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(54) **TOOTH PASTE BRUSH**

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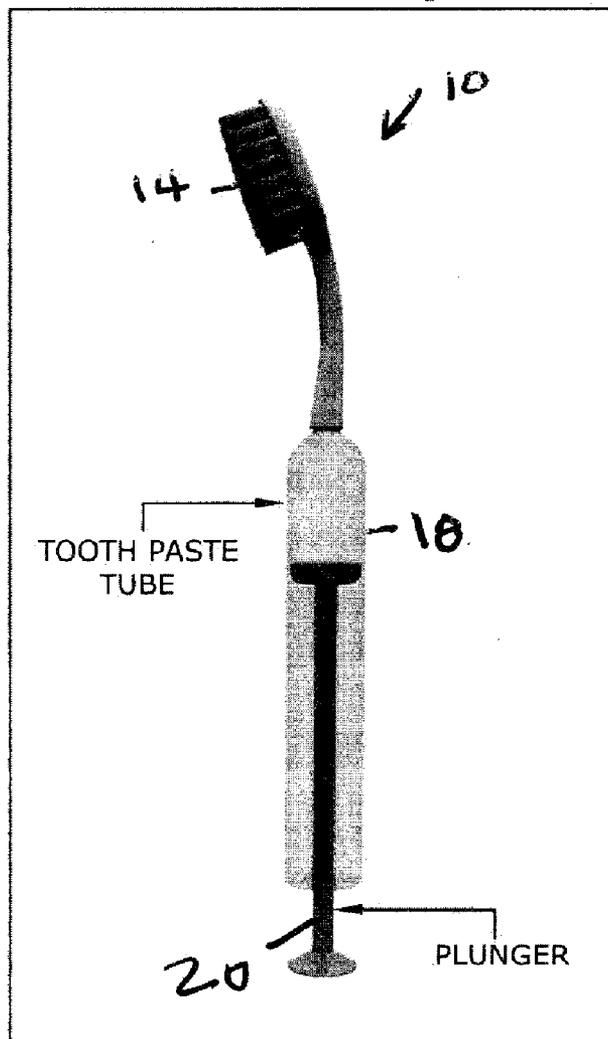
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(57) **ABSTRACT**

**Related U.S. Application Data**

(60) Provisional application No. 61/844,688, filed on Jul. 10, 2013.

A toothbrush having a detachable head and a hollow cylindrical handle capable of containing toothpaste. A plunger pushes toothpaste from the hollow cylindrical handle through a detachable head and out a hole onto the bristles of the brush. An embodiment includes toothpaste contained in a removable cartridge.



