This invention relates to a tooth paste dispenser and more particularly to a dispenser capable of dispensing any substance that is in a flexible tube.

An object of this invention is to provide a mechanically simple and practical device which is adapted to be mounted on a supporting surface and to dispense discrete quantities of the substance or tooth paste in response to a simple manipulation of a single arm, handle, knob, etc.

The invention is embodied in a dispenser which can be manufactured of metal, plastic or other suitable material and which houses the entire tube in a neat, orderly fashion. The contents of the tube are very completely used to avoid waste. Although there have been prior dispensers for tubes of substance, usually tooth paste, this dispenser distinguishes from the others in its structural make-up. It is exceedingly positive in its action and easy to load and unload.

There are numerous features of the invention, such as the tooth brush holder which positions exactly correctly the bristles of the brush with respect to the discharge end of the dispenser so that the tooth paste is received on the brush and not wasted and not spread over areas where it is unwanted.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed. Reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a perspective view of a dispenser constructed in accordance with the invention and showing a typical mounting thereof.

Figure 2 is a sectional view taken on the line 2—2 of Figure 1.

Figure 3 is a sectional view taken on the line 3—3 of Figure 2.

Figure 4 is a transverse sectional view taken on the line 4—4 of Figure 1.

Figure 5 is a transverse sectional view taken on the line 5—5 of Figure 1.

Figure 6 is a fragmentary sectional view taken on the line 6—6 of Figure 3.

Figure 7 is a fragmentary perspective view of the lower end of the dispenser.

In the accompanying drawings there is a dispenser 10 which is constructed in accordance with the invention. This dispenser has a dispenser case 12 provided with sides 14 and 16, a top 18 and an open bottom within which a dispenser adapter 20 is fitted. The top 18 is made of a U-shaped member whose sides 22 and 24 fit over a small part of the outer surfaces of the dispenser sides 14 and 16 and is held in place by any fastening expedient, as by screws, frictionally fitting, etc. A notched tooth brush holder flange 25 protrudes from the lower edge of side 24 to retain tooth brushes in a convenient place. The lower ends of the sides 14 and 16 have short inwardly directed rails 26 and 28 (Figure 3) onto which flanges 30 and 32 of adapter are slid. The adapter is constructed of a block which may be ornamentally contoured and which has the flanges 30 and 32 at the edge sides thereof to fit into the dispenser by sliding on rails 28 and 30. A passage 34 extends through the adapter and is adapted to conduct the substance from flexible tube 38. The upper end is enlarged and if desired, may have screw threads 40 within which the threaded end 42 of the tube 38 is attached. An upwardly opening recess 44 is in the top of adapter 30 to accept the ordinarily beveled end of the tube near the threaded part 42.

The lower end of the adapter has a slide valve 48 which consists of a U-shaped member whose upper side 50 is slidable in truck 52 formed in the adapter 20. A port 54 is in side 50 and registers with passage 34 to permit some of the contents of the tube to be discharged. The connecting member 56 of the U-shaped slide valve holds the side 58 of the slide valve spaced and parallel to member 50. The member 58 constitutes a rest for the back of the tooth brush holder flange 25 (Figure 2) in the region of the bristles. Flanges 60 and 62 are fixed between members 56 and 58 for rigidity and strength of construction. A finger-grip 66 is attached to one of the members, preferably member 59 to facilitate manual operation of the slide valve. Latch 70 pivoted by pin 72 at one end, extends across the lower open end from front to rear of the tube and prevents the flanges 60 and 62 from being carried out over the latch. Latch 70 has a slot 74 near the non-pivoted end and is engageable over a fixed pin 76 that is carried by side 14 of the dispenser. The latch releasably holds the adapter in place within the dispenser permitting it to be separated so that the tube 38 can be applied to the adapter or removed from the adapter depending on whether a new tube is being inserted or an old tube is being discarded.

Sides 14 and 16 are each made of several parts and have a part of the means for squeezing discrete quantities of the contents from tube 38. The side 14 (Figure 4) is made of a flat outer plate 80 with an inturmed flange 81 at its rear horizontal edge. The front vertical edge of the flat plate 80 has a short wall 82 to which plate 83 is fixed. Plates 80 and 83 are parallel and spaced so that bolts 84 can pass through this space. The bolts 84 are secured to short extensions 85 of elongate plates 86. The plates are L-shaped in section with the longer side thereof having rack gear teeth 87 thereon and the shorter side thereof bolted, for example by bolts 88, to the back wall 89 of the dispenser. Side 16 is constructed identically, having plate 91 with rack gear teeth 92 (Figure 6) and secured to the back 89 of the dispenser. A flat outside plate 93 has the longer flange of the generally L-shaped (in cross section) plate 91 fitting flush thereagainst. The front wall 94 corresponds to wall 32, and the inside plate 95 parallels the flat plate 93 leaving a space for bolts 96 which are similar in function to bolts 84. The rear inwardly directed flange 97 of side 16 serves a purpose similar to the flange 81 with both of these flanges having confronting edges that are spaced from a rear plate 98 which is bolted, as by bolts 99, to the back 89. The edges of plate 98 and the flanges 81 and 97, respectively form tracks so that the entire dispenser can be slid on stationary rails 100 that are fixed to a supporting surface. Further facilitating the mounting is a mounting bracket 102 which is attached by bolts 104 to the back 98 of the dispenser and to a supporting surface.

Pinions 106 and 108 are secured to a spindle 110 that has a handle 110 at its extremity. Roller 120 is attached onto the spindle and as shown in Figure 3, the spindle may be sectorial with the roller being able to apply different sizes of rollers. Pinions 106 and 108 are in engagement with the teeth of the two rack gears so that when the handle 110 is rotated in a clockwise or counter-clockwise direction (depending on the direction of movement desired) the roller 120 will move up or down in the dispenser and squeeze the contents of the tube 38 through...
passage 34 when the slide valve is open. The pinions are held captive in the chambers formed in sides 14 and 16 between the inner parts 93 and 95 and the outer parts or plates 88 and 93 of the dispenser sides. This is shown in Figure 6. As the contents of the tube 38 are used, the roller 20 will assume new positions along the vertical dimension of the dispenser. The case with which the discharge end of the tube can be applied has been discussed. The opposite end of the tube is generally provided with a strip 122 to fasten the end of the tube together. This strip can be fitted in any one of a group of notches 124 that open through the front surface of the back 89 of the dispenser. Notches 124 have inclined walls so that the strip 122 portion of the tube 38 forms a wedge-lock when applied therein. As the tube nears exhaustion, the roller becomes superposed with a curved baffle 126 (lower part of Figure 2) and between which the tube is squeezed in order to exhaust practically all of the contents of the tube 38.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. A dispenser for the contents of a collapsible tube comprising an open front case having upright sides, an adapter having an upright passage therethrough for attaching a neck of a tube therein in upright position for discharge of the contents of the tube out of said passage, tube collapsing means in said case, means slidably detachably mounting said adapter on said sides for removal forwardly out of the front of the case to remove a collapsible tube, a slide valve mounted on said adapter for opening and closing movement to open and close said passage and movable forwardly to open said passage for discharge of contents of a tube onto a toothbrush out of said passage, a finger grip member on said valve for moving the valve forwardly, a stop wall on said valve engaging said adapter to limit forward movement of the valve, and releasable latch means on said casing extending across the front of the casing in front of the adapter to prevent forward movement of said adapter incidental to engagement of said stop wall with said adapter in opening said valve.

2. The combination of claim 1, said latch means comprising a bar pivoted on one side wall of the case for movement into releasing position.

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