Oct. 20, 1953 V. P. SIMMONS 2,655,968

TOOTHBRUSH COVER

Filed March 8, 1951

Fig. 1

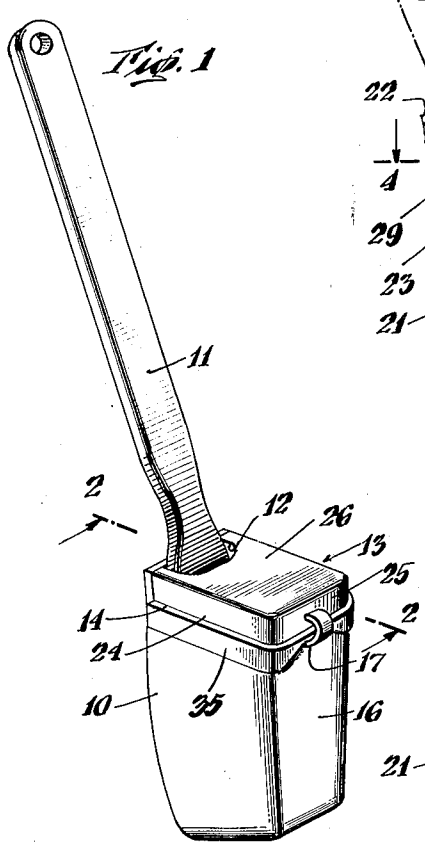


Fig. 2

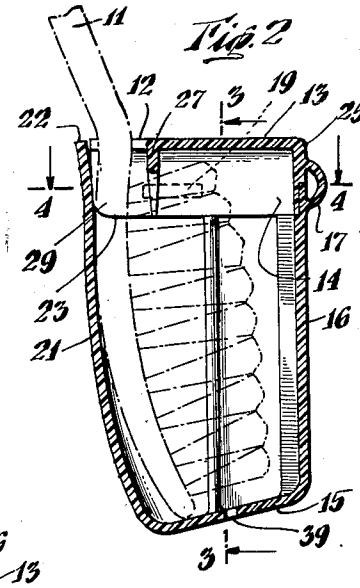


Fig. 3

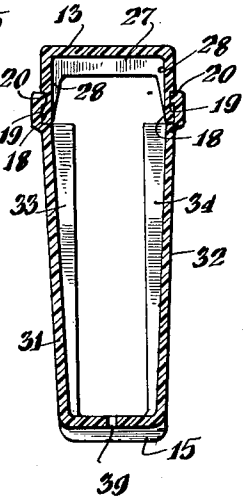


Fig. 4

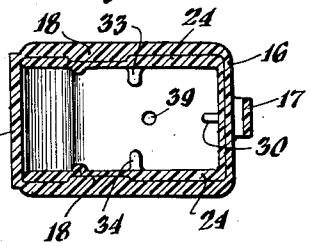


Fig. 5

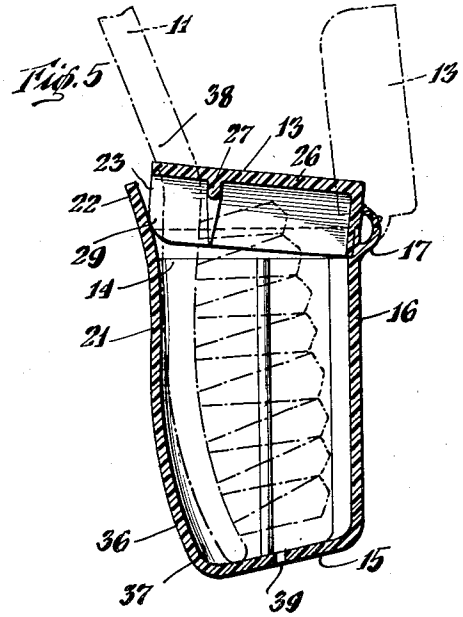
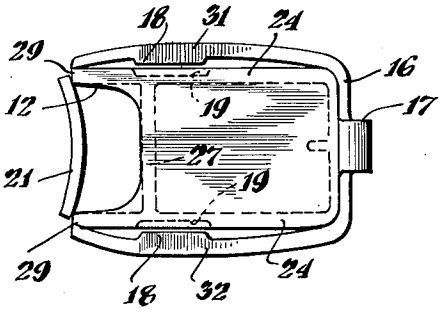


Fig. 6



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TOOTHBRUSH COVER

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1 Claim. (Cl. 150—0.5)

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This invention relates to a tooth brush cover and carrier and more particularly to a tooth brush carrier having a hinged door.

It is an object of this invention to provide a tooth brush cover with a door that is hinged on the body of the cover and is easily opened and closed.

It is another object of this invention to provide a tooth brush cover entirely composed of a single piece of material continuously connected together.

It is a further object of this invention to provide a tooth brush cover having a hinged door in which the entire assembly is an article moulded by a single operation.

