Oct. 26, 1937. J. H. RUTH 2,097,308

COLLAPSIBLE TUBE HOLDER AND EXPELLER

Filed Sept. 30, 1936

FIG. 1.

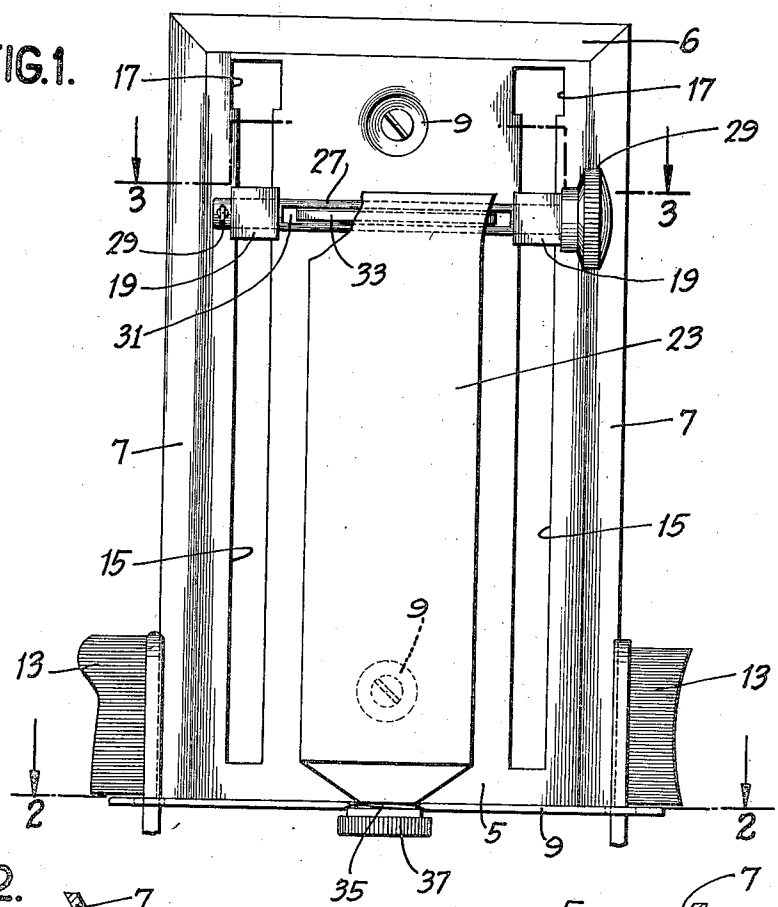


FIG. 2.

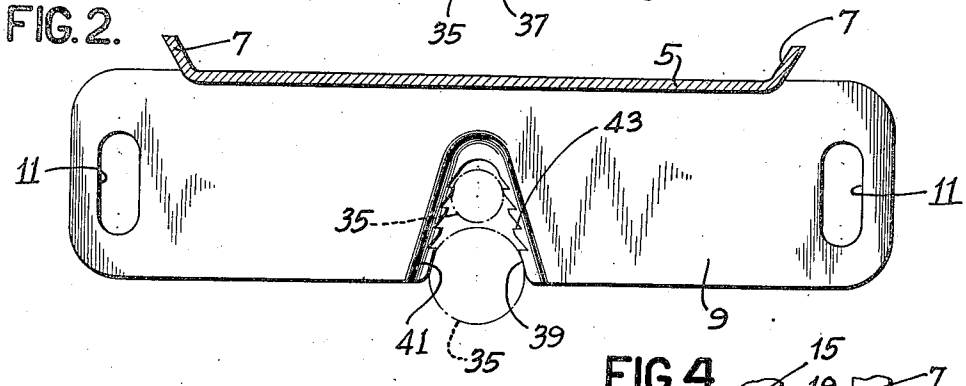


FIG. 3.

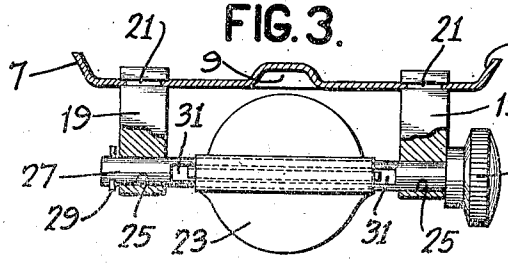
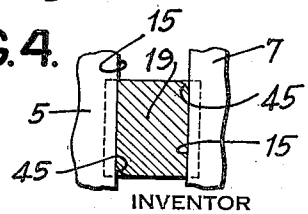


FIG. 4.



