Oct. 23, 1928. 1,688,512

U. T. WALKER

TOOTH PASTE DISPENSING DEVICE

Filed July 19, 1927 3 Sheets-Sheet 1

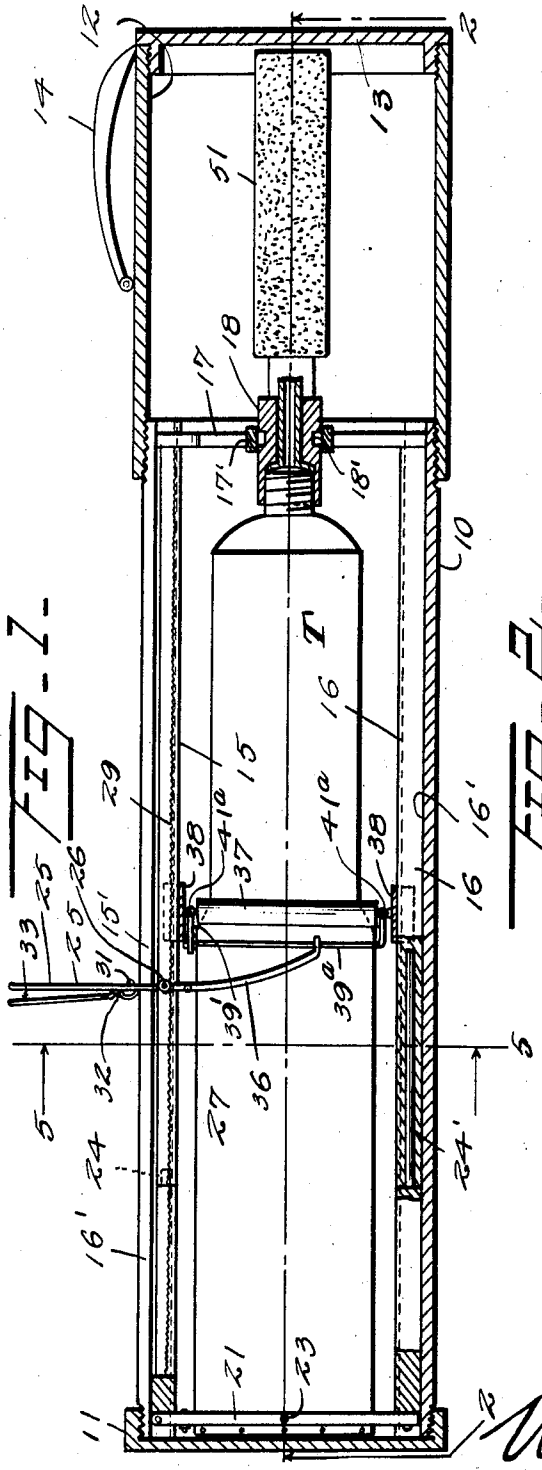


FIG. 1.

