Feb. 17, 1931. R. FRICK 1,793,077

PASTE DISPENSER

Filed April 25, 1929

Fig-1

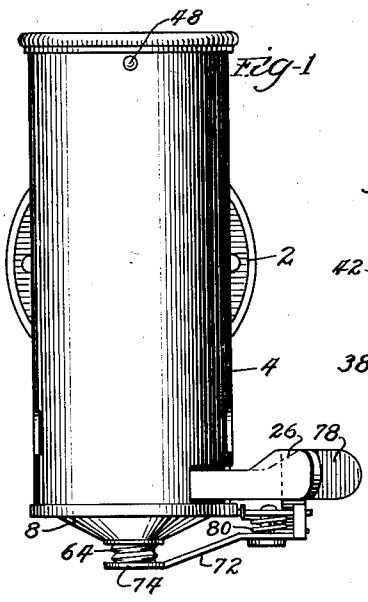


Fig-7

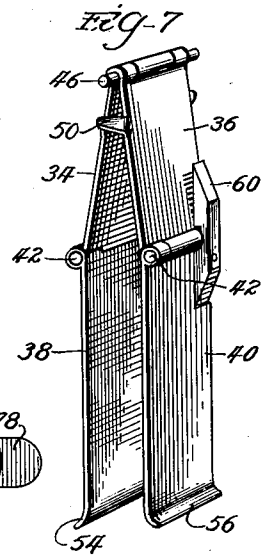


Fig-2

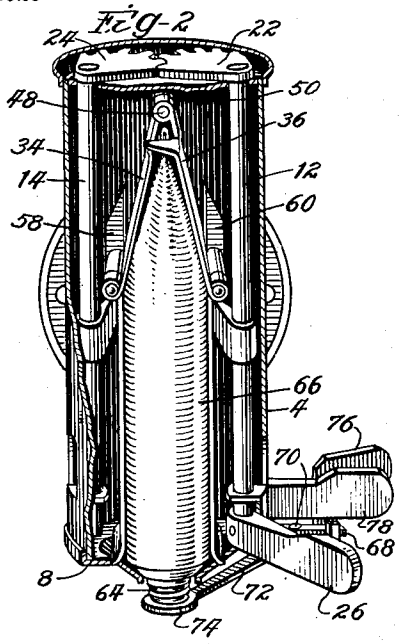


Fig-3

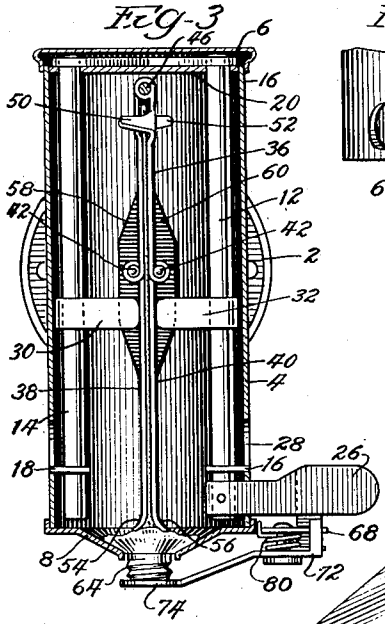


Fig-4

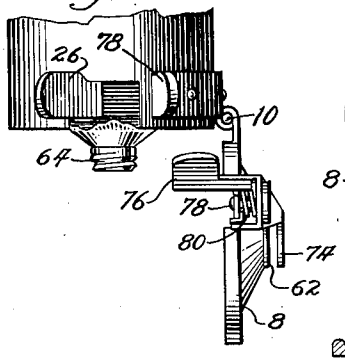
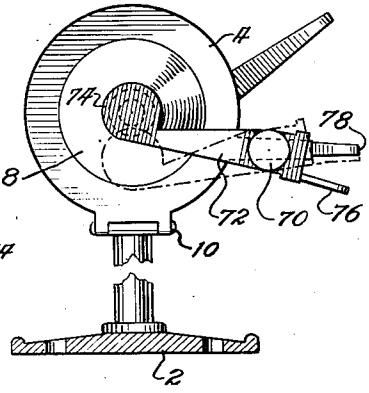


Fig-5



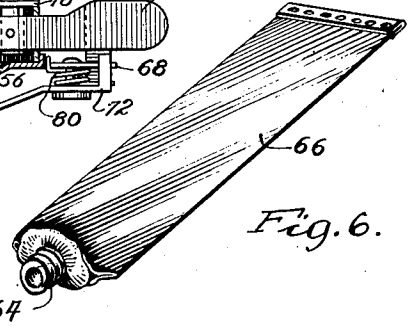


Fig. 6.