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COLLAPSIBLE TUBE HOLDER AND EXPELLER

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8 Claims. (Cl. 221—60)

This invention relates to a collapsible tube holder of the kind, for instance, which is adapted to be secured to a wall and wherein the end of the tube is adapted to be collapsed to cause the extrusion of a charge of tooth paste onto a tooth brush.

The present invention seeks a tube holder and expeller of the character described in which one end is secured to a rotatable member adapted to collapse that end while the end is held against displacement at the bottom of a frame or the like.

Another object of the invention is the adjustable retention of the mouth of the tube against displacement together with securing means for said mouth which is applicable to tubes of varying diameters.

Still another object of the invention is to provide a carrier for tooth brushes.

These and other objects of the invention and the means for their attainment will be more apparent from the following detailed description taken in connection with the accompanying drawing illustrating one embodiment by which the invention may be realized, and in which:

Figure 1 is a view in front elevation showing the collapsible tube holder and expeller of this invention;

Figure 2 is a transverse sectional view taken in the plane indicated by the line 2—2 of Figure 1 and looking in the direction of the arrows; and

Figure 3 is a transverse sectional view taken in the plane indicated by the line 3—3 of Figure 1 and looking in the direction of the arrows.

Figure 4 is a vertical sectional view taken through one of the posts where it slides in the slot.

The tube holder of this invention comprises a wall plate or bracket 5 conveniently formed of sheet metal whereof the top edge 6 and side edges 7 are deflected rearwardly, as by a stamping or pressing operation, as a bevelled edge serving to space the rear wall 5 from the wall surface to which it is attached as by screws 9 passing through suitable holes in the wall plate 5. The lower portion of the plate 5—7 is bent outwardly at right angles as at 9 to serve as a support for the lower end or mouth of the tube and may conveniently be formed with a plurality of apertures 11, shown in this instance as one at each end, in which the tooth brushes 13 may be supported. These apertures are, in the illustrated embodiment, oval or elongated in shape, the major axis of which being perpendicular of the plane of the rear plate 5.

Equally spaced on each side of the longitudinal median line of the plate 5 are formed a pair of slots 15 extending substantially the length of the plate 5 and formed with a rectangular portion 17 at the upper end through which may be inserted a pair of slides or bracket members 19. These bracket members are illustrated as formed with notches or grooves 21 near their rear ends thereof of a width substantially equal to the thickness of the rear plate 5, and the dimension of the material between the opposed grooves 21 is substantially equal to the width of the slots 15 so that the opposed walls of the slots 15 serve as brackets down which the two members 19 may slide with a fairly snug fit as the contents of a tube 23 of, say, tooth paste, is expelled. The outer ends of the posts 19 are formed with aligned circular apertures 25 serving as bearings or journals for a shaft 27 extending therebetween and having at its one end a knurled head 29. The other end of the shaft is retained by means of a cotter pin 29 or the equivalent whereby the shaft 27 is prevented from accidental removal. The shaft 25 and the two posts 19 thus serve as a slide or frame adapted to travel up and down the tracks 15. Intermediate the posts 19, the shaft 27 is formed with a slot 31 adapted to receive the flat end 33 of the collapsible tube, the knurled head 29 then being rotated to wind that end of the tube down the shaft 27 to collapse the same, thereby expelling the tube contents through the mouth 35 of the tube. Opposed post corners in the grooves may be cut away or rounded, as at 45, to avoid binding should the frame move unevenly.

The mouths of collapsible tubes of this nature are usually threaded to receive a knurled cap 37 which is removed when the contents of the tube or a charge thereof is to be expelled. To accommodate tubes the mouths of which vary in size and to retain the mouth fixed with respect to the plate 9 when the shaft 27 is rotated, a substantially V-shaped notch or the equivalent 39 is formed centrally of the lower plate or table 9. The edges of this slot are bevelled, as indicated at 41, to be received within and engage the threads on the tubular mouth 35 to prevent displacement thereof and in order to prevent the lower end of the tube from swinging outwardly out of the V-shaped notch 35. As the shaft 27 is rotated, the bevelled edge 41 of the notch may be formed with a plurality of saw

teeth **43** which will have a tendency to bite into the soft metal of the tubular mouth **35** and prevent movement thereof.

When the tube **23** is in position, as shown in Figure 1, it will be readily apparent that the cap **37** may be unscrewed to expose the open mouth and when a tooth brush or other receiving instrumentality is placed beneath the mouth and the knurled head **29** rotated, a charge of the tube contents will be expelled. Rotation of the knurled head will tend to pull the tube upwardly in an axial direction but the lower end being held fixed in the V-shaped notch **39**, the resultant force will tend to wind the upper end of the tube about the shaft, thus collapsing the tube and at the same time causing the frame members **19** to move downwardly in the tracks, each an equal distance, thereby maintaining the horizontal relationship of the shaft **27** and causing all of the material to be expelled from that portion of the tube, that is, wind down the shaft. When the desired quantity has been expelled, the cap **37** may be again replaced.

