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(54) **TOOTHBRUSH SUPPORT SYSTEM**

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(57) **ABSTRACT**

A mobile support system for toothbrushes and other oral hygiene products for which it is desirable to provide a temporary support system during travel is discussed. A base unit provides a stable base for the portable system. An expandable top section that is located over the base unit provides a number of openings into which the end of a toothbrush or other similarly shaped oral hygiene product may be placed. The openings are configured so as to provide a fit to the end of the toothbrush or other oral hygiene product that is sufficiently tight to keep the toothbrush or other oral hygiene product in an upright vertical position.

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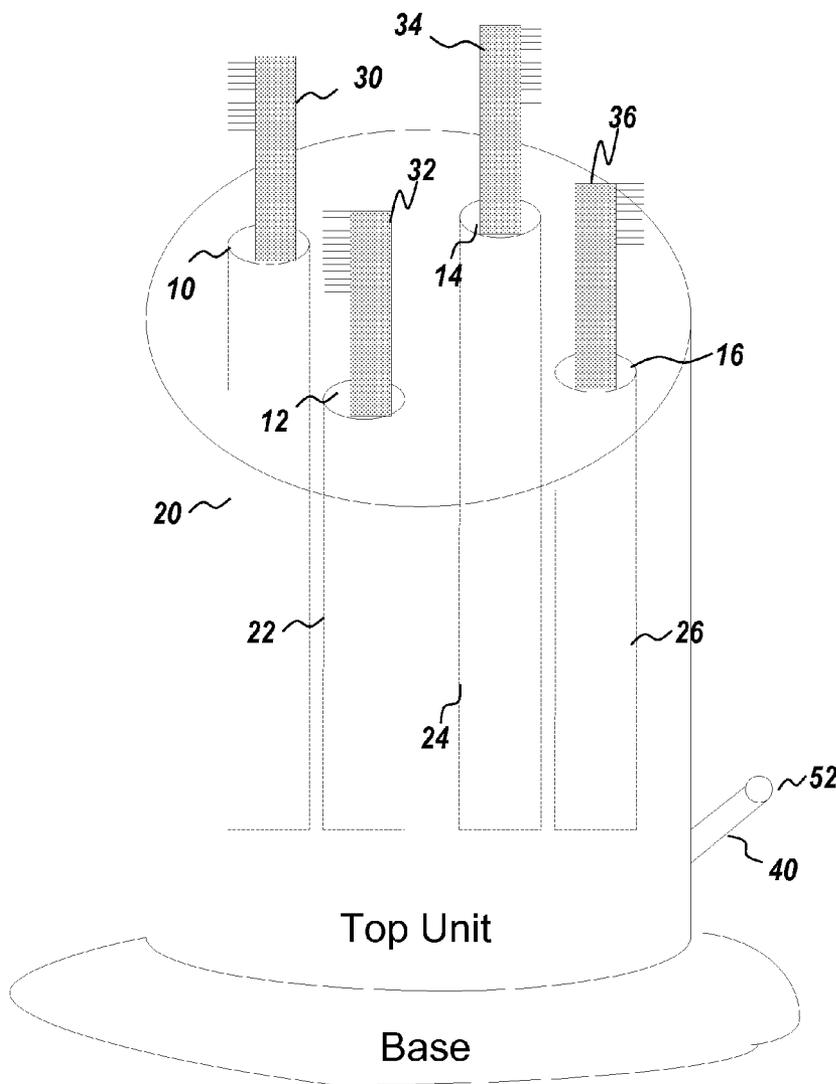


