May 15, 1928. 1,669,884

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POWDER BOTTLE OR CAN CLOSURE

Filed Sept. 16, 1927

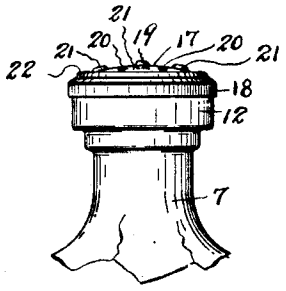


Fig. 1

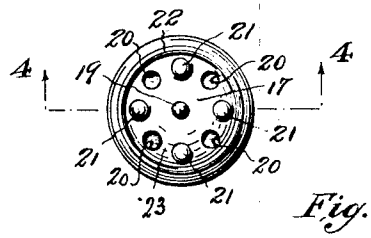


Fig. 2

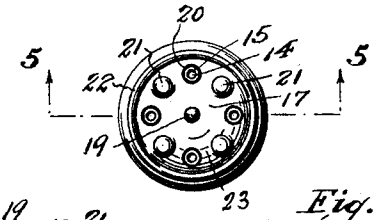


Fig. 3

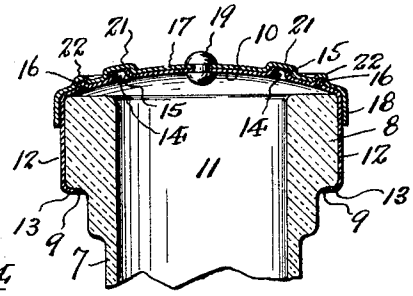


Fig. 4

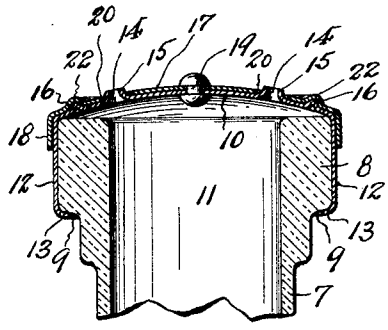


Fig. 5

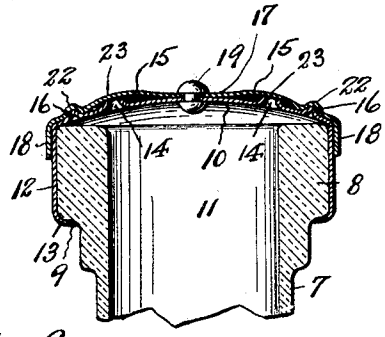


Fig. 6

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UNITED STATES PATENT OFFICE.

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POWDER BOTTLE OR CAN CLOSURE.

Application filed September 16, 1927. Serial No. 219,924.

This invention has reference to improvements in closures for bottles, cans or other receptacles adapted to contain powder or dry pulverulent or granular material.

This invention has for its principal object to provide a novel construction and arrangement of perforate bottle cap or can top having a movable cover means for opening and closing the perforations at will, together with a novel means for so interrelating said cap and cover as to prevent sifting and leaking of the powder through the closure when the latter is in closed condition.

The invention has for a further object to provide a novel perforate cap and rotatable closing cover so constructed and combined that the parts are yieldably and yet securely held against accidental displacement from either the open or closed relation to which they may have been moved.

Other objects of this invention, not at this time more particularly enumerated, will be clearly understood from the following detailed description of the same.

The invention is clearly illustrated in the accompanying drawings, in which:—

Figure 1 is a side elevation of the novel closure of this invention provided in the form of a bottle cap; Figure 2 is a top plan view of the same in closed condition; Figure 3 is a top plan view of the same in open condition; Figure 4 is an enlarged vertical cross section of the same in closed condition taken on line 4—4 in Figure 2; Figure 5 is an enlarged vertical cross section of the same in open condition, taken on line 5—5 in Figure 3; and Figure 6 is a vertical cross section of the same showing the relation of the cover to the cap as the former is moving from open to closed position.

Similar characters of reference are employed in all of the hereinabove described views, to indicate corresponding parts.

Referring to said drawings, the reference character 7 indicates the neck portion of a bottle to contain powder or the like, the same having at its extremity an annular enlargement 8 to provide a shoulder 9.

The reference character 10 indicates a cap body adapted to extend over the mouth 11 of said bottle neck. Said cap body is preferably of concavo-convex shape and is provided at its periphery with a depending skirt flange 12. The skirt flange 12 is of such diameter that it slides over the enlargement 8 of the bottle neck so as to fit snugly around the same. When the skirt flange 12 is thus engaged around said enlargement 8, the free marginal portions 13 of said flange are inturned around and beneath the shoulder 9 of said enlargement, thereby securely intercoupling the cap 10 in operative relation to the bottle neck. The cap member 19 is provided with a plurality of perforations 14, said perforations being radially spaced at equal distances from the center of the cap member. The body portion of the cap member adjacent each perforation 14 is outwardly pressed to form an exteriorly projected and slightly inwardly tapered rim 15 surrounding each perforation 14. The cap member is provided adjacent to its outer periphery and beyond said perforations 14 with an exteriorly projected annular bead or rib 16.