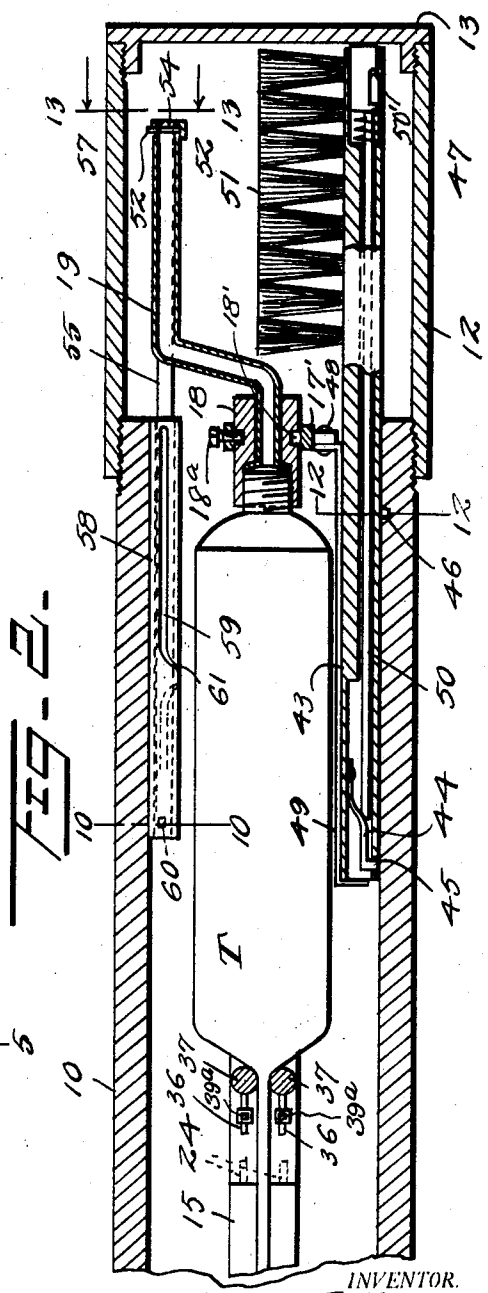


FIG. 2.

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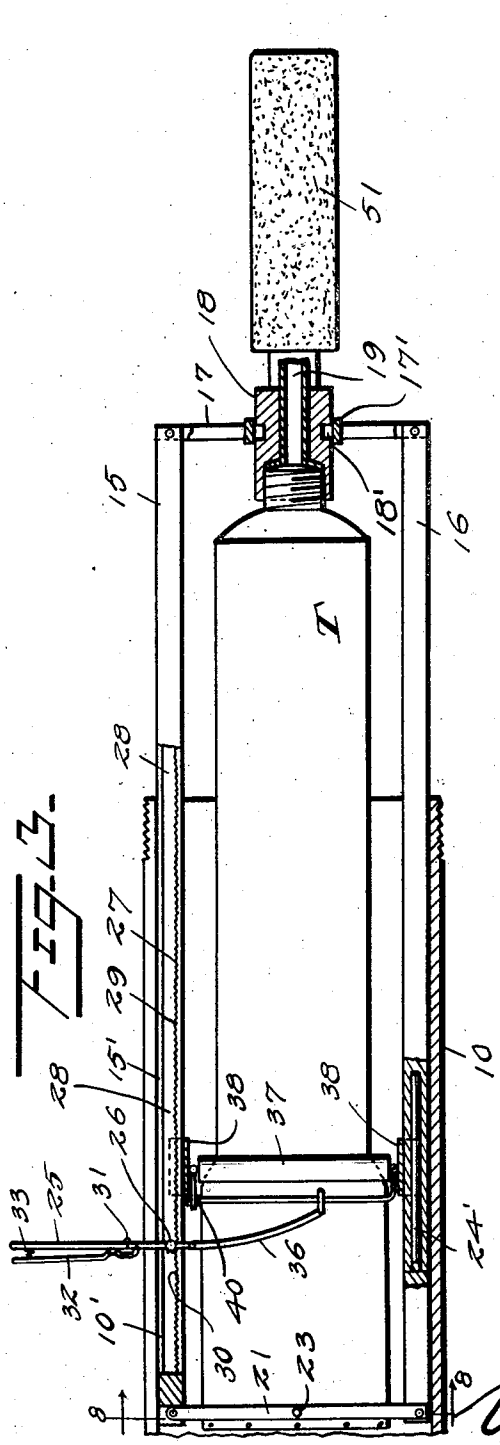
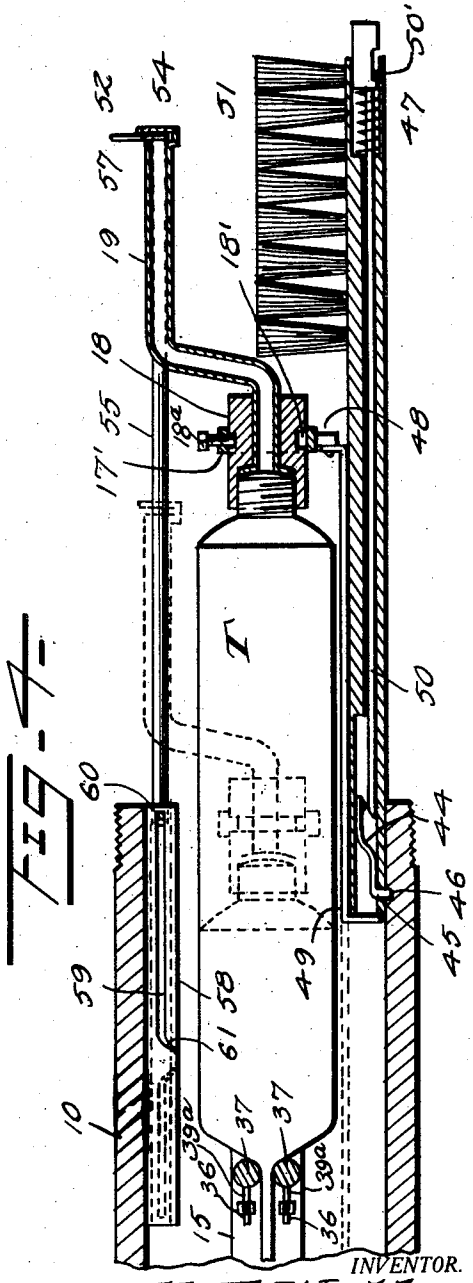


