April 18, 1939. R. H. PERSHALL 2,154,581

CLOSURE ATTACHMENT FOR CONTAINERS

Filed June 2, 1937 2 Sheets-Sheet 1

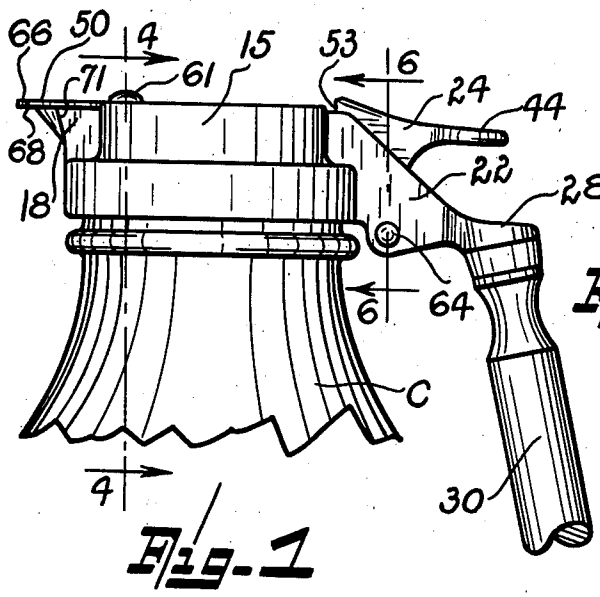


Fig-1

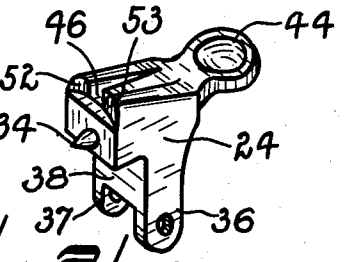


Fig-2

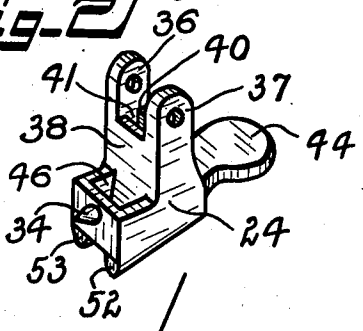


Fig-3