FIGURE 1A

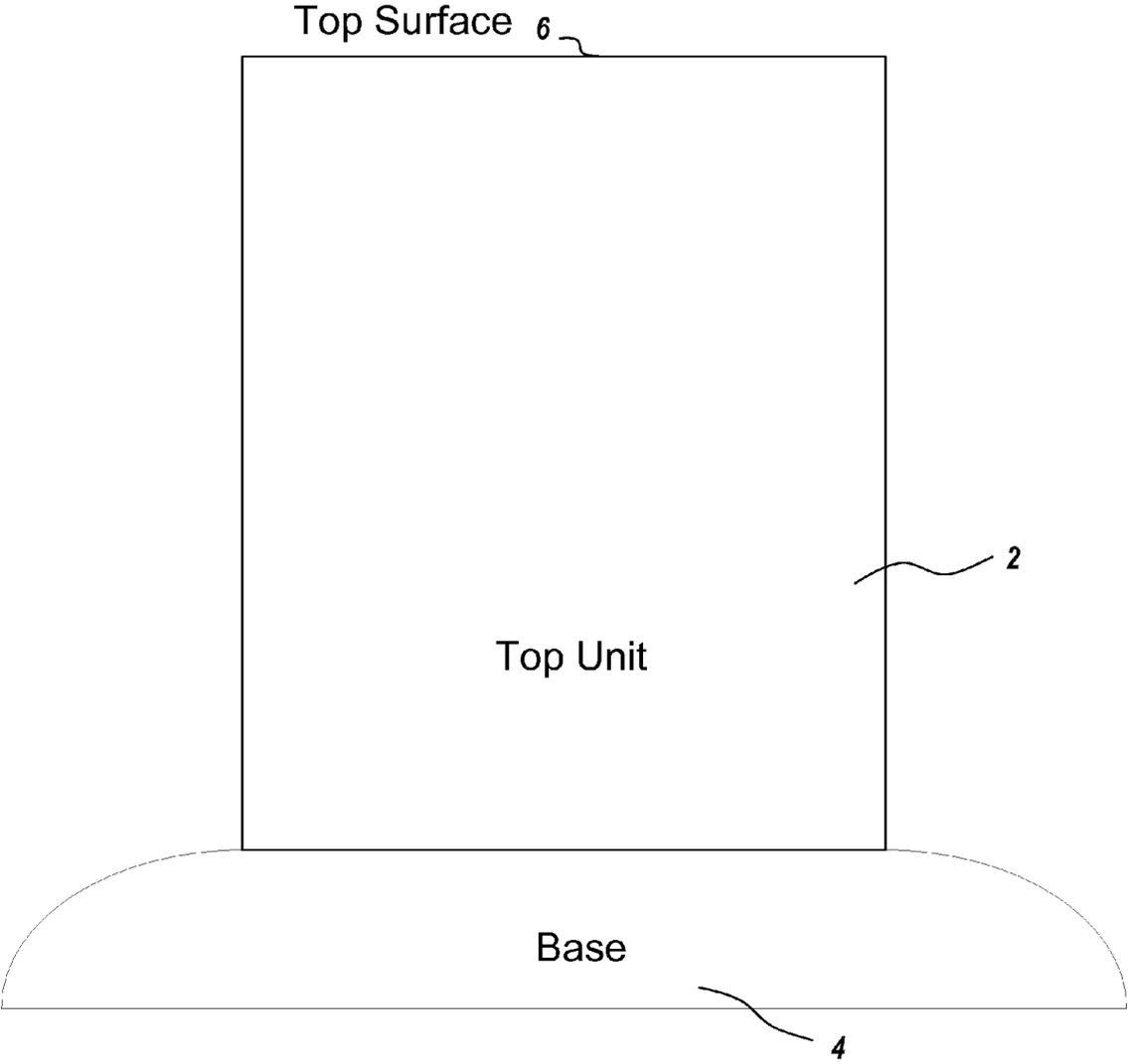


FIGURE 1B

