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B. A. GOLDHIRSH

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DISPENSING UTENSIL

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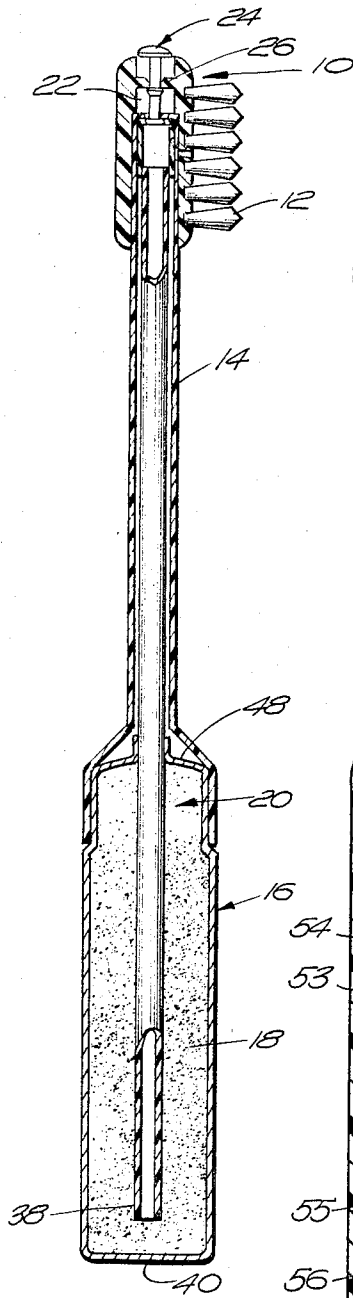