The reference character 17 indicates a cover element. This cover element is also of concavo-convex form so as to snugly conform to and fit over the cap member 10, and said cover element is provided at its periphery with a depending annular flange 18 which overlies a portion of the skirt flange 12 of said cap member. Said cover element 17 is rotatably movable upon said cap member 10, and to this end a central pivoting rivet 19 is passed through the cap member 10 and cover element 17 and headed over on said parts so as to retain the same against separation while nevertheless permitting said cover element to rotatably slide upon said cap member. Said cover element is provided with a series of radially disposed perforations 20 corresponding in number and spacing to the perforations 14 of said cap member so that at proper times said perforations 20 of the cover element may be brought into alignment with the perforations 14 of the cap member and thus provide openings through which powder material contained in the bottle may be discharged. Said cover element is further provided in corresponding radially spaced arrangement, but intermediate the perforations 20, with outwardly pressed hollow bosses 21. When the cover element 17 is rotated to bring said hollow bosses 21 into registration with the perforations 14 of the cap member, said bosses

will spring over the tapered rims of the perforations 14 so that said rims will be received within the hollow interior of the said bosses when the cover element is disposed in closed position. It will thus be apparent that the dove-tailing of the male rim structure of the perforations 14 into the female receiving sockets provided by the hollow bosses 21 results in the provision of individual cap-like closures for each perforation and that consequently the tendency of the powder content of the bottle to sift out of the bottle and become lodged between the cap member 10 and the cover element 17 is greatly impeded and substantially prevented. Another advantage of the inter-dove-tailed relation of the perforation rims 15 with the hollow bosses 21 lies in the fact that accidental shifting movements of the cover element upon the cap member is thereby prevented, so that the cover element is securely held in closed position and yet will readily yield to properly applied pressure tending to manually rotate the same to open position. In like manner, when the cover element 17 is disposed in open position, as illustrated in Figure 5 of the drawings, the perforation rims 15 will enter into the perforations 20 of the cover element and by the resulting interengaged relation of these parts the cover element 17 is in a similar manner secured against accidental displacement out of desired open position. Said cover element 17 is further provided with an outwardly pressed annular bead or rib 22 which engages over and rides upon the annular rib 16 of the cover member. These interfitting beads or ribs 16 and 22 function as a seal to prevent sifting and leakage of powder from between the members of the closure while at the same time said parts aid in retaining the cover element in properly registered relation with the cap member 10. In the arrangement described the portions 23 of the cover element which lie intermediate the openings 20 and hollow bosses 21 thereof will, when the cover element is rotated to move the same from open to closed position, or vice versa, yield outwardly by riding up over the inwardly tapered perforation rims 15, this movement being effected without tendency to unduly separate the cover element from the cap member, since the bead or rib 22 stiffens the outlying portions of the cover element against distortion, while at the same time maintaining its engagement with said bead or rib 16 under such circumstances.

From the above description it will be apparent that the present invention provides a closure for powder receptacles in which a cap member and cover element are constructed and related in such manner that sifting or leakage of powder is prevented and, furthermore, the parts are self-maintained against accidental displacement from either open or closed position, as the case may be.

Having thus described my invention, I claim:—

1. A receptacle closure, comprising a cap-member and an overlying cover element, means for centrally pivoting said cover element for rotation upon said cap-member, said cap member having a series of perforations formed therein and surrounded by exteriorly projecting marginal rim portions, said cover element having alternately disposed open perforations and outwardly pressed hollow-cap bosses respectively registrable with said cap member perforations, upon rotation of said cover element, and adapted when so registered to embrace and interengage with said rim portions of the cap member perforations to yieldably secure said cover element against accidental rotative displacement.

2. A receptacle closure comprising a cap-member and an overlying cover element, means for centrally pivoting said cover element for rotation upon said cap-member, said cap member having a series of perforations formed therein and surrounded by exteriorly projecting marginal rim portions, said cover element having alternately disposed open perforations and outwardly pressed hollow-cap bosses respectively registrable with said cap member perforations, upon rotation of said cover element, and adapted when so registered to embrace and interengage with said rim portions of the cap member perforations to yieldably secure said cover element against accidental rotative displacement, and said cap member and cover element being respectively provided with male and female annular beads spaced within their outer peripheries, said beads slidably interfitting to form a sift-proof joint between said cap member and cover element.

3. In combination with a powder bottle having a neck-portion provided with an annular enlargement at its free end, a cap member having a depending peripheral flange to telescope over said enlargement, said flange having at its free edge portion in-turned keeper-portions engaged under said enlargement to affix said cap member to said bottle neck-portion, a cover-element over-lying said cap member, means for centrally pivoting said cover element for rotation upon said cap member, said cap member having a series of perforations formed therein, exteriorly projecting marginal rim portions surrounding each perforation, said cover element having perforations alignable with said cap member perforations and adapted to receive the rim portions of the latter, and said cover element having intermediate its perforations outwardly pressed hollow cap

bosses also alignable with said cap member perforations and adapted to receive the rim portions of the latter.

4. In combination with a powder bottle having a neck-portion provided with an annular enlargement at its free end, a cap member having a depending peripheral flange to telescope over said enlargement, said flange having at its free edge portion in-turned keeper-portions engaged under said enlargement to affix said cap member to said bottle neck-portion, a cover-element over-lying said cap member, means for centrally pivoting said cover element for rotation upon said cap member, said cap member having a series of perforations formed therein, exteriorly projecting marginal rim portions surrounding each perforation, said cover element having perforations alignable with said cap member perforations and adapted to receive the rim portions of the latter, and said cover element having intermediate its perforations outwardly pressed hollow cap bosses also alignable with said cap member perforations and adapted to receive the rim portions of the latter, and said cap member and cover element being respectively provided with male and female annular beads spaced within their outer peripheries, said beads slidably interfitting to form a sift-proof joint between said cap member and cover element.

5. A receptacle closure, comprising a cap-member, an overlying cover element axially aligned with and centrally pivoted to rotate on said cap-member, said cap-member having a discharge opening therein provided with an outwardly projecting peripheral rim portion, said cover element having an open perforation and an outwardly pressed hollow-cap boss spaced apart, and said perforation and boss being selectively registrable with said cap-member discharge opening and yieldably interengageable with the peripheral rim portion thereof.

In testimony, that I claim the invention set forth above I have hereunto set my hand this twenty second day of August, 1927.

WILLIAM E. WACKER.