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UNITED STATES PATENT OFFICE

ROBERT FRICK, OF CHICAGO, ILLINOIS

PASTE DISPENSER

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My invention relates to paste dispensers of the type that are adapted to receive the usual flexible tube in which the present day types of shaving cream, tooth paste, salve, or other flowable substances are contained.

The objects of my present invention are to house the tube of paste within a sanitary container normally closed to prevent the escape of the paste and to prevent access thereto of dirt, dust and the like; to provide such a dispensing device wherein by merely pressing a mechanical part, the tube is instantly opened and a desired quantity of paste expelled therefrom; to provide a dispensing device of the character described wherein the empty tube of paste may be substantially instantly released from the dispensing device and a fresh tube of paste as quickly loaded in position; to provide a device of the character described which will completely expel all of the paste from the tube and in a manner such as to permit the instant removal of the empty tube from the dispensing device; to provide such a device which is of sturdy construction and dependable operation, of few parts, and relatively economical to manufacture; to provide a dispensing device wherein the opening and closing of the mouth of the tube and the squeezing operation are actuated by a single member; and to provide further a construction wherein the tube closure is opened in advance of the squeezing operation and the closing of the tube is operated at the end of the squeezing operation and all from a single hand operated control station; to provide a dispensing device having a hinged cover to permit the insertion and withdrawal of the tube to be squeezed and which hinged cover is provided with an opening through which the mouth of the tube projects and wherein the hinged cover carries the closure mechanism for the mouth of the tube and which mechanism is adapted to swing with the hinged cover of the dispensing device, and particularly into operable position when the hinged cover is closed; to provide a tube squeezing device adapted to squeeze the tube with equal pressure on diametrically opposed parts, and which squeezing mechanism is operated from a single hand operated member mounted on the dispensing device; to provide a plurality of flat pressing surfaces adapted to engage the sides of the tube for expelling its contents, which pressing surfaces are articulated and in a manner so as to progressively expel the paste from the rear of the tube outwardly; to provide pressing means adapted to engage the sides of the tube throughout its length and in a manner so as to squeeze all of the paste out of the tube while leaving the tube flat to permit its quick extraction from the dispenser; to provide these and other objects as will be herein more apparent from a perusal of the following specification, when taken in connection with the accompanying drawings, wherein:

Figure 1 is a perspective view of the preferred form of my improved device;

Figure 2 is a cross sectional view of certain of the parts in full;

Figure 3 is a center view showing the tube with its contents squeezed out;

Figure 4 is a perspective view of the mouth end of the container with the hinged closure swung to open position;

Figure 5 is an end view of Figure 4 with the closure in position;

Figure 6 is a view of the empty tube, and

Figure 7 is a perspective view of the squeezing plates.

Referring now to the drawings in detail, my improved dispensing device comprises in its preferred form a bracket member 2 which may be secured to a wall or other support and to which the casing 4 of the dispensing device is securely attached. This casing 4 is preferably cylindrical in form and may be of sheet metal, if desired. It is closed at its top by means of a flanged cap 6 and at its bottom by a cover 8, the latter being hinged to the shell 4 as at 10. The dispensing shell 4 is of suitable size to receive any desired type of tube containing dispensable paste. The shell is provided internally with means for receiving the filled tube of paste and for squeezing the contents therefrom in desired amounts. In the present form of my invention, this mechanism comprises two rods 12 and 14, mounted on diametrically opposite sides of the casing and having bearings in

