

Dec. 18, 1928.

E. L. MERZOIAN

1,695,599

DISPENSER

Filed May 24, 1927

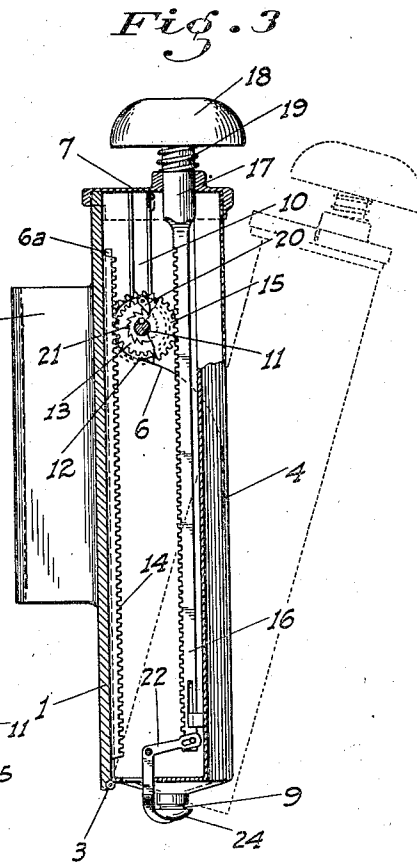
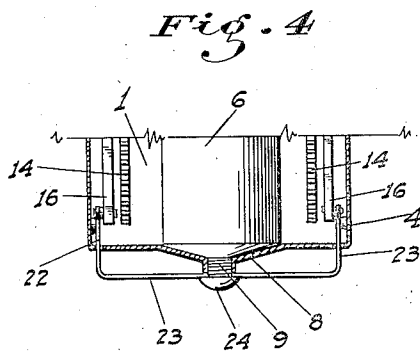
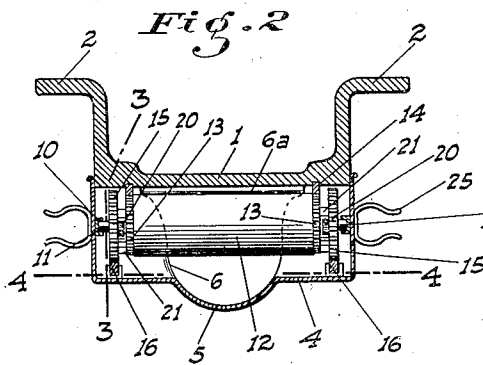
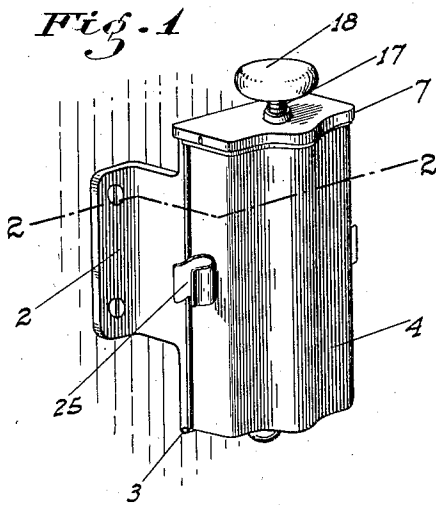
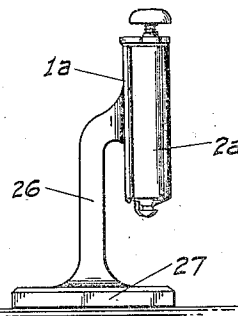


Fig. 5



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DISPENSER.

Application filed May 24, 1927. Serial No. 193,780.

This invention relates to improvements in dispensing devices, and particularly to one for dispensing a semi-liquid or creamy substance from a container, such as tooth paste, shaving cream, face cream and the like. These substances are marketed in flexible tubes, the sides of which are adapted to be squeezed together from one end in order to dispense the contents from the other end. Such squeezing is now done by the fingers and is very frequently not carried out evenly or thoroughly so that an appreciable proportion of the contents of the tube remain therein and are wasted.

The principal object of my invention therefore is to provide a device in which such a tube may be placed, dispensing means being mounted in connection with the device for enabling the tube to be then squeezed to dispense the contents therefrom in such a manner that the squeezing operation will be thoroughly carried out and will advance automatically from one end of the tube toward the other. When the tube is exhausted therefore it is completely emptied of its contents and none of the same are wasted. By arranging the device so that it will carry a standard tube of the material to be dispensed, my device may of course be used in connection with such products as they are now marketed without changing the same in any way and without necessitating that the tubes be first emptied into the dispensing device.

