June 28, 1938. H. G. VAUGHN 2,121,842

CONTAINER

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Fig. 6.

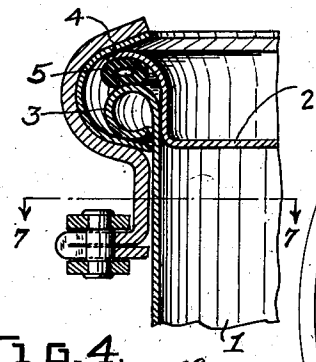


Fig. 1.

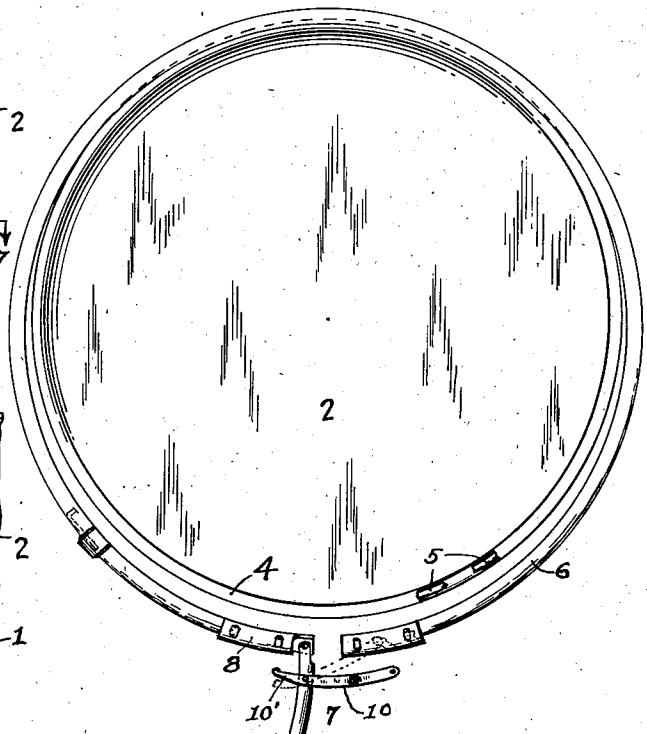


Fig. 4.

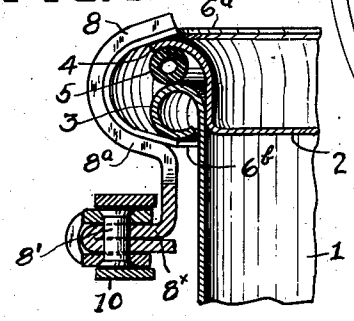


Fig. 2.

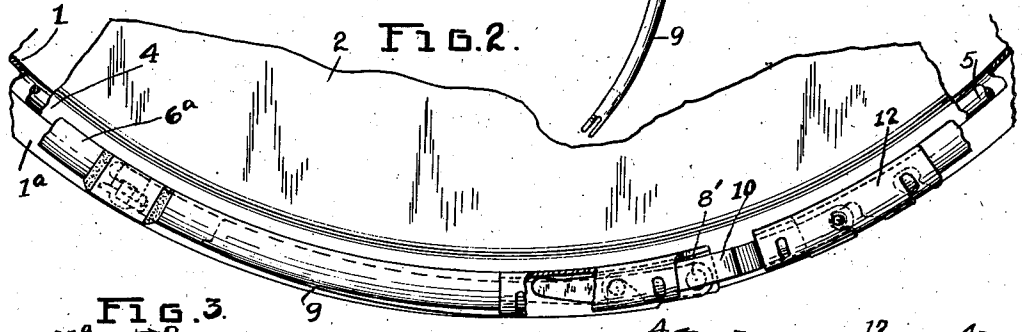
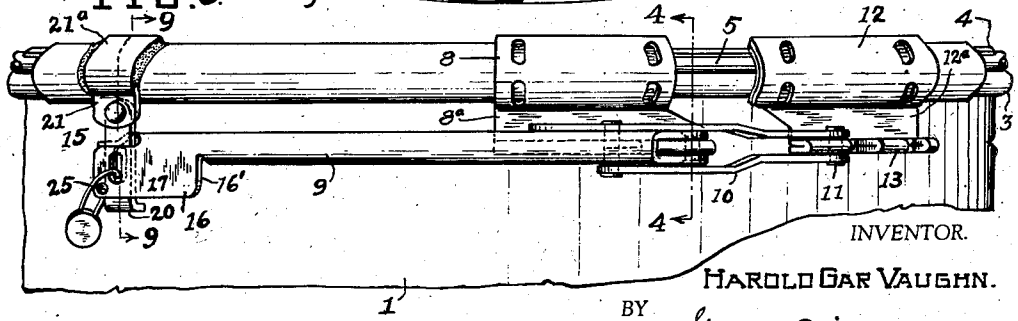


Fig. 3.



