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W. T. PARKIN
CONTAINER CLOSURE
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2,159,978

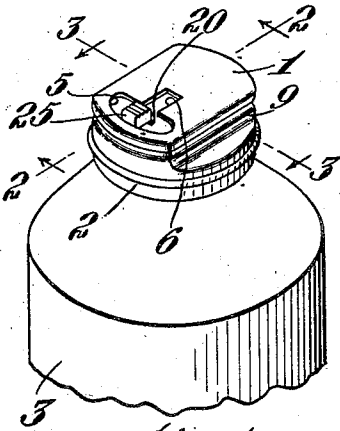


Fig. 1

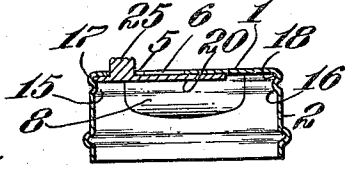


Fig. 2

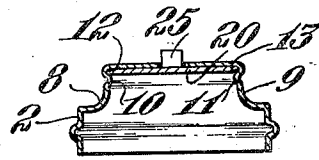


Fig. 3

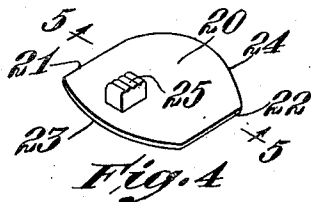


Fig. 4



Fig. 5

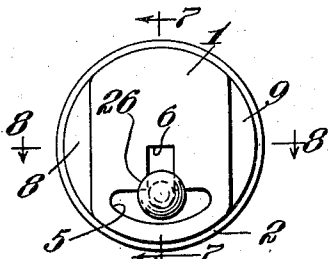


Fig. 6

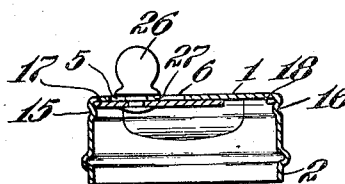


Fig. 7

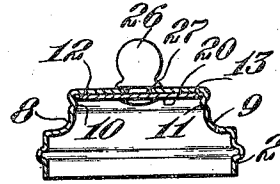


Fig. 8

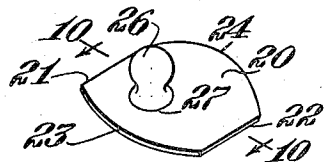


Fig. 9

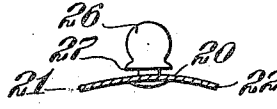


Fig. 10

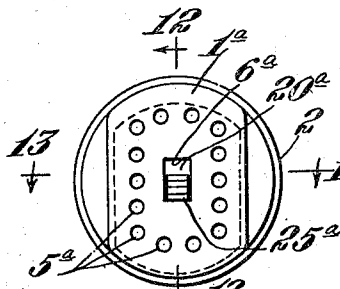


Fig. 11

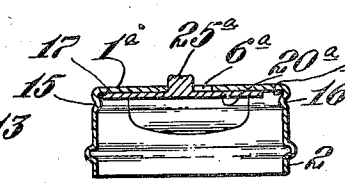


Fig. 12

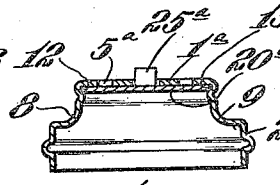


Fig. 13

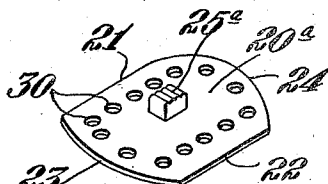


Fig. 14

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UNITED STATES PATENT OFFICE

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CONTAINER CLOSURE

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Application July 30, 1938, Serial No. 222,249

6 Claims. (Cl. 221—62)

This invention relates to container closures such, for example, as are used on cans, bottles, tubes and the like receptacles for holding powder or other materials to be dispensed in small quantities.

The principal objects of the present invention are to provide a closure which may be easily manipulated to control or vary the flow through the outlet, and which is so constructed and arranged as to provide an effective seal for the outlet when in closed position so that there is no danger of the material accidentally leaking out, at least to any objectionable extent, when the container is not in use; and to provide a closure which is of simple design and of pleasing and attractive appearance, which is of economical construction having a minimum number of parts, and which is inexpensive to manufacture, easy to assemble and convenient to use.

Further objects relate to various features of construction and will be apparent from a consideration of the following description and the accompanying drawing, wherein:

Fig. 1 is a perspective view showing the top of a container having a closure constructed in accordance with the present invention;

Figs. 2 and 3 are enlarged sections on the lines 2—2 and 3—3, respectively, of Fig. 1;

Fig. 4 is a perspective view of a shutter;

Fig. 5 is a section on the line 5—5 of Fig. 4;

Fig. 6 is a top plan view of a closure of modified construction;

Figs. 7 and 8 are sections on the lines 7—7 and 8—8, respectively, of Fig. 6;

Fig. 9 is a perspective view of the shutter embodied in the construction shown in Figs. 6 to 8;

Fig. 10 is a section on the line 10—10 of Fig. 9;

Fig. 11 is a top plan view of a further modification;

Figs. 12 and 13 are sections on the lines 12—12 and 13—13, respectively, of Fig. 11; and

Fig. 14 is a perspective view of the shutter embodied in the construction shown in Figs. 11 to 13.

