June 24, 1930. W. TITTLE 1,767,491

DISPENSING DEVICE

Filed March 1, 1929

Fig. 1.

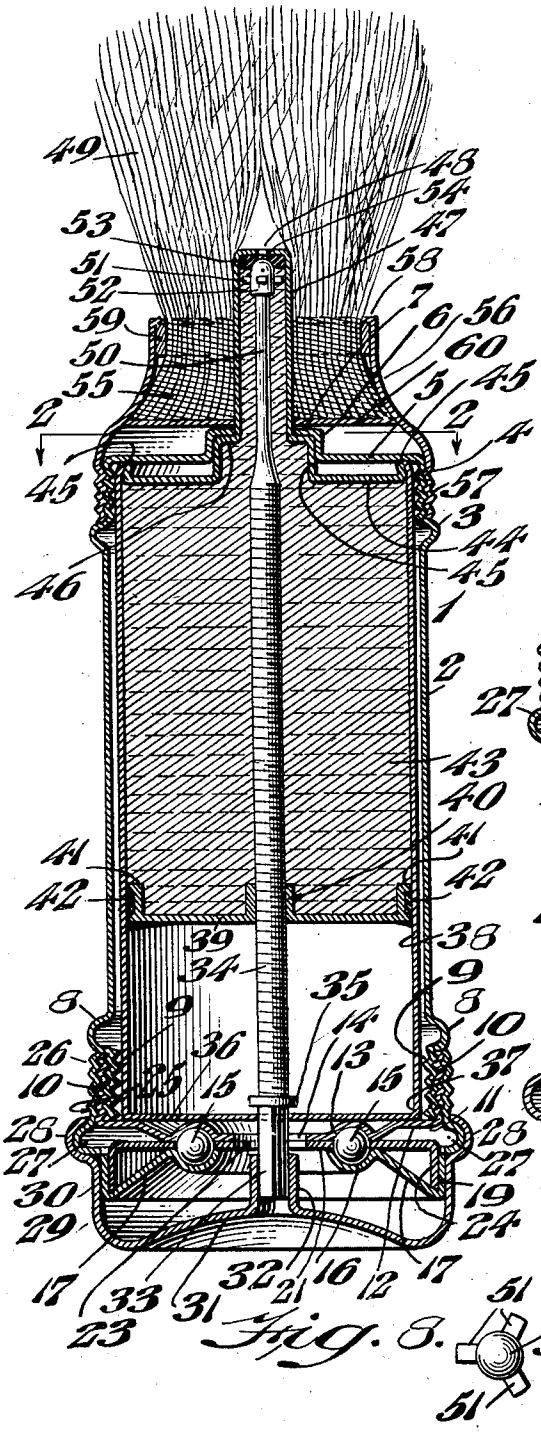


Fig. 2.

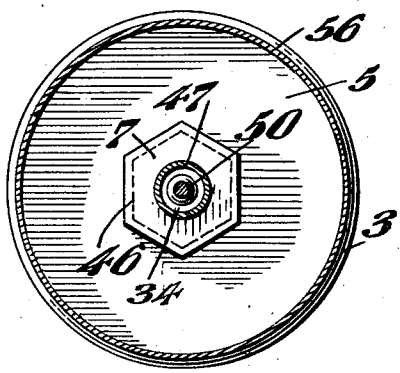


Fig. 3.



Fig. 4.

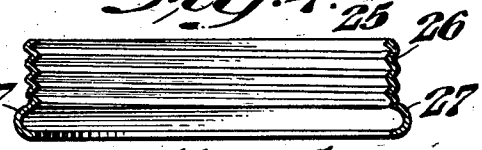


Fig. 5.

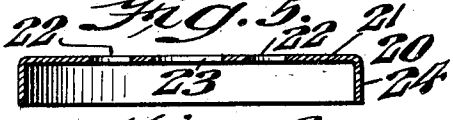


Fig. 6.



