

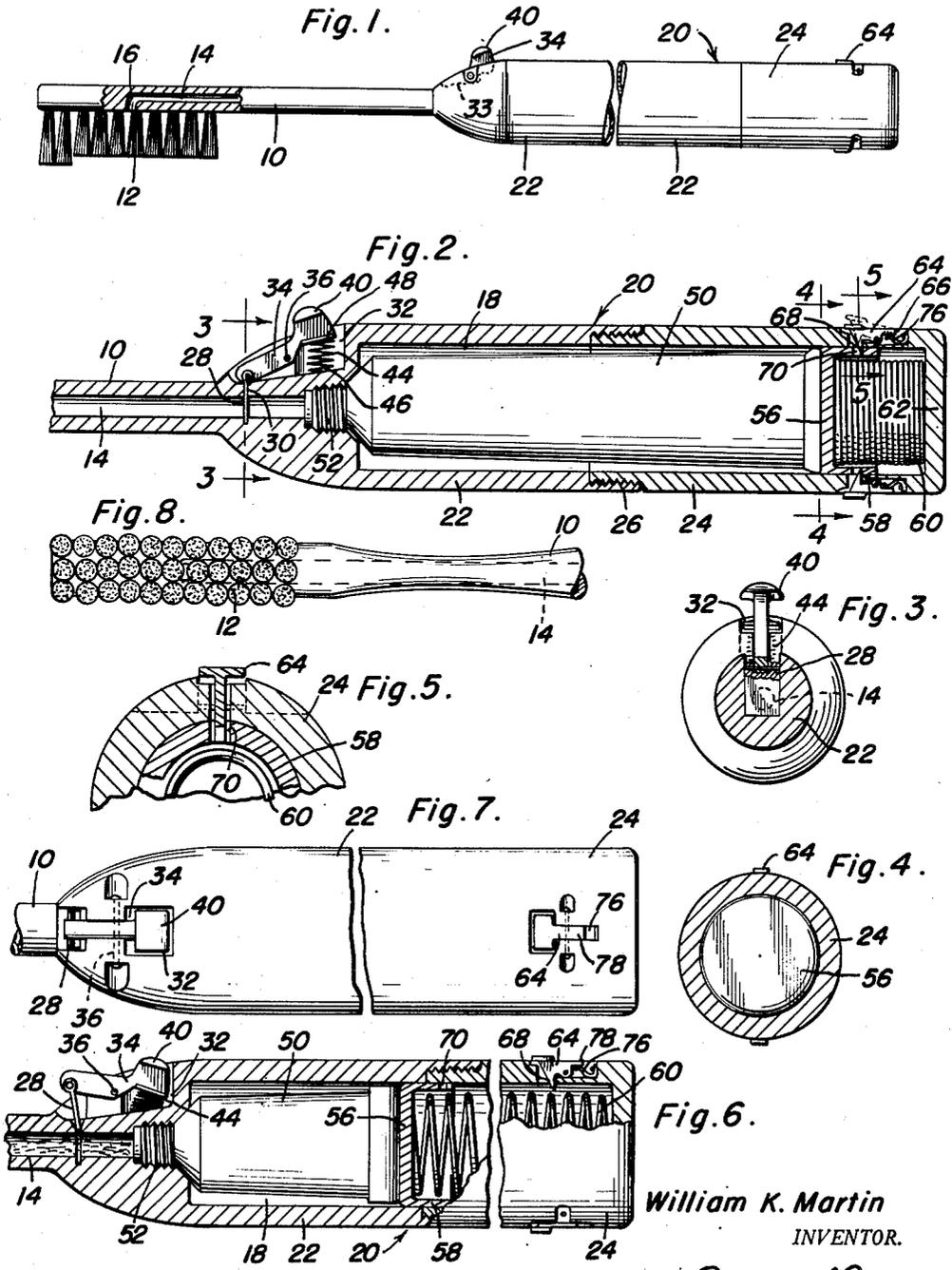
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W. K. MARTIN

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DISPENSER WITH SPRING PRESSED FOLLOWER

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William K. Martin  
INVENTOR.  
BY *Clarence A. O'Brien*  
and *Harvey B. Jacobson*  
Attorneys

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## DISPENSER WITH SPRING PRESSED FOLLOWER

William K. Martin, Cliff, N. Mex., assignor of one-third to Fred W. Foster, Cliff, N. Mex.

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2 Claims. (Cl. 222-95)

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This invention relates to novel and useful improvements in dental apparatus.

An object of this invention is to dispense a charge of tooth paste into or between thin bristles of a number of bristles disposed at the end of the shank of the tooth brush, which shank has a passage therein in order to conduct the charge of material; said charge of material being controlled by a manually operable valve disposed in the passage whereby upon operation of the valve dental cream is urged outwardly through the passage and between the bristles of the brush.

Another object of this invention is to maintain a pliable tube of dental cream under pressure by constant urging of a piston which is carried in a hollow handle attached to said shank so that as soon as the valve is operated to the passage opening position, a charge of dental cream under pressure is urged through the passage.

Another object of this invention is to fabricate the handle in a pair of separable sections so that the tube of dentifrice may be maintained therein, and to releasably hold the piston in one position during the time that the tube is inserted in the hollow handle to facilitate this operation.

Ancillary objects and features of novelty will become apparent in following the description of the illustrative form of the invention.

