Feb. 10, 1931. V. E. CORNELL 1,792,281

METALLIC RECEPTACLE AND CLOSURE THEREFOR

Filed Jan. 25, 1930

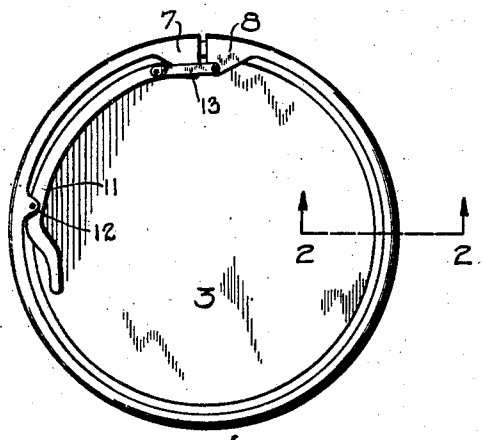


Fig. 1

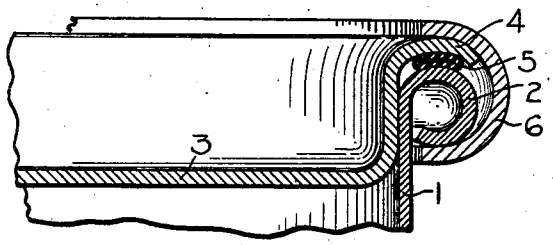


Fig. 2



Fig. 5

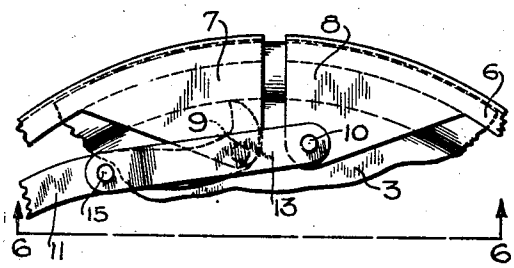


Fig. 3

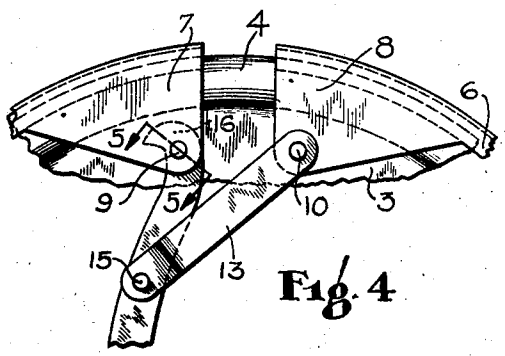


Fig. 4

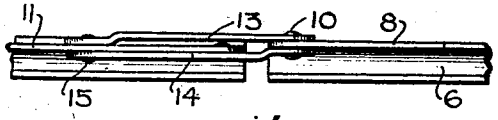


Fig. 6

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UNITED STATES PATENT OFFICE

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METALLIC RECEPTACLE AND CLOSURE THEREFOR

Application filed January 25, 1930. Serial No. 423,336.

My invention is an improvement in metallic receptacles or containers, and relates more particularly to closures for the same and to means for effecting a fluid tight seal between the receptacle and the closure.

One of the objects of my invention is to enable metallic receptacles such as drums or barrels to be fitted with a full removable cover providing a tight fluid proof seal between the cover and the receptacle, without the aid of tools.

Another object of my invention is to insure a fluid tight seal between the cover and the receptacle by uniformly distributing the sealing pressure about the periphery of the cover and container.

A further object of the invention is to seal the cover in place against unauthorized removal.

Other objects and advantages of my invention will become more apparent from the following description of an embodiment thereof, reference being made to the accompanying drawing in which like reference characters are employed to designate like parts throughout the same.

In the drawing—

Fig. 1 is a top plan view of an embodiment of my invention, showing the cover on the receptacle in fluid tight sealed relation.

Fig. 2 is an enlarged fragmentary section taken on line 2—2 of Fig. 1.

Fig. 3 is a fragmentary plan view of the locking or clamping ring contracted to seal the cover on the receptacle.

Fig. 4 is a view similar to Fig. 3 except that the ring is shown partly expanded as in removing the ring and cover from the receptacle.

Fig. 5 is a section taken on line 5—5 of Fig. 4.

Fig. 6 is an elevation of the locking or clamping ring looking in the direction of the arrows in Fig. 3.

My invention is particularly applicable to metallic containers or receptacles such as barrels or drums and the like, which are provided with a circumferential bead at their open ends for supporting a cover and for reinforcement purposes.

Referring to the drawing, in which I have illustrated an embodiment of my invention, the barrel or drum is indicated at 1. The upper edge of the container is rolled to form a peripheral bead 2 at the open end thereof. A cover 3 comprising a cupped member having a peripheral upwardly and outwardly extending flange 4, is supported by the bead 2 in such a manner that the cupped portion of the cover may be telescoped for a short distance within the container, as illustrated in Fig. 2. It will be noted that a portion of the flange 4 is slightly arcuate in cross section to conform with the approximate curvature of the upper surface of the bead, and that the outer edge of the flange terminates at a point near that defined by the greatest outer diameter of the bead. Although I have shown the flange extending to a point equal to the greatest outer diameter of the bead, I find that the flange may extend to a point just short thereof, it being sufficient that the flange extend completely over the packing 5 between the flange and the bead. The packing may consist of an annulus of any suitable packing material, and I have found that an annulus of flexible rubber tubing is very satisfactory for this purpose.

