

March 28, 1961

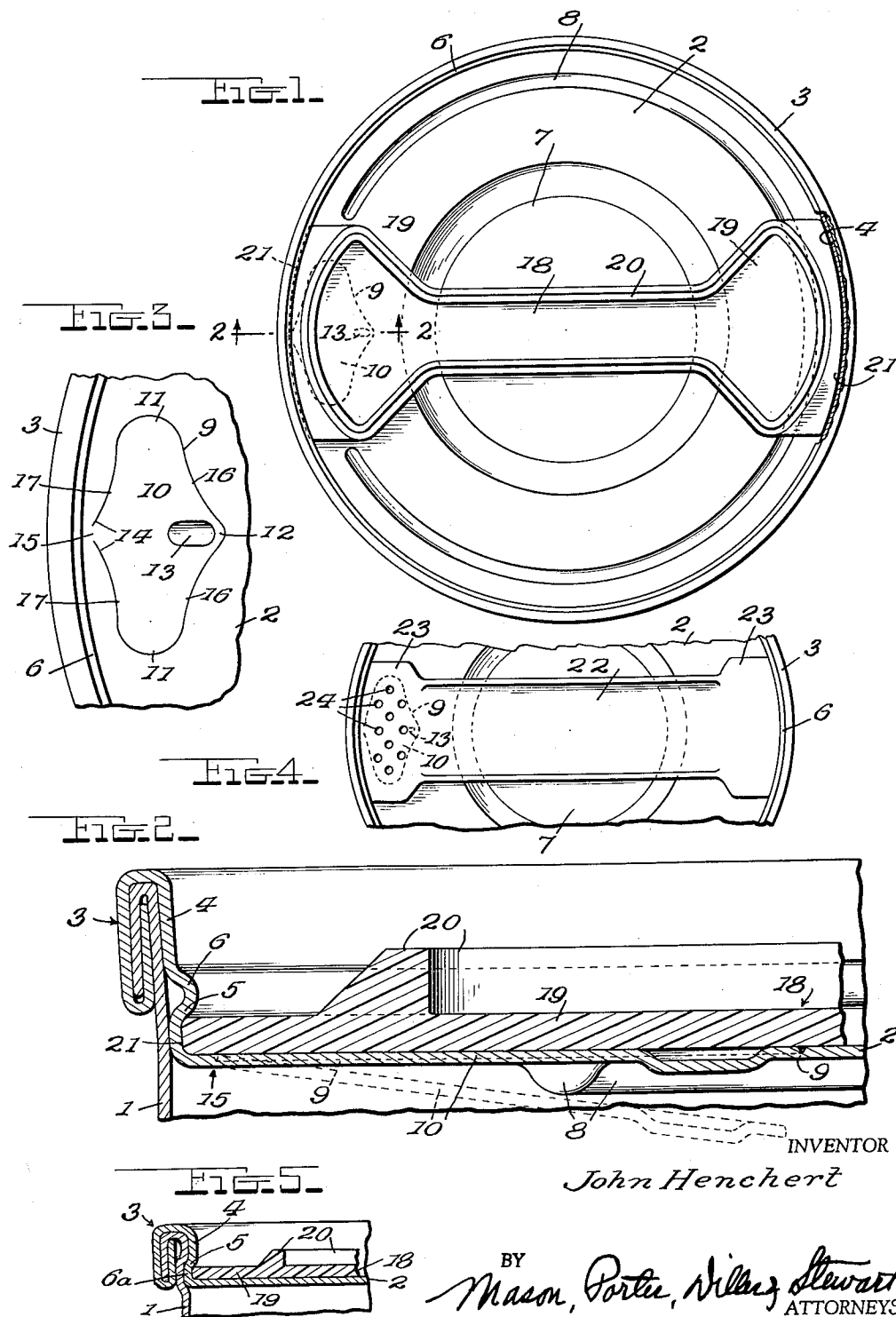
J. HENCHERT

2,977,029

CAN PUSH-OUT PANEL AND SLIDE THEREFOR

Filed Aug. 16, 1957

4 Sheets-Sheet 1



