Sept. 26, 1939. A. J. CHAMBERLAIN 2,174,378

RING SEAL CLOSURE

Filed Feb. 28, 1938

Fig. 1.

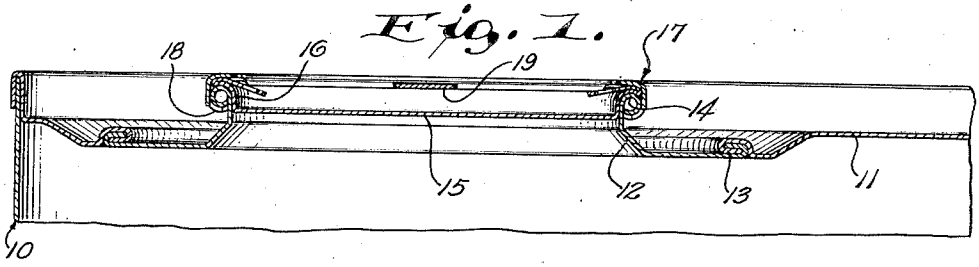


Fig. 2.

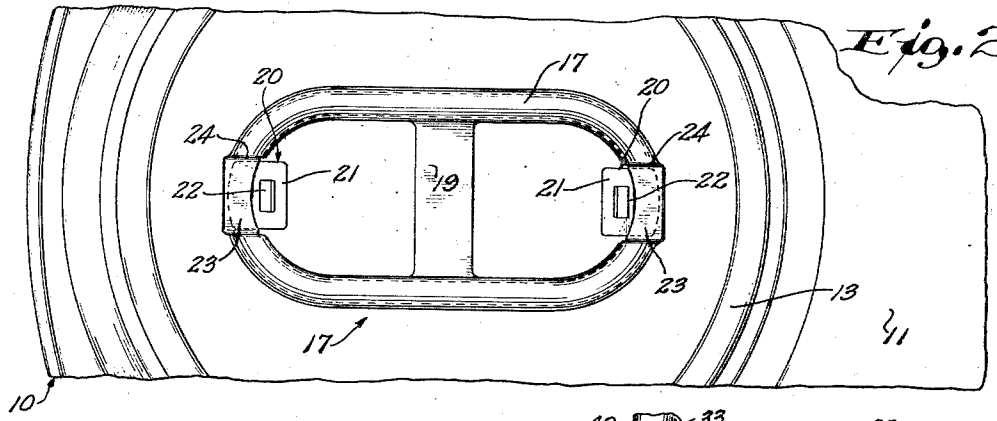


Fig. 5.

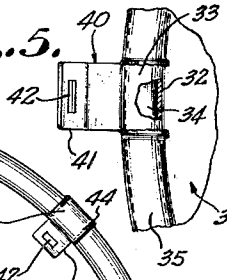


Fig. 3.

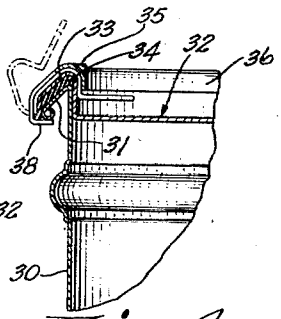


Fig. 4.

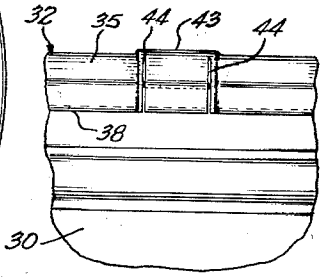


Fig. 6.

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RING SEAL CLOSURE

Alfred J. Chamberlain, Wauwatosa, Wis.

Application February 28, 1938, Serial No. 192,901

1 Claim. (Cl. 220—61)

This invention relates generally to closures for containers designed to be securely fastened in place in such manner as to hermetically seal the container and yet be readily removable to provide for access to or dispensing of the contents of the container.

One of the important objects of the invention is to provide a container closure of this character which is very simple and durable in construction, readily applied to and removed from the container, and of such a character that the closure itself may be readily re-applied to the container and if desired again hermetically sealed thereto.

In carrying out the present invention the container and closure are provided with cooperable flanges which may be designed and adapted to compress a sealing gasket therebetween. Coacting with the flanges in their engaged position is a seal aind closure ring which encompasses the flanges and corresponds generally in its cross section to the outline of the engaging flanges. The ring has a depending lower edge portion which is designed to be crimped or bent under the flange of the container and into securing engagement therewith so as to cause the ring firmly to fasten the closure in place and also cause the flanges to compress the gasket therebetween.

In order to provide for the ready removal of the closure the container flange is formed with one or more integral bendable ring tearing or cutting lugs. Preferably these lugs are integral with the outer edge of the container flange and in the assembly are folded back thereagainst and disposed between the two flanges. The outer end of each lug projects beyond the flanges and is slotted or otherwise adapted to be engaged by a suitable tool and pulled outwardly and upwardly to cause its side edges to cut the ring transversely and sever it in one or more places whereupon it is readily detached and the closure readily removed. For the purpose of enhancing the action of the ring it is provided with offset portions accommodating the lugs and allowing its major portions to exert a direct securing and gasket compressing action. Severance of the ring is further facilitated by slitting peripheral portions thereof radially alined with the side edges of the cutting lugs.