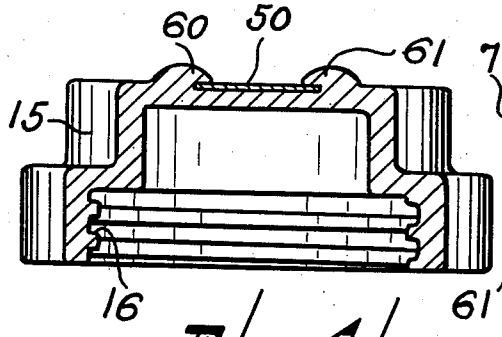


Fig-4

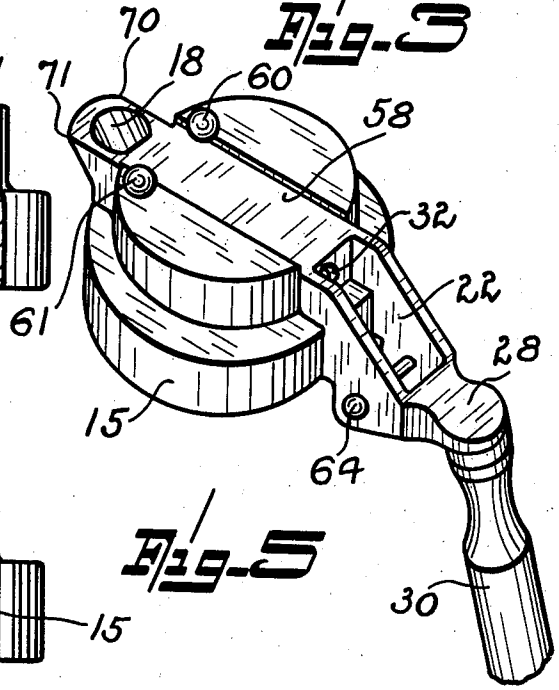


Fig-5

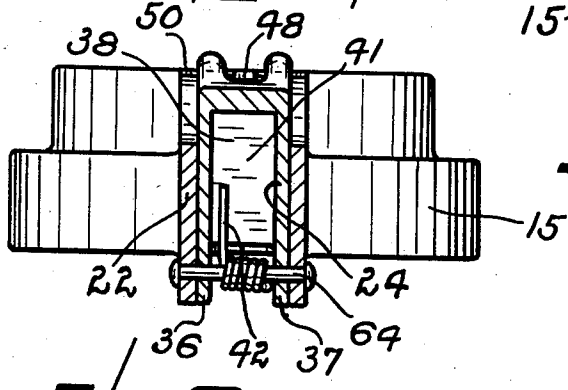


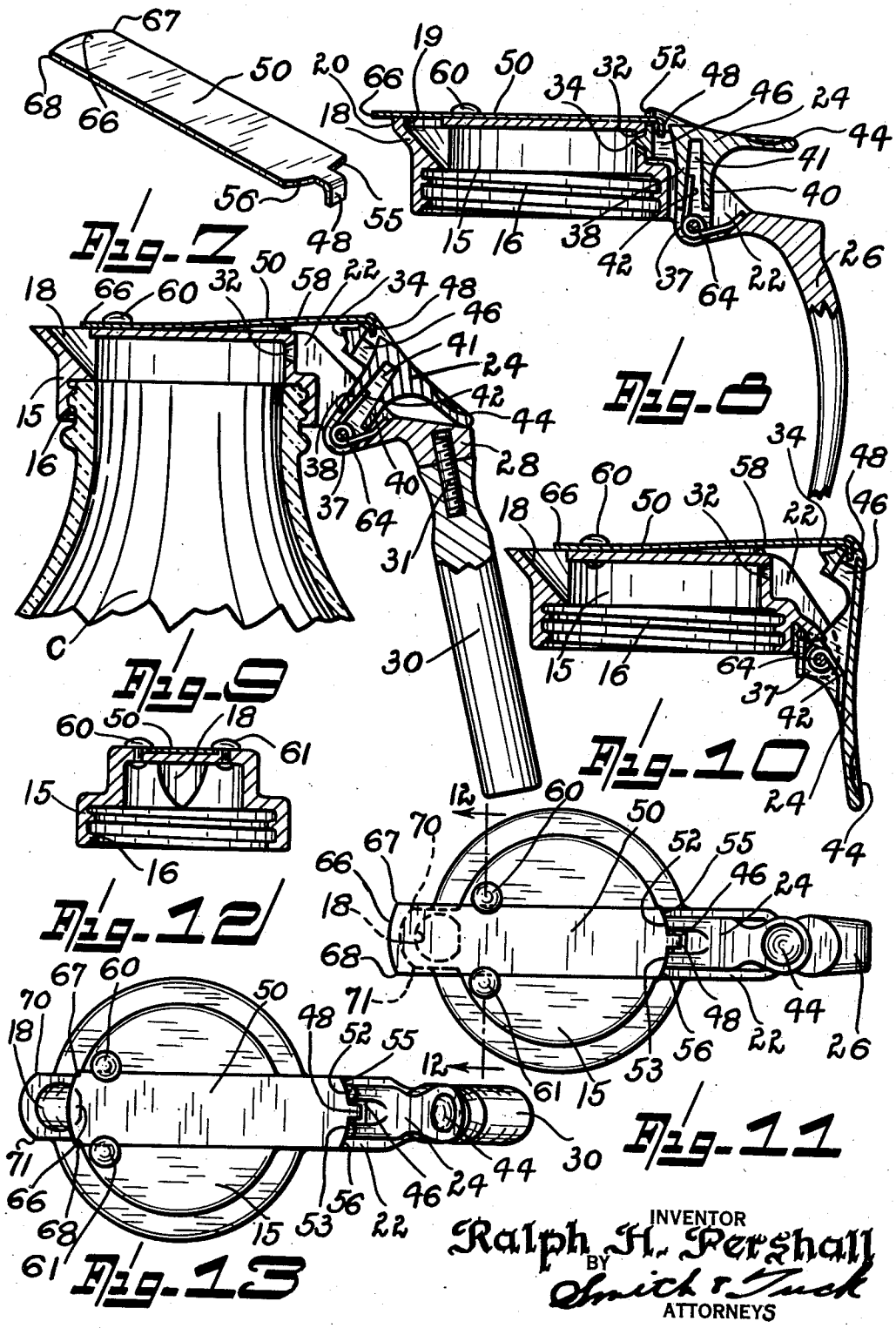
Fig-6

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CLOSURE ATTACHMENT FOR CONTAINERS

