May 20, 1958 L. F. PERWAS 2,834,975

POCKET TOOTHBRUSH WITH REMOVABLE BRUSH HEAD

Filed July 3, 1953

Fig. 1.

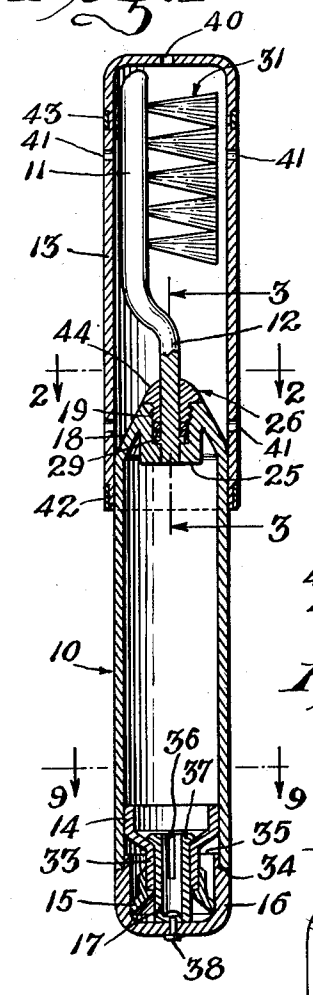


Fig. 3.

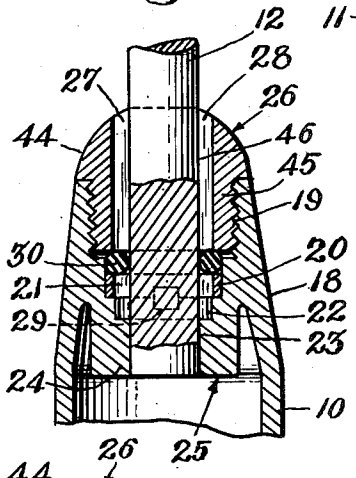


Fig. 4.

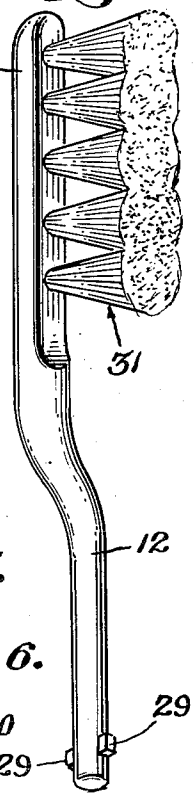


Fig. 5.

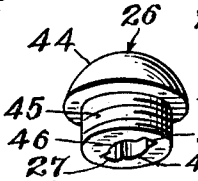


Fig. 6.

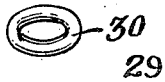


Fig. 7.

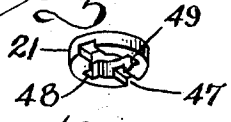


Fig. 8.

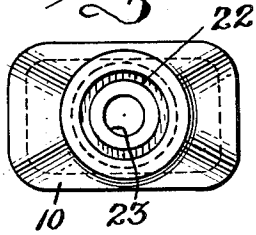
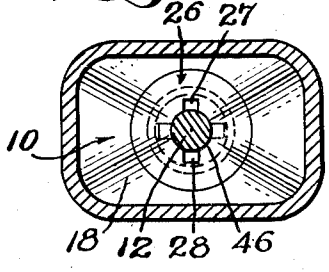


Fig. 2.



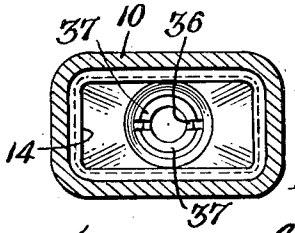


Fig. 9.

INVENTOR.
Ludwig F. Perwas,
BY Victor J. Evans & Co.
ATTORNEYS

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POCKET TOOTHBRUSH WITH REMOVABLE BRUSH HEAD

Ludwig F. Perwas, New York, N. Y.

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2 Claims. (Cl. 15—176)

This invention relates to toothbrushes of the enclosed type, in which a replaceable brush head is mounted in a handle and covered with a cap, the cap and handle both being rectangular-shaped in cross section, and also in which a reservoir in the handle is adapted to be filled with liquid, paste or powder through a funnel in the extended end of the handle, the funnel being enclosed with a closure cap frictionally held on said extended end of the handle.