A further object of the invention is to arrange the dispensing mechanism so that only a predetermined amount—or less—of the contents of the tube may be dispensed at any one operation, thus further avoiding the possible waste which otherwise might be had by the exercise of poor judgment on the part of the operator.

A further object of the invention is to produce a simple and inexpensive device and yet one which will be exceedingly effective for the purpose for which it is designed.

These objects I accomplish by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claims.

In the drawings similar characters of reference indicate corresponding parts in the several views:

Fig. 1 is a perspective elevation of my improved dispensing device as arranged for connection to a wall or other vertical supporting surface.

Fig. 2 is a sectional plan on the line 2—2 of Fig. 1.

Fig. 3 is a vertical cross section on the line 3—3 of Fig. 2.

Fig. 4 is a fragmentary vertical section on the line 4—4 of Fig. 2.

Fig. 5 is a side elevation of the dispenser shown in connection with a self-supporting stand.

Referring now more particularly to the characters of reference on the drawings, and particularly at present to Figs. 1 to 4, the numeral 1 denotes a flat vertical plate having ears 2 projecting from the back thereof for attachment to a wall. Hinged onto the bottom edge of the plate 1 as at 3 and projecting in front of said plate is a substantially rectangular casing 4. The front face of this casing centrally of its width is provided on the inside with a wide groove 5 to form a seat for the adjacent surface of the tube 6 containing the material to be dispensed, the opposite side of the tube bearing against the plate 1, when the casing is swung up into place relative to said plate. The casing is prevented from turning on its hinge by a vertically movable cap 7 mounted on said casing and normally engaging the upper edge of the plate. The bottom of the casing has a central depression as at 8 to form a seat for the neck of the tube (which is placed in the casing in an inverted position), the mouth or nozzle 9 of the tube projecting from the casing through the bottom thereof.

The casing is considerably wider than the tube and is provided on its opposite sides with vertical guides 10 for the ends of a shaft 11. A roller 12 is fixed on said shaft intermediate its ends, said roller being parallel to the plate 1 and spaced therefrom a distance about equal to the double thickness of the metal of the tube, which is initially set so that its usual flattened end 6^a is disposed against the plate 1. In placing the tube this end if necessary is shifted or distorted laterally so that said end will longitudinally aline with the adjacent round side portion of the tube.

At the ends of the roller the shaft 11 carries gears 13 which mesh with racks 14 fixed on the plate 1 and extending substantially from top to bottom thereof. Outwardly of the gears 13 other gears 15 are turnably mounted on said shaft, these gears being engaged by rack bars 16 parallel to and oppositely disposed to the racks 14. These rack bars are connected at their upper end to a

centrally disposed plunger rod 17 which projects through and is slidable in the cap 7 and carries a knob or head 18 on its upper end. A spring 19 about the plunger acts to maintain the same normally in its raised position, to cause the roller to be rotated in a downward direction only with the depression of the plunger and not with the return or up stroke thereof. Pawls or dogs 20 are mounted on the sides of the gears 15 and engage ratchet wheels 21 fixed on the shaft 11.

Flexibly connected at one end to the lower end of the bars 16 are bellcranks 22, the opposite ends of which project through the bottom of the casing and are connected to a cross bar 23 which supports a cap 24 for the tube mouth 9. This cap is so arranged that when the plunger is raised it will be in a position to snugly engage and close the mouth, but when said plunger is lowered the cap will be moved clear of the mouth.

In operation when it is desired to install a full tube the cap 7 is raised, the casing 4 is swung forwardly and the roller 12 is raised to the top; the tube is then placed in the casing as previously described, and the casing is closed against the plate 1, the gears 13 reengaging the racks 14. The roller will then engage the already flattened portion of the tube. When the plunger is then depressed said roller will be rotated toward the lower end of the casing and tube, and since it cannot move away from the tube owing to the guides 10 it will squeeze the tube and cause the contents to be dispensed from the mouth 9. The operating parts are so designed and proportioned that with a single depression of the plunger only sufficient material will be dispensed from the tube for normal use on an ordinary tooth brush or shaving brush, as the case may be. This tends to prevent waste, as will be evident. The cap 24 being normally engaged with the tube mouth prevents leakage of the contents if they become soft and tend to run. This automatically moving cap also eliminates the need of utilizing the usual hand manipulated screw cap ordinarily provided with such tubes and which is permanently removed when the tube is placed in the dispensing device. One or more clips 25 to hold tooth brushes or the like are preferably mounted on opposite sides of the casing.