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Fig. 5.

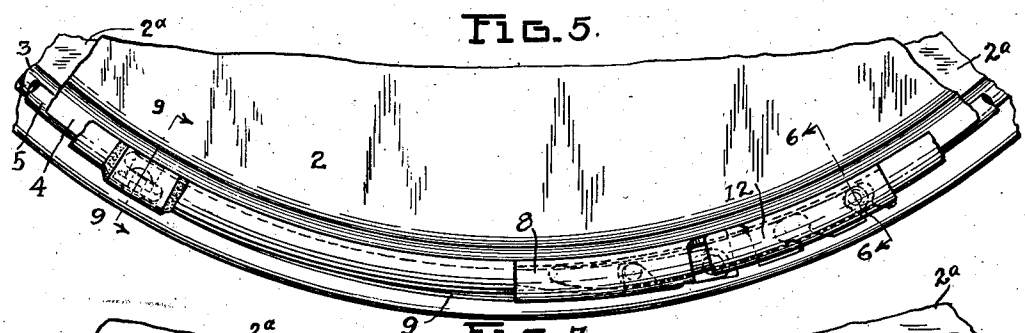


Fig. 7.

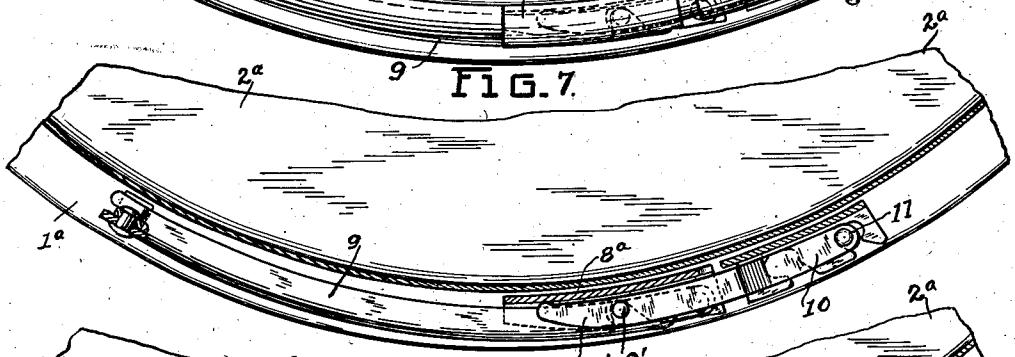


Fig. 8.

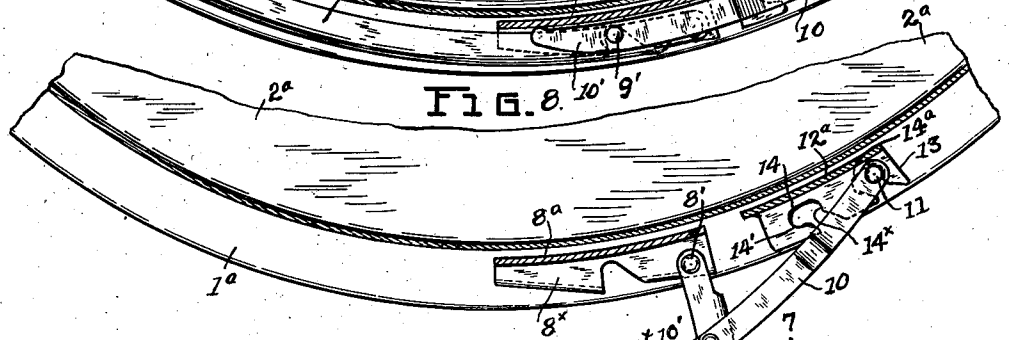


Fig. 10.