The embodiment shown in Figs. 1 to 5 comprises a shell-like member which may be of metal, Celluloid or the like material capable of being worked and of receiving and retaining an attractive finish. The shell-like member is formed with a substantially fiat top wall 1 and an integral depending cylindrical skirt 2 adapted to fit about the neck or mouth of a container or like receptacle 3 (Fig. 1). The top wall 1 is formed with an outlet passage 5 and a slot or opening 6 ad-

joining the passage 5, and the side wall 2 is formed with a pair of oppositely disposed inwardly struck parts which define relatively straight wide wall portions 8 and 9. The side wall portions 8 and 9 are provided with inwardly extending beads or ribs 10 and 11 located adjacent to the underside of the top wall 1 so as to define therewith oppositely disposed straight grooves 12 and 13, as shown in Fig. 3. The ribs 10 and 11 adjoin similar ribs or beads 15 and 16 (Fig. 2) formed in the skirt 2 between the ends of the ribs 10 and 11, the ribs 15 and 16 defining curved grooves 17 and 18 which adjoin the ends of the straight grooves 12 and 13.

A shutter 20 (Figs. 4 and 5) fits against the underside of the top wall 1 and is slidably supported so as to move back and forth to close the outlet passage 5. The shutter consists of a piece of resilient sheet material of arcuate cross section and is formed with straight edges 21 and 22 which snugly fit into the grooves 12 and 13, and with curved ends 23 and 24 adapted to fit the grooves 17 and 18, respectively. The ribs 10 and 11 thus provide guides which are effective slidably to support the shutter 20 and hold it in position with the arch or crown of its arc projecting upwardly so that its body portion is pressed into engagement with the underside of the top wall 1. Since the shutter 20 is normally of arcuate cross section, and since its body portion is held flexed and flattened when in assembled relation with the shell or cap, there is sufficient frictional resistance or "drag" to prevent the shutter from accidentally sliding back and forth.

The material of which the shutter is made may be sheet metal, or sheet Celluloid, or other suitable composition. An advantage of Celluloid or equivalent non-metallic material is that it will not corrode. The shutter may be colored; for example, it may be made of red sheet celluloid or of some color contrasting with the color of the shell which when exposed through the dispensing apertures signals that the shutter is closed.

In order to move the shutter to and from closed position, it is provided with an upstanding part 25 which may be struck out from or formed integral with its body portion, or otherwise attached to the body, the part 25 providing an actuating piece which extends outwardly through the slot 6 in the top wall 1, as shown in Figs. 1 to 3. The parts of the closure are so constructed and arranged that when the shutter 20 is in closed position, its curved edge 23 is disposed in the groove 17 and its body portion completely blocks the outlet opening 5 and the slot 6, and

when the actuating member 25 is moved along the slot to open position, the curved edge 24 of the shutter is disposed in the groove 18 and its opposite edge 23 is positioned adjacent to or inwardly of the inner edge of the outlet opening 5.

By having the ends 23 and 24 fit into the grooves 17 and 18 in the two extreme positions of the shutter, support for the shutter is provided to resist its being bent or sprung downwardly by downward pressure on the actuating member 25, especially when the shutter is in closed position.

In assembling the parts, one of the straight edges of the shutter 20 is first positioned in one of the grooves 12 or 13, with the actuating piece 25 aligned with either the outlet passage 5 or the slot 6. The opposite edge of the shutter may then be pressed inwardly so that it snaps over one of the ribs 10 or 11 into position with the adjacent straight groove, and at the same time the actuating piece is projected through either the outlet opening 5 or the slot 6, depending upon the position of the shutter, these two simple manipulations constituting the entire assembling operation. As above noted, due to the resiliency of the shutter and its normal arcuate shape, its body portion is held flexed so as to lie substantially flat against the underside of the wall 1, as shown in Figs. 2 and 3, and when thus positioned the resulting frictional engagement is effective to prevent an unrestrained freedom of movement of the shutter.

The embodiment shown in Figs. 6 to 10 is substantially similar to that shown in Figs. 1 to 5, and the same reference characters are applied to like parts. In this embodiment the shutter 20 is provided with an actuating member 26 which is riveted or otherwise secured in position after the shutter has been assembled within the shell. The actuating member 26 is formed with an annular shoulder 27 which rides on the marginal portions about the outlet 5 and slot 6, thus cooperating with the ribs 10 and 11 in holding the shutter in position and at all times preventing it from being sprung downwardly by downward pressure on the knob 26.