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CLOSURE ATTACHMENT FOR CONTAINERS

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6 Claims. (Cl. 215—78)

My present invention relates to the art of closure devices and more particularly to a closure attachment for containers.

Considerable difficulty has been encountered in the past in providing a closure attachment for use with containers of syrup, honey, powders, granular materials, and the like, which would operate easily and be self-closing. Especially does it become troublesome when syrup, honey, or other viscous fluids are to be dispensed as it has always been difficult to prevent dripping after the closure has been moved to its closed position.

The principal object of my present invention is, therefore, to provide an improved unitary closure which may be manufactured and then attached to any one of a number of containers.

An important object is the provision of means whereby the closure means effects a clean cut-off of any liquid and, particularly in the case of viscous liquids, prevents any drip after the closure has moved to its closed position.

Another object of my present invention is to provide means whereby the increased pressure of a powerful spring is applied directly to the slide itself and not to the small downwardly bent end lug, as in my former construction.

A still further object of my present invention is to provide means for adequately venting the container so that when the discharge opening is in use an air vent will be provided together with means that assure that the same will be maintained in operative condition at all times.

Another object of my present invention is to provide means whereby downward pressure is applied to the extreme or closing end of the slide member during the closing operation.

Other and more specific objects will be apparent from the following description taken in connection with the accompanying drawings, wherein

Figure 1 is a side elevation of a dispensing closure member made after the teachings of my invention.

Figure 2 is a perspective view showing the operating lever of my device in its upright position.

Figure 3 is a perspective view of my operating lever showing it as viewed from a position inverted from that of Figure 2.

Figure 4 is a cross-sectional view taken substantially along the line 4—4 of Figure 1.

Figure 5 is a perspective view of the main member of my closure with the slide operating lever and spring removed for clearness of illustration.

Figure 6 is a cross-sectional view taken substantially along the line 6—6 of Figure 1.

Figure 7 is a perspective view of the slide closure member of my device.

Figure 8 is a longitudinal sectional view in elevation through my device, illustrating a type of handle which is made integral with the main member.

Figure 9 is a sectional view similar in part to that shown in Figure 8 showing my device in its open, or dispensing, position and with a modified form of handle.

Figure 10 is another view taken in the same general sense as Figure 8, but showing a modification of the operating lever, this model having no handle proper.

Figure 11 is a top plan view of the form of my device illustrated in Figure 8.

Figure 12 is a cross-sectional view taken along the line 12—12 of Figure 11.

Figure 13 is a top plan view of the device as shown in Figure 9.

Referring to the drawings, throughout which like reference characters indicate like parts, 15 designates the main member or body of my dispenser unit. This may be formed of any suitable material. It may be die-pressed from sheet material, or it may be molded from any of the various materials that lends itself to pressure molding or, more preferably, it may be made by die casting from suitable metal. Throughout the present drawings I have indicated the inner bore as being threaded at 16 so that it may be screw fastened on to any suitable container. It will be apparent, it is believed, that any suitable means may be substituted for the thread shown; if the device were to be used on a straight can or lipped bottle this inner bore would of necessity have to conform to the outer surface of the container. On one side the body member is provided with a spout portion 18, which for certain liquids is provided with a lip portion having inner wall 19 and outer wall 20 disposed, substantially at right angles to cap surface of the spout and, on its opposite side it is provided with the extension 22 which serves to house the pivotally operated lever 24. This extension may continue on to form the integral handle 26, or it may merely provide an anchor as at 28 for a separate handle 30 which may be secured to base 28 as by the threaded stud 31. Body 15 is further provided with the vent hole or opening 32 which provides a point of ingress for air during the dispensing operation. To assure that this vent will at all times remain open and in oper-

ative order, I have provided a coacting, pointed lug 34 formed as part of lever 24 and adapted to substantially close opening 32 after the showing of Figure 8. This seals this opening so that dust, insects, and the like, cannot enter when the device is closed, and on opening of the device a retraction of lug 34 assures that the vent will be cleared of any passable obstruction and open for the entrance of air.