FIG. 1

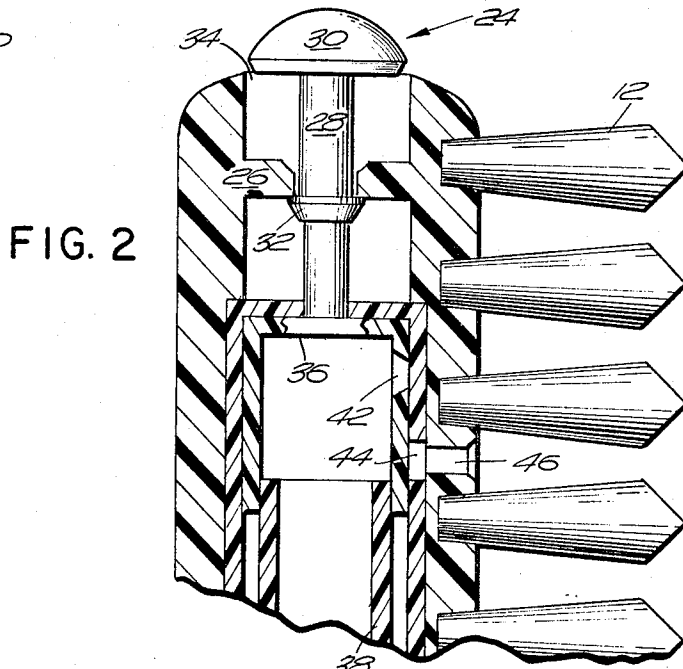


FIG. 2

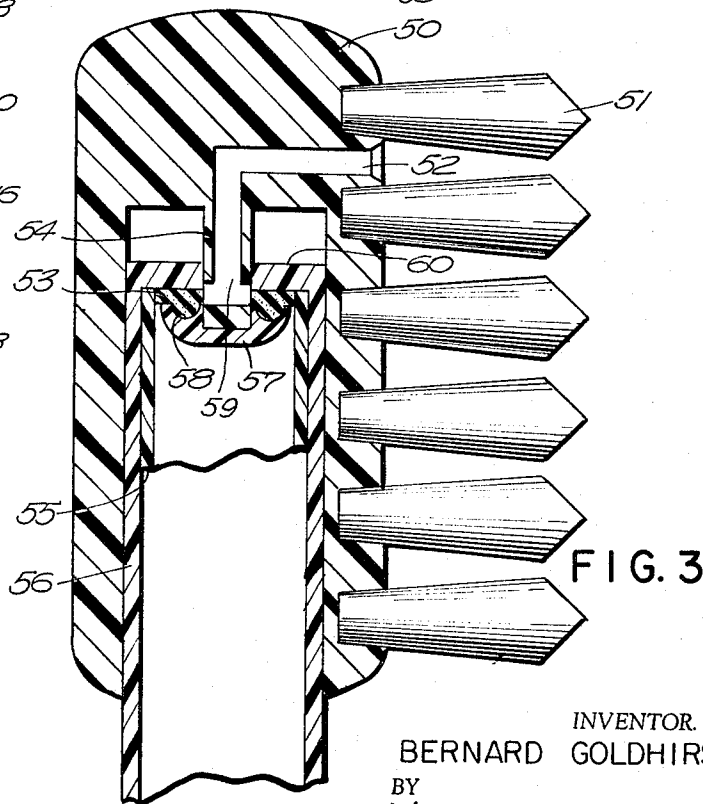


FIG. 3

INVENTOR.  
BERNARD GOLDHIRSH  
BY  
*Weingarten, Greenbuch & Lohr*  
ATTORNEYS

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**DISPENSING UTENSIL**

Bernard A. Goldhirsh, Boston, Mass., assignor of one-half to David Brody, Newton, Mass.

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**ABSTRACT OF THE DISCLOSURE**

A toothpaste dispensing toothbrush comprising a pressurized container having an elongated neck, and a detachable bristled head attached to the end of the neck. A valve is located within the neck and is actuated by means located within the detachable head. A channel provides means for conducting toothpaste from the container to the bristles in the head.

This invention relates in general to applicator utensils and more particularly to a brush which includes a replaceable cannister for dispensing a chemical agent directly onto the bristles of the brush.

There are a number of small brush type utensils which are used in conjunction with a particular semi-fluid or fluid agent applied to its bristles. Typical of such utensils are toothbrushes, cosmetic brushes and shoe polish brushes. In all of these devices the chemical agent is applied to the bristles of the brush and then transferred from the brush to the surface which is being cleaned or otherwise affected. The chemical agents for such applications have, in the past, come in a variety of dispensing forms such as toothpaste tubes and jars, tins and other containers for mascara and shoe polish. One recent innovation in dispensing fluids of all types and kinds has been the use of containers in which the fluid to be dispensed is maintained under a relatively high pressure of gas which, upon actuation of the release valve, provides the impetus for the dispensing of the fluid from the container.

It is therefore a primary object of the present invention to provide a brush utensil including as part of the utensil a dispensing cannister in which the chemical agent is maintained under a high pressure of gas.

It is another object of the present invention to provide a brush type utensil which includes a replaceable cannister containing a chemical agent under high pressure, which cannister is particularly fitted to dispense the chemical agent directly onto the bristles of the brush utensil.

It is yet another object of the present invention to provide a brush type utensil in which a dispensing cannister containing a chemical agent under high pressure forms the handle or grip of the brush.

Broadly speaking, the utensil of this invention combines an applicator head, such as a toothbrush bristled head, with a dispensing cannister containing a suitable chemical agent under high pressure. In the case of a toothbrush, the chemical agent would, of course, be toothpaste and the cannister would be arranged to mechanically cooperate with the toothbrush head so that, upon actuation, toothpaste would be dispensed onto the bristles of the toothbrush. In one preferred embodiment of a toothbrush, the head is formed as a separate unit containing an actuator plunger, and the cannister contains the toothpaste under a substantial pressure of gas, the cannister being formed with a valving arrangement which must be actuated by the plunger to release the toothpaste. Thus, when the cannister is separated from the brush head, it forms a sealed container which cannot readily open to release toothpaste. When the two are assembled together, actuation of the plunger releases toothpaste only through the orifice in the brush head onto the bristles.

In a typical arrangement the cannister is formed of a suitable size to constitute the handle of the toothbrush when it is mounted to the bristle head. In another embodiment, the toothbrush and cannister may be formed as an integral unit to be disposed of when the cannister is empty. Other variations might include the use of a cannister with a valve which has its own actuator, and where the toothbrush bristled head has an appropriate opening to receive the cannister valve. The cannister may also be constructed to fit with a vibrator or motor for use with an electrical toothbrush. For example, the cannister might have an annular form.