Fig. 4.



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Fig. 5.

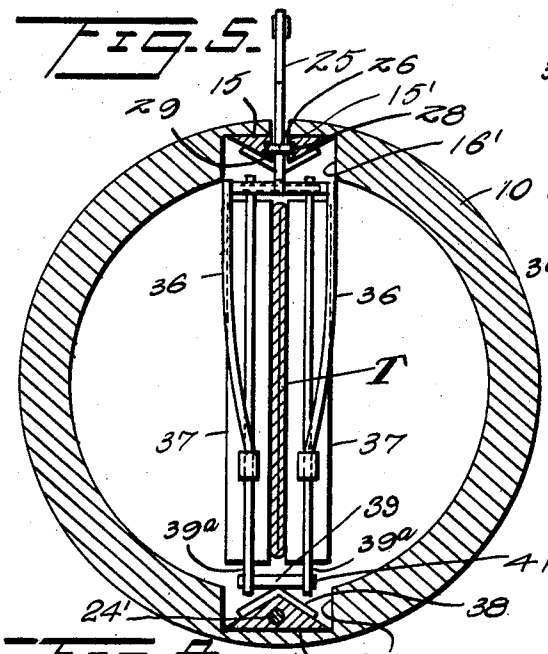


Fig. 6.

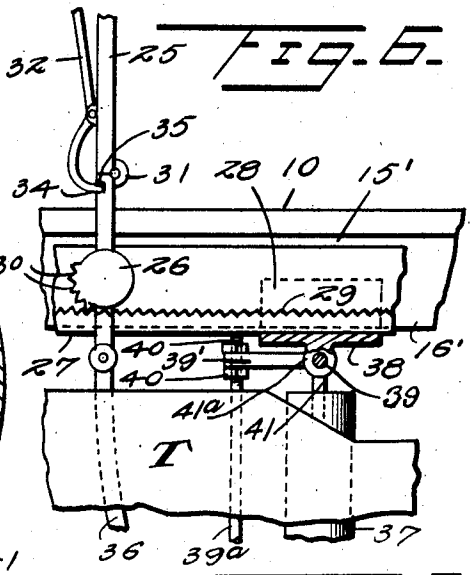


Fig. 7.

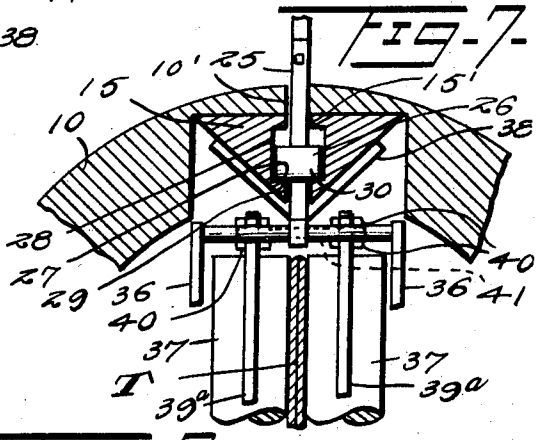


Fig. 8.

