Oct. 17, 1939. H. L. NEWTON 2,176,310

BARREL CLOSURE

Filed April 27, 1936

Fig. 1

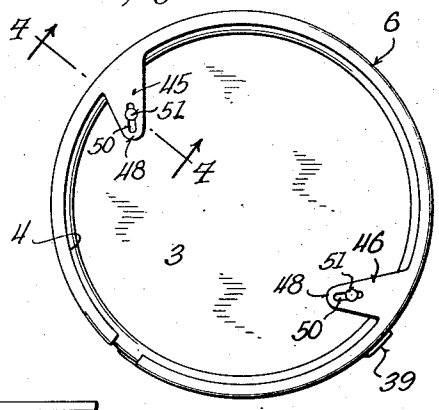


Fig. 5

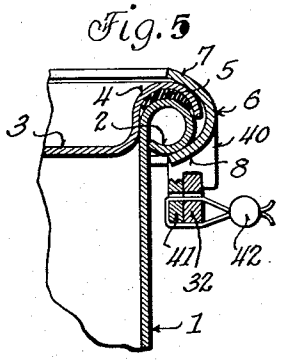


Fig. 4

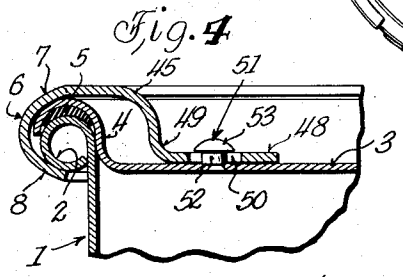
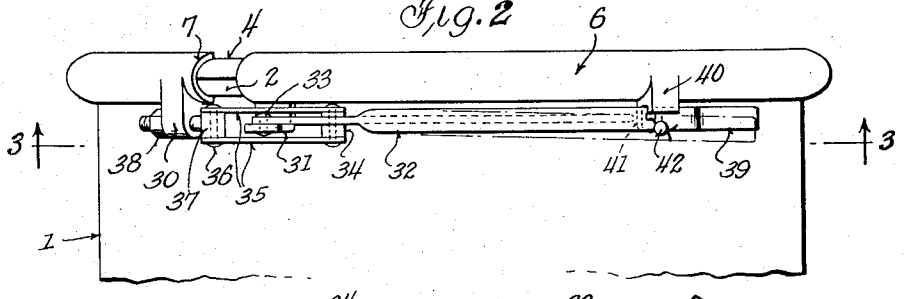


Fig. 2



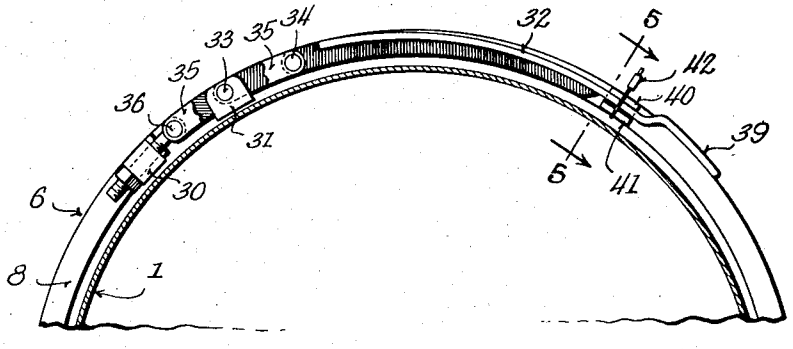


Fig. 3

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Patented Oct. 17, 1939

2,176,310

UNITED STATES PATENT OFFICE

2,176,310

BARREL CLOSURE

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Application April 27, 1936, Serial No. 76,618

6 Claims. (Cl. 220—61)

This invention relates to removable closures or heads for barrels or similar containers.