Other objects and advantages reside in certain novel features of the construction, arrangement and combination of parts which will be hereinafter more fully described and particularly pointed out in the appended claim, reference being had to the accompanying drawing forming a part of this specification and in which:

Figure 1 is a fragmentary view in transverse vertical section showing a container of the type having a nozzle equipped with a closure embodying the present invention;

Figure 2 is a plan view of the structure shown in Figure 1;

Figure 3 is a plan view of an embodiment of the present invention of the type adapted for use with containers where the entire upper end head of the container is removable.

Figure 4 is a fragmentary sectional view taken on line 4—4 of Figure 3;

Figure 5 is a fragmentary view in top plan of the structure shown in Figure 4 and illustrating the parts as they appear after the lug has cut at least a portion of the ring; and

Figure 6 is a fragmentary view in end elevation looking at the left hand side of Figure 4.

Referring to the drawing and more particularly to Figures 1 and 2, the numeral 10 designates generally a container of suitable metal having an upper end head 11 provided with a nozzle 12. The nozzle 12 is interseamed at 13 with the margin of an opening in the end head 11 and is formed around its upper open and with an outwardly directed marginal flange 14 which if desired may be rolled as shown. The nozzle 12 may be oblong in form to better adapt it for pouring purposes. A closure 15 is of resilient metal and is provided for the nozzle and corresponds in outline thereto. The closure 15 is of cupped formation and is provided with an outwardly directed marginal flange 16 corresponding in its formation to the flange 14 of the nozzle and designed to fit snugly thereagainst or if desired, to cooperate with the flange 14 in compressing a gasket between these flanges. The gasket is not shown in Figure 1 but the manner in which it may be employed will be understood from the description of the embodiment of the invention shown in Figures 3 to 6 inclusive.

A seal and closure ring of resilient metal designated generally at 17 is provided and corresponds generally or approximately in its cross section to the cross section or outline of the engaged flanges 14 and 16. The ring 17 conforms in shape to the nozzle 12 and may be strengthened at its center by a tie plate 19 formed integral with opposed portions of the ring and extending transversely therebetween. In the assembly this ring 17 encompasses and fits snugly against the flanges and has its lower edge portion 18 adapted to be crimped or bent

under the container flange 14 to secure the parts tightly and firmly together and thereby maintain the closure in place.

To provide for removal of the closure 15, the closure flange is provided at one or more points about its periphery with integral ring tearing or cutting lugs designated generally at 20. Preferably these lugs 20 are integrally formed with the lower edge of the closure flange, are folded back thereagainst and in the assembly are interposed between the two flanges. A portion 21 of each lug 20 projects inwardly upon the flanges and is slotted as at 22 to adapt it for co-action with a screw driver or other suitable tool whereby it may be pried or pulled upwardly and outwardly to cause the side edges to cut across the flange thereby severing the ring and provide for its ready removal and also the ready removal of the closure. By having the closure 15 and its lugs 20 of heavier gauge metal than the ring 17 the cutting action is facilitated.

In order to enable the ring to exert its securing action to best advantage it is provided with an outwardly offset portion 23 to accommodate each of the lugs 20. When the lugs 20 are pried outwardly they sever these offset portions from the ring along the lines 24. The depending portions of the ring opposed to or alined with the lines of cut 24 are preferably slit as at 25 to facilitate the cutting of the line.

In the form of the invention shown in Figures 3 to 6 inclusive the container is designated generally at 30 and its upper open end is provided with an outwardly directed and downwardly inclined peripheral flange 31. A removable closure or end head 32 is provided for the upper open end and is also preferably of cut formation as shown. The closure 32 is provided with an outwardly directed and downwardly inclined peripheral flange 33 corresponding to the flange 31 of the container. The flange 31 of the container provides a seat for a gasket 34 of rubber or suitable composition which in the assembly is compressed between the flanges 31 and 33.

A bendable seal and closure ring 35 is provided and corresponds in cross section to the outline of the engaged flanges 31 and 33. As illustrated, this ring 35 has an inner portion 36 which fits flushly against the inner wall of the cupped upper end of the closure while its body portion extends around and in snug engagement with the flanges in the manner illustrated. The lower edge portion 38 of this ring is adapted to be crimped or bent under the closure flange 31 and into engagement therewith to secure the closure in position and cause the flanges to compress the gasket therebetween. One or more ring cutting lugs designated generally at 40 are provided and are formed integral with the edge of the closure flange 33. In the assembly these lugs 40 are folded back upon the closure flange 33 and are disposed beneath the ring 35 for a portion of their length. They also have portions 41 projecting inwardly of the ring and slotted as at 42 to adapt them to be engaged by a screw driver or other suitable tool and pulled or pried outwardly and upwardly to cause their side edges to cut the ring 35. As before, the ring has offset portions 43 accommodating the lugs and is slit as at 44 to facilitate the severing of the ring.

While I have shown and described several constructions in which the invention may be advantageously embodied, it is to be understood that the constructions shown have been selected merely for the purpose of illustration or example and that various changes in the size, shape and arrangement of the parts may be made without departing from the spirit of the invention or the scope of the subjoined claim.

The invention claimed is:

A ring seal closure for containers having an opening provided with an outwardly directed marginal flange, a cupped closure member having a peripheral flange cooperable with the marginal flange of the container, and a bendable seal and closure ring encompassing said flanges and bent under the flange of the container, said peripheral flange having bendable seal cutting lugs folded back upon said peripheral flange and disposed beneath said ring for a portion of their length and then projecting inwardly beyond the ring, said ring having outwardly offset portions to accommodate said lugs and being slitted adjacent its outer periphery opposite the side edges of the lugs, the projecting inner portions of the lugs being slotted to adapt them for coaction with a suitable tool.

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