Fig. 7.

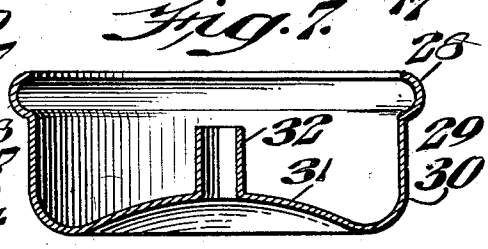


Fig. 8.

INVENTOR:
WALTER TITTLE,
BY
Wiederscheim Fairbanks.
ATTORNEYS.

Patented June 24, 1930 1,767,491

UNITED STATES PATENT OFFICE

WALTER TITTLE, OF PHILADELPHIA, PENNSYLVANIA

DISPENSING DEVICE

Application filed March 1, 1929. Serial No. 343,711.

My invention relates to a novel construction of a fountain brush, especially adapted for shaving, wherein novel means are provided for preventing the ingress of air to the cartridge or cylinder containing the liquid soap and novel means are also provided for compressing the body of liquid soap so as to propel a desired quantity to the brush according to requirements. It also consists of a novel actuator and its adjuncts for actuating the feed screw and plunger to compress the body of liquid soap, so as to eject the desired quantity thereof to the desired point.

It also consists of a novel construction of an actuator and novel ball bearings therefor, whereby said actuator can be readily rotated by a light manual pressure thereon.

It also consists of a novel soap feeding device, whereby the admission of air to the liquid soap is prevented.

It further consists of a novel construction of feed screw actuator, a feed screw and a plurality of threaded shells cooperating therewith and serving to retain the ball bearing elements in proper relation to each other.

It further consists of a novel construction of soap container or cartridge, a feed screw therefor, and means for centering the valvular end of said feed screw in the nozzle of said cartridge, in conjunction with means for preventing ingress of air into said soap container.

For the purpose of illustrating my invention I have shown in the accompanying drawings one form thereof which is at present preferred by me, since the same has been found in practice to give satisfactory and reliable results, although it is to be understood that the various instrumentalities of which my invention consists can be variously arranged and organized and that my invention is not limited to the precise arrangement and organization of the instrumentalities as herein shown and described.

Referring to the drawings:—

Figure 1 represents a longitudinal sectional view of a fountain brush embodying my invention.

Figure 2 represents a horizontal section on line 2—2 Figure 1.

Figure 3 represents a sectional view of the upper ball race and its adjuncts in detached position.

Figure 4 represents a sectional view of the outer intermediate bottom closure in detached position.

Figure 5 represents a sectional view of the ball retainer employed in detached position.

Figure 6 represents a sectional view of the bottom ball race and its adjuncts in detached position.

Figure 7 represents a sectional view of the bottom closure and actuator for the feed screw and plunger.

Figure 8 represents a plan view of the top end of the feed screw.

Similar numerals of reference indicate corresponding parts.

Referring to the drawings:—

1 designates my novel construction of fountain shaving brush, the same consisting of the outer cylinder or casing 2, which has the annular bead 3 at its upper or front portion, above which is the externally threaded integral portion 4, above which is the right angled deflected portion 5, which is bent to form the cylindrical portion 6, which is continued to form the inwardly projecting annular lip or flange 7. The lower or rear end of the casing 2 is provided with the annular bead 8, which is continued downwardly to form the exteriorly threaded portion 9, which is engaged by the threaded flange 10 of the shell 11, which has the base 12, provided with the annular groove 13 which constitutes the upper ball race, and the central hole 14. The balls or ball bearings 15 are contained within the upper ball race 13 and the lower annular groove or ball race 16 formed on the bottom 17 of the shell 18, which has the vertical flange 19. The ball guide or ball spacer 20 consists of the horizontal plate 21 having the holes 22 and the central hole 23 therein (see Figure 5) said plate having the vertical pendant flange 24.