In order to provide the maximum ease of cleaning I have provided that lever 24 have its downwardly extending pivot supporting portions as 36 and 37 joined as by webs 38 and 40. This provides a cavity as 41 in which one end of spring 42 rests. It will thus be apparent, it is believed, that a smooth surface is presented by wall 38 which will assist the housewife materially in keeping the device in most sanitary condition, and effectively prevent viscous liquid coating the coiled portion of spring 42 and thus produce an unsanitary condition which would not lend itself to ready cleaning. Lever 24 may be made in various forms to suit different conditions. One form, shown more generally in these drawings, has the short, thumb-engaging portion 44, or it may be extended with its position slightly altered after the showing of Figure 10, wherein leg portions 36 and 37 are reduced and the overall length of the member is increased. This particular form of construction as shown in Figure 10 is best adapted when no handle proper is used, the container being, normally, of reasonably small diameter so that the hand can clasp the container itself.

Lever 24 in either form is provided with an opening as 46 adapted to receive the downwardly bent end or lug 48 of slide member 50. It is further provided with abutting surfaces as 52 and 53 which are adapted to operatively engage the end portions of slide 50, as 55 and 56, disposed on each side of lug 48 so that in the closing operations the full force of spring 42 will be applied by surfaces 52 and 53 directly against the end of the slide 50 and thus a heavier spring can be used with no fear of damage to lug 48. This is of particular value when heavy viscous substances are used and especially where there is a tendency for crystallization.

Slide 50 is adapted to operate preferably within a depressed guideway 58 formed in the top of body 15 after the showing particularly of Figure 5. To positively hold slide 50 within guideway 58 I provide, near the mouth end of the guideway, the undercut retaining lugs 60 and 61. These may be formed either after the showing of Figure 4 as part of the body 15 or they may be provided as separate rivets after the showing of Figure 12. In either instance it is desirable that these lugs be as close to the spout 18 as the contour of body 15 will permit. As illustrated in Figures 9 and 10, the end of lever 24 which bears lug opening 46 should be sufficiently far displaced, from a vertical plane through pivot 64, that there will be a distinct lifting of slide 50 off guideway 58 so that the friction in opening the device will be reduced to a minimum. During the closing operation this relationship functions to provide a secure engagement between the extreme end 66 of slide 50 and the upper surface of spout 18. When so constructed a very firm and close contact is provided that cleans the spout during each operation and assures a clean cut-off of the liquid being dispensed.

To further assure that there will be no drip after the slide has closed spout 18 I prefer that slide 50 be of such a size, and that the extreme end be struck with such a curve, that it will substantially overlap spout 18 on both edges and outer extremity, after the showings of Figures 1, 8, and 11. It has been found desirable that the outer corners as 67 and 68 be of such an extent that they will clear the extreme corners 70 and 71 of spout 18 before the slide leaves the extreme end of spout 18. This has been found to materially assist in providing a dripless closure. The most convenient manner yet devised to provide this relationship is to provide that the radius of end 66 be substantially greater than the radius of the end of spout 18. It would naturally follow that if spout 18 were angular the same relationship could be maintained.

Method of operation

In using my device, after the container C has been filled with liquid, powder, or granules to be dispensed, it will be found that the spring 42 will force the closure slide 50 to its closed position as indicated in Figures 1, 8, and 11. When it is desired to use the device pressure is applied to the thumb rest 44 of lever 24 and by depressing the same, slide 50 is withdrawn from its position of closing spout 18 after the showing of Figures 9, 10, and 13; when the desired amount of material has been dispensed the pressure can be removed from thumb-rest 44 and the spring 42 will tend to again seat lever 24 in its normal position, as shown in Figure 8. In so doing the force of spring 42 will be applied by abutment surfaces 52 and 53 to the extreme end of slide 50 by engagement with surfaces 55 and 56. In this manner a direct force is applied to the ends of the slide; and, even though reasonably light material is used, considerable force can be applied with no danger of buckling the slide. In the final action of closing spout 18 the liquid is first wiped off the extreme corners 70 and 71 of the spout, and any liquid so removed will amalgamate with that forced off the extreme end of the spout so that, in effect, there will be no drippage.