One of the objects of the invention is to provide a closure of the type having a removable head and a separate clamping ring for securing the head in position and wherein there is combined with the ring and the head operating means for expanding and contracting the ring and this in a structure where the ring and head are permanently interconnected so that while the head may be readily applied to and removed from the barrel the ring will not become detached from the head.

Another object is to provide a closure of this character and having these advantages and which in either of several embodiments is simple and durable in its construction, reliable and effective in operation, easy to apply and remove and yet capable of convenient and economical manufacture.

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 claims, reference being had to the accompanying drawing, forming a part of this specification, and in which:

Figure 1 is a plan view showing an embodiment of the invention;

Figure 2 is a view in side elevation of the structure illustrated in Figure 1;

Figure 3 is a view in longitudinal section taken on line 3—3 of Figure 2;

Figure 4 is a fragmentary view in vertical section taken on line 4—4 of Figure 1; and

Figure 5 is a similar view taken on line 5—5 of Figure 3.

Referring to the drawing, the numeral 1 designates a metallic receptacle or container which may be a barrel. The upper end of the barrel is open and has its periphery provided with a rolled bead 2. A removable head 3 is provided for the upper open end of the barrel. The head may be of cupped formation and is provided with a curved flange-like structure 4 around its periphery adapted to engage a gasket 5 interposed between the flange structure 4 and the rolled bead 2.

The head 3 is fastened in position to close and seal the upper open end of the barrel by means of a split clamping ring 6. The ring 6 is constructed of resilient sheet metal of appropriate gauge and it is of channel or concave form so that when it is applied to the barrel its upper portion 7 bears down on the flange structure 4 of the head 3 and its lower portion 8 engages under the rolled bead 2 as clearly shown in Figures 4 and 5.

Means is provided for coacting with the end portions of the split ring for expanding and contracting the same and yet the ring 6 and the head 3 are so interconnected as to be prevented from becoming entirely detached although the freedom of the ring to expand and contract is not interfered with.

In the form of the invention shown the ring 6 is expanded and contracted by means of a specially constructed manually operable toggle. As illustrated, one end of the ring 6 has a lug 30 integral therewith or welded or otherwise suitably fastened thereto and projecting downwardly therefrom on the outside of the barrel. A second lug 31 of angular form is also secured to the ring 6 adjacent its opposite end and likewise projects downwardly and also outwardly on the outside of the barrel.

An operating handle or lever 32 is provided and has one end fulcrumed or pivotally connected as at 33 to the lug 31. Intermediate its ends but adjacent its fulcrum 33 the lever 32 is pivotally interconnected as at 34 to link members 35. Two link members 35 are provided but they function as a single link. The upper link 35 is shorter than the lower link for a purpose which will be hereinafter explained. The opposite ends of the link members 35 from those connected to the lever 32 are pivotally interconnected as at 36 to the head of a stud 37. This stud has its shank extending through an aperture in the lug 30 and a nut 38 threaded on the shank of the stud and engageable with the lug 30 provides an adjustable connection between these parts.

The free end of the lever 32 is offset as indicated at 39 so that it may be conveniently grasped. Adjacent its offset portion the lever or handle 32 is engageable with a slotted keeper 40 which may be integral with or welded to the ring 6. One wall 41 of this keeper is longer than the other and is apertured. The lever 32 is likewise apertured and this permits of the ready application of a seal 42. The keeper 40 is so dimensioned and positioned with respect to the handle or lever 32 that in order to engage the handle therewith the handle must be sprung down as indicated in dot and dash lines in Figure 2. This follows also from the fact that the upper link 35 is shorter than the lower link. Hence, the inherent resiliency of the parts releasably secures the handle in position in the keeper, and this so firmly and securely that the possibility

of being accidentally displaced or accidentally released is precluded.

