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(54) BASE FOR ORAL HYGIENE INSTRUMENT

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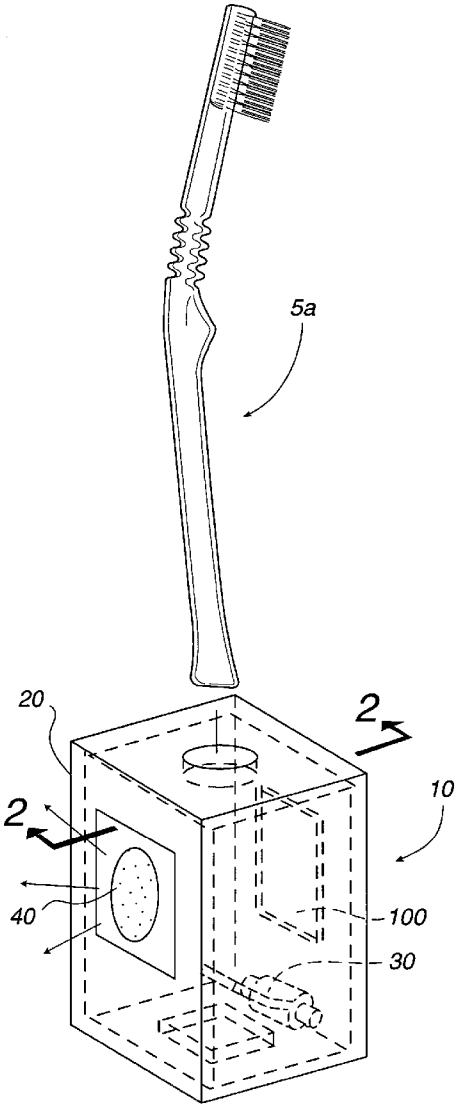
(57) **ABSTRACT**

A toothbrush holder comprising a body having a top and bottom, wherein a first cavity is formed in the body longitudinally extending therein, and an opening formed toward the top of the body, the opening and the first cavity configured to receive a toothbrush; an actuator positioned inside the cavity to engage the toothbrush, when the toothbrush is inserted in the cavity; a storage medium for storing audio information; and a speaker electrically coupled to the actuator and the storage medium, wherein in a first engagement state between the toothbrush and the actuator, the audio information is reproduced in form of audio waves from the speaker.