Various modifications will occur to those skilled in the art in the composition, configuration and disposition of the component elements going to make up the invention as a whole as well as in the use to which the invention may be put, and no limitation is intended by the phraseology of the foregoing description or illustrations in the accompanying drawing, except as indicated in the appended claims.

What is claimed is:

1. A collapsible tube holder and expeller of the character described comprising a sheet metal plate of rectangular shape having three side edge portions deflected to space the mid-portion from a wall and the fourth edge deflected in a direction opposite thereto as a tube supporting member, said plate being formed with a pair of spaced parallel slots whereof the upper ends are enlarged to permit the insertion of posts, posts grooved, respectively, at one end received within the slots for sliding movement therein, a shaft journalled in the outer extremities of the posts and formed with a slot therebetween to receive the end of a collapsible tube, said tube supporting member being formed with a notch to receive the mouth of the tube.

2. A collapsible tube holder and expeller of the character described comprising a plate of rectangular shape having means to space the mid-portion thereof from a wall and a portion at an angle thereto as a tube supporting member, said plate being formed with a pair of spaced parallel slots whereof the upper ends are enlarged to permit the insertion of posts, posts grooved, respectively, at one end and received within the slots for sliding movement therein, a shaft journalled in the outer extremities of the posts and formed with a slot therebetween to receive the end of a collapsible tube, said angular portion being formed with a notch to receive the mouth of the tube.

3. A collapsible tube holder and expeller of the character described comprising a metal plate of rectangular shape having three side edges deflected to space the mid-portion from a wall and the fourth edge deflected in a direction opposite thereto as a tube supporting member, said plate being formed with a pair of spaced parallel slots whereof the upper ends are enlarged to permit the insertion of posts, posts grooved, respectively, at one end received within the slots for sliding movement therein, a shaft journalled in the outer extremities of the posts and formed with a slot therebetween to receive the end of a collapsible tube, said deflected edge being formed with a notch to receive the mouth of a collapsible tube, the edge of said notch being bevelled.

4. A collapsible tube holder and expeller of the character described comprising a metal plate of rectangular shape having three side edges deflected to space the mid-portion from a wall and the fourth edge deflected in a direction opposite thereto as a tube supporting member, said plate being formed with a pair of spaced parallel slots whereof the upper ends are enlarged to permit the insertion of posts, posts grooved, respectively, at one end received within the slots for sliding movement therein, a shaft journalled in the outer extremities of the posts and formed with a slot therebetween to receive the end of a collapsible tube, said deflected edge being formed with a notch to receive the mouth of a collapsible tube, the edge of said notch being formed with inwardly directed teeth.

5. A collapsible tube holder and expeller of the character described comprising a metal plate of rectangular shape having three side edges deflected to space the mid-portion from a wall and the fourth edge deflected in a direction opposite thereto as a tube supporting member, said plate being formed with a pair of spaced parallel slots whereof the upper ends are enlarged to permit the insertion of posts, posts grooved, respectively, at one end received within the slots for sliding movement therein, a shaft journalled in the outer extremities of the posts and formed with a slot therebetween to receive the end of a collapsible tube, said deflected edge being formed with a notch to receive the mouth of a collapsible tube, the edge of said notch being bevelled, said bevelled portion being formed with inwardly directed teeth.

6. A collapsible tube holder and expeller of the character described comprising a bracket having a horizontal portion formed with a notch to receive the mouth of a collapsible tube, the edge of said notch being formed with inwardly directed teeth.

7. A collapsible tube holder and expeller of the character described comprising a bracket having a horizontal portion formed with a V-shaped notch to receive the mouth of a collapsible tube, the edge of said notch being bevelled, said bevelled portion being formed with saw-teeth inwardly directed toward the apex of the notch.

8. A collapsible tube holder and expeller of the character described comprising a pressed sheet metal plate of rectangular shape having three side edges deflected rearwardly at an angle less than ninety degrees to space the mid-portion of the plate from a wall and the fourth edge deflected at right angles in a direction opposite thereto as a tube supporting member, said plate being formed with a pair of spaced parallel slots whereof the upper ends are enlarged to permit the insertion of posts, posts grooved, respectively, at one end received within the slots for sliding movement therein, a shaft journalled in the outer extremities of the posts and formed with a slot therebetween to receive the end of a collapsible tube, a knob on the shaft end in the plane of the deflected edge portion, said fourth edge portion being formed with a notch to receive the mouth of the tube.

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