July 31, 1951 F. SATZ ET AL 2,562,580

AXIALLY SLIDABLE ACTUATOR FOR PIVOTED OUTLET ELEMENT

Filed Feb. 20, 1947 2 Sheets-Sheet 1

Fig. 1.

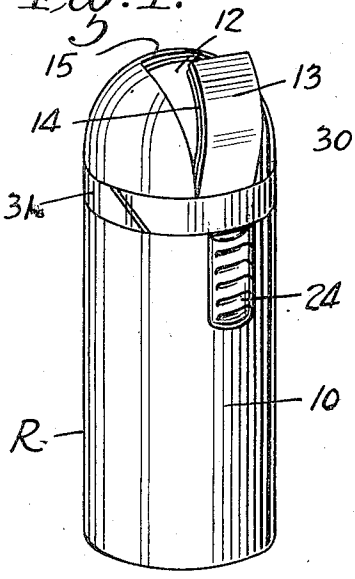


Fig. 4.

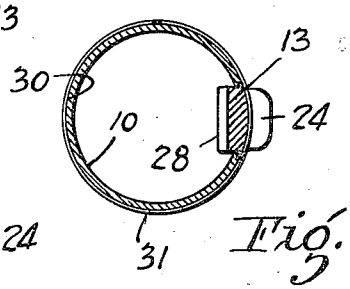


Fig. 5.

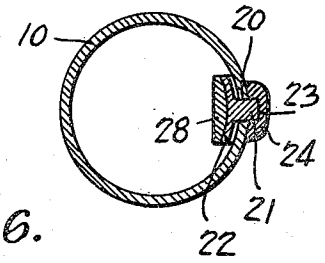


Fig. 6.

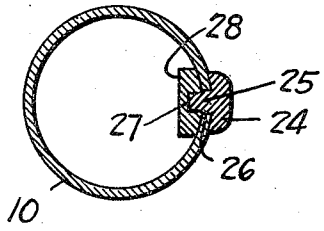


Fig. 2.

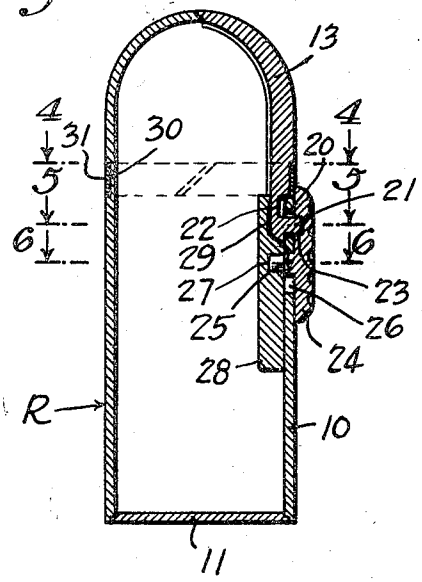
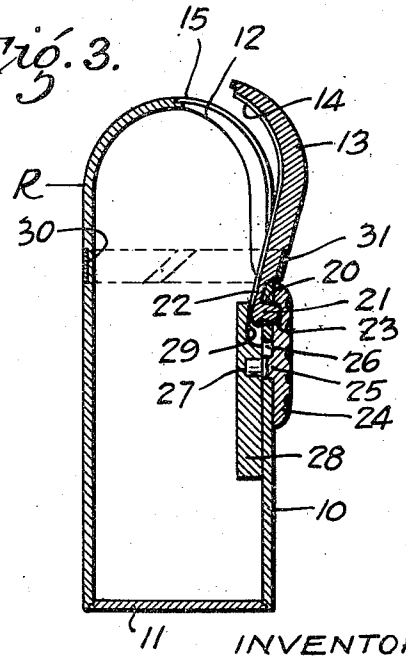


Fig. 3.



INVENTORS
FRANK SATZ
MEL BERNS
SAMUEL SONTAG
BY
Frederick Diehl
ATTORNEY

July 31, 1951 F. SATZ ET AL 2,562,580

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Filed Feb. 20, 1947 2 Sheets-Sheet 2

Fig. 7.

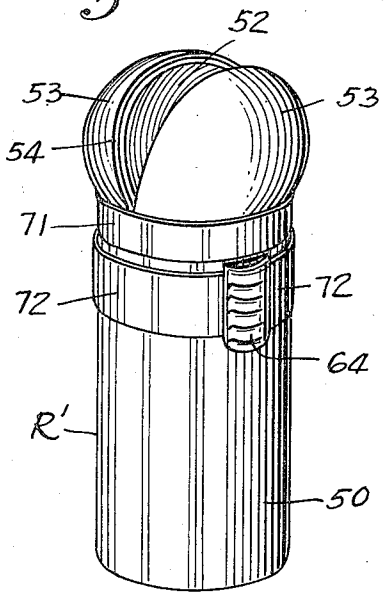


Fig. 10.