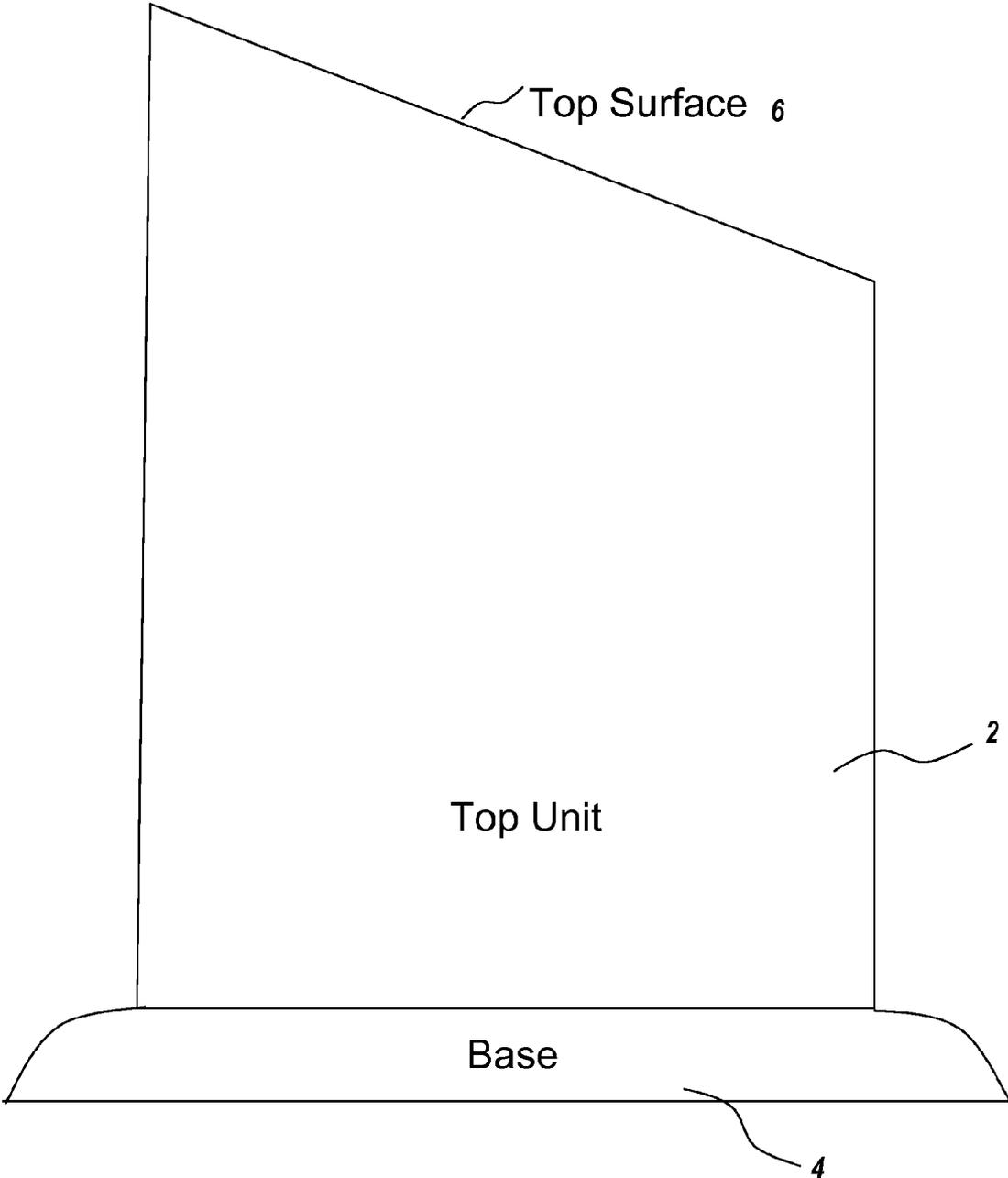


FIGURE 1C