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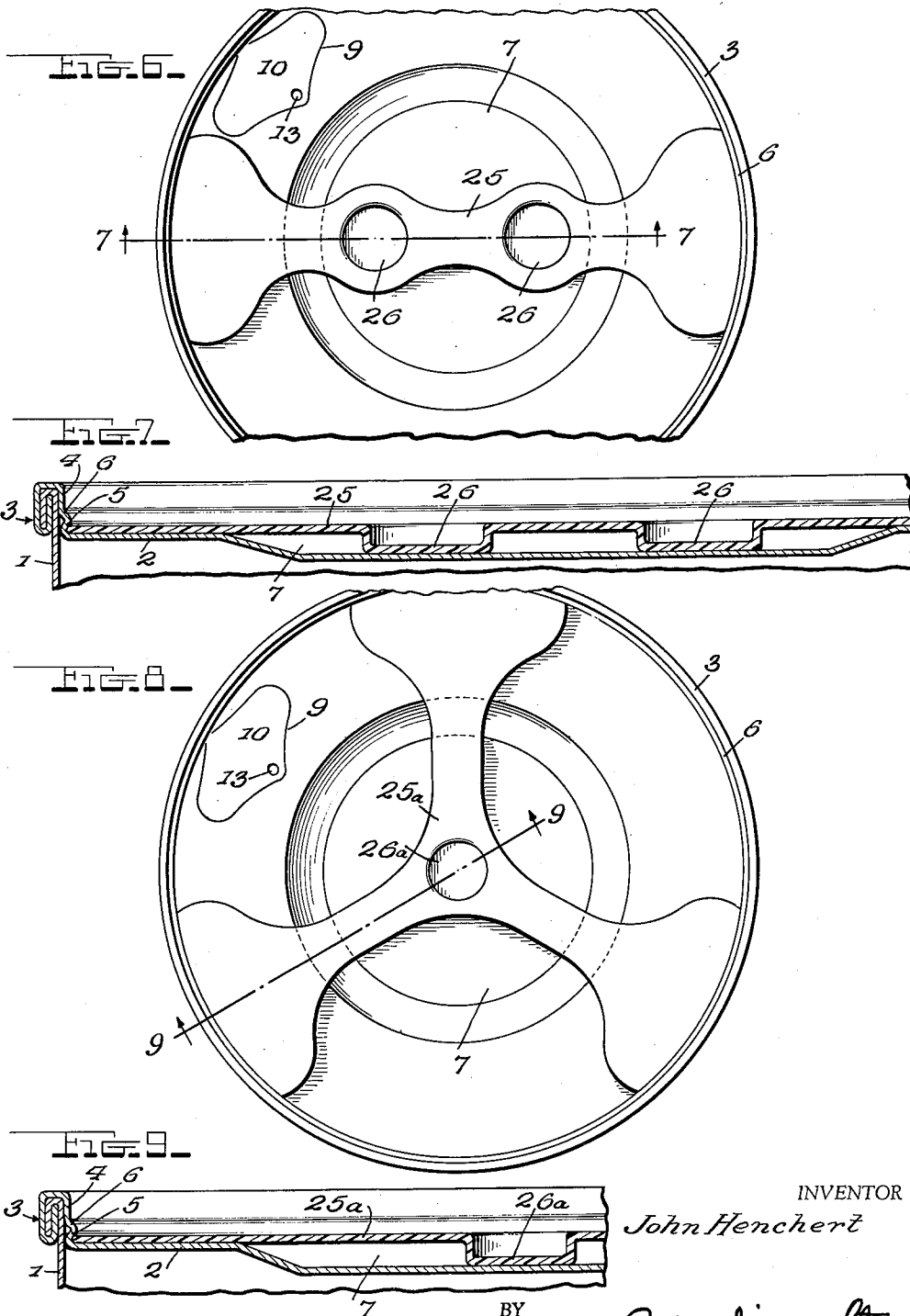
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4 Sheets-Sheet 2



