June 13, 1939. P. H. SEIBEL 2,162,447

DENTIFRICE CONTAINING AND DISPENSING TOOTH BRUSH

Filed Aug. 9, 1938 2 Sheets-Sheet 1

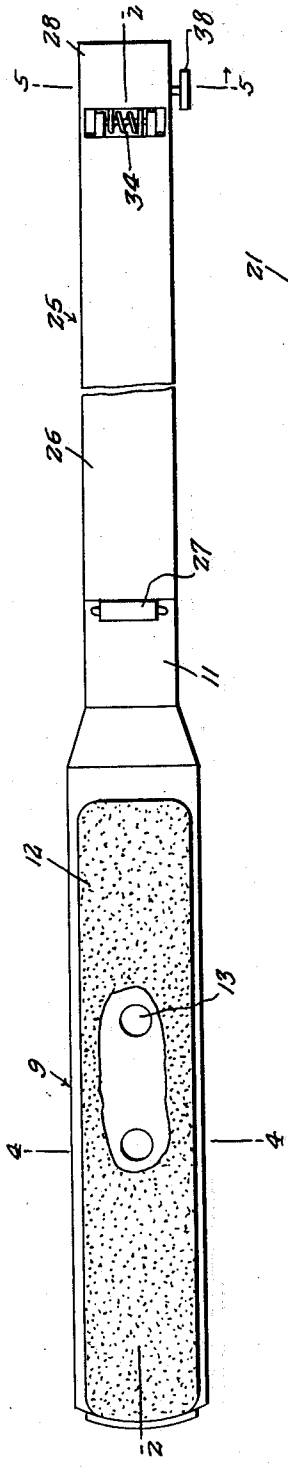


Fig. 1.

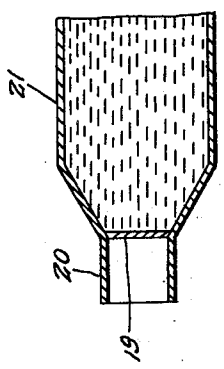


Fig. 2.

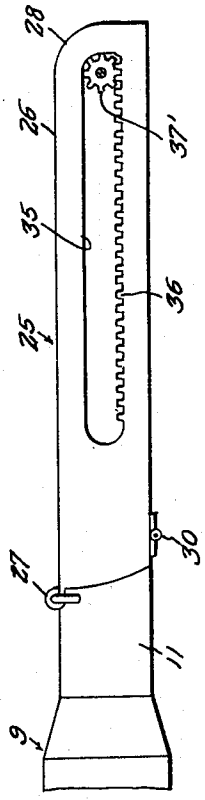


Fig. 3.

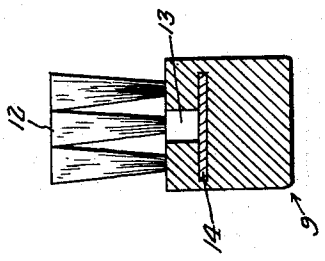


Fig. 4.

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DENTIFRICE CONTAINING AND DISPENSING TOOTH BRUSH

Filed Aug. 9, 1938 2 Sheets-Sheet 2

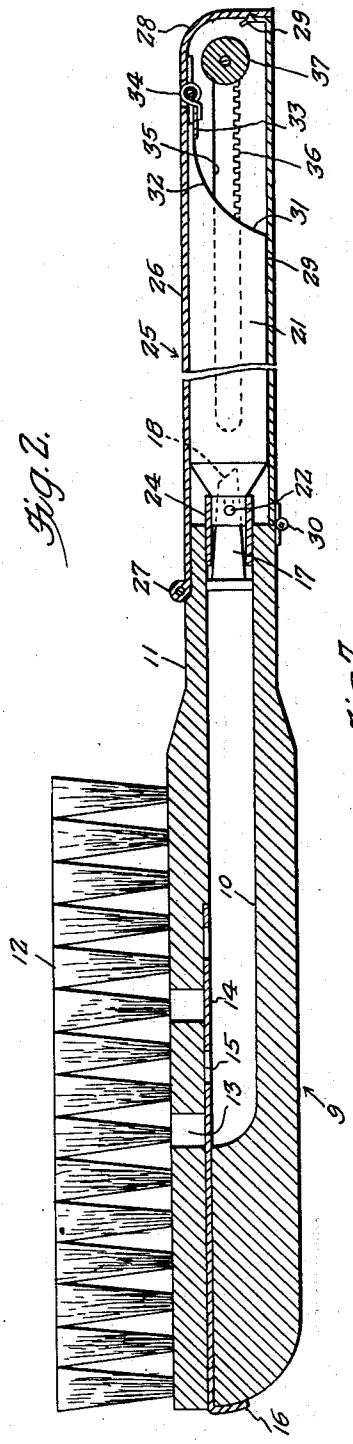


Fig. 2.