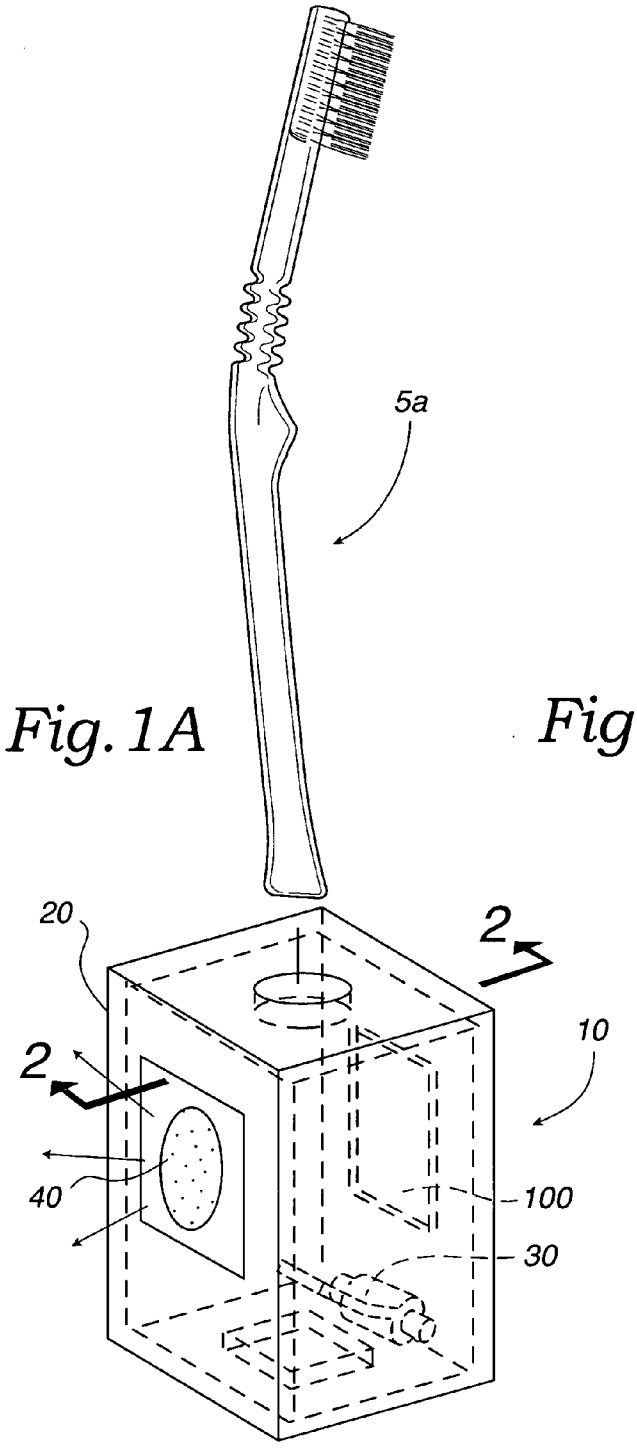


Fig. 1A

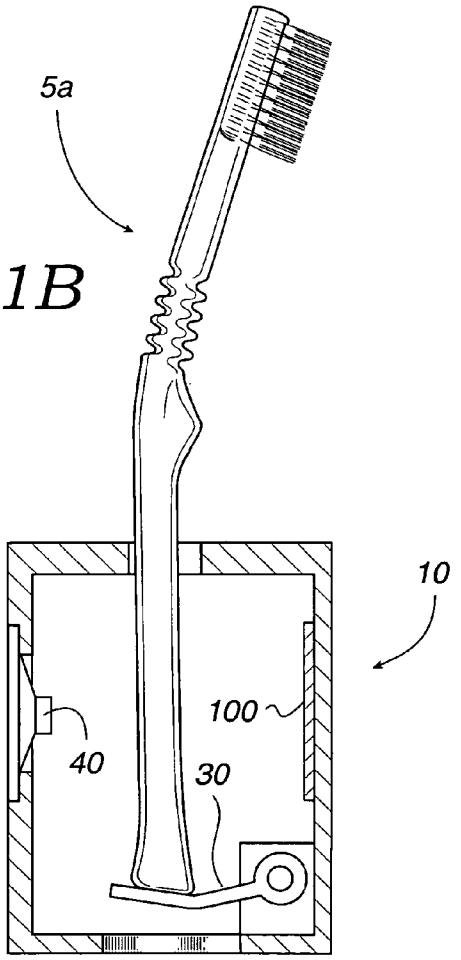


Fig. 1B

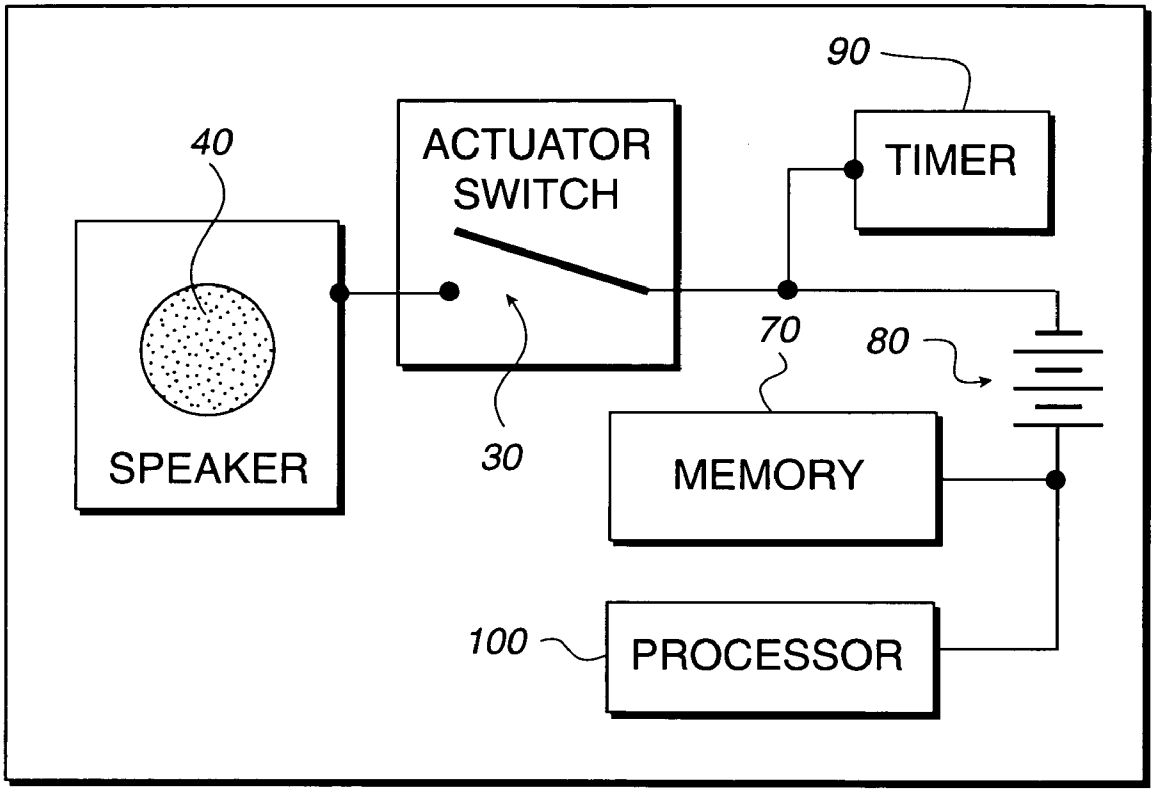

90
TIMER
40
ACTUATOR
SWITCH
70
80
SPEAKER
30
MEMORY
100
PROCESSOR

Fig. 2

Fig. 3

BASE FOR ORAL HYGIENE INSTRUMENT

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FIELD OF THE INVENTION

[0003] The present invention relates in general to a toothbrush holder, and more particularly to a musical toothbrush holder that plays a musical tune or song when the toothbrush is removed from the toothbrush holder.

BACKGROUND

[0004] Many children and adults dislike brushing or flossing their teeth. Some just lack the patience, discipline or energy to brush before going to bed, school or work. Typically, the ones who do only spend a minimum amount of time on these important daily hygiene exercises.

[0005] Unfortunately, most toothbrushes and other oral hygiene instruments presently in the market do not provide a fun and engaging environment that would provide some means of motivation to effectively complete brushing. A system and method is needed to overcome this problem. There is also a need to provide a timed environment to guide the users to spend sufficient time brushing or flossing their teeth.

SUMMARY OF THE INVENTION

[0006] Features and advantages of the invention will be set forth in the description which follows, and in part will be apparent from the description, or may be learned by practice of the invention. The objectives and other advantages of the invention will be realized and attained by the structure particularly pointed out in the written description and claims hereof as well as the appended drawings.

[0007] In accordance with one or more embodiments, a toothbrush holder comprises a body having a top and bottom, wherein a first cavity is formed in the body longitudinally extending therein. An opening formed toward the top of the body, the opening and the first cavity configured to receive a toothbrush.

[0008] An actuator positioned inside the cavity engages the toothbrush, when the toothbrush is inserted in the cavity. A storage medium may be included for storing audio information; and a speaker electrically coupled to the actuator and the storage medium.

[0009] In a first engagement state between the toothbrush and the actuator, the audio information is reproduced in form of audio waves from the speaker. In a second engagement state between the toothbrush and the actuator, reproduction of the audio information is discontinued.

[0010] The first engagement state comprises the toothbrush engaging the actuator. The second engagement state comprises the toothbrush disengaging the actuator. The first engagement state occurs when the toothbrush is inserted in the cavity. The second engagement state occurs when the toothbrush is removed from the cavity.

