Sept. 15, 1953 A. L. SHOOK 2,652,064

TOOTHBRUSH CASE

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FIG. 1

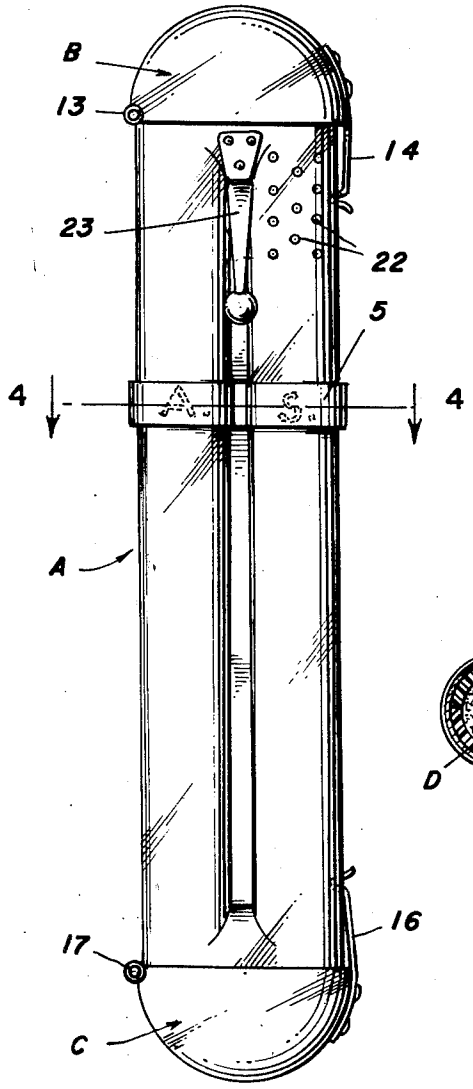

FIG. 2

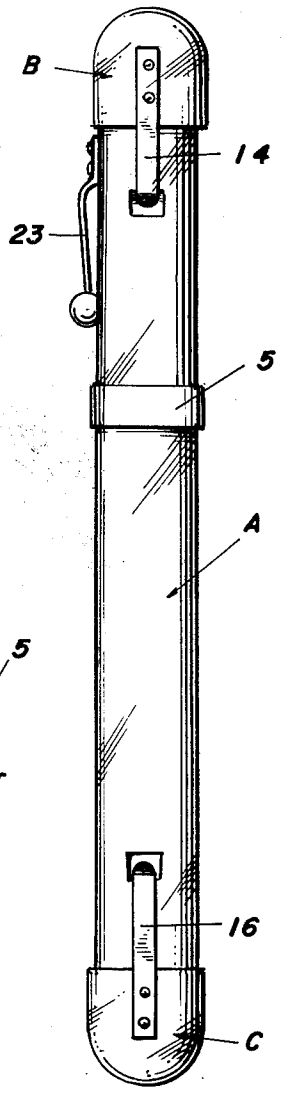

FIG. 4

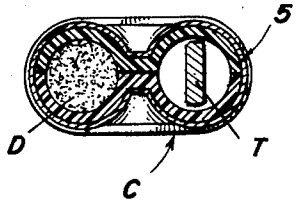

FIG. 3

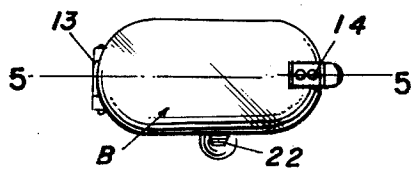

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FIG. 5

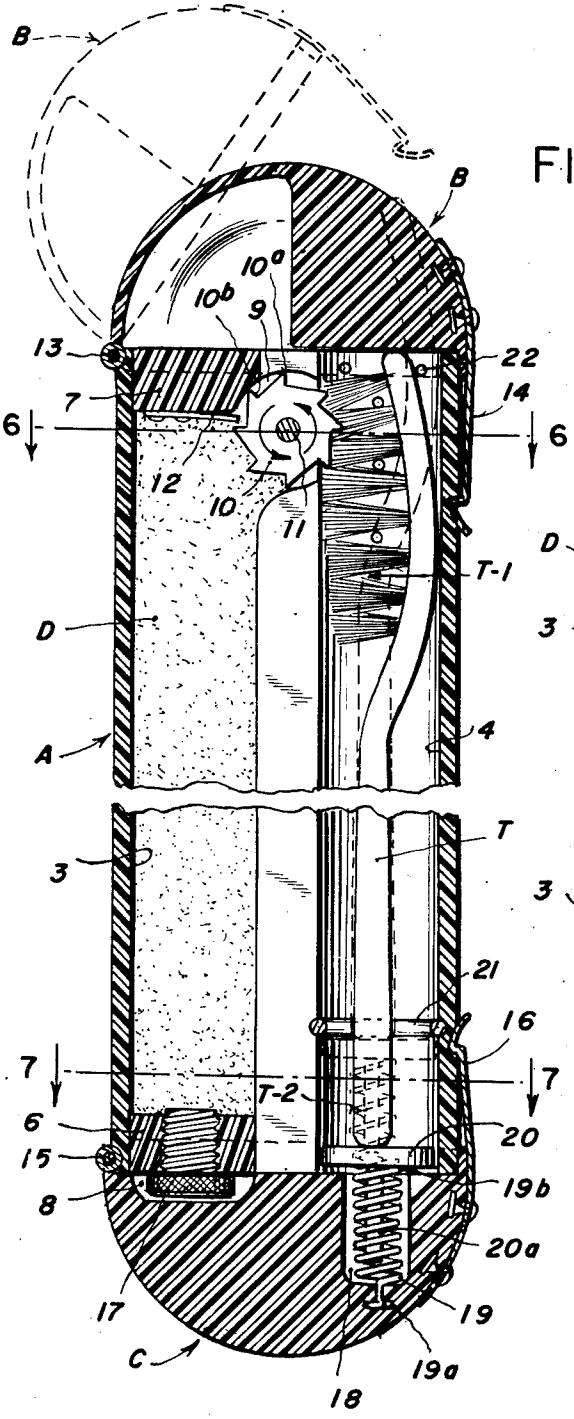


FIG. 6

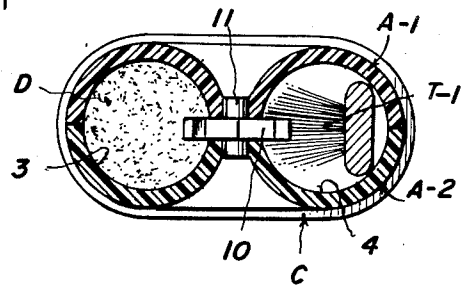
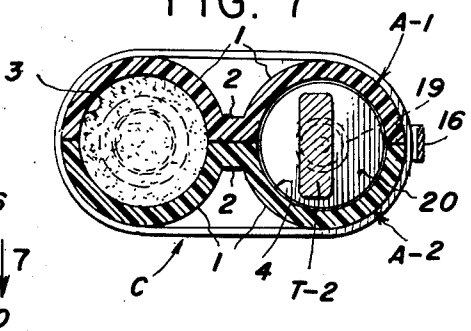


FIG. 7



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TOOTHBRUSH CASE

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6 Claims. (Cl. 132—84)

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This invention consists in a new and useful improvement in toothbrush cases and is designed to provide a case for a toothbrush which has a container for dentifrice and means for automatically dispensing the dentifrice from the container and applying it to the bristles of the brush when the brush is withdrawn from the case for use. The particularly novel and useful features of my improved case are the body providing chambers for the brush and the dentifrice, respectively, covers on the ends of the body and a dispensing element carried in a passage in the body connecting the two chambers, for automatically supplying dentifrice from its chamber to the bristles of the brush as the brush moves out from its chamber, and means for ejecting the brush from its chamber when the cover on one end of the case is moved to release the brush.

While there is illustrated in the drawings and hereinafter fully described one specific embodiment of my invention, it is to be distinctly understood that I do not consider my invention to be limited to said specific embodiment but refer for its scope to the claims appended hereto.

In the drawings:

Fig. 1 is a front elevation of my improved device.

Fig. 2 is a side elevation.

Fig. 3 is an end elevation.

Fig. 4 is a horizontal section on the line 4—4 of Fig. 1, in the direction of the arrows.

Fig. 5 is an enlarged vertical section on the line 5—5 of Fig. 3, a portion being broken away.

Fig. 6 is a horizontal section on the line 6—6 of Fig. 5 in the direction of the arrows.

Fig. 7 is a horizontal section on the line 7—7 of Fig. 5 in the direction of the arrows.

As illustrated in the drawings, my improved device comprises a body A, an upper cap B and a lower cap C.

