Oct. 16, 1956 W. G. WHEELER 2,766,908

DISPENSING DEVICE

Filed Feb. 19, 1954

FIG. 1

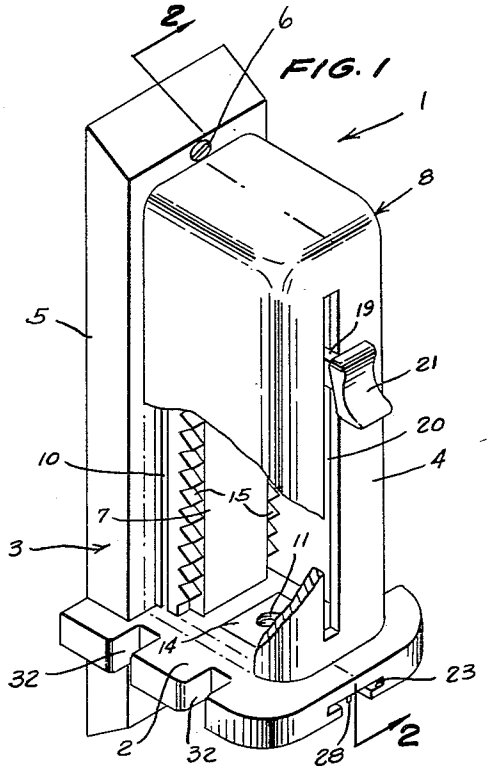


FIG. 2

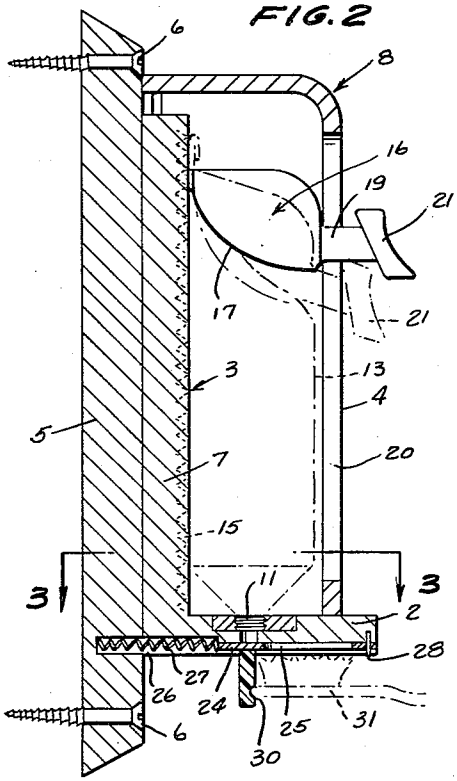


FIG. 3

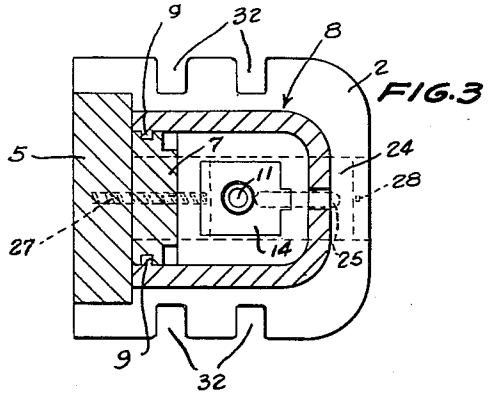


FIG. 4

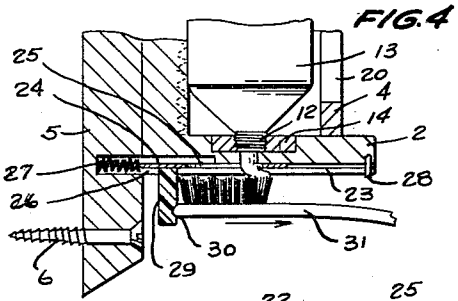


FIG. 5

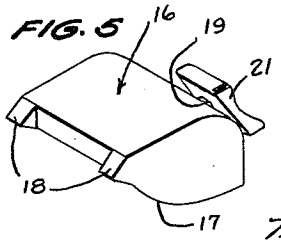
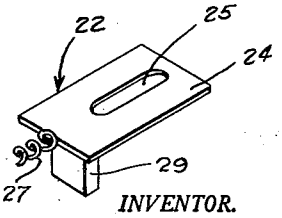


FIG. 6



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2,766,908

Patented Oct. 16, 1956

2,766,908

DISPENSING DEVICE

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Application February 19, 1954, Serial No. 411,373

2 Claims. (Cl. 222—103)

This invention relates to dispensing devices for toothpaste and similar materials contained in collapsible tubes.