brackets 16 and 18 and also in an end cap 20 mounted just beneath the cap 6 at the top of the casing. These two shafts 12 and 14 carry on their upper ends as at 22 and 24, two sectors which have intermeshing teeth. These gear sections lie between the cap 6 and the plate 20. The shaft 12 has pinned to its lower end an operating lever 26 which passes through a slot 28 in the shell and extends outwardly radially of the shell and near its bottom so that by operating the lever 26, both shafts 12 and 14 are turned about their longitudinal axes. Each of these shafts carries a wiping member, the one 30 being mounted on shaft 14 and the other 32 being mounted on shaft 12, substantially midway the length of each shaft. These pressing pawls 30 and 32 are adapted to cooperate with a series of pressing plates 34, 36, 38 and 40, arranged in pairs and hinged together as at 42 and 46. In other words, plates 34 and 38 are hinged together at 42 and plates 36 and 40 are hinged together at 42 and in addition, upper plates 34 and 36 are hinged together at 46 which hinge is mounted about a pin 48 having its bearings in the side walls of the upper portion of the casing. The upper plates 34 and 36 are provided with lateral extensions 50 and 52 which project inwardly at the ends of these upper plates and form lateral guides for holding the rear portions of the tube of paste from sliding laterally so that the tube will be properly centered between these two pressing plates 34 and 36. The lowermost portions of the plates 38 and 40 are slightly curved as at 54 and 56 and in an outward direction so as to assist in the expulsion of the paste and also properly to engage the neck of the tube when in flattened condition. The lower pressing plates 38 and 40 carry integral upward extensions 58 and 60 which in Figure 2 are shown as having their upper ends spaced from the exterior faces of the upper plates 34 and 36. However, when the contents of the tube is nearly expelled as shown in Figure 3, these extensions 58 and 60 will lie flat against the outer faces of the upper plates 34 and 36, thereby exerting a pressing effect substantially along the length of these upper plates 34 and 36.

From the foregoing description, it will be seen that when a tube is inserted in position as shown in Figure 2, and the lever 26 is pressed in the proper direction, the two shafts 12 and 14 will be turned to cause pressing pawls or wipers 30 and 32 to press against the uppermost parts of the plates 38 and 40 immediately below the hinged points 42, and by reason of the fact that these hinged points 42 are connected to the central hinged connection 48 by means of the flat plates 34 and 36 which form a sort of a wedge-shaped pocket into which the rear of the tube is seated, a progressive expulsion of the paste within the tube will be accomplished, which will tend to work the paste forwardly from the rearmost portion of the tube toward its open mouth. As the paste gradually empties from the tube, this progressive effect will be continued due to the construction and arrangement of these flat articulated plates, which contact on opposite sides of the tube substantially throughout its entire length until the tube has been entirely emptied and is in the position shown in Figure 3. At this point, the pressing pawls 30 and 32 will have reached such a position that the flat plates 34 and 36 and 38 and 40 are substantially in line in pairs. In this position, the plates 34 and 36 and 38 and 40 will be substantially in a straight line, and at this time the extension members 58 and 60 on the lower plates 38 and 40 will be pressing flatly against the outer faces of the upper leaves 34 and 36 so that the pressing effect of the wiping pawls 30 and 32 will be distributed substantially equally throughout the length of the four pressing plates, thereby assuring the complete expulsion of the paste and preventing the articulated sections from being pushed too far inwardly by the pressing members 30 and 32.

It will be seen that by reason of my dispensing apparatus, the tube is enclosed on diametrically opposed sides between rounded walls of the casing and on other sides by two diametrically opposed sheets or pressing plates and at the rear the tube is seated in a wedge-shaped pocket, the walls of which are relatively flat plates and at the front it is contained within other relatively flat plates, and due to the fact that the upper plates 34 and 36 are hinged at the stationary pin 48, when the pressing members 30 and 32 are moved inwardly, this will cause the lower plates 38 and 40 to move slightly downwardly to permit the progressive forward movement of the paste out through the tube nozzle.

In the preferred form of my invention, the open mouth of the dispensing casing 4 is normally closed by means of the hinged cap 8 which is provided with a central aperture 62 of sufficient size, through which the usual threaded nozzle 64 of the tube 66 is adapted to project. Means is provided for normally closing this nozzle 64 so as to not only keep the paste from dripping or extruding from the tube, but also to keep the dust away from the open nozzle of the tube.

In my preferred form of invention, I provide the cover 8 with an extension 68 on which is mounted a pin 70 forming a pivotal mounting for a lever 72 carrying the closure 74 in the form of a disk of sufficient size to slide laterally over the open mouth of the container. This lever 72 at its outer end extends at right angles to form a finger piece 76 which is adapted to lie closely adjacent to a sta-

tionary extension 78 which projects outwardly from the casing 4. A coil spring 80 surrounds the pivot pin 70 and has its ends arranged so as to normally force the lever 72 to closed position. In addition, the outer end of the lever 72 is provided with an additional downward extension which runs substantially parallel to the finger piece 76 which extension is adapted to engage the side of the cover bracket 76 whereby to form a stop to limit the urge of the spring so that the closure 74 will always stop immediately over the opening 62 in the cover piece.