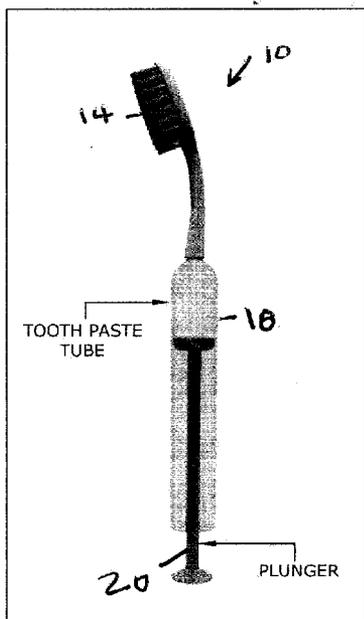


Fig. 1

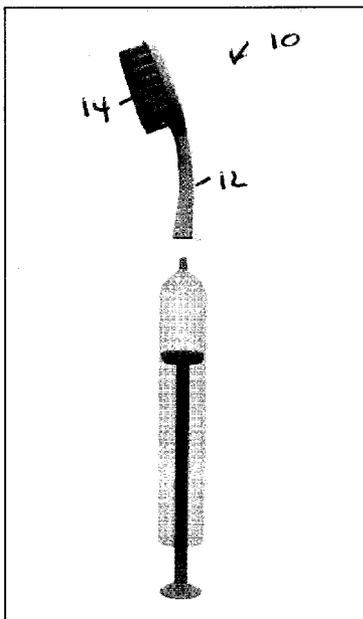


Fig. 2

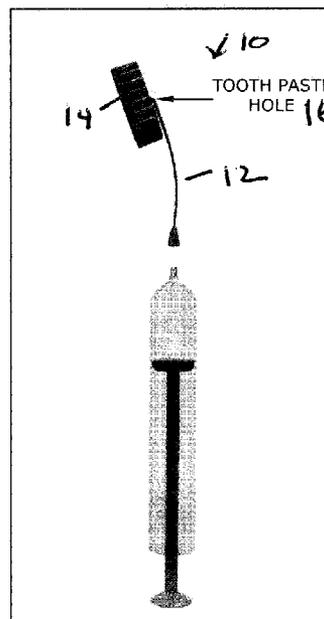


Fig. 3

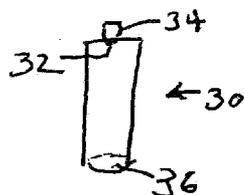


Fig. 4

## TOOTH PASTE BRUSH

### CLAIM OF PRIORITY

**[0001]** This patent application claims priority under 35 USC 119 (e) (1) from U.S. Provisional Patent Application Ser. No. 61/844,688 filed Jul. 10, 2013, of common inventorship herewith entitled, "Tooth Paste Brush."

### FIELD OF THE INVENTION

**[0002]** The present invention pertains to the field of oral hygiene, and more specifically to the field of toothbrushes with toothpaste.

### BACKGROUND OF THE INVENTION

**[0003]** The prior art has put forth several designs for toothbrushes with toothpaste. Among these are:

**[0004]** U.S. Pat. No. 6,533,485 to Robert Bland describes a combination toothbrush and toothpaste dispenser with an incorporated remaining use counter including a toothbrush portion comprised of an elongated hollow handle having an incorporated head portion. The elongated hollow handle includes an internal channel. The head portion has a plurality of openings in communication with the internal channel. The head portion has a plurality of bristles extending outwardly thereof.

**[0005]** The handle holds a quantity of toothpaste within the internal channel. An internal plunger is disposed within the internal channel of the elongated hollow handle. The internal plunger forces toothpaste out of the plurality of openings of the head portion and onto the bristles. A counter is disposed within the elongated hollow handle of the toothbrush portion. The counter is in communication with the plunger for determining a remaining amount of toothpaste disposed therein and displaying the same on a rotary dial.

**[0006]** U.S. Pat. No. 6,397,859 to Shelby Byrd describes a toothbrush assembly comprising a toothbrush having toothpaste therein for a single use. The toothbrush assembly includes a tubular member which is elongated and has an open end and a closed end. A bore extends into the open end toward the closed end. The tubular member has a proximal portion, a middle portion and a distal portion with respect to the closed end of the tubular member. The proximal portion has an outer surface having a plurality of bristles attached thereto. The proximal portion has a hole therein extending into the bore. A plunger is elongated and has a first end and a second end. The plunger has a length and width substantially equal to a length and width of the bore. The first end of the plunger is extendable into the bore. A retaining means retains the plunger in the bore. Toothpaste is positioned in the bore and the plunger may be selectively extended into the bore such that the toothpaste is extracted through the hole.

**[0007]** U.S. Pat. No. 6,213,663 to John Micaletti and B. Bruce Abdullah describes a toothbrush apparatus for dispensing toothpaste to the bristles having a generally hollow head portion attached to a generally hollow receiving portion, capable of receiving and supporting a toothpaste cartridge. The toothbrush also contains a handle portion, which is attached to the receiving portion at the opposite side of the head portion. The handle portion contains a plunger and a sliding button configured such that the plunger is located inside the head portion and is capable of sliding in and out of said head portion and receiving portion. A toothpaste cartridge containing toothpaste and having a hole and a stopper

located at opposite ends is placed in the receiving portion such that the hole of the toothpaste cartridge is connected to the head portion of the device. When the sliding button slides towards the head portion, the plunger moves inside the paste cartridge, forces the stopper to move towards the head portion and forces toothpaste from the cartridge toward the head portion and to the bristles of the toothbrush.

**[0008]** U.S. Pat. No. 6,056,466 to Jeff Johnson and Jeremy Steele describes a toothbrush with a refillable toothpaste chamber which provides for the storage of toothpaste of choice within the handle section. The toothpaste tube mates with a matching threaded connection on a lower surface of the handle to allow filling of the present invention with no or minimal wasted toothpaste. When the conventional toothpaste tube is removed, a pressurizing pump is installed to allow the user to pressurize the toothpaste chamber. To dispense the toothpaste product, the user simply activates a valve to allow the flow of toothpaste up the handle of the toothbrush where it exits from within the brush assembly of the toothbrush. The toothpaste chamber holds a sufficient amount of toothpaste to allow for several tooth brushing cycles or for a period of use during short travel times. When the internal supply is depleted, the present invention is refilled by repeating the above process.