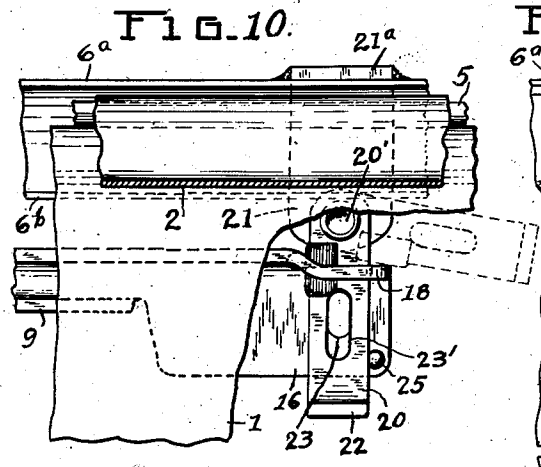


Fig. 9.

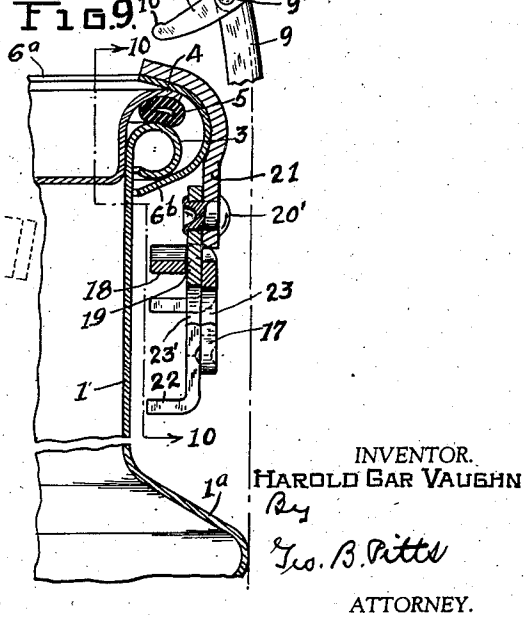
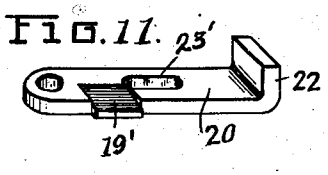


Fig. 11.



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UNITED STATES PATENT OFFICE

2,121,842

CONTAINER

Harold Gar Vaughn, Warren, Ohio, assignor to The Ohio Corrugating Company, Warren, Ohio, a corporation of Ohio

Application August 20, 1936, Serial No. 97,029

5 Claims. (Cl. 220—61)

This invention relates to a container which has a large opening at one end and a cover therefor adapted to be sealed circumferentially to form a liquid tight container for foods, fluids, semi-fluids, greases and other materials. In the illustrated application of my invention, the body of the container is entirely open at one end and the head for such end is removable and constitutes a cover. By preference, all portions of the container are formed of sheet steel.

The invention relates more particularly to a device capable of (*a*) holding the container, its cover and sealing gasket in assembled relation, whereby each complete container may be transported to the place for filling without affecting the sealing characteristic of the gasket and (*b*) clamping the cover to the container, with the gasket compressed between them, when the container is filled, whereby the container is sealed and made liquid-tight; also, the invention involves certain improvements in the devices shown in my co-pending applications Ser. Nos. 17,495 and 49,901, which terminated in Letters Patent Nos. 2,075,381 and 2,075,383, respectively, dated March 30, 1937.

One object of the invention is to provide an improved device of this character capable of being operatively engaged with the container and its cover, with a sealing gasket between them, for holding the container, cover and gasket in assembled relation, which permits shipment and transportation of the complete container, but in empty condition, without damaging or compressing the gasket and also operatively engaged with the container and its cover to clamp them together with the gasket compressed and sealing the container, whereby the latter when filled may be shipped and transported without danger of leakage.

Another object of the invention is to provide an improved device of this character wherein provision is made to lock the device against accidental displacement or removal relative to the container and its cover when in position whether the container is being transported in empty or filled condition.

Another object of the invention is to provide an improved device of this character that is relatively simple in construction, economical to manufacture and readily positioned and removed.

