Sept. 12, 1939. R. N. SHONER 2,172,521

PASTE DISPENSER

Filed June 30, 1938

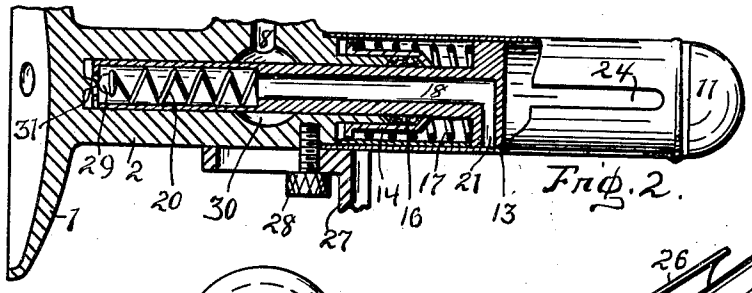

Fig. 2.

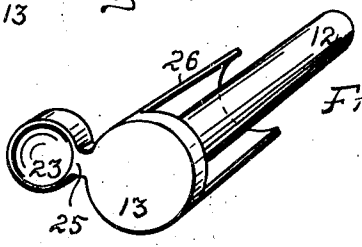

Fig. 4.

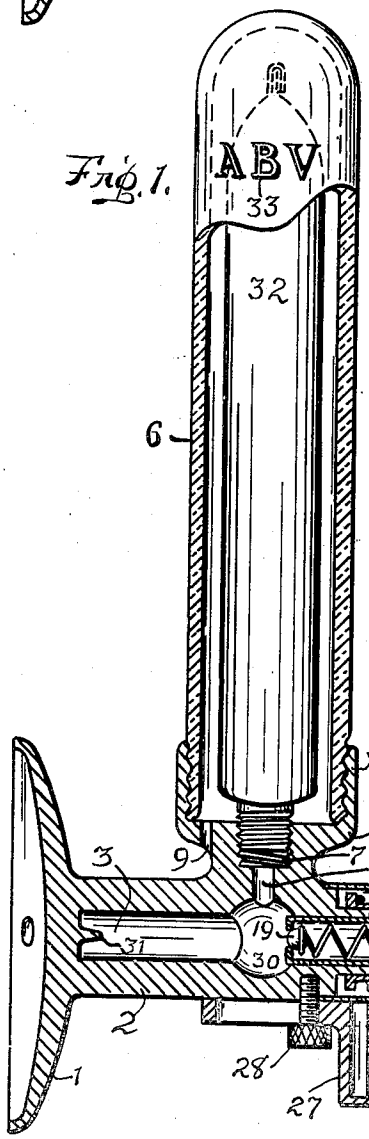

Fig. 1.

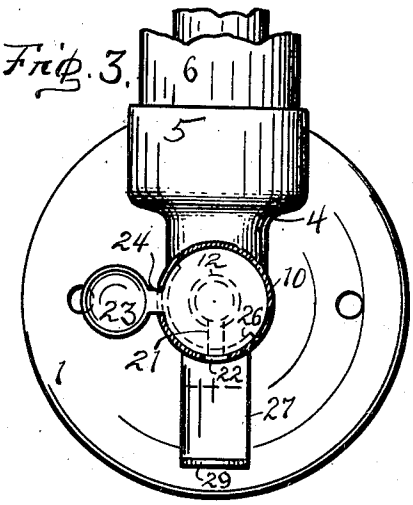

Fig. 3.

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2,172,521

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PASTE DISPENSER

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Application June 30, 1938, Serial No. 216,780

9 Claims. (Cl. 221—102)

This invention relates to paste dispensers adapted for withdrawing upon each operation thereof a fractional portion of the quantity of paste contained in a collapsible tube that is positioned and supported in the dispenser.

An object of the invention is to provide an appliance for placing a collapsible tube of plastic material, such as toothpaste, shaving cream, soft soap, and other common products of like character and dispensing the paste therefrom in quantities as needed.

A further object of the invention is the provision of a stationary mount for a paste tube and easily operated mechanism associated with the mount, whereby to remove from the tube and deliver the paste as required by the user.

Other objects and advantages of the invention appear in the following description, and an illustrative embodiment of the invention is shown in the accompanying drawing, in which:

Fig. 1 is a side elevation of a dispenser in which the invention is incorporated, portions thereof being shown in section;

Fig. 2 is a fragmentary side elevation of the dispensing mechanism, portions being in section;

Fig. 3 is a front end elevation of the appliance, a portion being cut away and another part shown in section on the line 3—3 of Fig. 1; and

Fig. 4 is a detail perspective view of the plunger and parts cooperative therewith.

The illustrative embodiment of the invention, in a preferred form thereof, consists of a supporting body constituted of a wall plate 1 adapted to be secured permanently in place to a wall or stationary fixture. A horizontal arm 2 extends from said plate and is provided with an axial chamber 3 that is closed at its rear end and extends through the forward end of said arm.