The purpose of this invention is to provide a pocket toothbrush having a reservoir in the handle and in which the brush head is readily replaceable.

Various types of toothbrushes have been provided with caps covering the brush heads and other toothbrushes have been formed with reservoirs in the handles; however, with the conventional type of toothbrush it is difficult to use a closure cap over the brush head without making the bristles of the brush comparatively short. With this thought in mind, this invention contemplates a toothbrush having a hollow handle with a brush head removably mounted in the end of the handle and covered with a cap frictionally held on the handle, in which the body of the handle is rectangular-shaped in cross section and the shank of the brush head is offset whereby with the head of the brush positioned on the long side of the handle and with the back of the head in one side of the handle the bristles of the brush, which extend across the center to the opposite side of the handle may be comparatively long.

The object of this invention is, therefore, to provide means for forming a pocket toothbrush with a reservoir in the handle whereby the reservoir is comparatively long in one direction and, with the head offset, the brush head may be provided with comparatively long bristles.

Another object of the invention is to provide a toothbrush of the type having an enclosed head and a hollow handle in which the end of the handle is provided with a funnel to facilitate filling the interior thereof.

A further object of the invention is to provide an improved toothbrush of the type having a reservoir in the handle and a removable brush head in which the toothbrush is of a simple and economical construction.

With these and other objects and advantages in view, the invention embodies a toothbrush having an elongated handle, rectangular-shaped in cross-section with a brush head having an offset shank temporarily secured in one end of the handle with a lock nut and with a funnel carried by a retaining sleeve in the opposite end of the handle and covered with a closure cap.

Other features and advantages of the invention will appear from the following description taken in connection with the drawing, wherein:

Figure 1 is a longitudinal section through the pocket toothbrush taken on the long axis of the rectangular shaped body and in which a portion of the toothbrush head is shown in elevation.

Figure 2 is a cross section through the toothbrush taken on line 2—2 of Figure 1.

Figure 3 is a detail showing a section taken on line 3—3 of Figure 1 with the parts shown on an enlarged scale and illustrating the removable connection of the brush head to the handle.

Figure 4 is a detail showing the removable brush head and also with the parts shown on an enlarged scale.

Figure 5 is a detail illustrating the splined lock nut for securing the brush head in the end of the handle.

Figure 6 is a detail showing the packing washer for sealing the end of the handle around the shank of the brush head.

Figure 7 is a detail illustrating a splined retaining washer in which the projections of the end of the shank of the brush are held.

Figure 8 is an end elevational view looking toward the end of the handle in which the brush head is mounted with the brush head and cap removed.

Figure 9 is a cross section through the lower part of the handle taken on line 9—9 of Figure 1.

Referring now to the drawing wherein like reference characters denote corresponding parts the improved pocket toothbrush of this invention includes a handle **10**, rectangular shaped in cross section, a brush head **11** having an offset shank or stem **12**, a cap **13** positioned over the brush head and frictionally held to the end of the handle, a retaining sleeve **14** positioned in the end of the handle opposite to that in which the brush head is mounted, a funnel **15** secured in the end of the sleeve **14** and a closure cap **16** frictionally secured in the retaining sleeve **14** by a plug **17**.

The end of the handle in which the brush head is mounted is provided with a tapering section **18**, particularly as shown in Figure 3, with an internally threaded socket **19** in the extended end, an annular recess **20** in which a retaining washer **21**, as shown in Figure 7, is positioned, a bore **22** extended below the retaining nut and a bore **23** extended from the bore **22** to the end **24** of an inner sleeve **25**.

A lock nut **26** threaded in the socket **19** at the end of the handle is provided with longitudinally disposed grooves **27** and **28** through which lugs or projections **29** pass as the brush head is inserted and removed. The lower ends of the grooves **27** and **28** terminate at the upper surface of the end **24** of the sleeve **25** preventing the lugs **29** dropping through the end **24**. It will be noted that the sealing washer **30**, shown in Figure 6, is positioned between the inner end of the lock nut **26** and retaining washer **21** and, being of rubber, or other resilient material the ring is adapted to expand to permit passage of the projections **29**. However, when the lock nut **26** is forcibly threaded into position, it will engage the sealing washer **30** and compress it against the shank **12** of the brush head **11** to securely retain the brush head **11** in position. During the operation, the brush head **11** is pulled outwardly so that the projections **29** on the shank **12** are retained in the groove **47** until the sealing washer **30** has been adequately compressed.

