May 10, 1927. 1,627,781

E. L. KENDALL

CLOSURE FOR POWDER DISPENSING CONTAINERS

Filed June 9, 1926 2 Sheets-Sheet 1

Fig. 1.

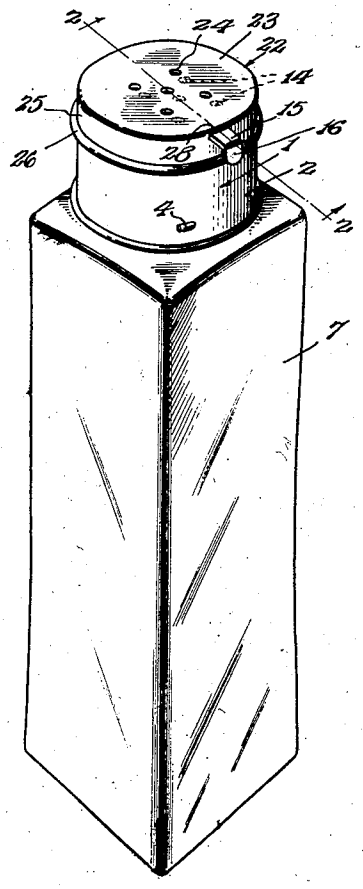


Fig. 2.

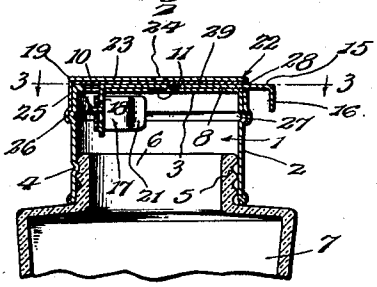


Fig. 3.

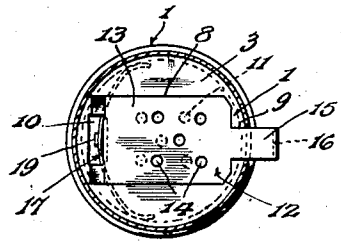


Fig. 4.

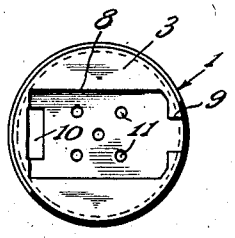
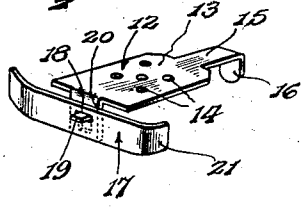


Fig. 5.



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Filed June 9, 1926 2 Sheets-Sheet 2

Fig. 6.

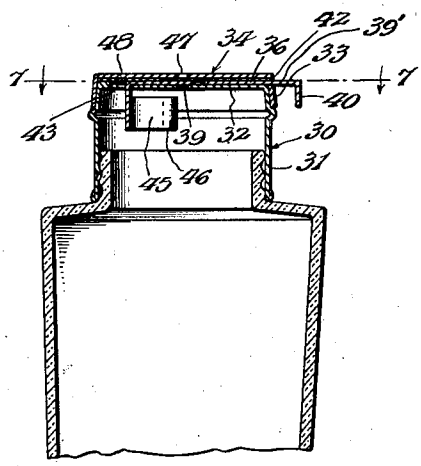


Fig. 7.

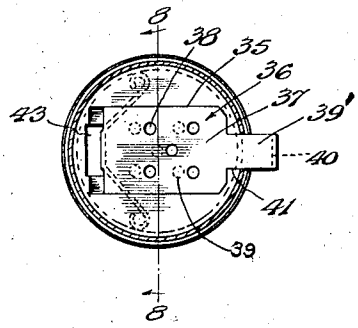
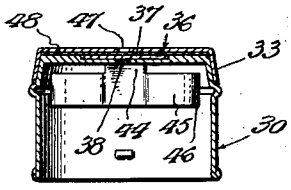


Fig. 8.