A socket 4 extends upwardly from the arm 2 and has an internally threaded flange 5 in which is removably secured an elongated tubular transparent cover 6. The socket has an axial internally threaded bore 7 that has communication with the chamber 3 in the arm 2, through a passageway 8, and there is also provided a vent 9 in the base of the socket affording communication from the interior of the cover 6 to the atmosphere.

Upon the front end of the arm 2 is mounted, in axial alinement therewith, an extension tube 10 that is closed at its outer end by a removable plug 11.

A plunger 12 provided with an enlarged head 13 at its outer end is disposed so that the rear end of the plunger extends into and has axial movement in the chamber 3 in the arm, and the head 13 of the plunger has guided movement in the extension tube 10. A packing gland 14 is positioned upon a reduced forward extension 15 that projects axially from the outer end of the arm 2, so that packing is compressed about the plunger 12 when rearward pressure is exerted against the gland. A compression spring 17 is disposed within the extension tube between the gland and the head 13 on the plunger, so that pressure at all times is exerted against the gland thereby to compress the packing.

The plunger 12 has an axial opening 18 extending therethrough, the rear end of which is restricted and normally closed by a valve 19 that is yieldingly held closed by means of a spring 20 positioned within the axial opening in the plunger. In the head 13 is provided a discharge port 21 having communication with the opening 18 in the plunger, and the extension tube 10 has in its bottom a longitudinal outlet slot 22 that is traversed by the discharge port 21 as the plunger is actuated. The slot is so located in the tube 10 that when the plunger is in its forwardmost position the discharge port 21 is closed by the adjacent wall of the tube, and likewise said discharge port is also closed by the wall of the tube when the plunger is in its rearwardmost position. However, during operation of the plunger, communication from the discharge port 21 through the slot 22 in the tube to the atmosphere occurs as the head 13 passes over the longitudinal outlet slot. Also, the edges of the extension tube surrounding the outlet slot, especially at the ends thereof, are sharpened which has the effect of severing the extrusions of paste from the discharge opening in the head thus preventing the liberated paste from clinging to the tube about the opening instead of falling immediately upon the brush.

The head 13 on the plunger has secured thereto, exterior of the extension tube, an operating knob 23, and the extension tube has made in the side thereof a guide slot 24 through which the neck 25 of the knob extends and has sliding movement therein. Also, the head 13 has secured thereto a rearwardly extending shield 26 that extends within the tube 10 and overlaps the slots 22 and 24 therein so that when the plunger is in its outermost position said slots are thereby closed.

To the bottom of the arm 2 is secured a rest 27 that is held in adjusted positions in connection therewith by a clamp-screw 28, said rest having a forwardly extending ledge 29 so disposed as to

support a tooth brush or other implement in convenient position beneath the outlet slot **22** for reception of the paste expelled therethrough from the discharge port **21** during operation of the plunger.

Preferably, the arm **2** has an enlargement **30** in its bore located at its intersection with the passageway **8** to permit an accumulation of a limited quantity of paste by which to prime the dispensing plunger mechanism.

One of the features of the invention is the provision of means for positively unseating the outflow check valve **19** when the plunger reaches the end of its inward stroke, the purpose of which is to prevent the valve **19** from being held in closed position because of hardening or gumming of the paste when the valve is seated for a protracted period of time, or, when the paste becomes congealed and tends to obstruct movable parts of the device that have contact therewith. Preferably, for this purpose, there is provided a protuberance **31** that extends axially within the chamber **3** of the arm **2** from the wall plate. As the plunger reaches the end of its inward stroke, the valve **19** has contact with the protuberance and is thereby dislodged from its seat.

Operation

In use, the cover **6** is removed from the socket and a paste tube **32**, of the usual type in which is contained the substance to be dispensed, is opened by removal of its cap (not shown) after which the threaded neck of the tube is screwed into the threaded bore **7** in the socket, and thus the tube is supported in place for withdrawal of its contained paste. The cover is then replaced in connection with the socket so as to encompass and enclose therein the paste tube.

For the purpose of advertisement, the cover may have embossed or otherwise displayed thereon a symbol **33** or other indicia indicative of the character of the material to be dispensed from the tube, or, the name of the manufacturer of same. The cover **6** preferably is made of glass which may be transparent so as to disclose labels on the tube **32**, or may be translucent to such extent as to conceal or partially conceal from view the paste tube.

When the tube is thus positioned, movement of the paste from the tube is initially started by manipulating the knob **23** so as to impart inward movement to the plunger and then releasing same, whereupon, by action of the spring **17**, the plunger moves outwardly. During the inward stroke of the plunger air in the chamber **3**, upon compression by the thrust of the plunger, is expelled outwardly past the valve **19** through the hollow plunger, discharge port **21** and outlet slot **22**, and upon the outward stroke of the plunger the valve **19** automatically closes and vacuum is created in the chamber **3** which causes suction of the paste contained in the tube and filling of the chamber **3** with the paste thus removed from the tube. Upon the next succeeding inward stroke of the plunger the paste previously drawn into the chamber **3** becomes entrapped and is forced by the incidental compression to pass out through the bore of the plunger, its discharge opening, and outlet slot provided therefor. As the paste is expelled from the discharge port and outlet slot during the transit of the head **13** over the slot, the discharged paste falls upon a brush or other implement that may be conveniently positioned upon the ledge **29** for its reception.