The brush head **11** is provided with bristles **31** and it will be understood that the back and bristles of the brush may be of any suitable design.

The retaining sleeve **14**, in the opposite end of the handle is cemented, or otherwise permanently secured in position and the extended end or neck **33** thereof is secured to the funnel **15** also with cement or other suitable holding means.

The closure cap **16** is provided with an annular recess **34** providing a lip **35** at the inner edge and the plug **17**, which is provided with slits **36** forming spring fingers **37** is secured to the cap **16** with a rivet or other fastener, and as indicated by the numeral **38**. The spring fingers permit the extended end of the plug to contract as it passes through the retaining sleeve **14**.

The cap **13** is provided with a ventilating opening **40** in the end and with similar openings **41** in the sides and a reinforcing metal band **42** is placed around the open end whereby, with the cap formed of plastic, a metal band prevents expanding or splitting thereof. A similar band **43** may be placed around the upper part of the cap and it will be understood that the cap may be provided with as many bands as may be desired. It will also be understood that the cap may be formed of metal and bands of different colors may be placed around the outer surface.

The lock nut **26** is formed with a rounded head **44** with a threaded shank **45** extended from the head and the grooves **27** and **28** are provided at the sides of a bore **46** which extends through the nut.

The retaining washer **21**, as illustrated in Figure 7, is provided with a transversely disposed slot **47** and also with vertically disposed grooves **48** and **49** whereby the projections **29** are adapted to pass through grooves **27** and **28** in the lock nut and also through the grooves **48** and **49** of the retaining washer, and after passing through the grooves **48** and **49** the brush head is turned through an angle of 90 degrees with the projections **29** positioned in the transversely disposed slot **47**.

With the parts assembled as disclosed and described the pocket toothbrush of this invention may be carried with the brush head covered and with the open area in the handle filled with paste, powder, or the like and when use of the brush is desired the cap **16** is removed, withdrawing the plug **17** and dentifrice may be applied to the bristles of the brush.

To replace the brush head it is only necessary to turn the head until the projections **29** register with the slots or grooves **27** and **28**.

When it is desired to replenish dentifrice in the handle the closure cap **16** is removed with the plug **17** and with these parts removed the funnel **15** facilitates refilling the handle.

It will be understood that other modifications, within the scope of the appended claims may be made in the design and arrangement of parts without departing from the spirit of the invention.

What is claimed is:

1. In a pocket toothbrush, the combination which comprises a tubular handle having an open extended end and having an outwardly tapering portion on the opposite end, said outwardly tapered portion having a bore therethrough with an internally threaded counterbore in the outer end, a lock nut having a circular bore, and a pair of grooves extending longitudinally of the lock nut and positioned in diametrically opposed sides of the circular bore, said lock nut being threaded in the counterbore, a compressible sealing washer positioned at the inner end of the lock nut, a retaining nut in the outwardly tapered portion and positioned to engage the sealing washer, and a brush head having an offset stem with oppositely disposed lugs on the outer surface positioned with the lugs in said retaining nut, the lower portion of said outwardly tapered portion having an inner sleeve providing limiting means being positioned to be engaged by said lugs, said handle having a closure in the extended end.

2. In a pocket toothbrush, the combination which comprises a tubular handle having an open extended end and having an outwardly tapering portion on the opposite end, said outwardly tapered portion having a bore therethrough with an internally threaded counterbore in the outer end, a lock nut having a circular bore, and a pair of grooves extending longitudinally of the lock nut and positioned in diametrically opposed sides of the circular bore, said lock nut being threaded in the counterbore, a sealing washer positioned at the inner end of the lock nut, a retaining nut in the outwardly tapered portion and positioned to engage the sealing washer, a brush head having an offset stem with oppositely disposed lugs on the outer surface positioned with the lugs in said retaining nut, the lower portion of said outwardly tapered portion having an inner sleeve providing limiting means being positioned to be engaged by said lugs, said handle being rectangular-shaped in cross section, a retaining sleeve positioned in the extended end of the handle and having a bore extended therethrough and a cap having a tube extended therefrom with the cap adapted to be positioned on the end of the handle and with the tube extended through the retaining sleeve.

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