**[0009]** U.S. Pat. No. 5,636,933 to Steve Vizolyi describes a travel toothbrush with an incremental toothpaste dispenser comprising a main housing with open inboard and outboard ends. The main housing has an inner surface with diametrically spaced detents. The toothbrush has a brush head and a reservoir affixed to the open inboard end of the main housing. The brush head contains a base including a plurality of bristles and a central channel extending therein with the channel being in communication with the reservoir. A plurality of bores is positioned in the base and in communication with the central channel. A plunger is formed in an elongated configuration with inboard and outboard ends with a rubber piston rotatably coupled to the inboard end. The plunger has an outer surface including a plurality of diametrically opposing pairs of indents. The plunger is positioned within the main housing with indents being coupled to detents of the main housing to lock the plunger in a stable orientation. In operation, the main housing is filled with toothpaste and a user presses the plunger to force toothpaste onto the bristles.

**[0010]** None of these prior art references describe the present invention.

### SUMMARY OF THE INVENTION

**[0011]** It is an object of the present invention to provide a portable toothbrush with an attachable cartridge prefilled with toothpaste.

### BRIEF DESCRIPTION OF THE DRAWINGS

**[0012]** FIG. 1 is a prototypical illustrative side view of the present invention showing an integrated toothpaste tube and plunger.

**[0013]** FIG. 2 is a prototypical functional side view of the present invention showing how a prefilled toothpaste cartridge attaches to a toothbrush.

**[0014]** FIG. 3 is a prototypical illustrative side view of the present invention showing how toothpaste is forced upward through a toothpaste hole located in bristles of a toothbrush.

**[0015]** FIG. 4 is a front illustrative view of a cartridge which is useful in the present invention.

## DETAILED DESCRIPTION OF THE INVENTION

**[0016]** Brushing one's teeth is one of the most important parts of healthy hygiene. In addition to freshening one's breath and strengthening one's teeth, proper brushing kills germs and bacteria that grow inside the mouth. A common chronic childhood disease throughout the world is tooth decay. Adults suffer from various forms of dental disease that lead to painful oral surgeries and costly trips to a dentist. To have a healthy smile, people need to brush and floss their teeth at least twice daily, preferably after meals. This recommendation often proves to be easier said than done. With hustling and bustling around busy work and school days, it is impractical to cart around a toothbrush and a bulky messy tube of toothpaste. Consumers are unable to brush their teeth after a lunch meeting or immediately following an afternoon snack. The longer food particles remain in one's mouth, the more susceptible teeth become to the formation of cavities and decay. Those consumers who are enjoying a leisurely though busy day of shopping or travel face this dilemma as well.

**[0017]** The present invention, hereinafter referred to as the Tooth Paste Brush, is a portable toothbrush with or without an attachable cartridge prefilled with toothpaste. The Tooth Paste Brush provides consumers with a convenient and hygienic means of brushing their teeth both at home and while on the go. A fully assembled Tooth Paste Brush **10** comprises the length of a standard adult toothbrush with a compact and ergonomic tubular shape. The detachable head **12** of the Tooth Paste Brush is comprised of short, fiber crisscrossing bristles with beveled edges to **14** facilitate a cleaning that is both effective and comfortable. An alternative embodiment of the toothbrush head contains a group of hard bristles. Several distinguishing characteristics set the present invention apart from standard toothbrush models. First, a small circular opening **16** positioned within the rows of bristles **14** functions as an egress for toothpaste. The hollow cylindrical receptacle handle **18** of the toothbrush functions as a receptacle for the toothpaste stored inside the handle. Toothpaste can be refilled into the hollow receptacle handle **18** as necessary, by simply removing the plunger and injecting toothpaste into the handle. To use, plunger **20** is pushed into the handle to move toothpaste from the handle **18** through hole **16** and onto bristles **14**.

**[0018]** An alternative embodiment a cartridge is inserted into the hollow receptacle handle. The cartridge **30** has an opening **32** at its proximal end wherein the opening is originally closed with a screw cap **34**. The screw cap is removed when the cartridge is inserted into the hollow cylindrical receptacle handle. The distal end of the cartridge has an opening **36**, which is capable of receiving the plunger.

**[0019]** The Tooth Paste Brush is stored within a durable plastic casing for protection from airborne germs and bacteria. The Tooth Paste Brush is manufactured in a variety of attractive and eye catching colors including red, green, pink, yellow, black, white, purple, orange and blue. Extra whitening and tartar control toothpastes and gels are available as well as an array of paste flavors such as mint for adults and bubble gum to appeal for children.