An object of the invention is to provide a dispensing device adapted to protectively enclose a paste-containing collapsible tube and to dispense the paste from such tube as needed.

Another object of the invention is to provide a dispensing device which empties a paste-containing collapsible tube evenly and thoroughly, beginning at the bottom and working gradually to the top, to avoid the skipping and leaving in the tube of any of its contents or the bursting of the tube by the application of pressure above the exhausted portion thereof.

A further object of the invention is to provide a dispensing device for toothpaste which may be actuated by the pressure of a toothbrush against the dispensing mechanism.

Other objects and advantages of the invention will appear from the following description considered in conjunction with the attached drawing in which:

Figure 1 is a perspective view of the dispensing device of the present invention;

Figure 2 is a view taken along the line 2—2 of Figure 1;

Figure 3 is a view taken along the line 3—3 of Figure 2;

Figure 4 is a detail view in section of the lower end of the device of the present invention, showing toothpaste being dispensed upon the bristles of a toothbrush;

Figure 5 is a detail view in perspective of the squeezer element of the device of the present invention; and

Figure 6 is a detail view in perspective of the slide valve of the present invention.

Referring now to the drawing in more detail, numeral 1 designates generally an upstanding, closed housing, including a bottom 2 and a pair of spaced walls 3 and 4 rising from the bottom 2. The housing consists of a base plate 5, an L-shaped plate 7 and a removable cover plate 8. The base plate 5 is adapted to be fixed to a wall surface by means of screws 6. The L-shaped plate 7 is fixedly secured to the base plate 5, its long arm being upright and constituting with the base plate 5, the wall 3 of the housing 1 and its short arm being horizontally disposed and constituting the bottom 2 of the housing 1. The cover plate 8 rests upon the bottom 2 and slidably engages the long arm of the plate 7 by means of a projecting tongue 9 which enters a conforming groove 10 on each side of the long arm of the plate 7. The portion of the cover plate 8 disposed in opposed relation to the wall 3, constitutes the wall 4. The bottom 2 extends outwardly beyond the cover plate 8 and the exposed marginal portion is provided with a plurality of spaced notches 32 in which toothbrushes may be hung when not in use. The bottom 2 is also provided with a central aperture 11 for embracingly receiving a neck 12 of a collapsible tube 13 when the tube is supported in an inverted position within the housing 1. The upper portion of the aperture 11 extends through an adaptor plate 14, inset into

the upper face of the bottom 2, and is internally threaded to engage the threading upon the neck 12.

Cut into either side of the exposed face of the long arm of the L-shaped plate 7, is an upstanding toothed track 15. A squeezer element 16 is positioned internally of the housing 1 and is slidably supported in the wall 4. One end of the element 16 is engageably with the teeth of the track 15. To the other end of the element 16 is operatively connected hand actuable means for effecting the sliding movement of the element 16. The element 16 consists of a solid body having a convex face 17 which bears upon a side of the tube 13 inserted in the housing 1 for pressing the contents of the tube out through the neck 12. Projecting from opposite sides of one end of the element 16 are lugs 18 which engage the teeth of the track 15. Projecting from the other end of the element 16 is an arm 19 which extends slidably through a vertical slot 20 in the wall 4 and carries a finger piece 21 at its external end, by which the squeezer element 16 may be rocked and moved upon the track 15.

