

July 20, 1954

P. J. WERNER
DENTIFRICE DISPENSER

2,684,183

Filed March 29, 1952

2 Sheets-Sheet 1

Fig. 1

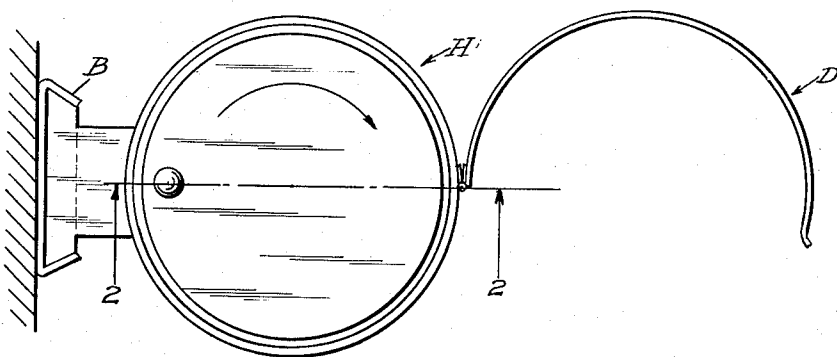


Fig. 5

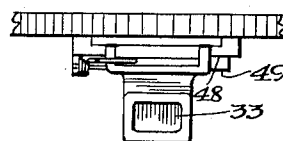


Fig. 4

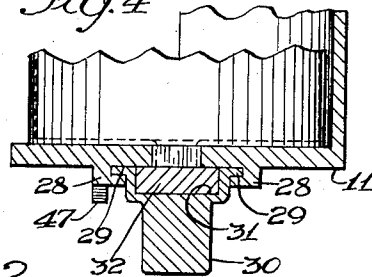


Fig. 2

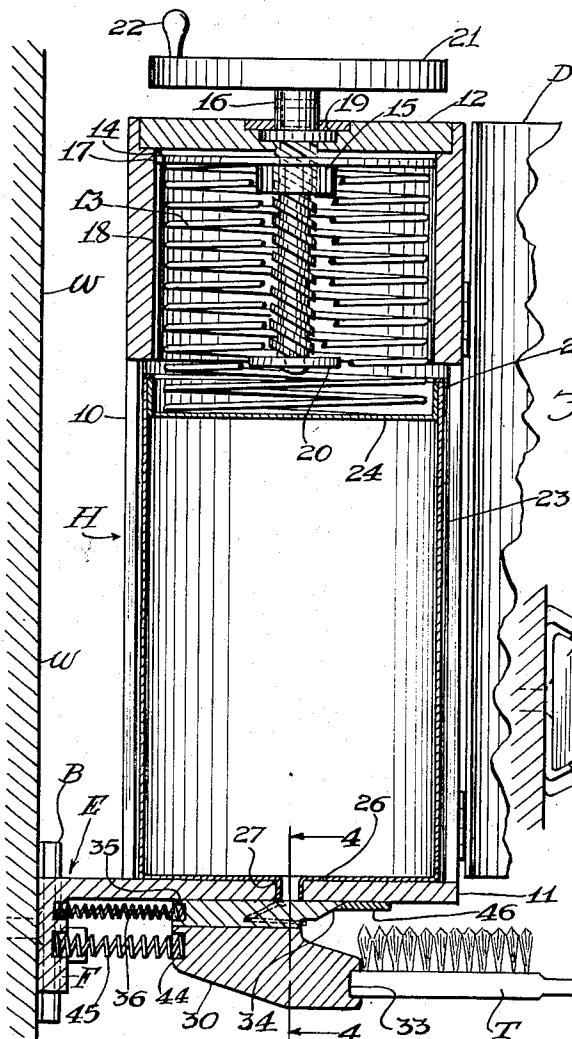
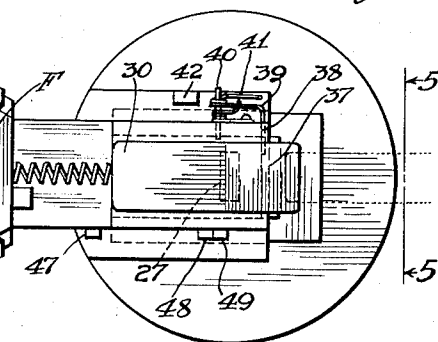