It is desirable in devices of this character

where the actuator hereafter referred to is operated manually, as by the thumb and forefinger of the operator, that friction between the juxtaposed members be reduced to a minimum, which I effect by the provision of the ball bearings 15 and the ball races seen in Figs. 3 and 6, and their adjuncts, so that a very slight application of pressure upon said actuator suffices to rotate the same, as is evident.

The outer shell 25 (see Figure 4) has the threaded portion 26, which engages the threaded portion 10 of the shell 11 and has the annular bead 27 formed at its lower portion, which is engaged by the upper bead 28 of the actuator 29, which has the outer wall 30 and the dished base 31 which is provided with the hollow upwardly extending polygonal extension 32, within which is received the squared end 33 of the feed screw 34, which has the lower flange 35 normally positioned above the bottom wall 36 of the soap container or cartridge 37, which is composed of said bottom wall 36 and the cylindrical wall 38. The flanges or walls 24, 19 and 30 are fitted snugly together, so that the parts 29, 18 and 20 rotate as a unit, when the actuator 29 is turned to rotate the feed screw 34. The plunger element 39 has the internally threaded hub 40, which is in threaded engagement with the feed screw 34 and the outer annular flange 41, which has an annular recess or pocket therein for the packing 42 whereby the body of liquid soap 43 is prevented from drying up by the action of the atmosphere. The top or front end of the cylinder or cartridge 38 is closed by the plate 44 which has the outer flange 45, said plate having the reduced cylindrical portion 45, which is continued inwardly as 46, which is thence continued forwardly to form the contracted nozzle 47 recessed at its front end provided with the exit port 48, through which the liquid soap is discharged into the bristles 49 of the brush. The upper or forward end of the feed screw 37 is of reduced diameter as at 50, and is provided with the centering lugs or spider 51, which project radially from the head or valvular member 52, whose upper end is in proximity to the gasket or disc 53 which has a port 54 therein, aligning with the port 48. The inner ends 55 of the bristles 49 are seated in the shell or brush holder 56, having the lower threaded portion 57 and the front or outer inturned lip or flange 58, within which is the metal ring 59, below which is the plate 60, with which the inner ends of the bristles 55 may contact, said bristles being cemented or otherwise secured in position. There has heretofore in devices of this general character been considerable trouble created by the admission of air to the body of liquid soap 43 which results in the drying of the same, which is obviated by my novel construction of actuator and its adjuncts together with the packing or gasket 42, and the disc 53. The head or valvular member 52 in practice bears upon the valve seat in the disc or washer 53 in such a way that there is no impediment to the flow of the liquid soap therethrough, when the soap is compressed by the plunger 39, and when the soap is in a normal condition or under normal pressure the valve 52 will be sufficiently in contact with the disk 53 so that air cannot enter through the port 48.

The operation is as follows:—

Upon the removal of the shells 25 and 11 the soap container or cartridge can be withdrawn or replaced or replenished. The parts 11, 25, 20, 18 and 29 having been assembled as seen in Figure 1 and the walls 24, 19 and 30 being secured together so as to rotate in unison or as a unit, it will be apparent that the rotation of the actuator 29 can be readily effected as there is a slight clearance or play between the beads 27 and 28, and the ball bearings 15 obviously reduce friction of the cap or operating part. As the actuator 29 is rotated in the desired direction the feed screw 34 will be rotated by reason of the engagement of its squared end 33 with the portion 32 of said actuator and the rotation of the feed screw in the proper direction will effect the propulsion of the plunger 39, thereby compressing the body of liquid soap 43 and forcing the desired quantity past the ports 54 and 48 into the shaving brush. The disc 53 of resilient material will permit the egress of the desired amount of soap into the brush, but will sufficiently prevent the admission of air to the soap, as the parts will normally appear as seen in Figure 1.

