The apparatus of the present invention comprises a toothbrush handle with a first end portion and a second end portion, wherein at least one end portion of the handle is compressible. The apparatus further comprises a receptacle having an open end portion and a closed end portion. The open end portion of the receptacle is mechanically connected to a cap that is adaptable to receive the compressible end portion of the handle. The interconnection between the cap and the toothbrush handle forms a sealed engagement there between.
TOOTHBRUSH CLEANSING SYSTEM

FIELD OF THE INVENTION

[0001] The present invention relates, generally, to the field of toothbrush holders and, more specifically, to apparatuses and methods for toothbrush cleansing.

BACKGROUND OF THE INVENTION

[0002] It is known in the art of toothbrush holders to provide a system to cleanse the toothbrush bristles when the brush is not in use. Often times the cleansing consists of using a container filled with antiseptic that can receive a bristle portion, or an entire neck portion of the toothbrush. The bristles of the toothbrush can then be sanitized by soaking them in the antiseptic container which is balanced to maintain an upright position, either by utilizing a mounting bracket or by other stabilizing methods. A handle portion of the toothbrush may be used as leverage to insert or remove the neck and bristle portions of the toothbrush from the antiseptic container.

[0003] An example of a toothbrush cleansing system can be found in U.S. Pat. No. 1,070,858 to Tryne. Tryne discloses a toothbrush holder that includes a wall mount and a sterilizer. The system includes a receptacle for housing a disinfectant that is held in a fixed position by the wall mount. A cap having an elastic disc in its center encircles the toothbrush holder while permitting the toothbrush to be passed into the receptacle. The elasticity of the disc keeps the toothbrush in place.

[0004] While the invention disclosed by Tryne is useful for its intended purposes, it is often desirable to be able to cleanse the bristle portion of a toothbrush in an antiseptic or other aqueous solution in a travel environment, such as in an airplane, bus, hotel room or mount to stabilize the system may not be feasible or practical to implement. Therefore, there is a need in the art for a system that is able to utilize an antiseptic container for toothbrush cleansing while also being adaptable to the unique conditions of travel environments, wherein the mounting of the system in a fixed location may not be practical.

SUMMARY OF THE INVENTION

[0005] Briefly described, the present invention comprises a system, including apparatuses and methods, for cleansing the bristles of a toothbrush in an aqueous antiseptic solution while the system is in a travel environment.

[0006] More particularly, in a first form, the apparatus of the present invention comprises a toothbrush handle with a first end portion and a second end portion, wherein at least one end portion of the toothbrush handle is compressible. The apparatus further comprises a receptacle having an open end and a closed end. The receptacle is adaptable to receive the compressible end portion of the toothbrush handle. The apparatus further comprises a cap mechanically connected to the open end of the receptacle. The cap is adaptable to receive the compressible end portion of the handle, wherein the interconnection between the cap and the toothbrush handle forms a sealed engagement there between.

[0007] Other advantages of the present invention will become apparent upon reading and understanding the present specification when taken in conjunction with the appended drawings.

BRIEF DESCRIPTION OF DRAWINGS

[0008] The invention will be more readily understood from a reading of the following specifications and by reference to the accompanying drawings forming a part thereof, wherein an example of the invention is shown and wherein:

[0009] FIG. 1A displays a representation of a toothbrush holder system according to embodiments of the present invention wherein the cap portion is integrated onto a rigid receptacle.

[0010] FIG. 1B displays an alternate representation of a toothbrush holder system wherein the cap portion is integrated onto a rigid receptacle.

[0011] FIG. 2A displays a representation of a toothbrush holder system according to embodiments of the present invention wherein the cap portion is integrated onto a flexible receptacle.

[0012] FIG. 2B displays alternate representation of a toothbrush holder system wherein the cap portion is integrated onto a flexible receptacle.

[0013] FIG. 3A displays a representation of a toothbrush holder system according to embodiments of the present invention wherein the cap portion is integrated onto the toothbrush handle portion.

[0014] FIG. 3B displays an alternate representation of a toothbrush holder system according to embodiments of the present invention wherein the cap portion is integrated onto the toothbrush handle portion.

[0015] The construction designed to carry out the invention will hereinafter be described, together with other features thereof.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0016] Referring now to the drawings in which like numerals represent similar elements or steps throughout the several views, the toothbrush cleansing system of the preferred embodiment of the present invention enables the utilization of common antiseptic solutions for toothbrush cleansing in travel environments where the mounting of the system in a fixed location or predictable conditions for utilizing the system may not be practical. The toothbrush cleansing system comprises, according to the preferred embodiment, a toothbrush comprising a handle portion and a neck portion attached to one end of the handle portion, wherein the neck portion has a forward side and an aft side. A bristle portion is affixed to the forward side of the neck portion on the end of the neck portion opposite the end attached to the handle portion.

[0017] FIG. 1A displays a representation of a toothbrush holder system according to embodiments of the present invention. The system 100 consists of a toothbrush handle 102 with a first end portion 104 and a second end portion 106. At least one end portion of the toothbrush handle 102 is compressible so that the diameter of the handle 102 along the compressible portion is less than the diameter of the non-compressible portion when the compressible portion of the handle 102 is compressed by gripping or other methods. The toothbrush handle 102 is constructed out of a compress-
ible material such as plastic, rubber or any variety of flexible composite materials. The toothbrush further comprises a neck portion 108 having a forward side and an aft side that is constructed out of a rigid material such as metal, hard plastic or the like. The neck portion is attached to one end of the handle 102. A bristle portion 110 having bristles suitable for brushing teeth is attached to the forward side of the neck portion 108 on the end of the neck portion 108 opposite of the end attached to the handle 102.