Fig. 3



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2 Sheets-Sheet 2

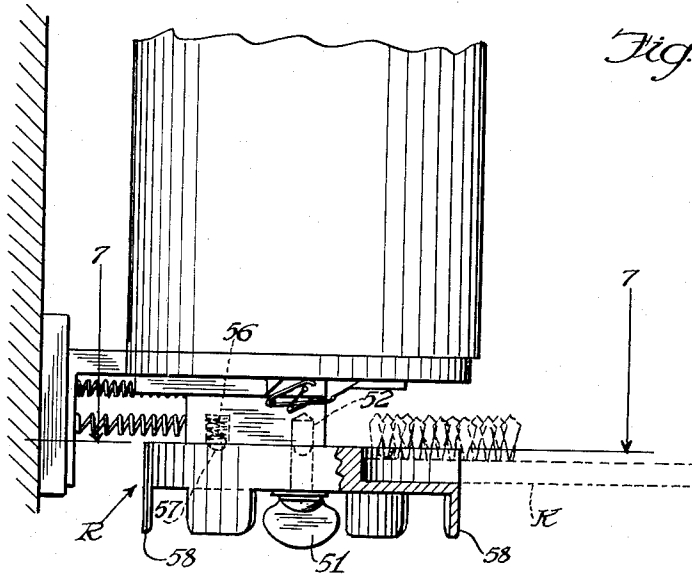


Fig. 6

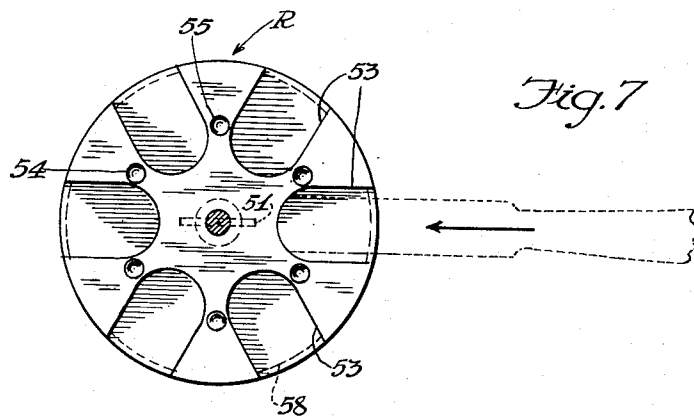


Fig. 7

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UNITED STATES PATENT OFFICE

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DENTIFRICE DISPENSER

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4 Claims. (Cl. 222-127)

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This invention relates to dentifrice dispenser and has for a broad object the provision of such a device which may be used by several persons to dispense the familiar dental cream or paste without the annoyance of removing and replacing the conventional tube cap, and without the unsanitary hazards present from having several persons in the same family using the same tube of paste.

It is well known that the familiar collapsible tube cap is easily dropped and lost, is sometimes difficult to apply to the threaded neck of the tube, and that persons frequently fail to replace the cap after use, with resulting hardening of the paste remaining in the tube. Where several persons of the same family use the same tube, the unsanitary aspect of having each of them scrape the neck of the tube with his own brush bristles, to cut off a desired portion of the tooth paste "ribbon" has presented serious health hazards. Use by small children not only increases such hazards, but results in use of excessive quantities of paste.

The present invention has as an object the provision of a dispensing device, which will deliver a substantially predetermined and uniform quantity of tooth paste at each successive use, and will automatically close the tooth paste outlet after each use.

A further object of the invention is the provision of a device which will substantially reduce or eliminate the health hazards of the presently known tubes and their conventional manner of use by many persons.

A further object of the invention is the provision of a combination of such a dispenser and a large non-collapsible cylindrical container of tooth paste, with resulting economy in purchase and use of tooth paste; the container may be made cheaply from various plastic materials, which are not affected by moisture or the contents of the container, and may be discarded when contents have been exhausted.

A further object of this invention is the provision of a dispenser which may be attached to the wall in convenient location for ready use without opening a drawer or cabinet door to obtain the tooth paste.

Another object of the invention is the provision of novel means by which the tooth paste may be dispensed onto the bristles of the tooth brush by the simple pressure of the end of the brush against an actuating member, and a predetermined "ribbon" of cream will be cut off and so dispensed without having the bristles touch the outlet mouth of the container.

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A further object of the invention is the provision of such a dispensing device with individual actuating means for each of several persons using the dispenser, so that any bacteria from the brush of one person will not contaminate the brush of another in obtaining paste from a common source.

Other and more detailed objects of this invention will become apparent as this description proceeds in connection with the accompanying drawings, in which corresponding reference characters denote similar parts, and in which:

Fig. 1 is a top plan view of my dispenser mounted in position on a wall, and with the door of the dispenser in opened position,

Fig. 2 is a sectional view, with parts broken away, and taken substantially on the line 2-2 of Fig. 1.

Fig. 3 is a bottom plan view of my device attached to a wall, and having the closure door in closed position.

Fig. 4 is a detail view, with parts broken away, and taken substantially on the line 4-4 of Fig. 2.

Fig. 5 is a front elevation view, with parts broken away, and taken substantially on the line 5-5 of Fig. 3.