[0011] In an exemplary embodiment, the storage medium is flash memory and is further comprised of a timer for limiting reproduction of the audio information to a predetermined period in the first engagement state.

[0012] In one embodiment, a processor may be also included for controlling duration of reproduction of the audio waves in the first engagement state; and the body is in shape of a 700 figurine.

[0013] In accordance with another aspect of the invention, a base for receiving an oral care instrument comprises a body having a top and bottom, wherein a first cavity is formed in the body and an opening is formed toward the top of the body, the opening and the first cavity configured to receive the oral care instrument; an actuator positioned inside the cavity to engage the oral care instrument, when the oral care instrument is inserted in the cavity.

[0014] Some embodiments comprise a storage medium for storing audio information; and a speaker electrically coupled to the actuator and the storage medium, wherein in a first engagement state between the oral care instrument and the actuator, the audio information is produced in form of audio waves from the speaker. In a second engagement state between the oral care instrument and the actuator, reproduction of the audio information is discontinued.

[0015] The first engagement state comprises the oral care instrument engaging the actuator. The second engagement state comprises the oral care instrument disengaging the actuator. The first engagement state occurs when the oral care instrument is inserted in the cavity and the second engagement state occurs when the oral care instrument is removed from the cavity.

[0016] These and other embodiments of the present invention will also become readily apparent to those skilled in the art from the following detailed description of the embodiments having reference to the attached figures, the invention not being limited to any particular embodiments disclosed.

BRIEF DESCRIPTION OF THE DRAWINGS

[0017] The accompanying drawings, which are included to provide a further understanding of the invention and are incorporated in and constitute a part of this specification, illustrate embodiments of the invention and together with the description serve to explain the principles of the invention.

[0018] FIG. **1**A illustrates an exemplary toothbrush holder according to one embodiment of the invention.

[0019] FIG. **1**B illustrates the toothbrush holder according to another exemplary embodiment.

[0020] FIG. **2** illustrates an exemplary electrical circuit according to another embodiment of the invention for the toothbrush holder of FIG. **1** or **2**.

[0021] FIG. **3** illustrates yet another exemplary embodiment for the toothbrush holder of the invention in the shape of a 700 figurine.

[0022] Features, elements, and aspects of the invention that are referenced by the same numerals in different figures represent the same, equivalent, or similar features, elements, or aspects in accordance with one or more embodiments of the system.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0023] In the following, reference is made to the accompanying drawings that illustrate various embodiments of the invention. It is to be understood that other embodiments may be utilized and structural changes may be made without departing from the scope of the present invention.

[0024] Referring to FIGS. **1** and **2**, to achieve these and other advantages and in accordance with the purpose of the present invention, as embodied and broadly described, a toothbrush holder **10** comprises a body **20** having an opening on the top and a cavity extending therefrom longitudinally within the body **20** to respectively receive and house a toothbrush **50**, for example.

[0025] The holder **10** may be a housing canister, base, container, cradle or any other structure on or in which a toothbrush or some oral hygiene instrument can rest. The toothbrush **50** can be any type of toothbrush. In the following, one or more aspects of the invention are by way of example described with reference to a regular toothbrush **50** comprises of a handle and bristles. It is noteworthy, however, that this invention in other embodiments may be applicable to any type of toothbrush, or other oral care or hygiene instruments.

[0026] As illustrated in FIG. **1**, the holder **10** in a preferred embodiment comprises an actuator **30** disposed within the cavity, such that when the toothbrush **50** is inserted in the cavity, the actuator **30** engages an end of toothbrush **50**. In certain embodiments the opening and the cavity are designed to receive the handle of toothbrush **50**. In other embodiments, the cavity and the opening are designed to receive the head of toothbrush **50**.

[0027] In alternative embodiments, body **20** may be designed without a cavity or opening, such that actuator **30** is disposed on a surface level. For example, actuator **30** may be designed in the shape of a cradle for receiving the handle of toothbrush **50**. In such exemplary embodiment, actuator **30** is in a first engagement status (e.g., "on" status) when the weight of toothbrush **50** bears down on actuator **30** and in a second engagement status (e.g., "off" status) when no pressure is applied to actuator **30**.