In Fig. 5 I have shown the device as arranged as a portable structure to be supported on a dressing table or the like, and particularly intended to be used for dispensing face cream. In this case the back plate 1^a is provided with a rigid depending arm 26 which is mounted on and projects upwardly from a relatively heavy self-supporting base 27. The casing 2^a overhangs and sets above the base a sufficient distance to enable the hand to be readily passed under the casing between the lower end of the same and the base.

From the foregoing description it will be readily seen that I have produced such a device as substantially fulfills the objects of the invention as set forth herein.

While this specification sets forth in detail the present and preferred construction of the device, still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention, as defined by the appended claims.

Having thus described my invention what I claim as new and useful and desire to secure by Letters Patent is:

1. A device for dispensing the contents of a flexible tube comprising a casing arranged to removably support the tube, one end of said tube having an open mouth, means mounted in the casing for squeezing the tube, operating means for said squeezing means movable in one direction to enable the squeezing means to be moved from the end of the tube opposite the mouth toward the mouth, a closure for the mouth, and means between the operating means and the closure for causing the latter to be moved clear of the mouth simultaneously with the movement of the operating means in said one direction.

2. A device for dispensing the contents of a flexible tube comprising a casing arranged to removably support the tube, one end of said tube having an open mouth, a member on which the casing is mounted, the tube when in place bearing on one side against said member, a roller parallel to said member mounted in the casing transversely of the tube and bearing thereagainst on the side thereof opposite to the member, a gear mounted in connection with the roller, a fixed rack mounted on said member and meshing with the gear, a shaft on which said gear and roller are fixed, guide means for said shaft to enable the same to move lengthwise of the tube and parallel to said member, a gear turnable on the shaft, pawl and ratchet means between the shaft and the last named gear to enable said shaft to be rotated in one direction only, and a reciprocable rack bar parallel to the fixed rack bar and engaging said last named gear on the side thereof opposite to the fixed rack.

3. A device for dispensing the contents of a flexible tube comprising a casing arranged to removably support the tube, one end of said tube having an open mouth, a member on which the casing is mounted, the tube when in place bearing on one side against said member, a roller parallel to said member mounted in the casing transversely of the tube and bearing thereagainst on the side thereof opposite to the member, a gear mounted in connection with the roller, a fixed rack mounted on said member and meshing with the gear, a shaft on which said gear and roller are fixed, guide means for said shaft to enable the same to move lengthwise of the tube and parallel

to said member, a gear turnable on the shaft, pawl and ratchet means between the shaft and the last named gear to enable said shaft to be rotated in one direction only, a reciprocable rack bar parallel to the fixed rack bar and engaging said last named gear on the side thereof opposite to the fixed rack, and an operating plunger on the outside of the casing connected to said rack bar.

10 4. A device for dispensing the contents of a flexible tube including a casing arranged to removably support a tube one end of which has an open mouth arranged to project from one end of the casing, a mechanism for squeezing the tube and causing the contents thereof to issue from the mouth, a closure for the mouth normally covering the same, and means between the closure and the squeezing mechanism for moving the closure clear of the mouth simultaneously with the squeezing of the tube.

5 5. A device for dispensing the contents of a flexible tube including a casing arranged to removably support a tube one end of which has an open mouth arranged to project from one end of the casing, a mechanism for squeezing the tube and causing the contents thereof to issue from the mouth, said mechanism including a reciprocable member and means whereby movement of said member in one direction will cause the tube contents to be dispensed, a closure for the mouth normally covering the same, and an operating connection between the closure and said member to

cause the closure to be moved clear of the mouth as said member is moved in the one direction. 35

6. A structure as in claim 5, with spring means acting to move said member in the opposite direction to normally maintain the closure in a mouth-covering position. 40

7. A device for dispensing the contents of a flexible tube including a casing arranged to removably support a tube one end of which has an open mouth arranged to project from one end of the casing, a supporting member to which the casing is connected, a roller to engage the tube on the side thereof opposite to said member, guide means between the casing and roller to enable the latter to move lengthwise of the tube parallel to the member, a gear mounted in connection with the roller, a rack fixed on the member and engaged by the gear, another gear mounted in connection with the roller, and a movable rack bar to engage said last named gear, mounted in the casing. 55

8. A structure as in claim 7, in which the casing is hinged transversely onto the supporting member at one end for swinging movement relative to said member, to enable the tube to be placed and removed and to cause the roller-gear to become disengaged from the fixed rack to enable the roller to be shifted without movement of the movable rackbar. 65

In testimony whereof I affix my signature.
EDWARD L. MERZOIAN.