximity said brush element;

coupling means for coupling said first container orifice and said body input port for adapting said body to receive said medium upon compression of said first container;

discharge means coupled to said body output port for discharging said first medium upon compression of said first container, said second container being compressed in pressure response to said first container compression whereby said plurality of media are simultaneously emitted, said emitting orifice of said second container being so oriented as to extend away from said brush element.

3. A fountain toothbrush for simultaneously emitting a plurality of media, comprising:

a compressible, elastic container for an emittable, dentifrice medium, said container having an emitting orifice for emitting said medium upon compression of said container;

a second compressible, elastic container disposed at least partially within said first container and coupled thereto, said second container having an emitting orifice for emitting a second medium without said first container in pressure response to compression of said first container;

a brush body having brush elements extending therefrom, a medium passageway being formed in said body communicating with an input port and terminating in an output port in coupling proximity said brush elements;

coupling means for coupling said first container orifice and said body input port for adapting said body to receive said medium upon compression of said first container;

discharge tube extending from said body output port for discharging said first medium among said brush elements upon compression of said first container, said tube including a pair of opposed acute angle oriented discharge tubes and said second container being compressed in pressure response to said first container compression whereby said plurality of media are simultaneously emitted, said emitting orifice of said second container being so oriented as to extend away from said brush elements.

5. The combination of claim 1, wherein said second medium is air.

6. The combination of claim 1, wherein said second medium is a mixture of soap and a liquid.

7. The combination of claim 3, wherein said acute angle is 45°.

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