It will be noted that there is a slight play between the flange 35 and the bottom wall 36 of the container so that when desired the plunger 39 can be slightly retracted by turning the actuator 29 and the feed screw 34 in the proper direction, which will temporarily open the ports 54 and 48. Upon turning the actuator in the opposite direction, the soap will be ejected to the desired extent, after which the parts will appear as seen in Fig. 1, the port 54 being normally closed by the head or valvular element 52. The container 58 will be snugly fitted within the casing 2 so that it will not rotate during the actuation of the screw 34 and the plunger 39. By making the actuator 29 of the approximate diameter shown, it can be readily grasped so as to be easily manually operated, the ball bearings 15 reducing friction to a minimum as is evident.

I am aware that the invention may be embodied in other specific forms without departing from the spirit or essential attributes thereof, and I therefore desire the

present embodiment to be considered in all respects as illustrative and not restrictive, reference being had to the appended claims rather than to the foregoing description to indicate the scope of the invention.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. In a device of the character stated, an outer casing, a soap holder positioned within said casing, a discharge nozzle for said soap holder, a plunger in said container, a threaded feed screw in engagement with said plunger, and having a polygonal rear end, an actuator rotatably mounted on the rear of said casing, having a polygonal opening engaging the lower end of said feed screw for rotating the latter, a resilient apertured disc at the exit end of said nozzle, a head on the forward end of said feed screw adapted to contact with said disc, ball bearings intermediate the end of said soap container and said actuator, inner and outer ball races, and a flange on the inner ball race in threaded engagement with said casing.

2. In a device of the character stated, a casing having a concaved lower cap provided with a polygonal inward extension, a soap container within said casing, a plunger having an inturned outer flange provided with packing and a centrally disposed threaded hub, a feed screw engaging said hub, and having its lower end squared and passing through the bottom of said container, a shell secured to the lower end of said casing and having a bottom annular bead, an actuator engaging the lower end of said feed screw and having an upper annular bead mounted to rotate on said first mentioned bead, upper and lower ball races intermediate said actuator and the bottom of said container, said races having outwardly extended diverging annular portions and balls in said ball races.

3. In a device of the character stated, a casing having a concaved lower cap provided with a polygonal inward extension, a soap container within said casing, a plunger having an inturned outer flange provided with packing and a centrally disposed threaded hub, a feed screw engaging said hub, and having its lower end squared and passing through the bottom of said container and engaging within said polygonal extension, a shell secured to the lower end of said casing and having a bottom annular bead, an actuator engaging the lower end of said feed screw and having an upper annular bead mounted to rotate on said first mentioned bead, upper and lower ball races intermediate said actuator and the bottom of said container, said races having central abutting flat portions and outwardly extending diverging annular portions, balls in said ball races, and a ball spacer intermediate said ball races.

4. In a device of the character stated, a casing having a concaved lower cap provided with a polygonal inward extension, a soap container within said casing, a plunger having an inturned outer flange provided with packing and a centrally disposed threaded hub, a feed screw engaging said hub, and having its lower end squared and passing through the bottom of said container and engaging within said polygonal extension, a shell secured to the lower end of said casing and having a bottom annular bead, an actuator engaging the lower end of said feed screw and having an upper annular bead mounted to rotate on said first mentioned bead, upper and lower ball races intermediate said actuator and the bottom of said container and upon the top of said polygonal extension, balls in said ball races, and a ball spacer intermediate said ball races, and said actuator, lower ball race and ball spacer being adapted to rotate in unison.

5. In a device of the character stated, a casing, a soap container therein, a plunger, a feed screw engaging said plunger, and having an outer polygonal end, a pair of ball races, the inner of which is screwed to the end of said casing, a threaded shell surrounding said ball races, and provided with an annular bead, balls in said ball races, a ball retainer between said ball races and having an outwardly projecting flange, a flange on the outer of said ball races deflected inwardly and enclosing the flange of said ball retainer, and an actuator mounted on said bead and having a polygonal opening engaging the outer end of said feed screw.

WALTER TITTLE.