Other objects and advantages will become apparent from the following detailed description when taken in conjunction with the accompanying drawing in which:

FIG. 1 is a cross-sectional view of one embodiment of the present invention;

FIG. 2 is an enlarged sectional view of the bristled head and valve mechanism of the utensil illustrated in FIG. 1; and

FIG. 3 is a cross-sectional view of an alternate valving arrangement suitable for use in a brush utensil constructed in accordance with the principles of this invention.

With reference to FIG. 1, there is shown a toothbrush constructed in accordance with the principles of this invention. The toothbrush is comprised of a brush head 10, carrying a plurality of bristles 12, affixed to an elongated hollow neck 14 which is formed integrally with a cannister 16 containing a supply of toothpaste 18 under pressure from a gas 20.

The head 10 may be formed as an integral unit with the neck 14 may be made so as to be removable therefrom. If made removable, the head 10 is provided with an elongated hollow cavity 22 extending along its longitudinal axis. This cavity 22 may be tapered so that the brush head 10 may be securely fixed onto the neck 14 by pressure alone. The head 10 may also be secured onto the neck 14 by any other convenient means such as a bayonet type locking mechanism or by means of screw threads.

At the end of head 10 opposite to the end fitted on neck 14 there is provided a pushbutton 24 which is retained in head 10 by a ring 26 which is formed as an integral part of head 10 and which substantially blocks the upper end of the cavity 22. The button 24, shown greatly enlarged in FIG. 2, consists of a cylindrical body 28, formed with discs 30 and 32 on either end. The button 24 is positioned with the cylinder 28 extending through the center of ring 26 with disc 30 on one side of ring 26 and disc 32 on the other side. The upper disc 30 fits into the recess 34 formed in head 10.

A slide valve 36 is fitted in the end of neck 14. The slide valve 36 is fitted over the end of an elongated tubing 38 which extends along the entire length of neck 14 and into cannister 16 almost to the bottom section 40. The slide valve 36 has an orifice 42 therein which can be aligned with an orifice 44 provided in the side of neck 14 and which is aligned with a third orifice 46 provided in head 10. The orifice 46 provided in head 10 must be aligned with the orifice 44 when the head 10 is secured on neck 14. This orifice 46 must extend completely through one wall of the head 10 into the area of bristles 12.

As previously mentioned, the body 16 contains a toothpaste under pressure from a gas 20. Typically, the gas pressure would be 40 to 50 lbs. per square inch. It must in any event be greater than atmospheric pressure, that is, 15 lbs. per square inch. In order to prevent the gas 20 from passing up the neck 14 and leaking out orifice 42 past the slide valve 36, a flexible sealing diaphragm 48 is provided between the cannister 16 and neck 14. The tub-

ing 38 passes through the diaphragm and makes a pressure seal therewith. When the slide valve 36 is depressed, this tube 38 is therefore inserted further within the cannister 16, within the limits of travel allowed by the flexing of diaphragm 48.

With a brush utensil as described above in conjunction with FIGS. 1 and 2, the cannister, when it is separated from the brush head, is kept sealed by the influence of the pressure on the slide valve 36 in neck 14. In shipping or storing such cannisters a protective cap would normally be used to prevent accidental actuation of this valve.

The device shown in FIG. 1 is operated as follows. When the user wishes to obtain a fresh charge of toothpaste 18 on the bristle area 12 the unit is held in an upright position so that the head 10 is substantially higher than the bottom 40 of cannister 16 and the button 24 is pressed so that the slide valve 36 is forced in a general direction toward the bottom 40 of the body 16. The button 24 must be depressed far enough to force the slide valve 36 down the neck 14 a distance sufficient to cause orifice 42 to align itself with orifice 44. When the orifices are in line, the gas 20 which is exerting the pressure on the paste 18 causes the paste 18 to be forced up the tube 38 out through the orifices 42, 44, and 46 to the bristles 12. When the desired amount of paste has been expelled out onto the bristles 12, the button 24 is released and the pressure forces the slide valve 36 to return to its original position thus shutting off any flow of additional paste through the openings.