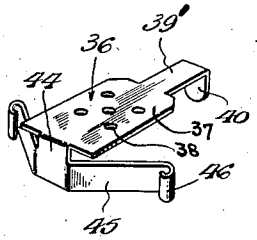


Fig. 9.

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Patented May 10, 1927. 1,627,781

UNITED STATES PATENT OFFICE.

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CLOSURE FOR POWDER-DISPENSING CONTAINERS.

Application filed June 9, 1926. Serial No. 114,833.

This invention relates to improvements in closures for powder dispensing containers and has as one of its objects to provide a closure which will be simple in construction, capable of having its parts readily assembled, and not liable to any disarrangement of its parts.

Another object of the invention is to provide, in a closure of the type stated, a novel arrangement of springs for maintaining the shiftable cut-off plate of the closure in position to close the openings through which the powder is to be discharged and which arrangement is such as to insure of positive movement of the said cut-off plate to closed position except when the device is being used.

Another object of the invention is to provide a closure for powder dispensing containers which may be manipulated without rotation of a member of the closure, as is customary, and in a most simple manner, so as to provide for uncovering of the delivery openings of the container and immediate closing or covering thereof when the actuating element of the closure is relieved of pressure, so that there will be no liability of the said openings being left uncovered to permit of the entrance of moisture into the container or the loss of strength of its contents.

Another object of the invention is to provide novel means whereby sifting of the contents of the container through the closure during transportation, will be effectually prevented.

In the accompanying drawings:

Figure 1 is a perspective view illustrating one form of closure embodying the invention applied to a powder container.

Figure 2 is a vertical diametric sectional view taken substantially on the line 2—2 of Figure 1, looking in the direction indicated by the arrows.

Figure 3 is a horizontal sectional view taken substantially on the line 3—3 of Figure 2, looking in the direction indicated by the arrows.

Figure 4 is a plan view of the body of the closure with the cap removed, and illustrating in detail the seat for the cut-off member of the closure.

Figure 5 is a perspective view illustrating the cut-off member and the spring which is assembled therewith to hold the same normally in cut-off position.

Figure 6 is a view similar to Figure 2, illustrating a modified form of the invention.

Figure 7 is a horizontal sectional view taken substantially on the line 7—7 of Figure 6, looking in the direction indicated by the arrows.

Figure 8 is a sectional view on the line 8—8 of Figure 7.

Figure 9 is a perspective view illustrating the cut-off member of this form of the invention.

The closure of that embodiment of the invention which is illustrated in Figures 1 to 5 inclusive of the drawings, comprises a body section indicated in general by the numeral 1, which includes a substantially cylindrical wall 2 and a top 3 preferably integral therewith, the wall 2 being provided with any suitable means, such for example as stamped-in lugs 4, for coaction with threads provided, as usual, upon the neck 6 of the powder container, which is indicated by the numeral 7, although this connection will be modified, depending, of course, upon the material of which the container is made, and, if desired, the wall 2 might be permanently connected with the container for the powder to be dispensed. The top 3 of the body member 1 of the closure is formed in its upper side with a relatively shallow substantially rectangular recess 8 having an extension 9 at one of its end walls opening through the periphery of the said top 3, and a transverse slot 10 is formed at the opposite end of the said recess in the bottom wall thereof. The top is further formed in the bottom wall of its recess, with powder discharge openings indicated by the numeral 11, which may be of any desired number and arranged in any desired manner.

The valve or cut-off plate of the closure is indicated by the numeral 12 and the same comprises a substantially rectangular body portion 13 which is of a width to fit snugly and yet slidably in the recess 8 between the opposite side walls thereof but of a length slightly less than the length of the said recess. The body 13 of the cut-off member is formed with a plurality of openings 14 which, in one position of the member, register with the openings 11 to permit of the