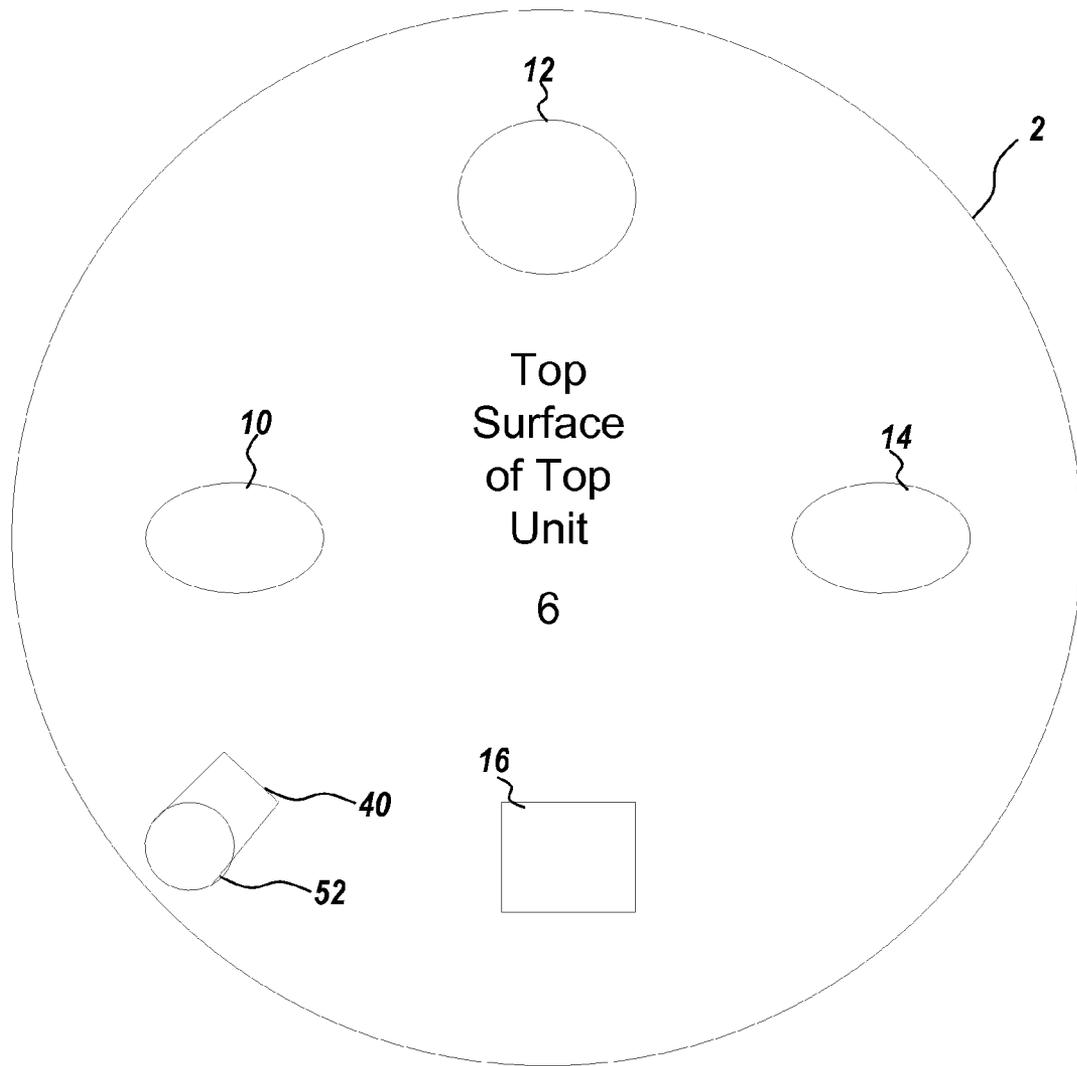
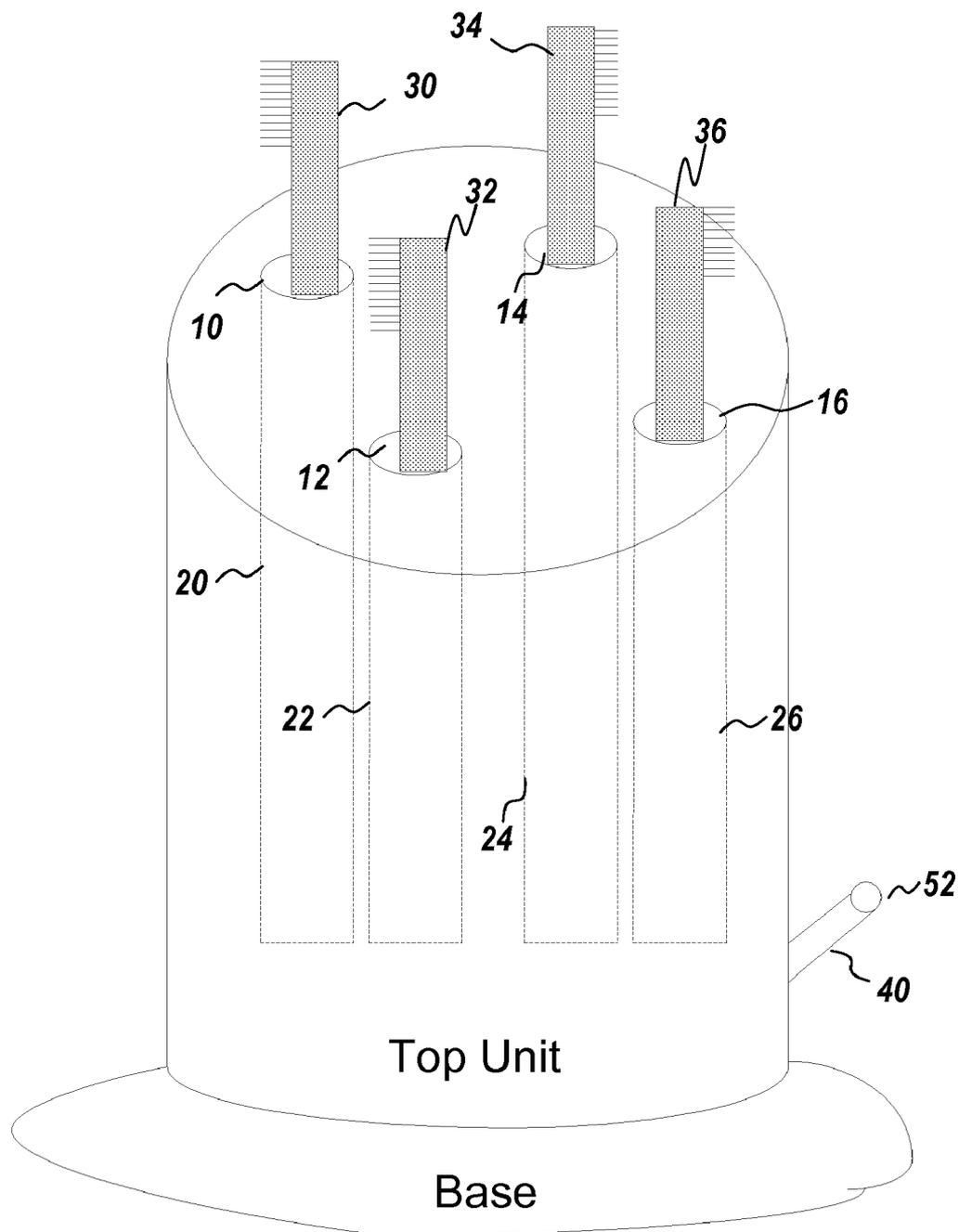