The body A is composed of complementary portions A–1 and A–2 (Figs. 4, 6 and 7), each of which has two semi-circular portions 1 united by a straight portion 2 (Fig. 7). When the portions A–1 and A–2 are juxtaposed, the body A has two tubular chambers 3 and 4 (Fig. 6). It is to be understood that the abutting edges of the portions A–1 and A–2 may be mutually adhered by any suitable means. A suitable binding collar 5 is provided to confine the portions A–1 and A–2. The ends of the chamber 3 are closed by plugs 6 and 7 (Fig. 5). The plug 6 is bored and has a closure plug 8 threaded therein. At the upper end, the body A has a passage 9 connecting chambers 3 and 4. Disposed in the passage 9 there is a dispensing element 10 rotatably mounted on a shaft 11 journaled in the portions 2 of the body A (Figs. 5 and 6). The element 10 has teeth 10–*a* forming pockets 10–*b* (Fig. 5). A dog 12 mounted on the plug 7 co-acts with the

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teeth 10–*a* to prevent rotation of the element 10 in a clockwise direction, while permitting its rotation in a counter-clockwise direction, as indicated by the arrows in Fig. 5.

The upper cap B is semi-circular in vertical cross-section (Fig. 5) and oblong in plan (Fig. 3), mounted on the body A by a hinge 13 and adapted to cover the upper end of the body A. It is retained in closing position by a snap latch 14.

The lower cap C is of the same form as the cap B, mounted on the body A by a hinge 15 and retained in closed position by a snap latch 16. The cap C has a recess 17 to receive therein the head of the plug 6 and a recess 18 in which is mounted an expansion coil spring 19 having its lower end 19–*a* attached to the cap C and its upper end 19–*b* attached to a piston 20 received into the chamber 4 and having a stem 20–*a* received in the coil spring 19. A stop ring 21 is mounted in the chamber 4 to limit the upward movement of the piston 20.

The body A has ventilating holes 22 for the upper end of the chamber 4, and is also provided with a clip 23 for holding the device upright in a pocket of the user.

As shown in Fig. 5, the chamber 3 is charged with a suitable dentifrice D and a toothbrush T is received in the chamber 4. The bristles T–1 of the brush T engage the teeth 10–*a* of the element 10 when the toothbrush T is disposed in the chamber 4, and the lower end T–2 of the handle of the toothbrush T bears on the piston 20.

From the foregoing description of the details of construction of my device, its use and operation will be obvious. When the elements have been assembled as shown in Fig. 5, the cap C is opened, plug 8 unscrewed, and the chamber 3 is charged with the dentifrice. The plug 8 is then set up sealing the chamber 3. The cap C is closed and the spring 19 projects the piston upwardly into the chamber 4 until arrested by contact with the ring 21. The cover B is opened and the toothbrush T is inserted into the chamber 4 in such a way that the lower end T–2 of the handle will engage the piston 20 and moving the piston 20 downwardly will load the spring 19 to bias the toothbrush T upwardly. When the cover B is closed and latched, the toothbrush T is thereby held in biased position.

It will be noted that the parts are so dimensioned and related that, when the toothbrush T has been disposed as above described and shown in Fig. 5, the bristles T–1 have been passed over the teeth 10–*a* of the dispensing element 10. It is obvious that, due to the inclination of the teeth 10–*a* and the action of the dog 12, such passage of the bristles T–1 does not effect rotation of the element 10, and, hence, no dentifrice is supplied from chamber 3 to the bristles T–1 when the toothbrush T is placed in the chamber 4.

When the toothbrush T is to be used, the cover B is opened, thereby releasing the toothbrush T which, under impulse of spring 19, is projected upwardly, thereby passing the bristles T–1 over the element 10 which is caused to rotate by the engagement of the bristles T–1 with the teeth 10–*a*. This rotation carries the dentifrice supplied from chamber 3 to pockets 1–*b* of the element 10 to the bristles T–1. It is obvious that the upward movement of the toothbrush T is limited by the ring 21 so that its upper end merely moves out of the chamber 4 sufficiently to be grasped by the user so that the toothbrush T can be withdrawn from the chamber 4.

It is obvious that the device may be disposed to cause the dentifrice to move toward the end of the chamber 3 in which the passage 9 is situated so that the element 10 will be supplied so long as any dentifrice is in the chamber 3. Clip 23 is provided to retain the device, when not in use, in a position in which the dentifrice will be contained in the sealed chamber 3 to prevent leakage through the passage 9.