These and other objects of this invention become more apparent upon consideration of the following description taken together with the accompanying drawings in which:

Fig. 1 is a perspective view of the tooth brush cover of this invention containing a tooth brush in normal position;

Fig. 2 is a longitudinal section taken on the broad dimension of the tooth brush cover of this invention with the brush end of a tooth brush shown in dotted lines;

Fig. 3 is a longitudinal section of the narrow dimension of the tooth brush cover of Fig. 2 taken on line 3—3 of Fig. 2;

Fig. 4 is a transverse section of the tooth brush cover of Fig. 2 taken on line 4—4 of Fig. 2 with the tooth brush not shown;

Fig. 5 is another longitudinal section taken on the broad dimension of the tooth brush cover of this invention with the door shown in semi-closed position in full lines and in open position in dotted lines, and

Fig. 6 is an end view of the tooth brush cover of Fig. 5 in the semi-closed position taken from the door end.

In general this invention provides a tooth brush cover having a relatively stiff yet flexible side wall which is made of the same material as the door of the cover and the hinge which attaches the door to the side walls and springs the door to the open position when the door is released from the side walls. Referring to the figures, in Fig. 1 a cover 10 is shown covering the brush portion, not shown, of a tooth brush 11. The handle of the tooth brush protrudes from the cover 10 through an entrance 12 through a door 13 which closes the open end 14 of the cover 10. The cover 10 is generally longitudinal in shape having four side walls, the open end 14 and a closed end 15 as seen in Fig. 2. If the cover 10 with a tooth

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brush enclosed in it is rested on a surface with the tooth brush handle 11 down, a side wall 16 will be the top wall. The door 13 is hinged to this wall 16 by a hinge strip 17. The cover 10 is provided with a pair of lugs 18 adjacent the open end 14. The lugs 18 seat in recesses 19 in the door 13. A lip 20 in front of each of the recesses 19 separates the recess from the vertical edge of the door 13. In closing the door 13 into the open end 14, the lips 20 pass over the lugs 18. The side walls of the cover 10 are sufficiently resilient and the door 13 is sufficiently flexible to allow the door 13 to snap in place in the open end 14.

Beneath the tooth brush, when it is inserted in the cover 10, a bottom wall 21 of the cover 10 is curved to generally conform to the curvature of some tooth brush handles such as the handle 11 shown and described herein. This bottom wall 21 extends beyond the open end 14 of the cover 10 to provide a tail platform 22. The door 13 has a free or outer end 23 which bears against the tail platform 22 as shown in Figs. 2 and 5. The resilient material of which the cover 10 is composed allows a friction fit between the free end 23 and the tail platform 22. The tail platform 22 extending beyond the main structure of the cover 10 has slightly more resilience than the remainder of the side walls. At the same time, the tail platform 22 has sufficient structural rigidity to hold the free end 23 of the door 13 when the door 13 is pressed into closed position.

The door 13 has a pair of side walls 24 and a top wall 25. Between side walls 24, the door 13 has a panel 26 which closes the transverse open end 14 of the cover 10 and in which the entrance 12 is formed. As can be seen best in Fig. 1, as a result of the entrance 12 the panel 26 extends down to the bottom of the door 13 only at each side. Referring to Fig. 2, a transverse rib 27 is shown extending transversely across the inner surface of the panel 26 of the door 13 immediately adjacent the entrance 12. As shown in Fig. 3, the rib 27 tapers off at each side wall 24 in a spur 28. The door 13 is thus provided with a transverse reinforcing rib which gives the door 13 structural rigidity in the vicinity of the entrance 12. The rib 27 by strengthening the door 13 transversely also provides structural strength to the side walls 24 at the free end 23 where the door 13 contacts and bears against the tail platform 22. The inner corner at the lower end of each of the side walls 24 is rounded into a toe 29. These toes 29, as shown in Fig. 5, bear against the tail platform 22 in the opening and closing of the door 13. Conversely, the tail plat-

form 22 pushes against the toes 29 in the closing and opening operations. In the closed position, as shown in Fig. 2, the toes 29 are moved to a position within the open end 14 of the cover 10.

Within the cover 10, there are three longitudinal ribs. On the inner surface of the wall 16 is a rib 30, on the inner surface of two side walls 31 and 32 are two ribs 33 and 34. The ribs 30, 33 and 34 provide their respective walls with longitudinal rigidity. The ribs 30, 33 and 34 also act to position and support the brush part of the tooth brush 11 when it is inserted within the cover 10. The rib 27 on the door 13 similarly has the secondary action of positioning and retaining the brush portion of the tooth brush 11 when the door 13 is enclosed over the brush portion. Adjacent the open end 14 of the cover 10 there is formed a raised bead 35 on the walls 16, 31 and 32. This bead 35 provides the orifice around the open end 14 with resiliency and provides a support for the lugs 18. A small orifice 39 is provided in the end wall 15.