FIGURE 1D



TOOTHBRUSH SUPPORT SYSTEM

FIELD OF THE INVENTION

[0001] The illustrative embodiment of the present invention relates generally to oral hygiene products and more particularly to a portable support system for oral hygiene products.

BACKGROUND

[0002] Travelers who are forced to stay overnight away from home frequently travel with oral hygiene products such as toothbrushes. The majority of hotel bathrooms lack designated places to store the traveler's toothbrush during the stay away from home. Accordingly, travelers are forced to lay the toothbrush on a counter or return the toothbrush, often in a wet condition, to a dopp kit or other travel bag. The results are unsanitary and frequently messy.

[0003] A number of conventional mechanisms have been designed to address this problem. The first mechanism is a plastic cover into which the bristle part of the toothbrush is inserted. Another mechanism is a plastic toothbrush case into which the entire toothbrush is inserted. Unfortunately, while these conventional approaches address the problem of storing the toothbrush in a container other than a suitcase or dopp kit, they are both designed to store the toothbrush during travel rather than providing quick access to the toothbrush. As a result, both conventional mechanisms still require the combined toothbrush and cover or toothbrush and case to be stored between uses of the toothbrush. Additionally the traveler is required to retrieve the toothbrush and cover and toothbrush and case from storage and separate the toothbrush from the cover or case before the traveler can brush his or her teeth.

BRIEF SUMMARY

[0004] The embodiments of the present invention provide a mobile support system for toothbrushes and other oral hygiene products for which it is desirable to provide a temporary support system during travel. A base unit that may be filled with ballast provides a stable base for the portable system. An expandable top unit that is located over the base unit includes a number of openings leading to passages descending into the top unit into which the end of a toothbrush or other similarly shaped oral hygiene product may be placed. The openings and passages are configured so as to provide a fit to the end of the toothbrush or other oral hygiene product that is sufficiently tight to keep the toothbrush or other oral hygiene product in an upright vertical position.

[0005] In one embodiment, a mobile toothbrush support system includes a base unit containing ballast. The system also includes an expandable top unit extending from the base unit. The expandable top unit includes a top surface with at least one opening. The system additionally includes a passage into the top unit that is located underneath, and extends from, the at least one opening. The passage is suitable for the insertion of a toothbrush handle.

[0006] In another embodiment, an oral hygiene apparatus support system includes a base unit containing ballast. The system also includes an expandable top unit extending from the base unit. The expandable top unit includes a top surface

with at least one opening. The system additionally includes a passage into the top unit that is located underneath, and extends from, the at least one opening. The passage is suitable for the insertion of an oral hygiene apparatus.