A slide valve 22, normally bridging the aperture 11, is mounted in a T slot 23 in the lower face of the bottom 2 for movement into and out of bridging relation with respect to the aperture 11. The slot extends inwardly from the central portion of the ege of the bottom 2 adjacent the side 4 to a point beyond the aperture 11. The slide valve 22 consists of a plate 24 having an elongated central aperture 25 adjacent the end of the plate nearest the outer end of the slot 23. Contiguous to the inner end of the slot 23 is a chamber 26 formed in the bottom 2, in which is positioned a coil spring 27, having one end in engagement with the inner end of the plate 24 to urge the plate 24 toward the outer end of the slot 23, holding the aperture 25 out of registry with the aperture 11 and thus biasing the valve 22 to the closed position. A pin 28 projecting downwardly into the slot 23 adjacent its outer end acts as a stop to prevent the spring 27 from pushing the valve 22 out of the slot 23. Dependingly carried by the valve 22, is a finger 29 for effecting the movement of the valve 22 against the urging of the spring 27. The finger 29 is provided with a groove 30 in the face of the finger adjacent the wall 4. The groove 30 is so located as to receive and support an end of a handle of a toothbrush 31 with the bristles of the brush facing and adjacent the aperture 11, whereby execution of the sliding movement of the valve 22 out of bridging or closed relation with respect to the aperture 11, causes even distribution over the bristles of the paste emitted from the aperture 11.

As will be apparent from the foregoing, the dispensing device of the present invention is adapted to be fastened to a bathroom wall by means of the screws 6. The cover plate 8 may be removed and a collapsible tube 13, with the cap removed, mounted in inverted position upon the bottom 2 with the neck 12 in threaded engagement in the upper portion of the aperture 11. The squeezer element 16 is then raised to the top of the slot 20 and the cover plate 8 put back in place. The convex surface 17 of the squeezer 16 now bears upon the end of the tube 13 and movement of the finger piece 21 causes the surface 17 to rock on the tube squeezing the paste toward the outlet in the neck 12. So long as the valve 22 is in the normal position under the action of the spring 27, the paste will be prevented from escaping from the tube. However, when a toothbrush is brought into contact with the depending finger 29, forcing it backward toward the plate 5, the aperture 25 of the valve 22 will come into registry with the aperture 11 and the paste will be emitted from the tube. By placing the end of a handle of the toothbrush in the groove 30 with the bristles upright, the brush is supported and so positioned as to receive the paste

evenly upon the bristles as the brush is pushed inwardly against the finger **29** and then withdrawn for use. When the brush is withdrawn, the spring automatically moves the valve **22** to its closed position preventing further escape of the toothpaste.

What is claimed is:

1. In a toothpaste dispensing device, a housing comprising a base, laterally spaced first and second vertical walls rising from said base, said walls having vertical facing surfaces, said base having an opening between said walls for receiving the neck of a collapsible toothpaste tube in inverted position between the walls, the facing surface of said first wall having a vertical rack thereon, said second wall having a vertical slot therethrough, and a squeezer comprising a body having an outer end wider than said slot and bearing freely against the facing side of said second wall and an inner end having an inwardly projecting tooth engageable with said rack and slidable along the rack, and a manipulator arm on and projecting outwardly from said outer end of the body, said manipulator arm being narrower than said outer end of the body and extending freely out through said slot for vertical movement in the slot, said squeezer being otherwise unconnected to said housing and said squeezer body having a convexly curved underside at the inner end of the body, said underside being arranged to bear upon the side of a collapsible tube positioned in said housing remote from the side of the tube engaged with the facing surface of said first wall, the distance between the inner end of the squeezer body and the facing side of said second wall being less than the thickness of an unsqueezed toothpaste tube.

2. In a toothpaste dispensing device, a housing comprising a base, laterally spaced first and second vertical walls rising from said base, said walls having vertical facing surfaces, said base having an opening between said walls for receiving the neck of a collapsible toothpaste tube in inverted position between the walls, the facing surface of said first wall having a vertical rack thereon, said second wall having a vertical slot therethrough, and a squeezer comprising a body having an outer end wider than said slot and bearing freely against the facing side of said second wall and an inner end having an inwardly projecting tooth engageable with said rack and slidable along the rack, and a manipulator arm on and projecting outwardly from said outer end of the body, said manipulator arm being narrower than said outer end of the body and extending freely out through said slot for vertical movement in the slot, said squeezer being otherwise unconnected to said housing and said squeezer or body having a convexly curved underside at the inner end of the body, said underside being arranged to bear upon the side of a collapsible tube positioned in said housing remote from the side of the tube engaged with the facing surface of said first wall, the distance between the inner end of the squeezer body and the facing side of said second wall being less than the thickness of an unsqueezed toothpaste tube, said manipulator arm having an outer end, and a finger piece fixed on the outer end of the manipulator arm, said finger piece being wider than said slot and normally spaced outwardly from said second wall.

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