Other objects of the invention will be apparent to those skilled in the art to which my invention relates from the following description taken in connection with the accompanying drawings, wherein

Fig. 1 is a plan view of a container and a device embodying my invention, the latter being shown in expanded or open position ready for engagement with the container and its cover (parts of the cover being broken away to show the gasket).

Fig. 2 is a fragmentary plan view of an empty container and showing the device in applied position and holding the container, cover and gasket in assembled relation, ready for shipment.

Fig. 3 is a side elevation of the parts shown in Fig. 2.

Fig. 4 is a section on the line 4—4 of Fig. 3.

Fig. 5 is a fragmentary plan view of a filled container and showing the device in applied position, with the cover clamped in final position and the gasket compressed to seal the container against leakage.

Fig. 6 is a section on the line 6—6 of Fig. 5.

Fig. 7 is a section on the line 7—7 of Fig. 6.

Fig. 8 is a sectional view similar to Fig. 7, but showing the operation of expanding the device preparatory to removing the cover.

Fig. 9 is a section on the line 9—9 of Fig. 3.

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

Fig. 11 is a detail view.

The container illustrated is of the steel drum or barrel type, having a side wall 1, a cover 2 and a bottom wall or head 2*a*. The side wall 1 is provided with the usual rolling hoops 1*a*, which are preferably embossed circumferentially in the side wall, as shown. The upper end of the side wall is rolled over outwardly to form a continuous circumferential bead 3 and the cover 2 has a circumferential wall or flange 4 arranged to engage a packing or gasket 5 seated on the bead 3 and effect a closing and sealing of the container. The cover is preferably cup-shaped so as to fit or telescope within the open end of the side wall 1, the flange 4 projecting outwardly to lie over the packing 5.

6 indicates a device which consists of a split ring substantially U-shape in cross section and when positioned, the ring surrounds the bead 3 and its upper and lower circumferential terminating walls 6*a*, 6*b*, engage the flange 4 and lower side of the bead 3 to (*a*) hold the container, cover and gasket in assembled relation for shipment of the container in complete condition but empty (see Figs. 2, 3 and 4) or (*b*) effect sealing of the cover in position when the container is filled to prevent leakage during

shipment (see Figs. 5, 6 and 7). The ring 6 is preferably formed of resilient metal, whereby it may be readily expanded circumferentially and its ends separated substantially laterally sufficiently to permit the ring to be positioned around the bead and flange and then contracted circumferentially into engagement therewith.

When the ring 6 is contracted and applied to the container bead 3 and cover flange 4 for holding the container, cover and gasket in assembled relation, as shown in Figs. 2, 3 and 4, the container is closed so that dust, dirt and the elements are entirely excluded. The operations of contracting the ring into the positions above referred to and expanding or removing it are accomplished as hereinafter set forth.

7 indicates as an entirety locking means carried entirely on and below the lower wall 6*b* of the ring adjacent the ends thereof and within the outer wall of the hoops 1*a*, whereby the barrel or container may be rolled on its side without danger of damaging the locking means and when the ring is expanded it may be dropped on and supported by the uppermost hoop; for example, while the container is being filled and the cover and gasket are being assembled. The operable elements of the locking means are carried by one ring end and are adapted to be detachably connected to the other end of the ring (see Fig. 1) and operated to lock them together, either to hold the container, cover and gasket in assembled relation or to clamp the cover in final position with the gasket compressed and sealing the container.

When the locking means are operated into their final locked position to seal the container, the compressibility of the packing 5 allows the ring to contract sufficiently circumferentially (as shown in Figs. 5, 6 and 7) so that the upper and lower walls 6*a*, 6*b*, serve to draw the cover flange 4 and bead 3 together, into clamped relation, with the gasket compressed between them, in which position the cover is tightly held and sealed by the locking means.