Although only a single orifice has been described in the slide valve in the neck 14 and in the head 10, it is obvious that a plurality of openings could be provided so that the paste 18 could be extruded out of the head 10 at a number of places.

While a particular arrangement of the component parts of the utensil has been described, it is apparent that there are a number of alternative designs. For example, the pushbutton 24 could be replaced with a helical screw locking mechanism which would prevent the button 24 from being accidentally discharged while the device was in use. In FIG. 3, another alternative valving arrangement is shown. Mounted within the neck 56 of the cannister is again an elongated tube 55 which extends almost to the bottom of the cannister. The cannister neck 56 has a small central opening 59 in the top portion 60. This opening 59 is kept normally closed by a plastic stopper 57 which is maintained sealed against a rubber grommet 53 by the pressure within the cannister. The bristled toothbrush head 50 is fitted over the neck 56 of the cannister and is arranged to allow for vertical sliding action with respect to this neck 56. A channel 52 within the brush head 50 provides for passage of toothpaste from the central opening 59 of the cannister neck 56 to the bristle portion 51 of the brush head 50. By depressing the brush head 50 the tubular protrusion 54 of the brush head mechanically pushes the stopper 57 away from the grommet 53 allowing the toothpaste to be forced over the ring portion 58 of grommet 53 and into the opening 59 and into the passage 52 for dispensing onto the bristles 51 of the brush head. The brush head in the embodiment of FIG. 3 may be provided with a bayonet type lock so that in one position it may be depressed for dispensing

toothpaste onto the bristles and in the other position, when used for brushing, mechanical force exerted against the head of the toothbrush does not accidentally dispense toothpaste.

While the invention has been described specifically in terms of a toothbrush, it is apparent that the utensil of the invention is equally effective for any type of dispensing applicator, for example mascara brushes, shoe polish daubers, or the like. The invention having been described, various modifications and improvements will now become apparent to those skilled in the art and it is intended that the spirit and scope of this invention be limited only by the attached claims.

What is claimed is:

1. A utensil for dispensing a fluid onto an applicator surface comprising a detachable head portion including said applicator surface, an orifice within said head portion for dispensing the said fluid onto said applicator surface, a cannister formed as a closed cylindrical body including an elongated outlet tube, said cannister being formed sufficient to contain said fluid under a pressure in excess of 15 lbs. per square inch, a valve mounted within said outlet tube of said cannister for controlling the emission of said fluid from said cannister, and valve actuator means in said head, said outlet tube having a hole in its side wall near the end distant from said cannister, said head being attached to said outlet tube with said dispensing orifice in registration with said hole in said outlet tube, said valve being a sleeve concentrically mounted within said outlet tube for sliding motion with respect to said outlet tube, said sleeve having a hole in its side wall, said valve being operable by axially sliding said sleeve within said outlet tube to a predetermined position by said actuating means, said hole in said sleeve being in registration with said hole in said outlet tube and said dispensing orifice when such sleeve is at said predetermined position, whereby said pressurized fluid within said cannister is permitted to pass through said holes and said orifice onto said applicator surface.

2. A utensil as recited in claim 1, wherein said pressurized fluid within said outlet tube forces said valve into a closed position when said actuator means is released, and wherein said outlet tube remains closed to passage of said fluid when said actuator means is absent.

#### References Cited

##### UNITED STATES PATENTS

1,764,130	6/1930	Vardeman	15—587
2,756,908	7/1956	Miller.	
2,806,238	9/1957	Wisey	132—84
2,987,743	6/1961	Capps	132—84
3,116,403	12/1963	Carter.	
3,184,781	5/1965	Hoxie	15—552
3,242,928	3/1966	Peters	15—552 X

##### FOREIGN PATENTS

1,319,051 1/1963 France.

CHARLES A. WILLMUTH, *Primary Examiner*.  
E. L. ROBERTS, *Assistant Examiner*.