[0028] Referring back to FIG. **1**, in a preferred embodiment, actuator **30** is a pressure activated lever positioned inside the cavity such that when toothbrush **50** is inserted through the opening into the cavity, one end of toothbrush **50** engages actuator **30** to place actuator **30** in a first engagement position (e.g., "on" position).

[0029] In a certain embodiment, actuator **30** is a lever with a biasing property, so that when toothbrush **50** is removed from the cavity, actuator **30** is returned to a second engagement position as a result of the biasing property acting against the weight of toothbrush **50**. The biasing property may be implemented in actuator **30** by way of a spring-loaded lever, for example, or other suitable mechanical biasing member.

[0030] In alternative embodiments, actuator **30** may be situated at the bottom of the cavity or other portions of the cavity. Actuator **30** may be activated by way of a pressure control mechanism, infrared beams or other suitable on/off switching means, for example. Accordingly, actuator **30** functions to detect the engagement of toothbrush **50** with toothbrush holder **10**.

[0031] In one or more embodiments, toothbrush holder **10** comprises a speaker **40** controlled by actuator **30** by way of wired or wireless signals. When actuator **30** is in the first engagement position (i.e., "on" position) then an audio signal is produced from speaker **40**. The audio signal may be a melody or other alert tone. In a preferred embodiment, the audio signal is a song or tune that is played for a predetermined period of time or until toothbrush **50** is placed back in toothbrush holder **10**.

[0032] Referring to FIG. **2**, in accordance with one aspect of the invention, actuator **30** acts as a switch in an electrical circuit comprising at least one of speaker **40**, a storage medium or memory **70**, a power source **80** and a processor **100**. Storage medium or memory **70** may comprise any audio data recording medium such as flash memory, Read Only Memory (ROM), electrically erasable programmable read-only memory (EEPROM), Random Access Memory (RAM), a disk drive or CD, depending on implementation.

[0033] In an exemplary embodiment, storage medium **70** may be removable so that a user may burn or record the user's favorite music or song on storage medium **70**. In other embodiments, storage medium **70** may be fixed within body **20** and as provided by the manufacturer. In alternative embodiments, storage medium **70** can be electrically or wirelessly manipulated for data recording thereon, without removal.

[0034] Power source **80** may be a battery or other electrical source such as an electrical outlet, for example. Power source **80** feeds a current to the exemplary electrical circuit illustrated in FIG. **2** to support the operation of actuator **30** and speaker **40** as noted above.

[0035] In one embodiment, a timer **90** may be coupled to the electrical circuit to limit the reproduction of audio signal stored on storage medium **70** to a predetermined period. For example, timer **90** may be set by a user to a time which the user wishes to brush his teeth. Accordingly, the user is encouraged to continue to brush his or her teeth while the audio or the music recorded on storage medium **70** is played.

[0036] A preferred embodiment of the invention may be designed for children to encourage them to brush their teeth for a predetermined time. As such, musical tunes or songs that appeal to children may be stored. In one embodiment, the tune is played for approximately two minutes, or other recommended length of time considered appropriate for brushing all four teeth quadrants. In some embodiments, an alert signal is produced preferable at 30-second intervals, for example, to alert a user to brush another quadrant. Instead of the alert signal, a different tune may be played every 30 seconds, in another embodiment.

[0037] It is note worthy that the two-minute or the 30-second intervals noted above are provided by way of example. In different embodiments, alternate time periods may be used. For example, in accordance with yet another embodiment, a processor **100** may be coupled to the electrical circuit illustrated in FIG. **2**. Processor **100** may be configured to control the duration, type, volume, genre, or other attribute of audio information recorded and reproduced.

[0038] As such, a user may be provided with a variety of tunes that can be refreshing, motivational and fun. For example, in one embodiment the tune may be an opera piece encouraging the user to brush his or her teeth. Referring to FIG. **3**, in one exemplary embodiment, the displayed components in FIGS. **1** or **2** may be embodied into a 700 figurine. As shown, the 700 figurine may be in the shape of an opera singer, for example.