For this purpose I secure exteriorly on one ring end, as by welding, a wall 8 having a depending support 8*a* which is provided at its lower end with an outwardly extending lug 8*x*. The lug 8*x* is preferably extended toward the other ring end and such extended end has pivoted to it on a vertical axis 8' the inner end of a lever 9, adapted to serve as a handle. The lug 8*x* is folded back on itself to form a relatively thick wall through which the pivot pin 8' extends. The lever 9 is substantially U-shape in cross section to effect a reinforcement thereof and permit its side walls at their inner ends to fit over the lug 8*x* and pivotally engage the opposite ends of the pin 8'. 10 indicates a link, preferably two links, pivotally connected by a vertically disposed pin 9' at one end to the opposite sides of the lever 9 at a point remote from its pivot 8'. The opposite or free ends of the links 10 are provided with a pin 11, adapted to provide for the detachable connection of the links to the other end of the ring. The other ring end is provided with a wall 12, welded exteriorly thereto and having a depending support 12*a* provided at its lower end with an outwardly extending lug 13 which is doubled back on itself to form a relatively thick wall. The outer longitudinal edge of the lug 13 is formed with a plurality of notches 14, 14*a*, into any one of which the pin 11 may be inserted, as later set forth, following which the lever 9 may be operated (from the Fig. 1 position) inwardly, horizontally toward and substantially into engagement with the side wall 1, thereby securing the cover, gasket, container and ring in assembled relation. When the lever or handle 9 is operated into this position it may be locked and sealed at its outer end against tampering by means, indicated as an entirety at 15. I prefer to provide two notches 14, 14*a*, spaced longitudinally of the ring.

When the pin 11 is inserted in the notch 14 near the adjacent end of the ring and the lever is operated as above set forth (see Figs. 2, 3 and 4), the ring is contracted to a limited extent to avoid compressing the gasket and thus making it ineffective as a seal; but such contraction is sufficient to secure the cover, gasket, container and ring in assembled relation. Accordingly, the container manufacturer may make and assemble these parts and ship them in assembled relation (the container empty) to the container user without distorting the gasket or affecting its sealing characteristic and the user may readily remove the gasket and cover 2, fill the container, and then replace the gasket and cover, and operate the locking means 7 in the manner later set forth and thus compress the gasket to effect sealing of the cover in a liquid-tight condition.

When the pin 11 is inserted in the notch 14*a* remote from the adjacent ring end and the lever 9 is operated as above set forth (see Figs. 5 and 6), the ring is contracted into final position, the gasket 5 being compressed to seal the cover.

Due to the fact that when the complete container in empty condition is being transported, as above set forth, the ring is not contracted under maximum tension into final position, I provide means, preferably separate means, at the opposite ends of the links 10, for preventing accidental displacement or removal of the pin 11 from the notch 14.

The means at the outer ends of the links 10 to prevent displacement or removal of the pin 11 from the notch 14 consist in elongating the notch 14 from its mouth toward the adjacent end of the ring 6 (that is, longitudinally of the lug 13) to provide an outer side wall 14' behind which the pin 11 lies when the ring is contracted and positioned as shown in Figs. 2, 3 and 4, thereby preventing the pin from disengaging the notch due to accidental knocks or vibrations incident to handling the container or movement of its carrier during transportation. The remote end wall of the notch 14 is preferably enlarged to form rearwardly of its mouth a seat 14*x* for the pin 11, so that in operating the lever 9 to its outward position, it will act through the links 10 to expand the ring 6 and thus facilitate its removal.

The means at the inner ends of the links 10 to prevent displacement or removal of the pin 11 from the notch 14 consist of a tail member 10' rigidly connected (preferably integrally) to one of the links and extending beyond the pivot 9' between the links 10 and lever 9 and adapted to engage at its free end with the depending wall 8*a* when the lever 9 is operated to closed position, as shown in Figs. 2, 3 and 4. By preference, the free end of the tail member 10' is provided with an inward extending head 10*x* to compensate for the space between the pivot 9' and wall 8*a* and thus insure engagement with the wall 8*a* when the lever 9 is in closed position. When the parts are in this latter position, the tail member 10', wall 8*a* and pivot 9' co-act to prevent swinging movement of the links 10 about the pivot 9' and thus insure retention of the pin 11 in the notch 14. By preference the wall 8*a* is extended inwardly from the adjacent ring end

so that the head 10x of the tail member 10' engages therewith, but where the wall 8a terminates inwardly of the free end of the tail member, such head would be extended so as to engage the side wall 1 of the container and thus prevent displacement of the links 10.