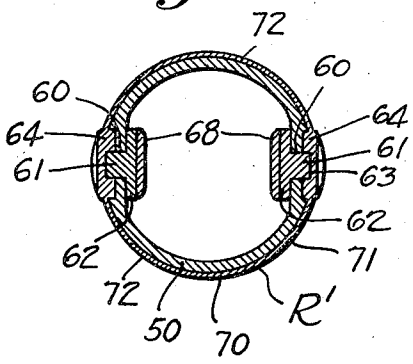


Fig. 8.

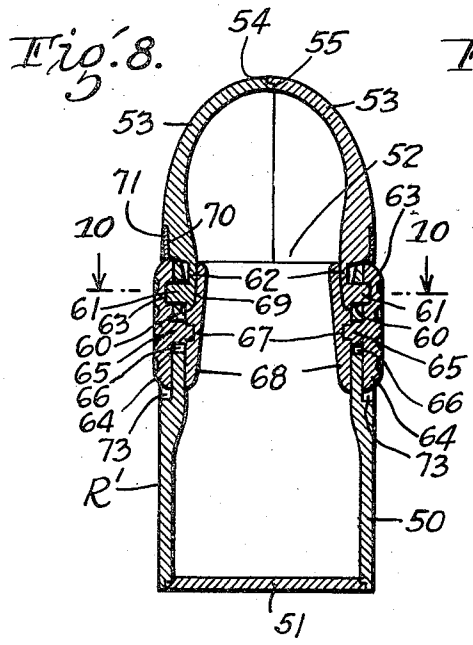
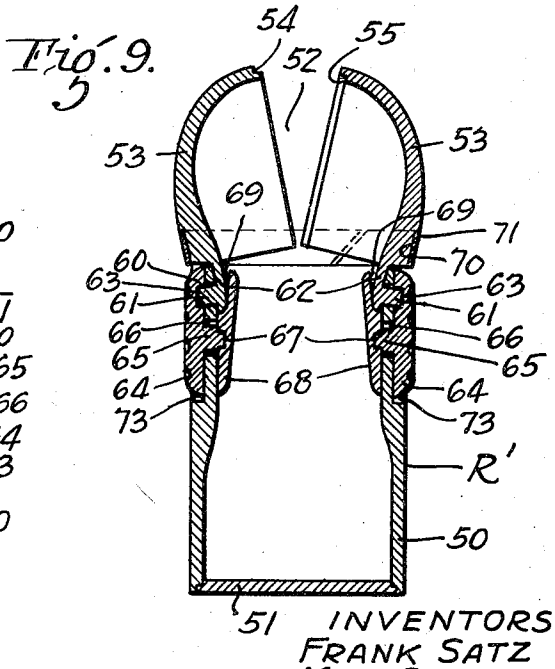


Fig. 9.



INVENTORS
FRANK SATZ
MEL BERNS
SAMUEL SONTAG
BY
Frederick Diehl
ATTORNEY

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AXIALLY SLIDABLE ACTUATOR FOR PIVOTED OUTLET ELEMENT

Frank Satz, Mel Berns, and Samuel Sontag,
Los Angeles, Calif.

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4 Claims. (Cl. 222—505)

1

This invention relates to receptacles generally, and more particularly to receptacles for tablets, pills, pellets, or granular and other non-liquid materials.

An object of this invention is to provide a dispensing receptacle of simple, durable and compact construction, preferably, although not necessarily, constructed of plastic material to displace breakable glass bottles and containers, which presents a smooth, streamlined exterior, and which, when closed, adequately protects and seals the contents against dirt, dust and moisture, so as to maintain the contents in a clean, sanitary condition.

Another object of this invention is to provide a receptacle of the above described character whose closure is arranged at one rounded end or streamlined end portion of the elongated receptacle body, and is pivotally mounted on the latter for opening and closing movements to control a dispensing opening, by movement of a reciprocably mounted actuator conveniently accessible on the side of the body for manipulation, all in such manner that the closure mounting and actuating means will occupy but little space so that the capacity of the receptacle will be only slightly decreased, and the smooth, streamlined appearance of the receptacle will be maintained.

With these and other objects in view, this invention resides in the combinations, arrangements and functional relationships of elements as set forth in the following specification and particularly pointed out in the appended claims.