In the drawings:

Figure 1 is an elevational view of the device;

Figure 2 is a fragmentary longitudinal sectional view of the device shown in Figure 1;

Figure 3 is a transverse view taken substantially on the line 3-3 of Figure 2 and in the direction of the arrows;

Figure 4 is a transverse sectional view taken substantially on the line 4-4 of Figure 2 and in the direction of the arrows;

Figure 5 is an enlarged fragmentary detail view of the locking device, taken substantially on the line 5-5 of the Figure 2 and in the direction of the arrows;

Figure 6 is an elevational view of the handle and valve mechanism, a large portion being shown in section to illustrate detail of construction; and,

Figure 7 is an enlarged plan view of a part of the handle and valve as well as locking mechanisms.

Figure 8 is a fragmentary bottom view of a part of the brush.

The instant invention deals with devices for

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automatically dispensing a charge of tooth paste between and in the bristles of a tooth brush.

The illustrated embodiment of the invention includes a shank 10 with bristles 12 at one end thereof and a passage or passageway 14 passed longitudinally through the shank 10. The passage opens at one end in a port 16 into and between the bristles 12, while the other end opens into a bore 18 wherein the handle is generally indicated at 20. This handle is composed of a pair of separable sections 22 and 24 which are connected together by means of the threads 26 formed on the reduced end portion of the sections.

A valve plate 28 is slidable in a slot 30 formed at the junction of the shank 10 and the section 22. A recess 32 formed in the section 22 accommodates the valve operator arm or lever 34. This lever is pivoted on a pin 36 and has a finger-grip 40 integral therewith. The valve plate 28 is secured to the lever 34 by means of a pivotal connection.

Means resiliently opposing the operation of the lever 34 and hence the valve 28 is provided. This means is preferably a coil spring 44 reacting on the section 22 and the under surface of the lever 34, and centered by the pins 46 and 48 which are secured to the section 22 and the lever 34 respectively.

As shown in Figure 2, a pliable tube of dentifrice 50 or a detergent is disposed in the bore 18. The normally threaded end 52 of the tube is disposed in suitable threads provided at the junction of the passage 14 and the bore 18. This holds the tube 50 disposed parallel to the longitudinal axis of the handle 20.

Means constantly applying a pressure to the pliable tube and hence the cream therein is provided. This means consists preferably of a piston 56 which has a skirt 58 depending therefrom. The piston is slidable in the bore 18 and is adapted to press against one end of the tube 50.

A spring 60 which forms a means for constantly urging the piston axially in the bore 18 is provided. This spring reacts on the closed end 62 of the section 24 and on the under surface of the piston 56.

Means releasably holding the piston in one position in the bore is provided. The utility of this means is to maintain the piston inwardly of the section 24 while the tube 50 is inserted in the handle. A pair of identical locking devices are employed in this purpose.

Each locking device consists of a keeper arm 64 which is pivoted in a recess 66 formed in the sec-

tion 24. The projection 68 formed on the keeper arm 64 passes through an opening in the section 24 and also into an opening 70 formed in the skirt 58 of the piston.

A small leaf spring 76 is secured in the recess 66 and has a portion thereof bearing against an extension 78 or a suitable part of the keeper arm 64. The spring is arranged to urge the projection 68 downwardly through the apertures in order to hold the piston inwardly of the section 24. It is only necessary to manually release both locking devices by pressing downwardly on the extension 78 of each against the opposing force of the spring 76. This releases the piston 56 so that the spring 60 exerts a force thereagainst, compressing the pliable tube 50 and urging the contents of the tube through the passageway 14, as controlled by the valve 28.

When it is desired therefor to discharge a quantity of material from the tube 50, it is only necessary to press the lever 34 downwardly to open the passageway. As soon as the desired quantity of material is intermingled with the bristles 12, the lever 34 is released allowing the spring 44 to return it, which return is reflected with closing operation of the valve plate 28.

Having described the invention, what is claimed as new is:

1. In a dental device which includes an elongated shank with a longitudinal passage in it to deliver tooth paste and a handle fixed to the shank, a spring closed valve carried by said handle adjacent one end thereof and arranged to control said passage, the improvement comprising a first section and a second section constituting said handle, said first section having a bore which opens outwardly through the end thereof, said second section having a bore which is arranged to communicate with the first mentioned bore, means for releasably fastening said sections together, said second section having a closed end wall, said second section having an aperture in the side wall thereof adjacent to said closed end wall, a spring loaded keeper mounted pivotally within said aperture, a piston disposed in said bores and adapted to compress a tube in said bores, a spring reacting upon and contacting one surface of said piston and the inside surface of said closed end wall of said second section, said piston having a skirt with an opening therein, and said keeper being removably disposed in the opening in said piston skirt to thereby hold said piston in one position within said section and to thereby hold said spring compressed between said piston and said closed end wall when placing a tube of tooth paste in said bores.

2. In a dental device, a combination handle

and tooth-paste dispenser comprising first and second cylindrical sections detachably secured to one another, said first section having a small bore in one end thereof and a large counterbore opening into the other end thereof and communicating with said small bore, a spring urged valve mounted intermediate the ends of said first section and normally closing said small bore, the portion of said small bore adjacent said counterbore being enlarged and threaded to constitute a socket for receiving the nozzle of a toothpaste tube, said second section having a bore of substantially the same diameter as said counterbore opening into the end thereof secured to said first section, the other end of said second section being closed, said second section having an aperture therein adjacent said closed end, a spring loaded keeper mounted pivotally within said aperture and projecting into the bore of said second section, a piston slidably disposed in said second section bore and adapted to compress a tube of toothpaste disposed in said second section, a spring reacting upon and contacting one surface of said piston and the inside of said second section closed end, a guide skirt on said piston for guiding the same through said sections upon release of the spring, said skirt having an opening therein engaged by said spring loaded keeper to lock the piston in said second section to permit the insertion of a tube of toothpaste in said sections.

WILLIAM K. MARTIN.

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