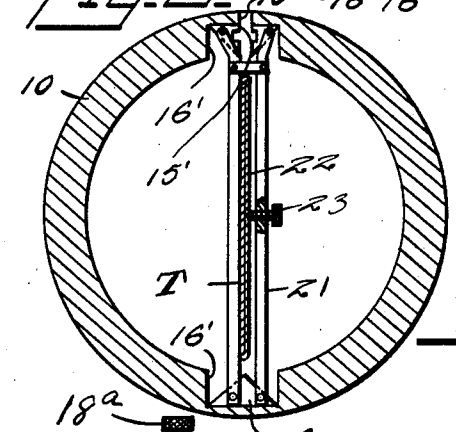
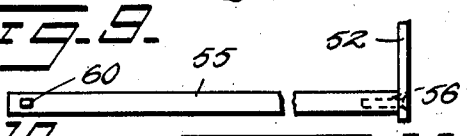


Fig. 9.



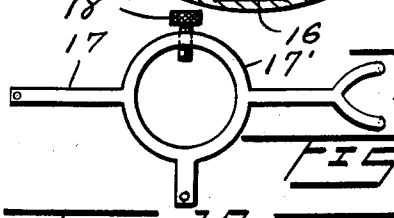


Fig. 10.



Fig. 13.

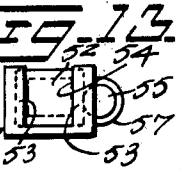


Fig. 11.

Fig. 14.

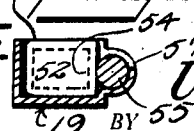


Fig. 12.

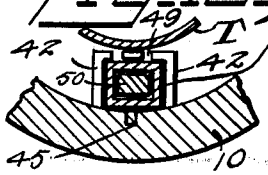
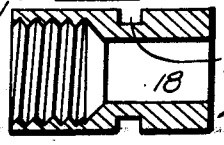


Fig. 15.



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Patented Oct. 23, 1928. 1,688,512

UNITED STATES PATENT OFFICE.

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TOOTH-PASTE-DISPENSING DEVICE.

Application filed July 19, 1927. Serial No. 206,908.

This invention relates to tooth paste dispensing devices and more particularly to the provision of a combined tooth paste and tooth brush holder which may be conveniently carried in the pocket or in a traveling case.

An important object of the invention is to provide a device of this character embodying a carrier tube within which a tooth brush is telescopically mounted and a paste tube supported in such manner that it may be shifted outwardly to overlie the bristles of the brush and then operated to cause a discharge of a portion of its contents.

A further object of the invention is to provide means whereby the shifting of the tooth paste carrier automatically moves the brush to its operative position.

A further object of the invention is to provide in a device of this character a cut-off preventing discharge of the contents of the tooth paste tube and means whereby this cut-off is automatically operated to open the same when the tooth paste carrier has been extended the proper distance and the tooth brush is in its operative position.

These and other objects I attain by the construction shown in the accompanying drawings, wherein for the purpose of illustration is shown a preferred embodiment of my invention and wherein:—

Figure 1 is a longitudinal sectional view taken through a tooth paste dispensing device constructed in accordance with my invention;

Figure 2 is a similar view taken at right angles to the view in Figure 1 and on the line 2—2 of said figure;

Figure 3 is a section similar to that of Figure 1, but with the tooth paste tube holder extended to bring the brush to the operative position;

Figure 4 is a view similar to that of Figure 3, but at right angles thereto;

Figure 5 is a section on the line 5—5 of Figure 1;

Figure 6 is a detail view partially in section illustrating the roller mounting and the mounting of the operating levers;

Figure 7 is a section through the operating lever and associated parts;

Figure 8 is a section on the line 8—8 of Figure 3;

Figure 9 is an elevation of the valve control bar;

Figure 10 is a section on the line 10—10 of Figure 2;

Figure 11 is a plan of the tube cap supporting yoke;

Figure 12 is a section on the line 12—12 of Figure 2;

Figure 13 is a section on the line 13—13 of Figure 2;

Figure 14 is a section on the line 14—14 of Figure 4;

Figure 15 is a longitudinal sectional view through the paste tube cap.