discharge of powder and, in the other position of the closure member, are out of registration with the openings 11 so as to prevent the discharge of powder therethrough. In order that the closure member may be shifted to the first mentioned position, a finger piece is provided at one end of the body member 13 thereof and comprises a shank portion 15 which fits slidably in the extension 9 of the recess 8, and a down turned end portion 16 against which the finger may be pressed for the purpose of shifting the said cut-off member. In order to yieldably hold the cut-off member shifted to the position where it will close the openings 11, a spring indicated in general by the numeral 17 is provided. The spring 17 comprises a single spring leaf which is formed, intermediate its ends, with a longitudinal slot 18 into which projects a lug 19 which is struck up from a tongue 20 formed at that end of the plate 13 opposite the end at which the finger piece shank 15 is located, the spring being in this manner supported upon the said tongue 20 and the tongue being extended downwardly from the plane of the plate 13 so that the spring 17 extends transversely with relation to the said end of the plate. The ends of the spring leaf are curved from the plane of the intermediate portion of the leaf, as indicated by the numeral 21, and in assembling the cut-off member 12 with the body member 1 of the closure, the tongue 20 is inserted downwardly through the slot 10, the spring 17 is applied to the lug 19, and the plate 13 of the cut-off member is disposed within the recess 8, the curved ends 21 of the said spring bearing against the inner side of the wall 2 of the body member 1, as clearly shown in Figures 2 and 3 of the drawings, so that the spring is normally tensioned and due to its tendency to straighten, yieldably holds the plate 13 comprising the cut-off member shifted to the position shown in Figures 2 and 3, in which position the openings 14 in the said plate are out of registration with the openings 11 in the top 3 of the body member 1. In the use of the container and in dispensing powder therefrom, pressure is exerted against the end portion 16 of the finger piece to shift the cut-off plate 13 against the tension of the spring 17 and bring the openings 14 into registration with the openings 11. It will be understood, of course, that immediately upon release of the finger piece 16, the spring 17 will act to shift the cut-off member 12 to closed position.

The closure includes, in addition to the parts thus far described, a cap member which is indicated by the numeral 22, and this member comprises a top 23 having openings 24 therein, and a rim 25 which fits about the upper portion of the body member 1 of the closure and has its lower peripheral portion 26 overturned about an outstanding circumferential bead 27 formed on the wall of the member 1. The rim 25 of the cap member 22 is formed with a slot 28 through which the shank portion 15 of the finger piece of the cut-off member is slidably fitted, and it will be evident that with the parts assembled, the cap member 22 is fixed with relation to the body member 1, so that the openings 24 in the cap member are in vertical alinement with the openings 11 in the bottom wall of the recess 8 in the body member 1. In other words, there can be no relative rotative displacement of the cap member 22 with respect to the body member 1, due to the fact that the shank portion 15 of the finger piece of the cut-off member extends through the extension 9 of the recess 8 in the body member and also through the slot 28 in the rim of the cap member. The plate 13 comprising the cut-off member 12 is preferably of such thickness and the recess 8 is of such depth that the upper side of the said plate will be flush with the upper side of the top 3 of the body member and, when the cap member is applied, the cut-off member is, of course, held against any displacement from the recess.

It will be noted that the cut-off member or slide is positively sustained by the tops of the cap and body members throughout its area so that possible buckling of the slide is prevented and, furthermore, the likelihood of powder finding its way to the slide and collecting thereon in excess quantities and thereby tending to clog the action is overcome.

In order that powder may be prevented from sifting from the container in the transportation of the article, a thin circular disc 29 of glazed tissue paper is preferably arranged between the top 23 of the cap member and the top 3 of the body member, in assembling these parts, so as to effectually close the openings in the several parts through which the powder is to be eventually discharged, it being understood that this disc is to be perforated by the purchaser, any suitable toilet article being employed for this purpose. Not only does the thin paper disc 29 serve the purpose above stated, but it likewise serves to prevent sifting of powder between the under surface of the top 23 of the cap member 22 and the upper side of the cut-off member 12 which might otherwise accumulate and possibly cause sticking of the said cut-off member.