The foregoing description and the accompanying drawings are believed to clearly disclose a preferred embodiment of my invention but it will be understood that this disclosure is merely illustrative and that such changes in the invention may be made as are fairly within the scope and spirit of the following claims.

Having thus fully described my invention what I claim as new and desire to secure by Letters Patent is:

1. In a dispensing device for a container having an open neck, the combination with a base secured on said neck provided with a diametrical countersunk slot, a spout on said base aligned with said slot, and an air vent in said base, of a closure for said spout adapted for sliding movement in said slot, said base being closed adjacent to and rearwardly of the spout for protecting said slidable closure from the contents being dispensed, means for retaining said closure in said slot, an operating lever attached to said closure and mounted on said base, and a projection on said lever for normally closing said air vent.

2. In a dispensing device and cover for a container having a discharge spout at one side thereof, a spout closure comprising a flexible blade slidably traversing said cover and spout, said covering being closed adjacent to and rearwardly of the spout for protecting said flexible blade

from the contents being dispensed, a guiding connection for said blade located on said cover adjacent said spout and arranged to leave the body of said blade free for flexing, a spring-held bell-crank lever operatively connected with said blade at the side of said cover opposite said spout for manipulating and flexing said blade, and a centering point on the inner side of said bell-crank, there being an opening in the side of the cover to receive said point when said bell-crank is released.

3. In a dispensing device and cover having a discharge spout at one side thereof, a spout closure comprising a flexible blade slidably traversing said cover and spout, said covering being closed adjacent to and rearwardly of the spout for protecting said flexible blade from the contents being dispensed, a guiding connection for said blade located on said cover adjacent said spout and arranged to leave the body of said blade free for flexing, an extension on said cover diametrically disposed with reference to the spout, a spring-held bell-crank lever mounted on one side of said extension and operatively connected with said blade for manipulating and flexing the same, and handle connecting means on the other side of the extension, said cover extension and handle connecting means being formed of a unitary construction.

4. In a dispensing device for a container having an open neck, the combination with a base secured on the neck, a spout on said base, an air vent in said base, a closure for said spout adapted for sliding movement across said base and in alignment with the spout, said base being closed adjacent to and rearwardly of the spout for protecting said slidable closure from the contents being dispensed, means for guiding the closure in its sliding movement, a spring-pressed operating lever attached to the closure, and means associated with the lever for normally closing said air vent.

5. In a combined cover and drip cutting device adapted for dispensing viscous liquids and to be readily attached to and detached from a container, comprising in combination, a base and cover member having a dispensing spout provided with a stationary drip shearing edge, a resilient slidably mounted drip cutting member adapted to slide directly against and across said stationary drip shearing edge, said base being closed adjacent to and rearwardly of said spout for protecting said slidably mounted member against the contents being dispensed, means so arranged as to apply a downward pressure to the upper surface of said slidable member near its drip cutting edge, means for rapidly and positively propelling said slidable drip cutting member across said stationary drip shearing member for cutting away the final drip, means for retracting said slidable member and a lifting handle secured to said base in line with said retracting means for lifting the said container.

6. In a combined cover and drip cutting device adapted for dispensing viscous liquids and cutting away the final drip comprising in combination, a base and cover member having a dispensing spout provided with a stationary drip shearing edge, a resilient slidably mounted drip cutting member adapted to slide directly against and across said stationary drip shearing edge, said base being closed adjacent to and rearwardly of the spout for protecting said slidably mounted member from the contents being dispensed, means for applying a downward pressure to the upper surface of said slidable member near its drip cutting edge, means for rapidly and positively propelling said slidable drip cutting member across said stationary drip shearing member for cutting away the final drip, and means for manually retracting said slidable drip cutting member.

RALPH H. PERSHALL.