**[0020]** Use of the Tooth Paste Brush is simple and straightforward. A user places an encased Tooth Paste Brush on their person before heading out on an intended activity. A business executive slips the present invention into his interior coat pocket on his way to work. A mother embarking on a shopping expedition inserts a Tooth Paste Brush into her purse. Following a meal, the user removes the Tooth Paste Brush

from its plastic casing. By simply pushing the plunger, the toothpaste channels through the handle and neck of the brush and out through the opening within the rows of bristles. After a desired amount of toothpaste is dispensed, the user brushes their teeth as normal. Each Tooth Paste Brush cartridge contains enough toothpaste for approximately thirty days of applications and is stored conveniently within its plastic casing in between uses. After all toothpaste is dispensed from the Tooth Paste Brush the tooth brush handle is simply refilled. In an alternative embodiment, a cartridge containing toothpaste fits into the handle. In this case, the empty cartridge is removed, disposed and replaced with a fresh cartridge. When worn down and no longer brushing optimally, the toothbrush head is removed, disposed and replaced with a new one.

**[0021]** The Tooth Paste Brush provides consumers with a toothbrush and toothpaste in one convenient and portable unit. Compact and lightweight, the present invention enables users to have access to proper oral hygiene at all times as it is easily carried in a coat or pants pocket, purse or backpack. When used in one's home, the practical toothbrush and toothpaste combination frees much needed counter space from bulky and messy tubes of toothpaste. As toothpaste easily falls off the brush head or washes off completely while brushing, the Tooth Paste Brush eliminates awkwardly reapplying paste from a separate container and helps to alleviate waste. For travelers, the present invention is easily packed into any shaving kit, travel bag or carryon, eliminating using toothpaste tubes that that leak onto belongings.

**[0022]** Although this invention has been described with respect to specific embodiments, it is not intended to be limited thereto and various modifications which will become apparent to the person of ordinary skill in the art are intended to fall within the spirit and scope of the invention as described herein taken in conjunction with the accompanying drawings and the appended claims.

1. A portable toothbrush capable of containing toothpaste, comprising:
  - a detachable brush head having bristles further comprising a circular opening positioned within rows of bristles on the brush head capable of functioning as an egress for toothpaste,
  - a hollow cylindrical receptacle handle attachable to the brush head capable of functioning as a receptacle for toothpaste stored inside the handle,
  - a plunger which travels inside the hollow cylindrical handle capable of pushing toothpaste from the handle into the detachable head and out through the circular opening onto the bristles.
2. A portable toothbrush capable of containing toothpaste, comprising:
  - a detachable brush head having bristles further comprising a circular opening positioned within rows of bristles on the brush head capable of functioning as an egress for toothpaste,
  - a hollow cylindrical receptacle handle attachable to the brush head capable of functioning as a receptacle for a cartridge containing toothpaste wherein the cartridge is stored inside the handle, and the cartridge has an opening for the travel of toothpaste from the cartridge into the detachable brush head and onto the bristles,
  - a plunger which travels inside the cartridge, wherein the cartridge is in the cartridge, wherein the plunger is

capable of pushing toothpaste from the cartridge into the detachable head and out through the circular opening onto the bristles.

3. The portable toothbrush capable of containing toothpaste of claim 2 wherein the cartridge has a removable screw top at its proximal end and is capable of receiving a plunger at its distal end.

4. The portable toothbrush capable of containing toothpaste of claim 1 further comprising a durable plastic casing for protection from airborne germs and bacteria.

5. The portable toothbrush capable of containing toothpaste of claim 2 further comprising a durable plastic casing for protection from airborne germs and bacteria.

6. The portable toothbrush capable of containing toothpaste of claim 1 manufactured in a variety of attractive and eye catching colors including red, green, pink, yellow, black, white, purple, orange and blue.

7. The portable toothbrush capable of containing toothpaste of claim 2 manufactured in a variety of attractive and

eye catching colors including red, green, pink, yellow, black, white, purple, orange and blue.

8. The portable toothbrush capable of containing toothpaste of claim 1 wherein the bristles of the detachable brush head comprise short, fiber crisscrossing bristles with beveled edges to facilitate a cleaning that is both effective and comfortable.

9. The portable toothbrush capable of containing toothpaste of claim 2 wherein the bristles of the detachable brush head comprise short, fiber crisscrossing bristles with beveled edges to facilitate a cleaning that is both effective and comfortable.

10. The portable toothbrush capable of containing toothpaste of claim 1 wherein the bristles of the detachable brush head comprise hard bristles.

11. The portable toothbrush capable of containing toothpaste of claim 2 wherein the bristles of the detachable brush head comprise hard bristles.

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