Variations from the particular construction above disclosed may readily be made by exercise of engineering skill without departure from the spirit or scope of the invention, and the following claims are intended to be inclusive of such variations.

What I claim is:

1. An appliance for dispensing paste from a collapsible tube, said appliance consisting of a chambered supporting body provided with a vented socket having a passageway that communicates with the chamber in said body and is threaded to receive the neck of a paste tube, a removable cover in connection with said socket for enclosing said paste tube when in place, an extension tube forming the forward end of said body disposed in axial alinement with said chamber and provided with guide and outlet slots, a spring-restrained hollow plunger having reciprocating movement in said chamber and provided with a discharge port that communicates with said outlet slot, a spring pressed outflow check valve in said plunger, a compression spring disposed to cause outward movement of the plunger, a shield within the extension tube movable with the plunger and overlapping said slots to close same when the plunger is in outward position, and an operating member for said plunger connected with the head through said guide slot.

2. An appliance for dispensing paste from a collapsible tube, said appliance having a chambered supporting body and extension thereof axially alined with its chamber, said extension having therein an outlet slot, a reciprocating spring-restrained plunger extending into said chamber and provided with a discharge port that communicates with said slot, an outflow check valve in said plunger, a vented socket member having a passageway communicating with the chamber in said body and threaded for the reception of the neck of a paste tube, a removable cover on the socket member enclosing said paste tube when in place, and a rest adjustably secured to said body for the support of a paste-receiving implement in position beneath said outlet slot.

3. A paste dispenser consisting of a chambered supporting body having a receiving passageway communicating with its chamber threaded for connection with the neck of a paste tube whereby to support said tube, an extension tube in connection with said body provided with an outlet slot the wall of said extension tube at the ends of said slot being sharpened, a hollow reciprocal plunger disposed in the chamber of the body and provided with a head having a discharge port and being movable in said extension tube so that said port passes over and beyond the respective ends of said slot when the plunger is reciprocated, an outflow check valve in said plunger, and a member so located as to unseat said valve when the plunger reaches the end of its inward stroke.

4. A paste dispenser consisting of a supporting body having a chamber therein and a paste-receiving passageway communicating with the chamber threaded for connection with the neck of a paste tube whereby to support said tube, a hollow reciprocal plunger member including actuating means therefor extending into said chamber provided with an outflow check valve and a discharge port through which paste is extruded during the inward stroke of said plunger, means for severing paste extruded from said port at the mouth thereof and for closing said port when said plunger reaches the ends of its re-

ciprocal movements, and a member so located as to cause unseating of said valve when the plunger reaches the end of its inward stroke.

5. A paste dispenser consisting of a supporting body having a chamber therein and a paste-receiving passageway communicating with the chamber threaded for connection with the neck of a paste tube whereby to support said tube, a hollow reciprocal plunger member including actuating means therefor extending into said chamber provided with an outflow check valve and a discharge port through which paste is extruded during the inward stroke of said plunger, and means for severing paste extruded from said port at the mouth thereof and for closing said port when said plunger reaches the ends of its reciprocal movements.

6. A paste dispenser consisting of a supporting body having a chamber therein and a paste-receiving passageway communicating with the chamber threaded for connection with the neck of a paste tube whereby to support said tube, a hollow reciprocal plunger member including actuating means therefor extending into said chamber provided with an outflow check valve and a discharge port through which paste is extruded during the inward stroke of said plunger, and a member so located as to cause unseating of said valve when the plunger reaches the end of its inward stroke.

7. A paste dispenser consisting of a chambered supporting body and extension thereof, said extension having an outlet slot, the wall of said extension being sharpened at the ends of said slot, said body having a paste-receiving passageway communicating with the chamber therein threaded for connection with the neck of a paste tube, a reciprocal hollow plunger member extending into said chamber and provided with an outflow check valve and a discharge port for extrusion of paste through said slot, the sharpened portions of the wall of said extension being adapted to sever the extruded paste across the mouth of said port upon completion of the strokes of said member, operating means for said member, and a shield movable with said member adapted to close said slot when said member is in its forward position.

8. A paste dispenser consisting of a chambered supporting body and extension thereof, said extension having an outlet slot, the wall of said extension being sharpened at the ends of said slot, said body having a paste-receiving passageway communicating with the chamber therein threaded for connection with the neck of a paste tube, a reciprocal hollow plunger member extending into said chamber and provided with an outflow check valve and a discharge port for extrusion of paste through said slot, the sharpened portions of the wall of said extension being adapted to sever the extruded paste across the mouth of said port upon completion of the strokes of said member, and operating means for said member.

9. In a paste dispenser, a chambered body having means for connection with the neck of a paste tube and provided with a passageway through which paste from said tube is received into its chamber, a reciprocal hollow plunger extending into said chamber, having a spring-pressed outflow check valve and a discharge port, a packing gland for said plunger movably connected with said body, and a compression spring acting oppositely against said gland and plunger whereby to compress the packing in said gland and move said plunger outwardly.

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