In the accompanying drawings,

Figure 1 is a perspective view of one form of dispensing receptacle embodying this invention;

Figure 2 is a longitudinal, axial sectional view of the dispensing receptacle shown in Figure 1, with the closure of the receptacle closed;

Figure 3 is a view similar to Figure 2, but with the closure of the receptacle open;

Figures 4, 5 and 6 are transverse sectional views taken, respectively, on the lines 4—4, 5—5 and 6—6 of Figure 2;

Figure 7 is a perspective view of a second form of dispensing receptacle embodying this invention;

Figure 8 is a longitudinal, axial sectional view of the form of receptacle shown in Figure 7, with the closure of the receptacle closed;

Figure 9 is a view similar to Figure 8, but with the closure of the receptacle open; and

Figure 10 is a transverse sectional view taken on the line 10—10 of Figure 8.

Referring specifically to the drawings and particularly to Figures 1 to 6, inclusive, the receptacle R comprising this form of the invention is provided with an elongated, hollow cylindrical body 10 of plastic or other suitable material whose one end is closed by a disk bottom 11 of the same material either pressed or screwed into the body 10.

2

The other end of the body 10 which is rounded or streamlined, is provided with a dispensing opening 12 in the form of a slot extending substantially from the axis of the body, radially to the side thereof. The opening 12 is controlled by a closure 13 whose contour conforms to that of the rounded end of the body at the walls of the opening, and has its edges rabbeted as indicated at 14 for co-action with complementary rabbets 15 around the walls of the opening, in providing a sealed joint between the body and closure when the latter is closed as shown in Figure 2.

Adjacent to the opening 12, the side of the body 10 is provided with a fulcrum opening 20 therethrough in which is loosely and rockably received a fulcrum lug or pin 21 projecting from an extension 22 of the closure 13. The lug 21 projects freely into a recess 23 formed in an actuator 24 of flat, generally rectangular outline which is reciprocably mounted on the side of the body 10 by a pin 25 working in a longitudinal slot 26 in the body and projecting into a bore 27 in a retainer member 28.

The pin 25 may be fixed in the bore 27 by cellulose acetate cement or by other means in order to operatively connect the actuator 24 and member 28, which latter has a recess 29 freely receiving the extension 22 of the closure 13, to maintain the lug 21 in proper fulcruming relation to the opening 20. The side of the body 10 is provided with a shallow, circumferential recess 30 which is continued in the closure 13 for co-action therewith in confining a split, spring ring 31 in the form of a flat band which is flush with the exterior surfaces of the body and closure and normally tends to constrict so as to urge the closure to the closed position shown in Figure 2, in the operation of the invention which is as follows:

With the closure 13 maintained in its closed position by the spring 31 as shown in Figure 2, the opening 12 is effectively sealed to protect the contents of the receptacle against foreign substances as well as moisture. To open the closure, the thumb of the hand in which the receptacle may be held is applied to the actuator 24 and the latter moved longitudinally of the body 10 in a direction away from the closure. This movement

of the actuator causes the wall of the recess 23 thereof to co-act with the free end of the fulcrum lug 21 in moving the latter about a floating fulcrum in the opening 20 of the body 10, so as to swing the closure outwardly to the position shown in Figure 3, it being noted that the extension 22 of the closure co-acts with the member 28 to confine the lug 21 in the opening 20 and in working relation to the actuator.

With the closure 13 held open by the actuator 24, the contents of the receptacle are accessible for dispensing therefrom upon sufficiently tilting the receptacle for the discharge of the contents through the opening 12. By now restoring the actuator to its original position shown in Figure 2, the closure will be reversely swung upon the fulcrum lug 21 to its closed position, aided by the constricting action of the spring 31 which maintains the closure tightly closed and thus insures protection of the remaining contents against dirt and moisture. It will be appreciated that the mounting and actuating means for the closure are extremely compact so as not to appreciably decrease the capacity of the receptacle or produce any unsightly and bulky projection which would detract from the otherwise smooth and streamlined appearance of the receptacle.

Reference will now be had to Figures 7 to 10, inclusive, which illustrate a second form of receptacle R' including an elongated, hollow cylindrical body 50 of plastic or other suitable material, one end of which is closed by a disk bottom 51. The other end of the body is provided with a dispensing opening 52 controlled by a closure in the form of two sections 53 having interengaging rabbeted edges 54 and 55 to provide a sealed joint between the sections when co-acting to close the opening 52 as shown in Figure 8.

Each of the closure sections 53 is mounted in the receptacle body 50 and actuated by means identical to those employed for the closure 13 of the first form of this invention as above described. Therefore, the body 50 is provided at diametrically opposed points with fulcrum openings 60 in which is loosely and rockably mounted fulcrum lugs or pins 61 projecting from extensions 62 of the respective closure sections 53. The lug 61 of each closure section projects freely into a recess 63 formed in an actuator 64 of flat, generally rectangular outline, which is reciprocably mounted on the side of the body 50 by a pin 65 working in a longitudinal slot 66 in the body, and projecting into a bore 67 in a retainer member 68.