Referring now more particularly to the drawings, the numeral 10 generally designates a carrier tube having its opposite ends opened and externally screw-threaded for the reception of caps 11 and 12. The cap 12, at the opposite end, for the reception of carrier tube 10, is interiorly threaded for the reception of nut 13, for securing clip 14. The interior of the tube is provided with diametrically opposed longitudinally extending guide grooves 16′. The wall of the tube at one of these grooves is longitudinally slotted, as indicated at 10′. Arranged within the carrier tube is a tooth paste carrier embodying side elements 15 and 16, which are connected at one end by an element 17, having at its inner face an interiorly threaded rotatable nut 18 adapted for the reception of the threaded outlet end of a paste tube T and at its opposite face an outlet nozzle 19 which is offset to one side of the container and communicating with the bore of the threaded nut. The nut 18 is secured by set-screws 18ª extending through the band 17′ of the element 17 into groove 18′ of nut 18. At their opposite ends, the side members 15 and 16 are connected to the opposite ends of a clamp 21 adapted to engage the closed end of a paste tube and securely hold the same by screwing jaw 22 against the paste tube with screw 23. Each side member 15 and 16 is formed in two sections held in alignment with one another by dowel pins 24 and 24′ and these sections are separable to permit an old tube to be removed and a new tube inserted in position. It will be obvious that when a tube has one end thereof clamped in the clamp 21 and the opposite end thereof threaded in the nut 18, the separable sections of the side elements are held against the necessary longitudinal movement, permitting such separation and a fixed assembly provided until the clamp 21 is released from the closed end of the tube.

The side member 15 is longitudinally slotted at 15′ for the passage of a lever 25

and this slot is enlarged, as at 28, for the reception of a transversely extending pivot 26 integral with the lever. The wall 27 of the enlargement 28 of the slot next adjacent the inner face of the side member 15 is provided with teeth 29 which, when the lever is forced inwardly, engage with teeth 30 formed upon the surface of the pivot 26. The lever 25 is preferably formed at its outer end with a rule joint 31, so that this outer end may be folded against the side of the carrier tube when not in use.

The lever 25 is provided with a rocker arm lever 32 opposite rule joint with coil spring 33 to engage lug 34 in notch 35 formed below rule joint, when lever 35 has been raised a predetermined extent. The inner end of this lever has secured thereto spring arms 36 adapted to extend to opposite sides of the tube T and resiliently force rollers 37 into engagement with the sides of the tube. These rollers are carried by slides 38, which engage the inner faces of the side members 15 and 16 and which bear transversely extending guide bars 39. Slidably mounted upon these guide bars are heads 41^a which receive the outer ends of shafts 41 of the rollers. These heads have upwardly extending arms 39′ secured by nuts 40 to the ends of connecting rods 39^a which extend upon opposite sides of the tube and are directly engaged by the spring arms 36.

It will be obvious that if the handle lever 25 is simply engaged with the fingers and moved longitudinally of the tube, the engagement of these rollers with the tube will cause the tube and its carrier to move longitudinally of the carrier tube 10. If, however, the teeth 30 of the pivot of the lever and the teeth 29 of the side element 15 are engaged with one another and the lever rotated upon its pivot, there will be a tendency of the side members to move in one direction and the rollers 37 to move in the opposite direction, with the result that the rollers will move over the paste tube, flattening a portion thereof and thus discharging a portion of the contents through the nozzle 19.

The carrier tube is further provided interiorly with opposed guides 42 slidably receiving the side edges of a brush handle 43. This brush handle is hollow and has arranged therein a leaf spring 44, one end of which is secured to the inner wall of the brush handle and the opposite end of which has a latch lug 45 adapted to extend through the opposite wall of the brush handle and engage in a notch 46 formed in the wall of the carrier tube when the handle has been extended to a predetermined extent. The end member 17 of the paste tube carrier has an angular arm extending inwardly and engaging the tooth brush handle, as at 49, in such manner that when the carrier is moving in one direction, no relative movement of the handle and brush may take place and the handle accordingly moves with the carrier, but when the carrier is moving in the opposite direction, the handle is disengaged and the brush permitted to remain in its extended position, in which it is latched, as previously described. The handle has extending longitudinally thereof a push rod 50, the outer end of which extends slightly beyond the outer end of the brush head 51 and is engaged by the cap 12 in the application thereof. This engagement between the cap 12 and the push rod 50 causes the push rod to move longitudinally and clamp against the spring 44, so that the lug 45 is withdrawn and the brush may move inwardly. The coil spring 47 retracts rod 50 from under leaf spring 44 to permit latch lug 45 to engage in notch 46 after the removal of cap 12. Movement of the rod 50 is limited by a set-screw 50′. As the cap is moved for engagement with the adjacent end of the tube, the brush is forced before it into its collapsed position.