The notch 14a is preferably inclined outwardly away from the adjacent end of the ring 6 so as to form a seat for the pin 11 when the lever 9 is to be operated to closed position, as shown in Figs. 5 and 7. The side wall of the notch 14a remote from the adjacent ring end is enlarged rearwardly of the mouth of the notch to form a seat for the pin 11, so that the lever 9 may act through the links 10 to expand the ring 6, as shown in Fig. 8, when the ring is to be removed. By preference, the ring is applied as follows: the pin 11 is inserted in the notch 14 and the lever 9 operated to its closed position as shown in Fig. 2, thereby partially sealing the cover in position without compressing the gasket to any substantial extent. This operation is followed when the container is to be shipped empty. To remove the ring, the lever 9 is swung outwardly, which operation expands the ring so that it may be removed or dropped onto the hoop, as already set forth. When the container is filled and the cover is to be sealed to protect its contents during shipment, the above contraction operation is preferably first carried out to effect partial contraction of the ring; then the pin 11 is removed from the notch 14, the lever 9 is swung outwardly and the pin 11 is inserted in the notch 14a, following which the lever 9 is again swung to its closed position, as shown in Figs. 5 and 7, thereby effecting a final contraction of the ring and sealing of the cover.

To remove the ring, the lever is first swung outwardly, the effect of which is to partially expand the ring; thereafter the pin 11 is removed from the notch 14a and inserted in the notch 14, following which the lever 9 is again operated outwardly, the effect of which is to further expand the ring 6, which may then be lifted bodily from the container or allowed to drop down on the uppermost rolling hoop. With the ring expanded into the position just described, if removed from the container, it may be positioned over the cover in a ready manner and contracted as above set forth.

From the foregoing description it will be seen that the locking means between the ring ends provide for two conditions, one where the parts may be assembled, with the container empty, and shipped to the user while maintaining the gasket in position and substantially uncompressed and the other where the user, after filling the container, may quickly and easily, by operation of the locking means, contract the ring to seal the cover in final position and the receiver may with equal facility remove the ring. As the ring in its sealing position compresses the gasket substantially to the limit of its compressibility and often tends to stick to the ring wall, the adjustable attachment and detachment of the locking and operating elements, as above set forth, provides for a positive as well as a ready means for expanding or contracting the ring, both initially and finally, and handling thereof.

In the arrangement shown, the inner end of the lever straddles the lug 8x and the links 10 straddle the lever 9 and lug 13 and as the lugs 8x and 13 are disposed in the same plane the locking action of the locking means is transmitted in the plane of the lugs and substantially in a direction parallel to the plane of the ring, so that in the contracting and expanding operations of the latter, due to operation of the lever 9, no twisting forces are imparted to the ring ends and the upper and lower walls of the ring move substantially at right angles to the axis of the container.

The lever 9 is curved from end to end so as to lie concentric to the side wall 1 when in operated position.

The combined lock and sealing means 15 are arranged to connect the lever or handle 9 to an adjacent portion of the ring and the elements of these means are arranged so as to provide frictional engagement one with another under tension so as to prevent their accidental detachment and vibration due to bodily handling or rolling of the container. Of these means, 16 indicates an angle on the outer end of the lever 9 to provide a vertical wall 17 and a lateral wall 18, which is bent downwardly for clearance purposes. The angle 16 is preferably provided by slitting the lower side of the lever at 16' and bending such side down to a position at right angles to the upper side of the lever. 19 indicates a slot formed in the wall 18 and extending inwardly from its free end longitudinally adjacent to the inner face of the wall 17 and adapted to receive a latch 20. The latch 20 is pivotally connected at its upper end to a lug 21 depending below the lower ring wall 6b, the lug 21 being integrally connected to a wall 21a welded exteriorly to the ring 6 as shown in Figs. 1, 2, 3, 9 and 10. The pivot 20' for the latch 20 extends substantially radially of the axis of the ring and is arranged inwardly of the free end of the lever 9 (when the latter is in operated or closed position, see Fig. 3), the latter being supported by depending members 8a and 12a in a plane below such pivot 20'. In this arrangement the latch 20 may be swung outwardly to a position out of the path of movement of the lever 9, as shown in dotted lines in Fig. 10, and then swung downwardly to its vertical position and into the recess or slot 19 (see Fig. 10), thereby locking the lever or handle 9. The latch 20 is preferably slightly out of alinement with one wall of the slot 19, so that it has to be forced thereinto, the effect of which is to provide a resilient, sliding contact between their walls to prevent these parts from vibrating. To facilitate entering the latch 20 into the slot 19, it is provided with a beveled wall 19'. The free end of the latch 20 is provided with an inturned end 22 which serves as an extension to facilitate swinging the latch into and out of locking position. The wall 17 and latch 20 are formed with openings 23, 23', respectively, adapted to register, when the lever 9 is in closed position and the latch 20 is in locking position, and to permit a wire 24 to be threaded through them and their ends connected by a seal slug 25.