In Figures 6 to 9 inclusive of the drawings, is illustrated an embodiment of the invention which is, in many respects, substantially the same as the embodiment above described, and in these figures, the numeral

30 indicates the body member of the closure comprising the circumferential wall 31 and top 32, but in this embodiment the rim 33 of the cap member 34 is tapered or flared in a downward direction, as is also the upper portion of the wall 31 and the cap member is forced into place upon the body member at the time of assemblage of the parts and thus frictionally permanently held in place upon the body member. In this embodiment of the invention, the top 32 of the body member 30 is formed with a recess 35 in its upper side corresponding to the recess 8 of the previously described embodiment, and the cut-off member 36, which, as in the previous instance, comprises a substantially rectangular plate 37, is slidably fitted in this recess and is provided with openings 38 adapted, in the shafting adjustment of the plate 37, to be brought into and out of registration with similar openings 39 formed in the top 32 of the body member 30. The cut-off member is, in this embodiment, provided with a finger piece comprising a shank 39′ having a down turned end 40, as in the previously described embodiment, and the shank works in an extension 41 of the recess 35 and through a slot 42 formed in the rim 33 of the cap member 34. The top 32 of the body member is formed with a slot 43 corresponding to the slot 10 of the body member of the previously described embodiment and similarly located. In this embodiment of the invention, the cut-off member 36 is of resilient metal and the same is provided at its end opposite the end from which the finger piece shank 39′ extends, with a downwardly extending shank portion 44 provided at its opposite sides with oppositely extending spring fingers 45 preferably having their terminal portions rolled upon themselves as at 46, so as to ride smoothly against the inner surface of the wall 31 of the body members of the closure, the spring fingers in this embodiment performing precisely the same function as the spring 17 in the previously described embodiment, the shank portion 44 extending downwardly through the slot 43 in the top of the body member and the spring fingers extending beneath the said top. In this embodiment, the cap member 34 is formed with openings 47 vertically aligned with the openings 39 in the top 32 of the body member 30, and likewise, a circular piece of thin, glazed paper 48 is arranged between the top of the cap member 34 and the top of the body member 30, and serves the same purpose as the corresponding element 29 of the first described embodiment.

Having thus described the invention, what I claim is:

1. A container closure of the class described comprising assembled body and cap members provided in their tops with discharge perforations, a perforated cut-off member slidably disposed between and sustained throughout its area by the tops of the said members and having a finger piece extending through the wall of the cap member, the top of the body member having a slot therein, the said cut-off member having a portion extending downwardly through the slot and provided with an outstanding lug, and a spring leaf disposed against the said portion of the cut-off member and having an opening in which the said lug engages to support the spring leaf, the said spring leaf having portions extending at opposite sides of the said portion of the cut-off member and bearing against the wall of the body member and yieldably holding the cut-off member in position with its perforations out of registration with the perforations of the body and cap members.

2. A container closure of the class described comprising assembled body and cap members provided with discharge perforations in their tops, the top of the body member having a recess in its upper side, a cut-off member comprising a plate slidably disposed within the recess and having perforations therein and provided at one end with a finger piece extending through the wall of the cap member, the top of the body member having an opening therein, and the said cut-off member having a portion extending downwardly through the opening, and resilient means carried by the said portion of the cut-off member and coacting with the wall of the body member to yieldably hold the cut-off member in position with its perforations out of registration with the perforations of the body and cap members.

3. A container closure of the class described comprising assembled body and cap members provided with discharge perforations in their tops, the top of the body member having a recess in its upper side, a cut-off member comprising a plate slidably disposed within the recess and having perforations therein and provided at one end with a finger piece extending through the wall of the cap member, the top of the body member having an opening therein, and the said cut-off member having a portion extending downwardly through the opening, resilient means carried by the said portion of the cut-off member and coacting with the wall of the body member to yieldably hold the cut-off member in position with its perforations out of registration with the perforations of the body and cap members, and an imperforate sheet disposed between the tops of the body and cap members.

In testimony whereof I affix my signature.

EDWARD L. KENDALL. [L. S.]