The outlet nozzle 19 in its normal relation with the brush head 51 has its outer end overlying the brush at substantially the center thereof, or slightly beyond this center from the handle end. This outlet end is provided with an oscillating cut-off valve 52, by means of which its discharge orifice 54 is normally closed. At either side of the discharge orifice are guides 53 that hold the cut-off valve firmly against the orifice 54. This slide valve 52 is connected to shaft 55 by countersunk screw 56. The shaft 55 is secured to the side of the nozzle 19 by a bearing clamp 57. Carried by the inner wall or the carrier tube is a slotted cylindrical guide 58, combining to produce a passage for shaft 55 of which lug 60 engages in slot 59, and during its passage through the cylindrical guide, encounters curve 61, which extends a part of the way around the cylinder. The curve serves to rotate the shaft, therefore moving cut-off valve either in its open or closed position. As the carrier moves out of the carrier tube to extend the brush, this lug 60 comes in contact with curve 61 and opens the valve, so that when the brush is fully extended, the operator may pull back on lever 25 until teeth 29 and 30 engage, when upon continued rotation of the lever, the rollers 37 will be advanced and paste ejected from the tube. If, at the same time, that it is rotated about the part 26 as a center the lever is bodily shifted toward the end of the tube bearing the cap 11, it will be seen that this paste, as it is ejected, will be distributed along the brush. As the outer end of tube aligns with the inner end of the brush, the valve will be operated to close the mouth of the tube and cut off discharge therefrom.

It will be obvious from the foregoing that a device of this character provides a substantially automatic operation for applying paste to the brush and for extending the brush for use and retracting the same.

It will also be obvious that the construction hereinbefore set forth is capable of a certain range of change and modification without materially departing from the spirit of the invention and I accordingly do not limit myself to such specific structure except as hereinafter claimed.

I claim:—

1. In a tooth paste and tooth brush carrier, a carrier tube, a tooth paste tube carrier slidably mounted therein and embodying an outlet nozzle, a tooth brush likewise slidably mounted therein, means for shifting the tooth paste carrier longitudinally of the tube, means operated by shifting of the tooth paste carrier longitudinally of the tube for extending the brush, means for latching the brush in extended position and means for discharging tooth paste from a tube carried by the carrier upon the extended brush.

2. In a tooth paste and tooth brush carrier, a carrier tube, a tooth paste tube carrier slidably mounted therein and embodying an outlet nozzle, a tooth brush likewise slidably mounted therein, means for shifting the tooth paste carrier longitudinally of the tube, means operated by shifting of the tooth paste carrier longitudinally of the tube for extending the brush, means for latching the brush in extended position and means for discharging tooth paste from a tube carried by the carrier upon the extended brush, a cap for the end of the tube from which the brush is extended and means operated by the application of said cap for releasing the latch of the brush and permitting the same to move inwardly.

3. In a tooth paste and tooth brush carrier, a carrier tube, a tooth paste tube carrier slidably mounted therein and embodying an outlet nozzle, a tooth brush likewise slidably mounted therein, means for shifting the tooth paste carrier longitudinally of the tube, means operated by shifting of the tooth paste carrier longitudinally of the tube for extending the brush, means for latching the brush in extended position and means for discharging tooth paste from a tube carried by the carrier upon the extended brush, a cap for the end of the tube from which the brush is extended, a rod slidable longitudinally of the brush and having its outer end extended beyond the outer end thereof and its inner end adapted for engagement with the latch upon inward movement of the rod to release the same whereby in the application of the cap the latch of the brush is released to permit the same to move inwardly.

4. In a tooth paste and tooth brush carrier, a carrier tube, a tooth paste tube carrier slidably mounted therein and embodying an outlet nozzle, a tooth brush likewise slidably mounted therein, means for shifting the tooth paste carrier longitudinally of the tube, means operated by shifting of the tooth paste carrier longitudinally of the tube for extending the brush, means for latching the brush in extended position, a cut-off valve for the outlet nozzle and means operated by shifting of the tooth paste carrier longitudinally of the tube to extend the brush for opening said cut-off valve.