However, it will be noted from Figure 3 that the manually operable toggle mechanism is so designed that in the position thereof where the toggle contracts the ring 6 to secure the head 3 to the barrel the toggle is self-locking, that is to say, the line between the pivotal connections or centers 36 and 34 lies inwardly of the fulcrum or center 33 between the handle 32 and the ring 6. The handle 32 and the link members 35 are of arcuate form and concentric with the barrel and the clamping ring 6 in the closed or locking position of the device. In this way a compact and practical structure is had and the parts are located substantially within the lateral or peripheral confines of the ring 6 and hence have effective protection therefrom. By breaking the seal 42 and disengaging the handle 32 from the keeper 40 and swinging the handle 32 outwardly, the ring 6 may be readily expanded and the ring and head removed from the barrel. In order to permit of this convenient expansion and contraction of the ring and yet prevent the ring and barrel head from being permanently or entirely detached circumferentially disposed and angularly extending lugs 45 and 46 are formed integral with the upper portion 7 of the ring and extending inwardly over the head 3, as illustrated to advantage in Figure 1. Furthermore, these lugs 45 are curved downwardly as at 49 and terminate in flat portions 48 which lie close adjacent and parallel to the upper surface of the head 3. These portions 48 are provided with slots 50 which extend at the angle shown over the head 3. Rivets 51 are provided and are permanently secured to the head 3. They have shanks 52 which are a free working fit in the slots 50 and have heads 53 which overlap the margins of the slots 50. These rivets permanently interconnect the ring with the head 3 and yet permit the expansion and contraction of the ring.

While I have shown and described one construction in which the invention may be advantageously embodied, it is to be understood that this construction has 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 claims.

The invention claimed is:

1. A barrel closure comprising a removable head, a split clamping ring for securing the head to the barrel, lugs secured to the end portions of the ring, a manually operable toggle connected to said lugs and operable to expand and contract the ring, and means interconnecting the ring and the head to prevent entire detachment of one from the other while providing for expansion and contraction of the ring under the influence of said toggle and including lugs projecting inwardly from spaced portions of the ring intermediate the ends thereof and overlying the head, said last-named lugs having slots and headed pins secured to the head and cooperable with the slots.

2. A barrel closure comprising a removable head, a split clamping ring for securing the head to the barrel, lugs fixed to the ring adjacent its ends and projecting downwardly therefrom, a manually operable toggle coacting with said lugs for expanding and contracting the rings, and spaced lugs fixed to intermediate portions of the ring projecting inwardly over the head and having pin and slot connections therewith.

3. A barrel closure comprising a removable head, a split clamping ring for securing the head to the barrel, lugs fixed to the ring adjacent its ends and projecting downwardly therefrom, a hand lever pivotally connected to one of said lugs, a pair of links pivotally connected to the hand lever intermediate the ends thereof and also pivotally connected to the other of said lugs, the upper of said links being shorter than the lower, and a keeper fixed to the ring and adapted to receive and releasably retain the lever in position in the closed position of the ring, said keeper being so dimensioned and positioned that by virtue of the fact that the upper link is shorter than the other the parts will have to be sprung to engage the handle with the keeper whereby the inherent resiliency of the parts secure the handle engaged with the keeper.

4. A barrel closure comprising a removable head, a split clamping ring for securing the head to the barrel, manually operable means coacting with the end portions of the split ring for expanding and contracting the same, lugs fixedly secured to spaced portions of the rings and projecting inwardly over the head, and pin and slot connections between the lugs and the head.

5. A barrel closure comprising a removable head, a split clamping ring for securing the head to the barrel, manually operable means coacting with the end portions of the split ring for expanding and contracting the same, and lost motion connecting means between the ring and the head for permanently interconnecting these parts while providing for expansion and contraction of the ring.

6. A barrel closure comprising a removable head and split clamping ring for securing the head to the barrel, lugs fixed to the ring adjacent its ends and projecting downwardly therefrom, a manually operable toggle coacting with said lugs for expanding and contracting the ring, and means providing lost motion connection between spaced portions of the ring and the head for permanently connecting these parts while providing for expansion and contraction of the ring.

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