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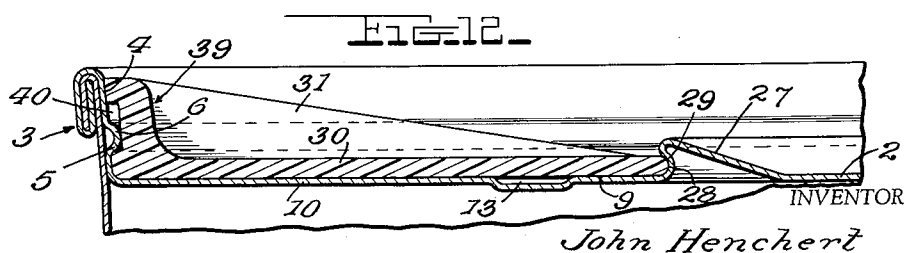
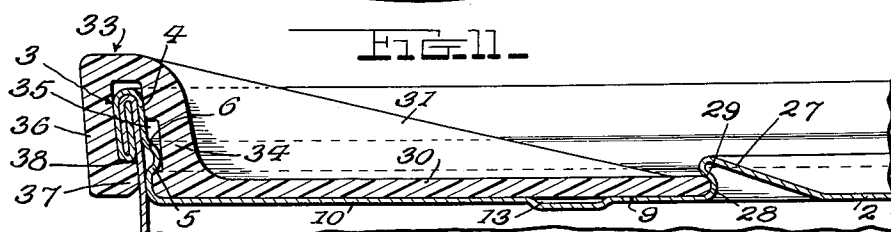
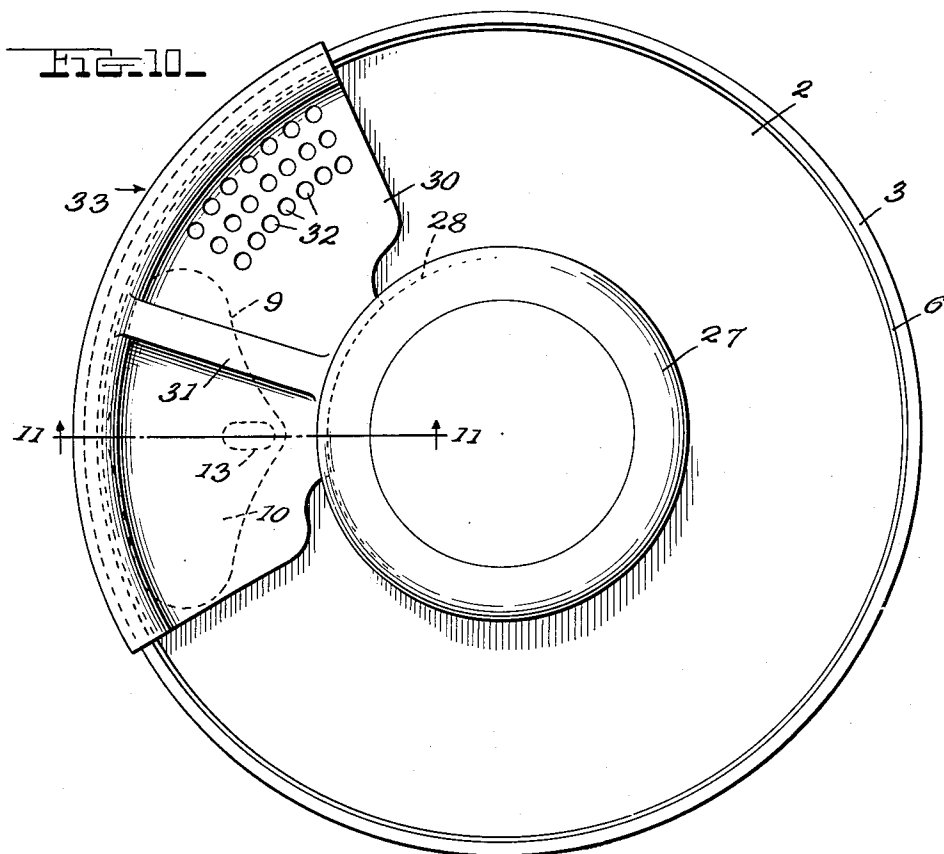
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4 Sheets-Sheet 3