In the operation of my improved device, when the hinged cover 8 is moved to open position shown in Figure 4, I may insert a fresh tube between the hinged plates 38 and 40, simply by inserting the closed end of the tube between them. When the device is thus loaded, the cap 8 is closed with the pivoted closure member 74 directly overlying the projecting mouth of the tube.

When it is desired to expel a desired amount of paste, the two levers 76 and 26 are pressed together. Due to the fact that the spring 80 offers less resistance than the filled tube, the first movement will be that of the lever 76 toward the stationary member 78, thereby preliminarily swinging the closure member 74 to dotted line position shown in Figure 5. A continued pressure will then swing lever 26 toward stationary member 78, thereby operating the two shafts 12 and 14 and causing the pressure members 30 and 32 to swing inwardly against the upper portions of the lower pressing plates 38 and 40. Due to the hinge connections 42 and to the rigidity of these pressing plates, and further due to the hinged connection 46 between the upper plates 34 and 36, and the substantially wedge-shaped pocket formed thereby, a squeezing pressure is exerted upon the tube throughout its length and this pressure, due to the stationary hinge mounting 48, will cause the lower pressing plates 38 and 40 to move slightly downwardly and the pressing to occur from the rearmost portion of the tube in a downward direction toward the opening mouth, thereby progressively expelling the paste from the tube.

The amount of paste expelled is controlled by the extent of pressure on the lever 26. As the pressing continues during the repeated operation of my device, the paste will be gradually expelled until the tube assumes the position shown in Figure 3, and particularly in Figure 6. It will be noted that due to the fact that the empty tube is in absolutely flat condition, it can be quickly removed simply by swinging the cap 8 to open position and pulling it out, mouth foremost. The tube is not attached to any part of the pressing mechanism which permits the container to be emptied and filled almost instantaneously.

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

1. In a device of the class described, the combination of an enclosing casing adapted to hold a tube of paste, a plurality of pairs of substantially flat plates hingedly interconnected and the plates of each pair being hingedly interconnected, and adapted to engage the walls of the tube substantially throughout its length, and means associated with said plates for causing the expulsion of the paste from the tube.

2. In a device of the class described, the combination of an enclosing casing adapted to hold a tube of paste, a plurality of pairs of pressing plates disposed in said casing and adapted to engage the walls of the tube substantially throughout its length, said plates being hinged together in pairs, the pair of plates located at the closed end of the tube being hinged together in substantially V-shaped formation and having a stationary pivot, and means within said casing for pressing the plates together to expel the contents of the tube.

3. In a dispensing apparatus of the class described, the combination of a casing adapted to hold a tube of paste, a plurality of pressing plates adapted to engage the tube substantially throughout its length, said plates being hinged together at a plurality of points, one hinged connection being stationary and the other hinged connection being free to shift, and means associated with said plates for pressing the same together.

4. In a dispensing apparatus of the character described, the combination of an enclosing housing adapted to hold a tube of paste, a plurality of plates adapted to engage opposite sides of the tube throughout its length, the two plates located at the rearmost portion of the tube being hinged together by means of a stationary hinge joint, and said plates at their opposite ends being hinged to forwardly located plates by movable hinge joints and pressing means operated from without the dispensing case for causing said plates to press inwardly against the sides of the tube.

5. In a device of the class described, the combination of an enclosing casing adapted to hold a tube of paste, two shafts each located at diametrically opposite parts of the casing and extending longitudinally thereof, said shafts carrying interconnecting means for causing their simultaneous turning movements, a hand operated lever mounted on the opposite end of one of said shafts for turning about its axis, a pressing member mounted on each shaft substantially mid-way its length, and extending inwardly of the casing, a plurality of relatively flat pressing plates disposed in pairs on opposite sides of the tube, one of said pairs of plates at the closed end of the tube being hinged together

by a stationary pivot pin mounted on the walls of the tube, and the other pair of plates being connected to the opposite ends of the first mentioned pair of plates by means of a hinged joint, said second mentioned pair of plates being constructed and arranged to be engaged by the pressing members on the shafts whereby when said pressing members are moved inwardly, the plates will cause the expulsion of the paste from the tube.

6. In a paste dispensing apparatus, the combination of a container casing adapted to hold a tube of paste, said casing having a hinged closing cap provided with an aperture adapted to permit the nozzle of the tube to project therethrough, a cover for the nozzle of the tube carried by the hinged cover, and means extending through the wall of the casing for pressing against the sides of the container tube to expel the paste therefrom, and means associated with said pressing means for operating the closure for the nozzle of the tube.