In all of the embodiments herein shown the closure consists essentially of only two pieces, the shell and the shutter, or at most, of three pieces if the actuating member is formed separately, and is therefore very economical to manufacture and to assemble.

The embodiment shown in Figs. 11 to 14 is similar in many particulars to the previously described embodiments, and the same or similar reference characters are applied to corresponding parts. In this embodiment the top wall 1^a is formed with a plurality of spaced apertures or outlet passages 5^a which extend about a central opening or slot 6^a, all other parts of the shell being the same as in the previously described embodiments. The shutter 20^a is provided with a plurality of spaced apertures 30 (Fig. 14) corresponding in size and location to those in the top wall 1^a and extending about the centrally disposed actuating member 25^a which is so positioned that when the parts are in assembled relation it projects through the opening 6^a. The construction and arrangement of these parts are such that when the actuating member 25^a is at or adjacent to one end of the opening 6^a, as shown in Figs. 11 to 13, the apertures in the shutter and top wall are relatively offset, and when the actuating member 25^a is moved to the opposite end of the opening 6^a, the apertures are brought into alignment, intermedi-

ate positions of the actuating member and shutter being effective partially to close the outlet passages or apertures 5^a.

It will be noted that a closure constructed in accordance with the present invention may be easily operated by the thumb or fingers of the hand holding the container, and that the closure may be adjusted so as to regulate the flow of material through the outlet, the frictional engagement between the shutter and top wall being effective to hold the shutter in any position of adjustment.

Although the closures above described are shown as being adapted to be applied to the top of a rigid container, it is to be understood that their utility is not limited for use with containers holding powder or granular material. Such closures may also be used with collapsible tubes containing tooth paste, grease and the like semi-plastic or semi-fluid substances, and hence the term "container", as herein used, is intended to include collapsible tubes as well as the various types of containers having rigid walls.

While I have shown and described different desirable embodiments of the invention, it is to be understood that this disclosure is for the purpose of illustration and that various changes in shape, proportion and arrangement of parts, as well as the substitution of equivalent elements for those herein shown and described, may be made without departing from the spirit and scope of the invention as set forth in the appended claims.

I claim:

1. A container closure comprising a shell-like member having a substantially flat top wall provided with an outlet passage and a depending side-wall formed with inwardly projecting straight ribs adjacent to the underside of said top wall and defining therewith a pair of oppositely disposed grooves, and a shutter made of sheet Celluloid of a color contrasting with the color of the shell fitting against the underside of said top wall with its opposite edges slidably mounted in said grooves, said shutter having an actuating member projecting through an opening in said shell.

2. A container closure comprising a shell-like member having a top wall and a depending side wall, the top wall having an outlet passage and the side wall having spaced inwardly extending ribs adjacent to the underside of said top wall and defining therewith spaced grooves, and a shutter fitting against the underside of said top wall with opposite edges mounted in said grooves so that said shutter is slidable back and forth to open and close said outlet passage, said shutter being formed of resilient sheet material and prior to assembly with said shell-like member being of arcuate cross section, but when in assembled relation with said shell-like member being flexed and held resiliently pressed closely against the underside of said top wall, thereby to provide a substantially powder-tight closure which frictionally opposes back and forth movement.

3. A container closure comprising a shell-like member having a top wall and a depending side wall, the top wall having an outlet passage and the side wall having spaced inwardly extending ribs adjacent to the underside of said top wall and defining therewith spaced grooves, and a shutter fitting against the underside of said top wall with opposite edges mounted in said grooves so that said shutter is slidable back and forth to open and close said outlet passage, said shutter

consisting of non-corrosive resilient sheet material and being yieldingly held closely against the underside of said top wall.

4. A container closure comprising a shell-like member having a top wall and a depending side wall, the top wall having an outlet passage and the side wall having spaced inwardly extending ribs adjacent to the underside of said top wall and defining therewith spaced grooves, and a shutter fitting against the underside of said top wall with opposite edges mounted in said grooves so that said shutter is slidable back and forth to open and close said outlet passage, said shutter consisting of Celluloid and being yieldingly held closely against the underside of said top wall.

5. A container closure comprising a shell-like member having a top wall formed with an outlet passage and an elongate slot, a depending side wall formed with inwardly projecting ribs adjacent to the underside of said top wall and defining therewith a pair of oppositely disposed grooves, a shutter fitting against the underside

of said top wall with opposite edges slidably mounted in said grooves, and an actuating member carried by said shutter and extending outwardly through said slot, said actuating member being formed adjacent to its lower end with a shoulder engageable with the marginal portions at opposite sides of said slot.

6. A container closure comprising a top wall having an outlet opening, a depending side wall adapted to be attached to the top of a container, a shutter having an outlet opening, means integral with said side wall and cooperating with said top wall for holding said shutter closely against the under surface of said top wall so that said shutter may be moved to bring the outlet openings into and out of registry, and actuating means integral with said shutter for moving it to open and closed position, said shutter being composed of plastic material which does not corrode and stick and which is of a color contrasting with that of the top and side walls.

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