The tooth brush cover of this invention is composed of polyethylene polymer having a molecular weight of around 20,000 and preferably between 18,000 and 24,000. The cover 10 composed of a polyethylene polymer in this range is molded into an integral unit in which the cover 10 is made up principally of the five walls 15, 16, 21, 31 and 32 and to which the door 13 is attached by the hinge 17 which is both structurally integral with both the cover 10 and the door 13 and is chemically integral with the cover 10 and the door 13. By chemical integrality is meant that the molecular composition of all three parts is uniform and continuous. The cover 10, according to this invention composed of the polyethylene polymer set forth above, has flexibility and resilience. The flexibility of the cover causes a compressing pressure applied vertically on the cover to bow the walls 31 and 32. The pressure for bowing the wall 31 and 32 according to this invention lies in the range between 20 and 50 pounds on the cover. The device of this invention may be subjected to pressures in excess of 1000 pounds per square inch and will regain and retain its original structure upon release of such a pressure.

In use, the tooth brush to be contained in the cover 10 is inserted through the open end 14. The door 13 which is normally held in an open position by the semi-rigid spring 17 is moved to the closed position. As the door 13 is moved to the closed position, the free end 23 of the door 13 bears against the tail platform 22 with the toes 29 camming against the tail platform 22 to provide a tight fit of the door in the open end 14. As the door 13 is pressed into the open end 14, the lips 20 on the door 13 squeeze past the lugs 18 and the lugs 18 spring into the recesses 19 on the door 13. In this position the tooth brush is securely contained within the cover 10. The brush portion is centered and retained by the ribs 27, 30, 33 and 34 and the brush end of the tooth brush handle is seated against the bottom wall 21 and the door 13 securely closes the open end of the cover 16. To open the cover a compressing pressure ranging from 20 to 50 pounds is applied vertically across the cover 10 to bow the walls 31 and 32 as shown in Fig. 6. This bowing of the walls 31 and 32 withdraws the lugs 18 from the recesses 19. Upon release of the door 13 from the lugs 18, the resilience of the spring 17 tends to swing the free end 23 of the door 13 out of the open end 14 of the cover 10.

At the same time, the compressive pressure on the walls 31 and 32 presses the bottom wall 21 and the tail platform 22 against the toes 29 causing a squeezing action which assists in popping the door 13 out of the open end 14 to open the cover for withdrawal of the tooth brush 11.

The tail platform 22 extends slightly downward from the open end 14 of the cover 10. Thus, when the tooth brush 11 is inserted in the tooth brush cover 10 and the door 13 is closed on it, the handle of the tooth brush 11 extends slightly upward in the cover 10 so that the end of the tooth brush is spaced away from the end of the end portion 36 of the bottom wall 21 by a spacing 37. A shank 38 of the tooth brush handle rests against the door 13 when it is in closed position. The door 13 may be opened by pressing upward on the extreme end of the tooth brush handle so that the tooth brush is tilted in the cover and the end of the brush portion is forced downward through spacing 37 toward the end portion 36. This motion raises the shank 38 against the free end 23 of the door 13 and pops the door 13 out of the open end 14.

It is an advantage of this invention that a cover is provided for a tooth brush which will receive and securely hold a variety of tooth brush forms and at the same time be easily opened. It is a further advantage of this invention that a tooth brush cover is provided in which the cover closing door is resiliently hinged on the flexible cover by a homogeneous material so that all parts of the device are integral and homogeneous. As a result of this invention, a tooth brush can be easily inserted in the covering device and the closing door snapped in position with a simple motion. Thus positioned, the tooth brush is securely held in a sanitary container and is readily removable therefrom upon a moderately gentle squeezing action which pops the door open. The reinforcing ribs on the walls of the door and cover have the dual purpose of providing the structure with rigidity where rigidity is desired and also positioning and securing the brush portion of the enclosed tooth brush.

The above described embodiment illustrated in the drawings is for the purpose of the description of this invention and it is not intended that this invention be limited thereto. Various modifications within the spirit of the invention are readily apparent and may be incorporated without departure therefrom. Therefore, it is intended that the scope of this invention be limited only by the appended claim.

I claim:

A protective cover for the brush portion of a tooth brush comprising a five walled box having integral side and bottom walls, consisting of resilient polyethylene material and being open at one end, a platform integral with a first wall extending outwardly from said open end of said box, said platform consisting solely of polyethylene material, a closure member adapted to fit said open end of said box shiftable between open and closed positions and consisting of polyethylene material, a semi-rigid spring hinge strip composed of polyethylene material attached to and integral with a second of said walls and said closure member, said second wall being diametric to said first wall, an outer end of said closure member being opposite to the hinged end of said closure member, toe portions on said opposite outer end bearable against and in contact with said platform, interengaging means on the closure and the adjacent

surfaces of the side walls, disengageable under a compressive force applied on said side walls through the compression of said first and second walls, means on said closure for maintaining said closure rigid against said compression of said side walls and to receive said force from said platform.

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References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
557,461	Welander	Mar. 31, 1896
1,827,654	Harper	Oct. 13, 1931
2,144,318	Kryder	Jan. 17, 1939
2,144,755	Freedman	Jan. 24, 1939
2,168,822	Fink	Aug. 8, 1939
2,531,066	Lynch	Nov. 21, 1950