7. A paste or the like dispensing apparatus comprising an enclosing casing adapted to hold a tube of paste or the like, a hand actuated member projecting through the wall of the dispensing casing, and means within the casing operatively associated with said hand actuated member for squeezing the paste from the tube, a closure for the open mouth of the tube, and a second hand actuated member associated with the first hand actuated member, and constructed and arranged so that when the two members are pressed between the fingers, said closure will be operated preliminarily to the squeezing means to open the cap, and thereafter permit the contents to be squeezed therefrom.

8. A paste dispensing apparatus comprising a casing adapted to hold a tube of paste, means within the casing for squeezing the tube, and a finger actuated member located on the outside of the casing for actuating the squeezing means, said casing having a cover and adapted to permit the nozzle of the tube to project therethrough, a closure for said nozzle, means normally urging the closure to closed position, and a second finger actuated means for operating the closure, said finger actuating means being normally spaced apart and being adapted to be urged together by the fingers, and being constructed and arranged so as to cause the preliminary movement of the closure to open the same, and thereafter to cause the movement of the squeezing means.

9. A dispensing apparatus of the character described, comprising a casing adapted to hold a tube of squeezable material, with the nozzle of the tube projecting through the casing, a finger piece carried by the wall of the casing, squeezing means within the tube, a lever extending through the wall of the tube and connected to the squeezing means, a closing member for the nozzle of the tube, a second lever connected to the closing means and associated with the finger piece, and constructed and arranged so that said second lever and said first lever may be engaged between the two fingers for pressing together, and means constructed and arranged whereby upon pressing same together, said closure will be operated preliminary to the squeezing means for opening the nozzle of the tube.

10. A dispensing apparatus of the character described, comprising a casing adapted to hold a tube of squeezable material, with the nozzle of the tube projecting through the casing, a finger piece carried by the wall of the casing, squeezing means within the tube, a lever extending through the wall of the tube and connected to the squeezing means, a closing member for the nozzle of the tube, a second lever connected to the closing means and associated with the stationary lever, and constructed and arranged so that said second lever and said first lever may be engaged between the two fingers for pressing together, and means constructed and arranged whereby upon pressing same together, said closure will be operated preliminary to the squeezing means for opening the nozzle of the tube, said means being further constructed and arranged to cause the closing of the closure after the squeezing operation.

11. A dispensing apparatus comprising a casing adapted to hold a tube of paste or the like therein, said casing having a cover provided with an aperture through which the nozzle of the tube is adapted to project, a stationary lever carried by the casing, said cover being hinged for opening and closing movement, and a closing lever carried by the cover and having a cap adapted to move to closed position over the open end of the nozzle, said lever having a finger piece adapted to be positioned adjacent but spaced from the stationary finger piece on the casing when the hinged cover is moved to closed position, squeezing means within the casing, and a finger actuated lever projecting through the wall of the casing, and connected thereto, said finger actuated lever being associated with the stationary lever and opposed therefrom, with the stationary lever disposed between said last mentioned lever and the finger piece on the closure operating lever.

12. A dispensing apparatus of the character described comprising a casing adapted to hold a tube of squeezable material with the nozzle of the tube projecting through the casing, a closure for said casing and a closure for said tube, means inside of the casing for squeezing the tube to press the contents therefrom, and means including a plurality of elements operable from the outside of the casing and adapted to be pinched together by the fingers of the user, said means being operatively connected to the tube squeezing means

and to the casing closure, said means being constructed and arranged whereby on squeezing said members together, the closure for said tube will first be opened and then the tube squeezing means will be operated.

13. In a dispensing apparatus of the character described comprising a casing adapted to hold a tube of squeezable material, the end of said casing having an opening through which the mouth of the tube projects, a cover for said casing and said cover being hingedly mounted on the casing, a cap hingedly mounted on the hinged cover and a lever shiftably mounted thereon for operating the cap, a stationary finger piece mounted on the side of the casing, means inside of the casing squeezing the tube, and a shiftable control member operatively connected to said squeezing means and passing through an aperture in the side of the cap and adapted to be positioned operatively adjacent the stationary finger piece, said lever on the hinged cap being constructed and arranged to be operatively associated with said movable lever and with said finger piece when the cap is moved to closed position.

In witness whereof, I have hereunto subscribed my name.

ROBERT FRICK.