The wall 16 may be embossed on its face adjacent the latch 20, as shown at 25 to provide an abutment to thus serve as an auxiliary means to prevent outward swinging of the latch.

The walls 8 and 12 are arranged adjacent the ends of the ring and serve to reinforce the ring so that the latter may be made of light gage material.

To those skilled in the art to which my invention relates, many changes in construction and widely differing embodiments and applications of the invention will suggest themselves without departing from the spirit and scope of the invention. My disclosures and the description herein

are purely illustrative and not intended to be in any sense limiting.

What I claim is:

1. A resilient split ring of substantially channel shape in cross section for engaging circumferential portions of a container and its cover, in combination with means for contracting said ring, including a lever pivoted at its inner end to one end portion of said ring and a link pivotally connected intermediate its end to said lever intermediate the ends of the latter, one end of said link being arranged to detachably engage the other end portion of the ring, the other end of said link being extended substantially longitudinally beyond its pivot for engagement with an abutment, when the lever is in operated position to prevent movement of the link about its pivot, whereby disengagement of the link from said other end portion of the ring is prevented.

2. A resilient split ring of substantially channel shape in cross section the upper and lower walls of which engage circumferential portions of a container and its cover, in combination with means for contracting said ring, including a lever pivoted at its inner end on said lower ring wall adjacent one end portion of said ring, a link pivotally connected intermediate its ends to said lever intermediate the ends of the latter, the outer end of said link being arranged to detachably engage the other end portion of said ring and said link being movable by said lever, when the latter is operated to closed position to contract said ring, into substantially parallel relation to the side wall of the container, the inner end of said link having a length greater than the distance between the container side wall and the pivot for the link when said lever is in closed position.

3. A resilient split ring of substantially channel shape in cross section for engaging circumferential portions of a container and its cover, in combination with means for contracting said ring, including a lever pivoted to one end portion of said ring, a link pivotally connected to said lever intermediate its ends and provided at its outer end with an engaging element, the other end portion of said ring being provided with a wall formed with spaced notches to removably receive said element, whereby when said element is engaged in the notch adjacent the ring end, operation of said lever to closed position will contract said ring sufficiently to hold the container and its cover in assembled relation and when said element is engaged in a notch remote from the ring end, operation of said lever to closed position will contract said ring to a greater extent and clamp the cover to the container, the inner end of said link being extended substantially longitudinally beyond its pivot to provide a tail member the free end of which, when said lever is in operated position, is arranged to engage with an abutment, whereby disengagement of the outer end of said link from one of said notches is prevented.

4. In a container construction, the combination with a container body having an external bead surrounding the opening therein and a cover having a flange arranged to engage the bead, of a resilient split ring of substantially channel shape in cross section to form upper and lower walls for engaging said bead and said flange, and toggle mechanism pivotally mounted on said lower wall adjacent one end portion of said ring for contracting said ring, one element of said toggle mechanism consisting of a link pivoted intermediate its ends to another element of said mechanism, the inner end of said link being extended substantialy longitudinally to provide a tail member the length of which is greater than the distance between the pivot for the link and the side wall of the container when said toggle mechanism is operated to closed position, for engagement with an abutment, and the outer end of said link being arranged to detachably engage the other end portion of said ring, the operation of said toggle mechanism to closed position serving to contract said ring and to move the pivot for said link substantially into alinement with the pivotal connections of said toggle mechanism and outer end of said link with the end portions of said ring and to position said tail member adjacent the abutment, whereby disengagement of the outer end of said link from said other end portion of the ring is prevented.

5. A ring as claimed in claim 1 wherein the lever is pivotally mounted on a lug carried by the ring and a portion of the lug serves as an abutment for the extended other end of said link.

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