[0007] In an embodiment, a mobile toothbrush support system includes a base unit. The system also includes an expandable top unit extending from the base unit. The expandable top unit includes a top surface with at least one opening. The system additionally includes a passage into the top unit that is located underneath, and extends from, the at least one opening. The passage is suitable for the insertion of a toothbrush handle.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] The invention is pointed out with particularity in the appended claims. The advantages of the invention described above, as well as further advantages of the invention, may be better understood by reference to the following description taken in conjunction with the accompanying drawings, in which:

[0009] FIG. 1A depicts a side view of a base unit and an inflatable top unit of an exemplary embodiment of the present invention;

[0010] FIG. 1B depicts a side view of a base unit and an inflatable top unit of an alternative exemplary embodiment of the present invention;

[0011] FIG. 1C depicts a top view of the inflatable top unit of FIG. 1A and/or FIG. 1B; and

[0012] FIG. 1D depicts an additional side view of the base unit and top unit of FIG. 1A and/or FIG. 1B that depicts the passages underneath the openings in the top surface of the top unit.

DETAILED DESCRIPTION

[0013] The present invention provides a lightweight portable support system for toothbrushes and other oral hygiene products. The support system of the present invention may be used during travel or at home. The support system provides an inflatable or expandable top unit which may be compressed during travel so that the support system takes up limited space. Upon arrival at a destination, the top unit is quickly expandable by a user so that the traveler's toothbrush may be supported. For home use, the toothbrush support system may be left in an inflated position in a homeowner's bathroom or other storage area.

[0014] FIG. 1A depicts a side view of an exemplary embodiment of the present invention. A cylindrical top unit 2 is in physical contact with a base unit 4. In one embodiment of the present invention, the cylindrical top unit 2 is attached to the base unit 4. In an alternate embodiment, the cylindrical top unit 2 is removably in contact with the base unit 4 such as by being inserted in a cylindrical opening in the base unit. The top unit 2 (and optionally the base unit 4) is capable of being compressed and expanded and in a preferred embodiment is inflatable. The composition and structure of the top unit 2 and base unit 4 are discussed further below.

[0015] FIG. 1B depicts a side view of an alternate exemplary embodiment of the present invention. A cylindrical top unit 2 is in physical contact with a base unit 4. The top unit

2 includes an angled top surface 6. The angling of the top surface 6 enables moisture that comes in contact with the top surface 6 (such as water dripping off of a wet toothbrush) to roll off of the top surface 6 rather than accumulating in a puddle on the top surface.

[0016] FIG. 1C depicts a view of the top surface 6 of a top unit 2 of an exemplary embodiment of the present invention. A cylindrical inflatable top unit 2 includes four openings 10, 12, 14 and 16. In one implementation, the openings may be oval in appearance. In another implementation, the openings may be circular or square in appearance. It will be appreciated the number of openings in the top surface 6 may vary and the size and shape of the openings may be mixed so that multiple shaped openings may be used in a single system. For example, openings 10 and 14 may be oval, opening 12 may be circular, and opening 16 may be square. Each opening 10, 12, 14 and 16 may be the same size or may be differently sized. Each opening 10, 12, 14 and 16 is connected to a passage that descends into the top unit 2. The passages in the top unit 2 under each opening 10, 12, 14 or 16 may or may not maintain the same shape as the top opening for the entire depth of the passage. In one implementation, the passage underneath a top opening 10, 12, 14 or 16 may extend through the inflatable top unit into the base unit.

[0017] FIG. 1D depicts a side view of an exemplary embodiment of the present invention that illustrates passages 20, 22, 24, and 26 underneath top openings 10, 12, 14 and 16 respectively. Toothbrush handles 30, 32, 34 and 36 are inserted into top openings 10, 12, 14 and 16 and corresponding passages 20, 22, 24 and 26. It will be appreciated that oral hygiene apparatuses such as water driven mechanical teeth cleaning devices, and mechanical tartar removing apparatus may also be inserted in the passages 20, 22, 24, and 26 instead of toothbrush handles without departing from the scope of the present invention.