Fig. 6 is a detail view, partly in section and partly in elevation and generally similar to Fig. 2, showing a modified form of construction, including individual actuating means for each of several persons.

Fig. 7 is a detail view taken substantially on the line 7-7 of Fig. 6.

Referring now to Figs. 1 and 2, my device includes an elongated cylindrical housing H having a hinged door D and an offset, laterally extending enlargement E at its base from which depends a bracket foot F which is slidably received in a retaining slot of a wall bracket B attached to a wall W.

Generally, housing H comprises a cylindrical side wall 10 open at its front, to which door D is hinged, a base 11 unitarily joined to wall 10, and a covering cap 12 which may be secured to the side wall by any suitable means. Immediately below the cap 12 is a spring receiving chamber, for a coil spring 13 carried by a plate 14 from which depends an annular boss 15 which is threaded internally to cooperate with the external threads on a rotatable shaft 16. Extending from plate 14, is a lug 17 slidably received in a guide slot 18 in the inner face of wall 10, to prevent rotation of plate 14 when shaft 16 is rotated.

Shaft 16 has stop collar 19 secured thereto and received rotatably in a recess of cap 12 to

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prevent vertical movement of shaft 16 in either direction. The lower end of shaft 16 carries a stop collar 20 to limit downward movement of the plate 14 and boss 15 when shaft 16 is rotated by a circular disk 12, having a manipulating finger-engaging stud 22, to move the plate 14 downwardly to increase the compression upon the expansion coil spring 13 surrounding the shaft 16.

Received in the chamber below the spring 13 is a disposable, cylindrical container 23, having a slidable piston head 24 with a guide sleeve 25 which forms a circular seat for the lower end of spring 13. The lower end of container 23 carries a rectangularly shaped outlet nipple 26 which extends downwardly into a rectangular opening 27 in base wall 11.

Preferably, container 23 is made of a plastic material, and before use by insertion into housing H thru the door, is sealed at its upper end by a removable sealing strip (not shown) which holds the covering piston head in fixed position by securing the top of sleeve 25 to the top of the side wall of container 23, while the nipple 26 is sealed by a removable plastic cap. When a container 23 is to be inserted into the housing, the control disk 21 is rotated to bring plate 14 to its highest position, the sealing strip and cap of container 23 are removed, and the lower end of spring 23 is pushed upwardly so as to seat in the piston cap 24, nipple 26 is inserted into the outlet opening 27, and upon release of the spring 13 the head or cap 24 is pressed downwardly to force the contents through nipple 26 against a valve and cut off plate now to be described.

Referring now to Fig. 4, the base 11 of housing H is provided with a horizontally extending guideway formed of two oppositely disposed L-shaped ribs 28 which form between them a guide and retaining slot for the outwardly extending flanges 29 of a valve actuating bar 30 which carries a valve slot 31 in its upper face for the reception of a slidable valve plate 32. As shown in Fig. 5, the outer end of actuating bar 30 carries a recess 33 (whose base may be formed of open ribs with drainage opening or openings beneath) for the reception of a tooth brush end (as in Fig. 2), to push the bar 30 inwardly to open the valve plate 32.

Referring now to Fig. 4, the valve plate 32 is provided with a knife-like tongue 34 at its outer end and a coil closing-spring recess 35 at its opposite end for receiving one end of spring 36 whose opposite end seats in a similar recess in bracket foot F. Normally spring 36 holds plate 32 in the closed position shown in Fig. 4, until pressure to the left on actuating bar 30 carries plate 32 to left as new described.

Referring now to Fig. 3, plate 32 carries a shoulder 37 (also shown in Fig. 4) at the base of tongue 34, and one leg 38 of a trip device rests against shoulder 37 while another leg 39 extends rearwardly to coil around a pin 40, which is carried by bar 30, and from the outer end of the coil, a leg 41 extends upwardly to ride on the lower face of L-shaped rib 28 until it is moved downwardly as it hits a trip cam 42 (inclined forwardly) and raises leg 36 of the trip device free from shoulder 37 against the retaining influence of an arm and transverse finger of a retaining spring 43, the intermediate portion of which is coiled around pin 40 with the other arm fixed to actuating bar 30.