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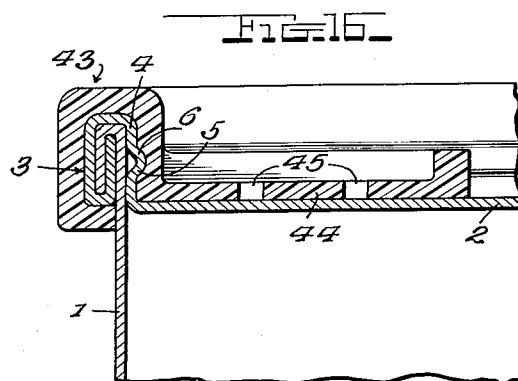
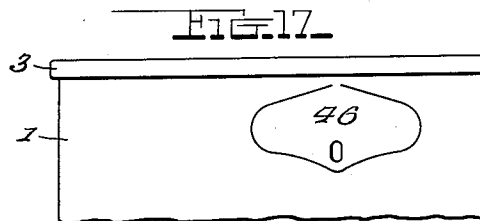
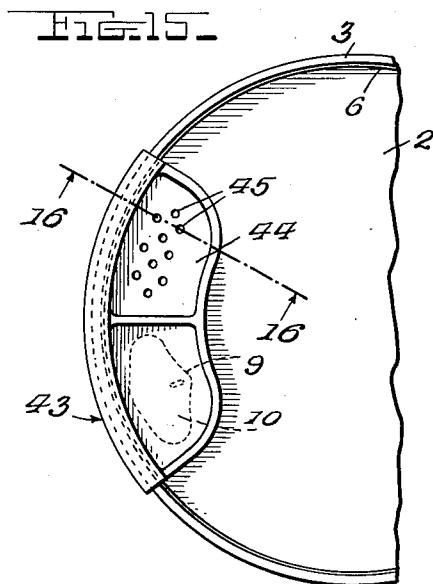
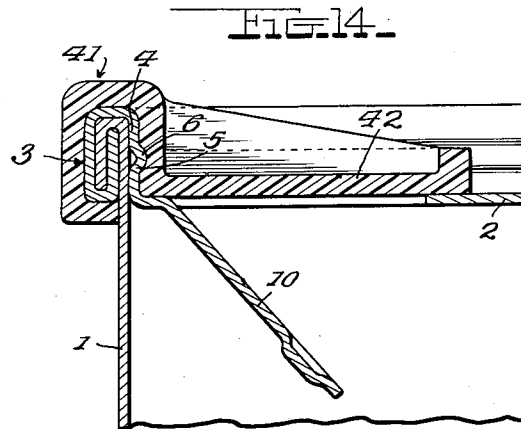
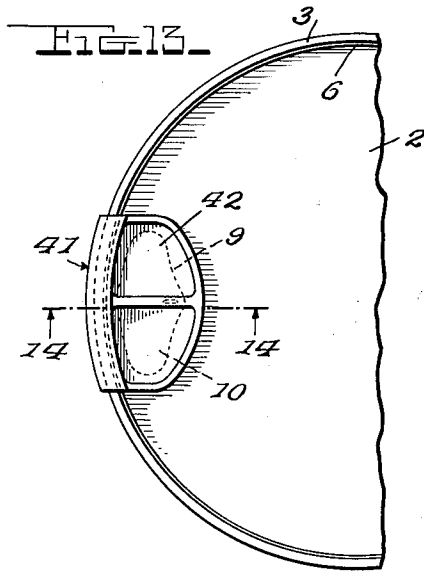
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CAN PUSH-OUT PANEL AND SLIDE THEREFOR

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4 Sheets-Sheet 4



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2,977,029

CAN PUSH-OUT PANEL AND SLIDE THEREFOR

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7 Claims. (Cl. 222-548)

This invention relates to a new and improved metal can having a push-out panel to be pushed into the can to provide a discharge opening, and a slide for closing said opening after discharge of part of the container contents. The invention is particularly well adapted to contain coffee and provides a container of much more simple and convenient form than the conventional key-opened, reclosable coffee can.