[0018] Those skilled in the art will realize that the depth of the passage 20, 22, 24 or 26 beneath the top openings 10, 12, 14, or 16 may vary without departing from the scope of the present invention as long as the depth of the passage as measured from the opening to the bottom of the passage is sufficient to provide a stable resting place for the end of a toothbrush or other oral hygiene product. It will be appreciated that for longer or heavier toothbrushes the depth of the passage beneath the top openings 10, 12, 14 or 16 may be increased so as to provide additional support. Similarly, for lighter or smaller toothbrushes the passages 20, 22, 24 or 26 beneath the top openings 10, 12, 14 or 16 may be decreased. In one embodiment, the passages 20, 22, 24 or 26 may extend completely through the base unit 4 so that moisture may drain through the passage and out an opening in the bottom of the base unit. In another embodiment, the passage 20, 22, 24 or 26 may include an insert to help secure an inserted handle or apparatus. Alternatively, the openings 10, 12, 14 or 16 may include an insert in contact with the interior of the opening that helps secure an inserted handle or apparatus. For example, the openings 10, 12, 14 or 16 may include a seal around the opening outline that provides additional contact with the inserted handle or apparatus.

[0019] The top unit 2 may be made of inflatable plastic or another material capable of being inflated or expanded from a compressed condition to an inflated or expanded condition.

In one embodiment, the inflatable top unit is approximately four inches high although other dimensions are also within the scope of the present invention. Although reference is made herein to the top unit 2 being "inflatable", it should be appreciated that it is specifically intended that the top unit may also be expandable by way of a fabric or other material stretched over an expandable mechanical frame. The inflation of the top unit 2 may be made by way of a user blowing into a permanently attached valve 40 such as those found on inflatable beach balls. The valve may be made of plastic or some other durable material. Alternatively, the inflation mechanism may be a straw or other tube 50 inserted into an opening 52 that allows a user to blow into the straw or tube in order to inflate the top unit 2. The valve 40 and opening 52 are pictured as located on the top surface 6 of the top unit 2 in FIG. 1C. Those skilled in the art will recognize that the valve 40 and opening 52 may also be located in another position such as the side of top unit 2 as depicted in FIG. 1D. Alternatively, the valve or opening may be located in the base unit 4 and connect to a hollow tube which is also in contact with the interior of the top unit 2. The hollow tube is used to transfer air from the user to the top unit 2 for inflation purposes. Alternative mechanisms similar to those discussed above will be apparent to those skilled in the art and are considered to be within the scope of the present invention.

[0020] In one embodiment, the user inflates the top unit directly such that the top unit is composed entirely of an inflatable air bladder that surrounds and forms the openings 10, 12, 14 and 16 and passages 20, 22, 24 and 26 described above. In another embodiment the user inflates an air bladder which is inside another material such as an additional plastic or cloth overlay which inflates or compresses along with the air bladder. In one embodiment, the inflation of the top unit 2 also serves to inflate at least a portion of the base unit 4. The inflation of the top unit 2 may result in the deformation of at least one side of a passage 20, 22, 24 and 26 so that the passage side or sides presses upon and helps to secure an inserted toothbrush handle or other apparatus.

[0021] Although the present invention has been described above with respect to an inflatable top unit 2, it should be appreciated that mechanical expansion means may be substituted for the inflation process described above without departing from the scope of the present invention. In one implementation, an expandable metal or plastic frame with a cloth overlay expands in response to a user pressing a control button. The control button may trigger the expansion of the frame through either mechanical or electronic means.

[0022] The base unit 4 provides stability for the top unit 2. In one embodiment, the base unit is circular. The top unit 2 is preferably centered on the base unit 4 by either permanent or removable attachment means. It will be appreciated that although the illustrative embodiment of the present invention is depicted with a circular base unit 4, other shapes and dimensions of base units are possible within the scope of the present invention. For example, the base unit 4 may have a rectangular or square shape. Likewise, although the base unit 4 has been described as having an arrangement that centers the top unit 2, other arrangements that provide a stable base with a non-centered top unit are also contemplated for use in the present invention.