The rear end of bar 30 is provided with a recess 44 for the reception of one end of an expansion coil spring 45, while bracket foot F carries a

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similar recess for the opposite end of spring 45 (best shown in Figs. 2 and 3). As bar 30 is pushed to the left in Fig. 2 by the end of a tooth brush T, it carries valve plate to the left until its sharp tongue clears the outlet 27 in base wall 11, and the pressure in container 23 forces a ribbon of tooth paste upon bristles of brush T, and slight further movement causes the cam 42 to release leg 38 of the trip device; at this time valve plate 32 is released, and spring 36 drives tongue 33 to the right to cut off the expressed ribbon of paste deposited upon the bristles. The tongue stop 46 ends the forward movement of the tongue, while rearward movement of bar 30 is stopped by stop 47, when stop finger 48, carried by bar 30, strikes stop 47; forward movement of bar 30 ends when finger 48 strikes stop 49, which is carried by base wall 11 in a manner similar to stop 47 but forwardly to provide an opposite limit of travel for bar 30. When pressure of brush T on the outer end of bar 30 is released, spring 45 drives bar 30 back to its starting limit for another dispensing operation.

Referring now to the modified form in Figs. 6 and 7, the general construction and operations previously described are retained, but the actuating bar and associated parts are altered. The actuating bar 50 is shorter vertically and horizontally, but wider horizontally than bar 30 (previously described) and has rotatably secured to its under face a rotary table R by a winged pivot screw 51 fitting into threaded bore 52 carried in the under face of bar 50. The upper face is provided with a plurality of open top and open end pockets 53 forming individual recesses for reception of the end of a brush T, and between the inner ends of pockets 53 is a hub 54 carrying a small detent recess 55 between the side walls of the pockets near their inner ends. The under face of bar 50 carries a vertical bore 56 in which is mounted a spring pressed detent 57 which is adapted successively to press into one of the detent recesses 55 as table R is rotated upon its pivot screw 51 in either direction. The lower rim of table R carries a depending tab 58 beneath the outer end of each pocket 53 for appropriate indicia (initials or numbers) to indicate the pocket to which table R should be rotated for each individual using the dispenser. The bottom wall of the table R may be formed of open rib structure to afford ease of drainage and cleaning, while the whole table R may be easily removed for cleaning by simply removing wing screw 51.

It can be seen that with the construction and arrangement described, the use of the dispenser by several individuals will be free from the hazard of contamination by the brush of another, because each pocket is separated from all others, and each user has his own individual pocket.

In operation, the user merely rotates the table R until his appropriate tab 58 is brought to the front center position (shown in Fig. 7 with brush T inserted) at which the spring pressed detent 57 drops into the appropriate detent recess 55, and holds table R and bar 50 rigidly together so that inward pressure of brush T on the end of the front pocket will carry the bar 50 to the left and open the valve for dispensing a ribbon of tooth paste, as described in connection with Figs. 1-5.

While I have shown and described my preferred forms of construction, I do not wish to be limited to these precise forms, but wish to avail myself of all variations coming fairly within the

spirit and proper constructions of the appended claims.

What is claimed is:

1. A device of the character described comprising a housing adapted to hold a container of dentifrice paste and having an outlet opening for cooperation with the dispensing opening of said container in conducting paste from said container and housing, means for applying pressure upon the paste in said container to urge said paste through the said outlet opening, valve means for controlling said outlet opening so as to preclude the escape of paste from said container when not in use but to allow the escape of paste upon voluntary actuation of said valve, and valve actuating means including a slidable member carrying a toothbrush guide recess to bring a toothbrush beneath said outlet opening when said toothbrush is pressed against said slidable member to actuate said valve means, said slidable member carrying a rotatable plate providing a plurality of toothbrush guide recesses movable into position to move said slidable member and one guide recess beneath said outlet opening when a toothbrush is pressed into said guide recess.

2. A device of the character described comprising a housing having dentifrice paste holding chamber therein and an outlet opening for said dentifrice paste, means for applying pressure upon paste in said container, valve means for controlling said outlet opening so as to preclude the escape of paste from said container when not in use but to allow the escape of paste upon voluntary actuation of said valve, and means for controlling said valve means including a member provided with a plurality of toothbrush guide recesses movable into one of said recesses to receive a predetermined quantity of said paste thereon from said outlet opening.

3. A device of the character described comprising

ing a housing having a dentifrice holding chamber and an outlet opening therefrom, valve means for controlling said outlet opening so as to preclude the escape of paste from said container when not in use but to allow the escape of paste upon voluntary actuation of said valve, a movable member having a plurality of individual toothbrush guide recesses and adapted to be moved into position for each of said recesses to be in alignment with said outlet opening, and means for actuating said valve means.

4. A device of the character described comprising a housing having a dentifrice holding chamber and an outlet opening therefrom, valve means for controlling said outlet opening so as to preclude the escape of paste from said container when not in use but to allow the escape of paste upon voluntary actuation of said valve, a movable member having a plurality of individual toothbrush guide recesses and adapted to be moved into position for each of said recesses to be in alignment with said outlet opening, and means for actuating said valve means, said last mentioned means and said movable member being connected for interdependent movement by the pressure of a toothbrush into one of said recesses to receive a portion of the dentifrice contained in said housing.

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