One object of the invention is to provide a novel, elongated, push-out panel, defined by a score line, and capable of being easily pushed into the can, regardless of its elongated form.

Another object is to provide a novel construction in which a conventional seam between the can side wall and the upper end member of the can, is so modified as to aid in effectively mounting the slide and permitting easy movement thereof to open and closed positions.

A further object is to provide a novel rotatable slide having radial arms engaged with the modified seam in such a manner that each arm prevents accidental disengagement of the other arm or arms from said modified seam.

Another object is to provide a slide having a novel yoke embracing the seam, the yoke and seam either constituting the entire means for mounting the slide or cooperating with other structure in mounting said slide.

Yet another object is to provide a novel construction in which inward or outward warping of the can end will not interfere with seating of the slide.

A further object is to provide a novel construction in which the slide is disposed between the modified seam and an upward can end projection concentric with said seam, the outer edge portion of the slide being slidably engaged with said seam and the inner edge portion of said slide being slidably engaged with said projection.

A still further object is to provide the slide with perforations which may communicate with the discharge opening to allow can contents to be shaken out through the perforations, if desired.

Yet another object is to provide an extremely simple and inexpensive construction which may be expeditiously manufactured and sold at relatively small cost yet will be highly effective and desirable.

With the above and other objects in view that will hereinafter appear, the nature of the invention will be more clearly understood by reference to the following detailed description, the appended claims and the several views illustrated in the accompanying drawings.

In the drawings:

Figure 1 is a top plan view.

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Figure 2 is an enlarged sectional view on line 2-2 of Figure 1.

Figure 3 is an enlarged top plan view showing the push-out panel which is shown in dotted lines in Figure 1.

Figure 4 is a fragmentary top plan view showing a somewhat different slide.

Figure 5 is a detail view similar to Figure 2 but showing a different manner of modifying the can seam.

Figure 6 is a fragmentary top plan view showing another form of slide.

Figure 7 is an enlarged sectional view on line 7-7 of Figure 6.

Figure 8 is a view similar to Figure 6 but showing yet another form of slide.

Figure 9 is an enlarged sectional view on line 9-9 of Figure 8.

Figure 10 is a top plan view showing a form of construction in which the slide is mounted between the modified can seam and a concentric projection on the can end.

Figure 11 is an enlarged sectional view on line 11-11 of Figure 10.

Figure 12 is a view similar to Figure 11 but showing a modified slide.

Figure 13 is a fragmentary top plan view showing a form of construction in which a yoke of the slide is engaged with the modified seam.

Figure 14 is an enlarged sectional view on line 14-14 of Figure 13 but showing the push-out panel pushed into the can.

Figure 15 is a view similar to Figure 13 but showing a different form of slide.

Figure 16 is an enlarged sectional view on line 16-16 of Figure 15.

Figure 17 is a fragmentary side elevation showing the push-out panel in a can side wall.

The various forms of construction shown in the drawings will be rather specifically described but attention is invited to the possibility of making variations.

A can side wall 1 and an upper end member 2 are joined by a double seam 3. This seam is conventional except that it is modified to provide its chuck wall 4 with a continuous downwardly facing shoulder 5 in closely spaced relation with the end member 2. In most views, this shoulder 5 is formed by the lower side of a rib 6 which is provided by inwardly deforming a portion of the chuck wall 4. In Figure 5, however, the lower portion of the chuck wall 4 is outwardly deformed at 6a and the upper portion of this deformation provides the shoulder 5.

In a number of the views, the end member 2 is formed with a depressed central portion or countersink 7 for stiffening purposes, and in Figures 1 and 2, said end member is depressed also to provide an arcuate stiffening rib 8 between the countersink 7 and the seam 3.