[0023] In one embodiment, the base unit 4 contains a ballast substance 6. The ballast substance 6 may be sand,

water, a cardboard insert, a heavy gel-like substance or some other type of material that when combined with the base unit 4 provides sufficient weight to stabilize the top unit 2 when the top unit 2 is being utilized to contain toothbrushes or other oral hygiene products. As an alternative to the use of ballast in the base unit 4, the base unit may be made of a solid material sufficiently heavy to provide stability to the top unit 2. Alternatively, the base unit 4 may be shaped so that an inflation of the top unit 2 and base unit 4 results in a stable support system for toothbrushes and other oral hygiene apparatuses without the use of additional ballast. For embodiments of the present invention that utilize a ballast substance 6, the base unit 4 may be made out of metal, wood, hard plastic or some other type of material able to enclose the ballast substance. In one implementation, the ballast substance 6 is meant to be permanently contained within the base unit 4. In another implementation, the base unit 4 is equipped with access means which allow a user to periodically replace the ballast substance.

[0024] Although the present invention has been described with respect to a circular top unit 2 attached to a circular base unit 4, other designs are possible within the scope of the present invention. For example, the base unit 4 may be equipped with one or more hinges which enable the base unit to be folded up between uses so that it may be stored in a smaller space. The top unit 2 may have a shape other than circular. For example, the top unit 2 may be an inflatable square or rectangle that may or may not be centered on a square or rectangular base unit 4.

[0025] Although the present invention has been described above as providing support for toothbrushes, it will be appreciated that the support system may also be used to support similarly shaped items like mechanical water apparatus devices. Similarly, the top or base unit may be equipped with additional openings beyond those described here so as to provide support for additional oral hygiene products such as dental floss containers and tubes of toothpaste.

[0026] Since certain changes may be made without departing from the scope of the present invention, it is intended that all matter contained in the above description or shown in the accompanying drawings be interpreted as illustrative and not in a literal sense. Practitioners of the art will realize that the architectures depicted in the figures may be altered without departing from the scope of the present invention and that the illustrations contained herein are singular examples of a multitude of possible depictions of the present invention.

We claim:

1. A mobile toothbrush support system, comprising:
 - a base unit containing ballast;
 - an expandable top unit extending from the base unit, the expandable top unit including a top surface with at least one opening; and
 - a passage into the top unit that is located underneath, and extends from, the at least one opening, the passage suitable for the insertion of a toothbrush handle.
2. The system of claim 1 wherein the top surface includes a plurality of openings, each opening connected to a respective passage into the top unit suitable for the insertion of a toothbrush handle.

3. The system of claim 2 wherein the plurality of openings are different sizes.
4. The system of claim 2 wherein the plurality of openings are different shapes.
5. The system of claim 1 wherein the top unit is inflatable.
6. The system of claim 1 wherein the ballast in the base unit is sand.
7. The system of claim 1 wherein the ballast in the base unit is a liquid gel substance.
8. The system of claim 1 wherein the ballast in the base unit is a cardboard insert.
9. The system of claim 1 wherein the top unit is constructed of inflatable plastic.
10. The system of claim 1 wherein the top unit includes mechanical expansion means.
11. The system of claim 1, further comprising:
 - an air valve suitable for use in inflating the top unit.
12. The system of claim 11 wherein the air valve also is suitable for inflating at least part of the base unit.
13. The system of claim 1 wherein the top unit is removably in contact with the base unit.
14. The system of claim 1 wherein the top surface is angled to allow moisture runoff.
15. The system of claim 1 wherein the opening is one of oval shaped, circular shaped and square shaped.
16. The system of claim 1 wherein the passage extends through the base unit so as to allow moisture runoff to exit the bottom of the passage through the bottom of the base unit.
17. The system of claim 1 wherein the passage includes an insert used to secure a toothbrush handle.
18. The system of claim 1 wherein the opening includes an insert used to secure a toothbrush handle.
19. The system of claim 1 wherein at least one side of the passage deforms based upon an amount of air pressure contained within the top unit, the at least one side of the passage used to secure a toothbrush handle.
20. An oral hygiene apparatus support system, comprising:

- a base unit containing ballast;
 - an expandable top unit extending from the base unit, the expandable top unit including a top surface with at least one opening; and
 - a passage into the top unit that is located underneath, and extends from, the at least one opening, the passage suitable for the insertion of an oral hygiene apparatus.
21. A mobile toothbrush support system, comprising:
 - a base unit;
 - an expandable top unit extending from the base unit, the expandable top unit including a top surface with at least one opening; and
 - a passage into the top unit that is located underneath, and extends from, the at least one opening, the passage suitable for the insertion of a toothbrush handle.