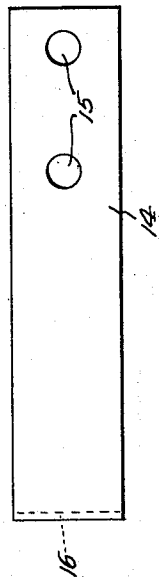


Fig. 7.

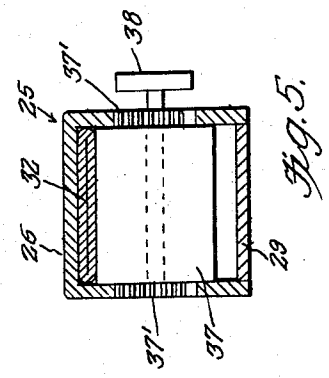


Fig. 5.

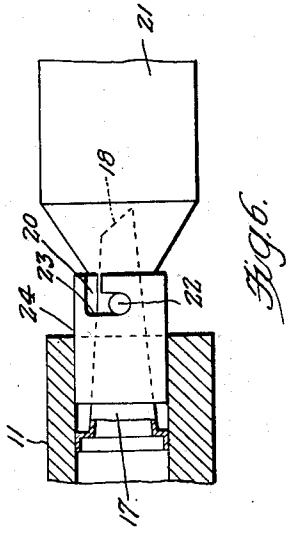


Fig. 6.

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UNITED STATES PATENT OFFICE

2,162,447

DENTIFRICE CONTAINING AND DISPENSING TOOTH BRUSH

Phillip H. Seibel, St. Louis, Mo.

Application August 9, 1938, Serial No. 223,971

3 Claims. (Cl. 221—60)

The present invention relates to a fountain style toothbrush and has more specific reference to the type characterized by a hollow apertured head with bristles and a hollow handle, wherein the handle constitutes a holder or magazine for a collapsible tube of toothpaste.

As is evident from the introductory statement of the invention, I am sufficiently conversant with the prior art to realize that dispensing brushes of this general construction are admittedly old. It follows therefore, that the object of the present invention is to generally improve upon prior art and marketed brush constructions by providing one possessed of recognized structural refinements and improvements calculated to provide a more satisfactory assembly to accomplish the desired result in a dependable and adequately satisfactory manner.

As will be hereinafter discerned, one improvement is predicated upon the hollow head and shank construction wherein the head is bristle equipped and provided with a slide valve to regulate the delivery of the dentifrice-paste according to the needs of the user.

A further feature has to do with the incorporation in the structure of a tubular puncturing nozzle for opening the collapsible paste tube and thereafter feeding the ribbon-like filler from said tube into the dispensing head.

In addition to the above, novelty is predicated on the sectional hollow handle forming a magazine for the collapsible tube as well as a mount for the expressing roller.

Other features and advantages will become more readily apparent from the following description and the accompanying illustrative drawings.

In the drawings:

Figure 1 is an elevational view of the brush as constructed in accordance with the principles of the present invention.

Figure 2 is a somewhat enlarged longitudinal section taken on the plane of the central line 2—2 of Figure 1, portions being shown in elevation.

Figure 3 is a side elevational view showing a fragmentary portion of the shank of the brush and the hollow sectional casing forming the handle proper as well as the enclosure for the toothpaste tube and other mechanism.

Figure 4 is a transverse section on the plane of the line 4—4 of Figure 1.

Figure 5 is an enlarged cross-section on the line 5—5 of Figure 1.

Figure 6 is an exaggerated detail fragmentary sectional and elevational view showing the adapter sleeve for mounting the toothpaste tube as well as the puncturing and feed nozzle.

Figure 7 is a top plan view of the slide valve plate.

Figure 8 is a fragmentary view showing the puncturable end of the dentrifice or toothpaste containing tube.

As before pointed out, the toothbrush head is a unit, this being hollow and provided with a shank. The head is unitarily referred to by the numeral 9 and includes a main delivery passage 10 having communication with the tubular shank 11. Conventional bristles 12 are utilized on the effective face of the head. Then at predetermined points, one or more discharge ports 13 cooperate with the bristles to deliver the paste thereto. The regulation of paste is controlled by the slide plate 14, this having apertures 15 in registry with the ports 13 and being provided at one end with a lateral bend 16 forming a finger grip for convenient operation.

Reference being conveniently had to Figure 6, it will be observed that in the intake end of the shank I provide a suitably proportioned tapered feed nozzle 17. This is suitably anchored in place and of general tapered form having the smaller end cut obliquely to provide a puncturing point 18 to penetrate the puncturable diaphragm or membrane 19 utilized as a discharge neck 20 of the toothpaste containing tube 21. The neck 20 is provided with outstanding diametrically opposite retention pins 22 which engage in bayonet slots 23 formed in diametrically opposite portions of the adapter and coupling sleeve 24. The part 24 surrounds the puncturing nozzle and is anchored suitably in the shank. It projects beyond the shank to facilitate attachment as is obvious.