Near the seam 3, a score line 9 defines a push-out panel 10 in the end member 2, said panel being between the ends of the rib 8 in Figure 1. The preferred form of the panel 10 is shown on an enlarged scale in Figure 3, to which reference is now made. The panel is substantially diamond shaped and elongated in the direction of the can circumference, both ends 11 of the panel being rounded. One of the obtuse angular corner portions 12, remote from the seam 3, is provided with a shallow socket 13 to receive the tip of a tool when pushing the panel into the can. The ends 14 of the score line 9 terminate in spaced

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relation with each other at the other obtuse angular corner of the panel and thus a hinge neck 15 is provided for the panel. The corner portion 12 forms a starting nose for the panel push out operation and the longitudinal panel edges 16 extending from this nose to the rounded panel ends 11 widely diverge from said neck to said ends. It has been found that the best results are attainable when these edges 16 are concavely curved somewhat. The other longitudinal panel edges 17 are also preferably but not necessarily concavely curved to some extent.

With a panel length of 1.312" and a gross width of .687", each rounded panel end 11 preferably has a radius of .187", each panel edge 16 and 17 a radius of .812", and the nose 12 a radius of .062".

When the tip of a common beer can opener or other suitable tool is engaged with the socket 13 and operated to exert downward pressure on the nose 12, the panel 10 easily and uniformly tears loose along the score line 9 regardless of its length and is bent into the can to provide the latter with an elongated discharge opening through which can contents may be readily poured.

Various forms of manually operable slides have been shown for closing the discharge opening after each pouring of can contents, the slide in each instance being movable in the direction of the can circumference.

In Figures 1, 2 and 5, the slide 18 is in the form of a flat elongated plate having widened end portions 19 and a suitable reinforcing rib 20. The plate 18 rests on the end member 2 and has curved end edges 21 abutting the chuck wall and underlying the shoulder 5. Considering the end portions of the plate 18 as two arms radiating from the center of the can, it will be seen that each arm prevents accidental disengagement of the other arm from the chuck wall 4 and shoulder 5. The plate is preferably formed from polyethylene or the like and is snapped into position after completion of the can.

In Figure 4, the slide plate 22 is similar to the plate 18 and one of its ends 23 is provided with perforations 24 for communication with the discharge opening of the can, should it be desired to sift out some of the can contents. The other end of the plate serves as a closure for the discharge opening.

In Figures 6 and 7, the slide plate 25 is similar to the plates 18 and 22. This plate 25, however, is formed with two downwardly projecting bosses 26 which rest slidably on the bottom of the countersink 7.

The slide may have three or more radial arms if desired. In Figure 8, for example, a three-arm slide 25a is shown, the outer ends of the arms being engaged with the chuck wall 4 and shoulder 5. In this form of construction, the slide has a central boss 26a resting on the bottom of the countersink 7. In this and other forms of construction in which a portion of the slide spans the countersink, the latter is of sufficient diameter to receive the tips of the fingers when turning the slide, allowing a good grip on said slide.

In Figures 10 to 12, the end member 2 is provided with an upwardly projecting circular rib 27 which is spaced from and concentric with the seam 3. The periphery of the rib is formed with a groove 28 the upper wall of which forms a downwardly facing shoulder 29. The slide plate 30 is of elongated arcuate form and is disposed between adjacent portions of the seam 3 and the rib 27 with its outer edge seated under the shoulder 5 and its inner edge seated under the shoulder 29. Between its ends the slide plate 30 is provided with a radial rib 31 to be finger gripped when turning said plate. One end portion of the plate 30 has perforations 32 through which can contents may be sifted when the plate is turned to place these perforations in communication with the discharge opening. The other end portion of the plate is used to normally close the discharge opening.

In Figures 10 and 11, the outer end of the slide plate 30 is formed with an integral radially arched yoke 33 which embraces the seam 3. The inner leg or portion 34 of this

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arched yoke is recessed at 35 to receive the rib 6 and the outer leg or portion 36 is provided with a lug 37 which underlies the shoulder 38 formed by the lower edge of the seam 3. The entire slide, like all others herein disclosed is preferably formed from polyethylene or the like and may be readily snapped into place.