[0039] In other embodiments, the 700 figurine may be in the shape of an animated character, such as Bugs Bunny, or any other character (e.g., ballerina, toy soldier, etc.), instrument (e.g., piano, harp, etc.) or device (e.g., racecar, airplane, etc.) that may be amusing to a user. Parts of the 700 figurine, in certain embodiments, may move for entertainment purposes while the tune is played.

[0040] The invention has been described with reference to one or more embodiments. It is evident that other alternatives, modifications, variations and embodiments may be apparent to those skilled in the art in light of the foregoing description.

[0041] For example, while processors, controllers and other circuits, are described in terms of specific logical/functional circuitry relationships, one skilled in the art will appreciate that such may be implemented in a variety of ways, such as appropriately configured and programmed processors, ASICs (application specific integrated circuits), and DSPs (digital signal processors).

[0042] Accordingly, it should be understood that the invention is not limited by the foregoing descriptions of the preferred embodiments, but embraces all alternatives, modifications, and variations in accordance with the spirit and scope of the appended claims and their full scope of equivalents.

1. A toothbrush holder comprising:

a body having a top and bottom, wherein a first cavity is formed in the body longitudinally extending therein, and an opening formed toward the top of the body, the opening and the first cavity configured to receive a toothbrush;

an actuator positioned inside the cavity to engage the toothbrush, when the toothbrush is inserted in the cavity;

a storage medium for storing audio information; and

a speaker electrically coupled to the actuator and the storage medium,

wherein in a first engagement state between the toothbrush and the actuator, the audio information is reproduced in form of audio waves from the speaker.

2. The toothbrush holder of claim 1, wherein in a second engagement state between the toothbrush and the actuator, reproduction of the audio information is discontinued.

3. The toothbrush holder of claim 1, wherein the first engagement state comprises the toothbrush engaging the actuator.

4. The toothbrush holder of claim 2, wherein the second engagement state comprises the toothbrush disengaging the actuator.

5. The toothbrush holder of claim 1, wherein the first engagement state occurs when the toothbrush is inserted in the cavity.

6. The toothbrush holder of claim 2, wherein the second engagement state occurs when the toothbrush is removed from the cavity.

7. The toothbrush holder of claim 1, wherein the storage medium is flash memory.

8. The toothbrush holder of claim 1 further comprising a timer for limiting reproduction of the audio information to a predetermined period in the first engagement state.

9. The toothbrush holder of claim 1 further comprising a processor for controlling duration of reproduction of the audio waves in the first engagement state.

10. The toothbrush holder of claim 1 wherein the body is in shape of a figurine.

11. A base for receiving an oral care instrument, the base comprising:

a body having a top and bottom, wherein a first cavity is formed in the body and an opening is formed toward the top of the body, the opening and the first cavity configured to receive the oral care instrument;

an actuator positioned inside the cavity to engage the oral care instrument, when the oral care instrument is inserted in the cavity;

a storage medium for storing audio information; and

a speaker electrically coupled to the actuator and the storage medium,

wherein in a first engagement state between the oral care instrument and the actuator, the audio information is produced in form of audio waves from the speaker.

12. The base of claim 11, wherein in a second engagement state between the oral care instrument and the actuator, reproduction of the audio information is discontinued.

13. The base of claim 11, wherein the first engagement state comprises the oral care instrument engaging the actuator.

14. The base of claim 12, wherein the second engagement state comprises the oral care instrument disengaging the actuator.

15. The base of claim 11, wherein the first engagement state occurs when the oral care instrument is inserted in the cavity.

16. The base of claim 12, wherein the second engagement state occurs when the oral care instrument is removed from the cavity.

17. The base of claim 11, wherein the storage medium is flash memory.

18. The base of claim 1 further comprising a timer for limiting reproduction of the audio information to a predetermined period in the first engagement state.

19. The base of claim 1 further comprising a processor for controlling duration of reproduction of the audio waves in the first engagement state.

20. The base of claim 1 wherein the body is in shape of a figurine.

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