The casing-like magazine or sheath 25 forms the major portion of the operating handle. It also constitutes a housing or enclosure for the major portion of the dentrifice tube 21. This magazine comprises a main channel-shaped section 26 hingedly mounted as at 27 on the shank. The down bent or curved end portion 28 has a keeper indentation to coact with the detent or keeper tang 29 formed on the free end of the complemental section 29. The part 29 is a flat plate and forms the bottom of the enclosure. It is hingedly mounted on the shank 11 as indicated at the point 30. Thus the companion parts 26 and 29 snap together to provide a magazine for the cartridge or tube 21. Incidentally, the part 21 is shaped at one end as at 31 to provide a retaining element 32 and this is held in place by a

clip 33 which is in turn maintained in operative position by spring means 34.

In opposite side walls the channel-shaped section 26 is provided with slots 35 having rack teeth 36 to accommodate the operating cogs or pinions 37' mounted on opposite end portions of the axle of the compressing roller 37. A suitable knob or operating element 38 is provided on the same axle to turn the roller to express the contents of the tube in an evident manner.

In practice, special cartridges or tubes are manufactured and sold to fit in the particular holder 25. The sections of the holder can be spread open to allow the tube to be inserted. By completely spreading the sections 26 and 29 the bayonet slot and pin means is readily usable to adjoin the tube 21 to the adapter fitting or neck 24. At the same time, under this arrangement the puncturable diaphragm can be readily broken to permit the contents to flow, when pressed, through the intake or delivery nozzle 17.

It is obvious that the compressible tube is squeezed or pressed through the instrumentality of the shiftable compressing roller 37. Thus it will be easy for the user to insert and remove the component parts for expeditious use. Then too, the final discharge of the paste through the ports 13 can be fully regulated by the aforementioned plate valve 14.

It is thought that the description taken in connection with the drawings will enable a clear understanding of the invention to be had. Therefore, a more lengthy description is thought unnecessary.

While the preferred embodiment of the invention has been shown and described, it is to be understood that minor changes coming within the field of invention claimed may be resorted to if desired.

What I claim is:

1. In a dispensing device of the class described, a tubular member, an elongated channel-shaped casing having one end closed and its other end having its web part hingedly connected with the tubular member, a closure plate for the open side of the channel-shaped member having one end hingedly connected with the tubular member, latch means for connecting the other end of the plate with the closed end of the channel-shaped member, the side walls of the channel-shaped member having elongated slots therein with one wall of each slot having rack teeth thereon, a roller in the channel-shaped member, toothed disks at the ends of the roller for engaging the rack teeth, a handle connected with one end of the roller and located exteriorly of the channel-shaped member, a flap hinged to the web of the channel-shaped member adjacent the closed end thereof for holding an end of a tube between itself and the web of the channel-shaped member, a spring for pressing the flap against that end of the tube and means for holding the mouth of the tube in register with the bore of the tubular member.

2. In a dispensing device of the class described, a tubular member, a coupling sleeve in one end of the bore thereof and having a part projecting therefrom, said projecting part having a bayonet slot therein, a substantially conical member having a base part at its large end fitting snugly in the bore of the tubular member with the said conical member passing through the sleeve with the small end projecting from the sleeve, said small end terminating in a penetrating nozzle, a container tube provided with a cylindrical neck having a puncturable diaphragm extending thereacross, a pin projecting from the neck and adapted to engage the bayonet slot, the nozzle of the conical member penetrating the dipahragm when the neck of the tube is inserted in the sleeve to engage the pin with the slot.

3. In a dispensing device of the class described, a tubular member, a coupling sleeve in one end of the bore thereof and having a part projecting therefrom, said projecting part having a bayonet slot therein, a substantially conical member having a base part at its large end fitting snugly in the bore of the tubular member with the said conical member passing through the sleeve with the small end projecting from the sleeve, said small end terminating in a penetrating nozzle, a container tube provided with a cylindrical neck having a puncturable diaphragm extending thereacross, a pin projecting from the neck and adapted to engage the bayonet slot, the nozzle of the conical member penetrating the diaphragm when the neck of the tube is inserted in the sleeve to engage the pin with the slot, an elongated channel-shaped member for enclosing the tube and having one end closed and its other end having its web part hingedly connected with the tubular member, a closure plate for the open side of the channel-shaped member having one end hingedly connected with the tubular member, latch means for connecting the other end of the plate with the closed end of the channel-shaped member, the side walls of said channel-shaped member having elongated slots therein one wall of each slot provided with rack teeth, a roller in the channel-shaped member, toothed wheels at the ends of the roller for engaging the rack teeth, a handle connected with one end of the roller and projecting from the channel-shaped member, said roller acting to flatten the tube to force material therefrom when the roller is rotated, a flap and a spring hinge for connecting the flap with the web part of the channel-shaped member, said flap acting to hold a portion of the tube between itself and said web part of the channel-shaped member.

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