In Figure 12, the arched yoke 33 is omitted and the outer edge of the slide plate 30 is provided with a rib 39 recessed at 40 to receive the rib 6.

In Figures 13 and 14, the arched yoke 41 on the slide plate 42 mounts this plate by embracing the seam 3. The same is true of the yoke 43 and slide plate 44 shown in Figures 15 and 16. The plate 44 has perforations 45 corresponding to the perforations 32 of Figure 10.

In Figure 17, a push-out panel 46, corresponding to the panel 10, is shown in the upper end of the can side wall 1. The can may be devoid of any slide to close the discharge opening formed by pushing the panel 46 into the can, or a suitable slide could be employed, if desired.

From the foregoing, it will be seen that novel and advantageous constructions have been disclosed for attaining the desired ends. Attention, however, is again invited to the possibility of making variations within the scope of the invention.

I claim:

1. A can having a side wall, an upper end member and a seam joining said side wall and end member, said seam projecting upwardly from said end member and presenting an outer upright wall portion and an inner upright chuck wall portion, and a manually operable slide in the form of an arcuate segment resting on said end member to normally close the discharge opening therein, said slide having an arched yoke slidably embracing said seam and presenting an inner portion and an outer portion respectively in close guiding contact with said inner and outer seam wall portions, said chuck wall portion having a downwardly facing shoulder in closely spaced relation with said end member, and said slide having an edge portion underlying said shoulder.

2. A can having a side wall, an upper end member and a seam joining said side wall and end member, said seam projecting upwardly from said end member and presenting an outer upright wall portion and an inner upright chuck wall portion, and a manually operable slide in the form of an arcuate segment resting on said end member to normally close the discharge opening therein, said slide having an arched yoke slidably embracing said seam and presenting an inner portion and an outer portion respectively in close guiding contact with said inner and outer seam wall portions, said chuck wall portion having a continuous rib overlying said end member, and the inner portion of said arched yoke being formed with a recess receiving said rib.

3. A cylindrical can having a side wall, an upper end member, and a seam projecting upwardly from said end member and joining said side wall and end member, said end member being provided with an upwardly deformed integral projection spaced inwardly from and concentric with said seam, and a manually operable slide resting on said end member to normally close a discharge opening therein, said slide being disposed between adjacent portions of said projection and said seam and being slidably engaged with said projection and seam, said projection and seam having shoulders overlying portions of said slide and holding the latter against upward movement.

4. A structure as specified in claim 3, in which the inner periphery of said seam is provided with a rib under which the outer edge of said slide is received, the lower side of said rib constituting one of said shoulders.

5. A structure as specified in claim 3, in which said seam projects beyond the outer periphery of said side wall and forms one of said shoulders, said slide being provided with an arched yoke which slidably embraces said seam and presents an inner portion and an outer portion respectively in close sliding contact with said

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seam, the outer portion of said yoke being provided with an inward projection which underlies said one of said shoulders.

6. A can having an upper end member, a countersink in said upper end member and a discharge opening in said end member, and a rotatable slide mounted on said end member for closing said discharge opening thereof, said slide having a portion spanning said countersink and narrower than the countersink and to be gripped with the fingers when said slide is to be turned, said countersink being of sufficient diameter to accommodate the finger tips when gripping at each side of the countersink spanning portion.

7. A can having a side wall, an upper end member and an upstanding seam joining said side wall and said end member, said end member having an upwardly projecting integral rib spaced inwardly from and concentric with said seam, said rib having an outer portion with a groove formed therein defining a downwardly facing shoulder, said groove opening towards said seam, said seam presenting a second shoulder, and a manually operable slide resting on said end member to normally close a discharge

opening therein, said slide being disposed between and slidably engaged with adjacent portions of said seam and said rib, said slide having portions underlying said shoulder to restrict upward movement of said slide.

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