5. In a tooth paste and tooth brush carrier, a carrier tube, a tooth paste tube carrier slidably mounted therein and embodying an outlet nozzle, a tooth brush like-wise slidably mounted therein, means for shifting the tooth paste carrier longitudinally of the tube, means operated by shifting of the tooth paste carrier longitudinally of the tube for extending the brush, means for latching the brush in extended position, a cut-off valve for the outlet nozzle and means operated by shifting of the tooth paste carrier longitudinally of the tube to extend the brush for opening said cut-off valve, and by operation of the carrier in the opposite direction for closing said cut-off valve.

6. In a tooth paste and tooth brush carrier, a carrier tube, a tooth paste tube carrier slidably mounted therein and embodying an outlet nozzle, a tooth brush likewise slidably mounted therein, means for shifting the tooth paste carrier longitudinally of the tube, means operated by shifting of the tooth paste carrier longitudinally of the tube for extending the brush, means for latching the brush in extended position, a cut-off valve for the outlet nozzle and means operated by shifting of the tooth paste carrier longitudinally of the tube to extend the brush for opening said cut-off valve, and by operation of the carrier in the opposite direction for closing said cut-off valve when the outlet end of the nozzle is substantially aligned with the inner end of the brush when in extended position.

7. In a tooth paste and tooth brush carrier, a carrier tube, a tooth paste tube carrier slidably mounted therein and embodying an outlet nozzle, a tooth brush slidably mounted therein and normally having the bristle clump thereof disposed beneath the nozzle, means operated by shifting of the tube carrier in the carrier tube for extending the tooth brush, means for locking the tooth brush in extended position and limiting extension of the tooth paste carrier from the tube and means for shifting the tooth paste carrier.

8. In a tooth paste and tooth brush carrier, a carrier tube, a tooth paste tube carrier slidably mounted therein and embodying an outlet nozzle, a tooth brush slidably mounted therein and normally having the bristle clump thereof disposed beneath the nozzle, means operated by shifting of the tube carrier in the carrier tube for extending the tooth brush, means for locking the tooth brush in extended position and limiting extension of the tooth paste carrier from the tube, and means for shifting the tooth paste carrier having means

associated therewith operable to eject a portion of the contents of a tube of tooth paste carried by the carrier.

9. In a tooth paste and tooth brush carrier, a carrier tube, a tooth paste tube carrier slidably mounted therein and embodying an outlet nozzle, a tooth brush slidably mounted therein and normally having the bristle clump thereof disposed beneath the nozzle, means operated by shifting of the tube carrier in the carrier tube for extending the tooth brush, means for locking the tooth brush in extended position and limiting extension of the tooth paste carrier from the tube, means for shifting the tooth paste carrier, an outlet opening for the nozzle, a cut-off valve therefor and means operated by extension of the carrier from the tube for opening said cut-off valve.

10. In a tooth paste and tooth brush carrier, a carrier tube, a tooth paste tube carrier slidably mounted therein and embodying an outlet nozzle, a tooth brush slidably mounted therein and normally having the bristle clump thereof disposed beneath the nozzle, means operated by shifting of the tube carrier in the carrier tube for extending the tooth brush, means for locking the tooth brush in extended position and limiting extension of the tooth paste carrier from the tube, means for shifting the tooth paste carrier, an outlet opening for the nozzle, a cut-off valve therefor and means operated by extension of the carrier from the tube for opening said cut-off valve, said means as the carrier is retracted within the tube closing said cut-off valve when the outlet opening of the nozzle coincides with the inner end of the bristle clump.

11. In a tooth paste and tooth brush carrier, a carrier tube, a tooth paste tube carrier slidably mounted therein and embodying an outlet nozzle, a tooth brush slidably mounted therein and normally having the bristle clump thereof disposed beneath the nozzle, means operated by shifting of the tube carrier in the carrier tube for extending the tooth brush, means for locking the tooth brush in extended position and limiting extension of the tooth paste carrier from the tube, means for shifting the tooth paste carrier and means operated by the application of a cap over the extended brush for releasing the latch of the brush to permit the same to be returned to the tube.

In testimony whereof I hereunto affix my signature.

UEL THEODORE WALKER.