Having described my invention, what I claim is:

1. In a toothbrush case, the combination of a body having two chambers for containing the toothbrush and a mass of dentifrice, respectively, and having a passage connecting said chambers; rotatable means in said passage adapted to supply a quantity of the dentifrice to the tips of the bristles of the toothbrush engaging said means; and releasable, resilient means in the toothbrush chamber adapted to eject the toothbrush from its chamber sufficiently to cause its bristles to rotate said supplying means, said rotation actuating said supplying means.

2. In a toothbrush case, the combination of a body having two chambers for containing the toothbrush and a mass of dentifrice, respectively, and having a passage connecting said chambers; a rotor journaled in said passage and having peripheral teeth and pockets intermediate said teeth, said teeth and pockets extending from said passage into both of said chambers; and releasable, resilient means in the toothbrush chamber adapted to eject the toothbrush from its chamber sufficiently to move its bristles in engagement with said teeth, said movement rotating said rotor to move said pockets from the chamber containing the dentifrice to the chamber containing the toothbrush, thereby supplying in said pockets dentifrice from its chamber to said bristles.

3. In a toothbrush case, the combination of a body having two chambers for containing a toothbrush and a mass of dentifrice, respectively, and having a passage connecting said chambers; rotatable means in said passage adapted on rotation to supply a quantity of the dentifrice to the tips of the bristles of the toothbrush; a pair of closures for the ends of the chamber for the toothbrush; and spring means mounted in one of said closures for ejecting the toothbrush from its chamber sufficiently to move its bristles in engagement with said supplying means, said movement rotating said supplying means, the other one of said closures being adapted, when closed, to tension said moving means, and, when opened, to release said moving means for functioning.

4. In a toothbrush case, the combination of a body having two chambers for containing a toothbrush and a mass of dentifrice, respectively, and having a passage connecting said chambers; a rotor journaled in said passage and having peripheral teeth and pockets intermediate said teeth, said teeth and pockets extending from said passage into both of said chambers; a pair of closures for the ends of the chamber for the toothbrush; and spring means mounted on one of said closures for ejecting the toothbrush from its chamber sufficiently to move its bristles in engagement with said teeth, said movement rotating said rotor to move said pockets from the chamber containing the dentifrice to the chamber containing the toothbrush, thereby supplying in said pockets dentifrice from its chamber to said bristles, the other one of said closures being adapted, when closed, to tension said moving means, and, when opened, to release said moving means for functioning.

5. In a toothbrush case, the combination of a body having two chambers for containing a toothbrush and a mass of dentifrice, respectively, and having a passage connecting said chambers; rotatable means in said passage adapted on rotation to supply a quantity of the dentifrice to the tips of the bristles of the toothbrush; a cap hinged on one end of said body and having a snap latch; a coil expansion spring mounted on said cap; a piston mounted on said spring, said piston being disposed in the chamber containing the toothbrush when said cap is closed and latched; and a second cap hinged on the other end of said body and having a snap latch, said second cap being adapted, when closed and latched, to press the toothbrush in its chamber against said piston to load said spring thereby biasing the toothbrush toward said second cap, so that when said second cap is unlatched the toothbrush will be ejected from its chamber sufficiently to move its bristles in engagement with said supplying means, said movement actuating said supplying means.

6. In a toothbrush case, the combination of a body having two chambers for containing a toothbrush and a mass of dentifrice, respectively, and having a passage connecting said chambers; a rotor journaled in said passage and having peripheral teeth and pockets intermediate said teeth, said teeth and pockets extending from said passage into both of said chambers; a cap hinged on one end of said body and having a snap latch; a coil expansion spring mounted in said cap; a piston mounted on said spring, said piston being disposed in the chamber containing the toothbrush when said cap is closed and latched; and a second cap hinged on the other end of said body and having a snap latch, said second cap being adapted, when closed and latched, to press the toothbrush in its chamber against said piston to load said spring thereby biasing the toothbrush toward said second cap, so that when said second cap is unlatched the toothbrush will be ejected from its chamber sufficiently to move its bristles in engagement with said teeth, said movement rotating said rotor to move said pockets from the chamber containing the dentifrice to the chamber containing the toothbrush, thereby supplying in said pockets dentifrice from its chamber to said bristles.

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