The toothbrush holder system further comprises a receptacle 112 that may be glass, plastic, hard rubber, a composite or other rigid material having an open end portion 114 and a closed end portion 116. The receptacle 112 is adaptable to contain an aqueous solution 118 which is preferably an antiseptic used for cleaning the bristles of a toothbrush. The open end portion 114 of the receptacle 112 has a diameter that is adaptable to receive the compressed diameter of the compressible end portion of the toothbrush handle 102. When the compressible portion of the toothbrush handle 102 and the open end portion 114 of the receptacle 112 are mechanically connected, a cap 120 that is mechanically connected to the open end portion 114 of the receptacle 106 is adaptable to receive the compressible end portion of handle 102. The interconnection between the cap 120 and the toothbrush handle 102 is such that a sealed engagement is created there between. The sealed engagement between the compressed toothbrush handle 102 and the cap 120 is sufficient to prevent the aqueous solution 118 from escaping from the receptacle 112 and in contact with the bristle portion 110 of the toothbrush when the system is in an environment where dynamic conditions may not be predictable, such as a travel environment.

FIG. 1B displays an alternate representation of the toothbrush holder system of FIG. 1A, wherein the cap 120 is adaptable to receive handles 102 of various commercially available toothbrush design configurations.

Most of the components in FIG. 2A do not differ from those in FIG. 1A. Only the differences therefore will be discussed. FIG. 2A displays a representation of a toothbrush holder system according to embodiments of the present invention. FIG. 2A shows the toothbrush handle 102 of FIG. 1A with first and second compressible end portions, 104 and 106 respectively, and a flexible receptacle 200. The flexible receptacle 200 may consist of plastic, rubber, a composite or other flexible material and generally has an open end portion 202 and a closed end portion 204. The open end portion 202 of the receptacle 200 is mechanically connected to a cap 120 which is adaptable to receive an end portion of the compressible toothbrush handle 102. The interconnection between the cap 120 connected to the flexible open end portion 202 of the receptacle 200 and the toothbrush handle 102 forms a sealed engagement there between. The sealed engagement between the compressed handle 102 and the cap 120 is sufficient to prevent the aqueous solution 118 from escaping from the receptacle 200 and in contact with the bristle portion 110 of the toothbrush.

FIG. 2B displays that the system of FIG. 2A is also adaptable to a variety of commercial toothbrush design configurations.

As in FIG. 2A, most of the components of FIG. 3A do not differ from those in FIG. 1A. Again, only the differences will be discussed. FIG. 3A displays a representation of a toothbrush holder system according to embodiments of the present invention. This embodiment comprises a toothbrush having a rigid handle 300 with a first end portion 302 and a second end portion 304 and a collar portion 306 located between the first end portion 302 and the second end portion 304. The collar portion 306 of the rigid handle 300 forms an outer circumference around the handle 300 and is tapered toward the inner circumference of the handle 300 in order to receive the receptacle 308 described below. The tapered surface of the collar portion 306 is compressible and consists of plastic, rubber, a flexible composite or other material, whereas the rigid handle 300 consists of non-flexible materials such as those previously described herein.

The rigid receptacle 308 has an open end portion 310 and a closed end portion 312, wherein the open end portion 310 is adaptable to receive the end portion 304 of the toothbrush handle 300 that is connected to the neck portion 108 in order for the bristle portion 110 to be able to be in contact with the aqueous solution 118. The rigid receptacle 308 is adaptable to receive the collar portion 306 of handle 300. The interconnection between the open end portion 310 of receptacle 308 and the collar portion 306 of handle 300 forms a sealed engagement there between. The sealed engagement between the collar portion 306 and the rigid receptacle 308 is sufficient to prevent the aqueous solution 118 from escaping from the receptacle 308 and the aqueous solution 118 in contact with the bristle portion 110 of the toothbrush.

FIG. 3B shows that the system of FIG. 3A is also adaptable to a variety of toothbrush design configurations.

The present invention has been described in relation to particular embodiments, which are intended in all respects to be illustrative rather than restrictive. Alternate embodiments will become apparent to those skilled in the art to which the present invention pertains without departing from its spirit and scope. Accordingly, the scope of the present invention is described by the appended claims and supported by the foregoing description.

We claim:
1. A toothbrush holder comprising:
   a toothbrush handle with a first end portion and a second end portion, wherein at least one end portion of said toothbrush handle is compressible;
   a receptacle having an open end portion and a closed end portion, said receptacle adaptable to receive the compressible end portion of said toothbrush handle, and
   a cap mechanically connected to the open end portion of said receptacle, said cap adaptable to receive the compressible end portion of said toothbrush handle, wherein the interconnection between said cap and said toothbrush handle forms a sealed engagement there between.
2. A toothbrush holder comprising:
   a toothbrush handle with a first end portion and a second end portion, and
   a receptacle having an open end portion and a closed end portion, said open end portion of said receptacle being compressible and adaptable to receive an end portion of said toothbrush handle, wherein the interconnection
between said open end portion of said receptacle and said handle forms a sealed engagement there between.

3. A toothbrush holder comprising:

a toothbrush handle having a first end portion, a second end portion and a collar portion located between said first end portion and said second end portion, wherein said collar portion is compressible; and

a receptacle having an open end portion and a closed end portion, wherein said open end portion is adaptable to receive said collar portion of said toothbrush handle and the interconnection between said open end portion of said receptacle and said collar portion of said toothbrush handle forms a sealed engagement there between.

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