The pin 65 may be fixed in the bore 67 by cellulose acetate cement or by other means in order to operatively connect the actuator 64 and member 68, which latter has a recess 69 freely receiving the extension 62 of the closure section 53 to maintain the lug 61 in proper fulcruming relation to the opening 60. The closure sections are provided with a shallow, circumferential recess 70 confining a split spring ring 71 in the form of a flat band which is flush with the exterior surfaces of the closure sections and normally tends to constrict so as to urge the closure sections to the closed position shown in Figure 8.

The two actuators 64 may be independently operated, or, as shown, may be operatively connected by thin, flat, arcuate webs 72 slidably fitting around the body 50, for movement of the actuators as a unit. Furthermore, it will be noted that in order to reduce to a minimum the projection of the actuators 64 beyond the periphery of the body 50, the latter may be provided with longitudinal grooves 73 slidably receiving the actuators, which construction can also be applied to the actuator 13 should it be desired.

In the operation of this form of the invention, movement of the actuators 64 from the position shown in Figure 8 wherein the closure sections are closed, to the position shown in Figure 9, will cause the walls of the recesses 63 of the sections to co-act with the free ends of the respective fulcrum lugs 61 in moving the latter about the floating fulcrums in the respective openings 60 of the body 50 so as to swing the sections outwardly to the open position shown in Figure 9, the extensions 62 co-acting with the members 68 is confining the lugs 61 in the openings 60 and in working relation to the respective actuators.

The spring 71 co-acts with the closure sections to maintain them tightly closed upon reversely swinging the closure sections 53 by the actuators 64 to the closed position shown in Figure 8, with the same advantages as above set forth in connection with the first described form of the invention.

It will be appreciated that the term "closure" and the term "closure sections" for the parts 13 and 53, respectively, are one and the same functionally, as the mounting and actuating means for such parts are identical in operation irrespective of whether the dispensing opening of the receptacle is controlled by one or a plurality of closures. Therefore, the claims are to be broadly construed accordingly.

We claim:

1. A dispensing receptacle of the class described comprising: an elongated, hollow body having a dispensing opening at one end; a plurality of closure sections co-acting to control said opening, and having fulcrum lugs supported in the body to rockably mount the closure for opening and closing movements with respect to said opening; actuators for said closure sections, movably mounted on said body and having means co-acting with said fulcrum lugs to actuate the closure sections in response to movement of the actuators; said closure sections having circumferential grooves; and a split spring ring in said grooves, normally tending to constrict upon said sections and urge them closed.

2. A dispensing receptacle of the class described comprising: a body having a dispensing opening and a fulcrum opening; a closure controlling said dispensing opening and having a fulcrum lug projecting through said fulcrum opening from the inner side of the body; an actuator; means on the inner side of the body, operatively connected to said actuator to mount same on the body for reciprocating movement in a path perpendicular to the axis of fulcruming movement of said closure in said fulcrum opening; said means having a portion engaging said closure to confine said lug thereof against displacement from said fulcrum opening; said actuator having a recess receiving the free end portion of said lug which functions as a lever arm with which the walls of said recess co-act to move the closure about said lug as a center, to open or closed position according as the actuator is moved in one direction or the other; and a constricting, split ring of resilient material mounted on the body to embrace said closure and urge same to its closed position.

3. A dispensing receptacle of the class described comprising: a body having a dispensing opening and a fulcrum opening; a closure con-

trolling said dispensing opening and having a fulcrum lug projecting into said fulcrum opening; an actuator; means mounting said actuator for reciprocating movement on the body to one extreme position or another; means engaging said closure to confine said fulcrum lug against displacement from said fulcrum opening; said fulcrum lug and actuator having means co-acting to move the closure about said lug as a center to open or closed position according as said actuator is moved to one extreme position or another; said closure having a circumferential groove; and a split, spring ring embracing said body and confined in said groove of the closure to urge the closure to its closed position.

4. A dispensing receptacle of the class described comprising: a hollow body having a dispensing opening and a fulcrum opening through the wall of the body adjacent to the dispensing opening; a closure controlling said dispensing opening and having a laterally extending fulcrum lug projecting from the inner side of the body; an actuator on the outside of the body having a recess receiving the portion of said lug projecting beyond said fulcrum opening; and a retainer member on the inner side of the body engaging the side of said closure opposite to said lug so as to confine the latter against displacement from said fulcrum opening; said body having a slot; and a pin projecting through said slot and operatively connecting the actuator and retainer member for movement as a unit and coaction of said fulcrum lug with said recess of the actuator in effecting opening or closing movements of said closure with respect to said dispensing opening according as the actuator is moved in one direction or the opposite direction.

FRANK SATZ.
MEL BERNS.
SAMUEL SONTAG.

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