I have provided a simple means for removably securing the cover on the receptacle to effect a fluid tight seal between the same by exerting a substantially uniform pressure on the cover and the bead in a direction substantially parallel to the axis of the container.

In the present embodiment this means includes a split contractible channeled clamping ring 6 substantially U-shaped in cross section. The upper and lower flange and bead engaging walls respectively of the ring extend in substantially parallel planes only near their inner edges as shown in Fig. 2.

Thus it will be seen that upon contracting the ring the flange will be tightly pressed against the packing 5 and the supporting bead 2 under a substantially vertical pressure.

The contractible channeled ring 6 is substantially U-shaped in cross section and is split transversely, as shown in Fig. 1. Lugs 7 and 8 extend inwardly from the ends of the split ring and may be formed integrally with

the ring or formed separately and welded to the ring body in a plane lying in the upper inwardly extending side walls of the ring, each of the lugs being apertured to receive a pin 9 and 10 respectively. A lever 11 is pivotally connected to the lug 7 near its inner end by means of the pin 9, the outer end of the lever being apertured to register with an apertured tab 12 secured to the ring, for the purpose of sealing the lever in locked position against unauthorized movement.

A pair of links 13 and 14 are pivotally connected at one end by means of the pin 10 to the lug 8, the opposite ends of the links being pivotally connected to the lever 11 by means of a pin 15. It will be noted that the links are each offset slightly to permit free movement about the lug 7 when the lever is operated. It is preferred that the pin 15 be so located on the lever 11 that it will lie behind a line drawn through the respective pins 9 and 10 when the lever is moved to the position shown in Fig. 1. In this manner movement of the lever 11 to the extreme position shown in Fig. 1 will permit the pin 15 to pass the dead center line of the pins 9 and 10, thereby preventing accidental release of the lever under stresses set up by the contracted ring.

Referring more particularly to Figs. 3, 4 and 5, I have illustrated a means for exerting a lateral pressure between the ring and the side wall of the cover. This means includes an extension 16 of the lever 11, the end of this extension being bent slightly upwardly as as 17 in Fig. 5, forming a shoe for engaging the adjacent wall of the cover. The extension 16 is of sufficient length to engage the cover side wall under considerable lateral pressure and to cause the ring 6 to be tightly contracted about the bead and flange to press the same tightly together when the lever 11 is moved to the position in Fig. 1, thereby uniformly exerting and distributing the sealing pressure between the flange and the bead.

In Fig. 4 I have shown the lever 11 and the ring 6 in partly opened position to allow the ring to assume its normal open position and to release lateral pressure on the cover side wall and ring. By further moving the lever to the right in Fig. 4, the ring may be expanded to a point where its circumference is greater than that of the flange or bead to permit its removal from the receptacle. In this manner the cover and packing ring may be lifted from the receptacle to permit cleaning the latter, or for emptying or filling the same. It will be noted that the parts comprising the ring contracting means, that is, the lever 11 and the links 13 and 14 are arranged so that the stresses applied in contracting the ring 6 are exerted through this means as a unit on opposite sides of the lugs or the upper wall of the channeled ring. In this manner, greater stresses may be applied and a tighter seal obtained without danger of distorting the lugs or pulling them loose.

It is to be understood that while I have shown my invention applied to receptacles having openings of the same diameter as the inner diameter of the receptacle, the invention is equally applicable to receptacles having restricted openings.

It will also be observed that by my invention the full removable cover may be clamped easily on the receptacle in fluid sealing contact and may be removed easily without the aid of tools.

In my copending applications Serial Numbers 423,333, 423,334, and 423,335 all filed Jan. 25, 1930, I have disclosed several other types of closures for metallic receptacles.

Various changes may be made in the details of construction and arrangement of parts without departing from the spirit of the invention or the scope of the appended claims.

I claim—

1. The combination with a metallic receptacle having a bead rolled about its open end, and a removable cover for said receptacle having a marginal flange fitting over the bead, of a contractible channeled clamping ring having walls engageable with the flange and the bead for pressing the same together when the ring is contracted, and means for contracting the ring including a movable member pivoted to a wall of said ring and means connecting said member with an end of said ring for contracting the same, said ring wall lying in a plane intermediate the said connecting means.

2. The combination with a metallic receptacle having a bead rolled about its open end, and a removable cover for said receptacle having a marginal flange fitting over the bead, of a contractible channeled clamping ring having walls engageable with the flange and the bead for pressing the same together when the ring is contracted, and means for contracting the ring including a movable member pivoted to a wall of said ring and means connecting said member with an end of said ring, said ring wall lying in a plane intermediate the said connecting means, and means engageable with a side wall of the cover for exerting a lateral pressure thereagainst when the ring is contracted.

3. The combination with a metallic receptacle having a bead rolled about its open end, and a removable cover for said receptacle having a marginal flange fitting over the bead, of a contractible channeled clamping ring having walls engageable with and pressing the flange and the bead together when the ring is contracted, means for contracting the ring including a lever pivotally connected to said ring and a link connecting an adjacent portion of the ring to said lever, and means carried by said lever for engaging the flange

and exerting a lateral pressure thereagainst when the ring is contracted.

4. The combination with a metallic receptacle having a bead rolled about its open end, and a removable cover for said receptacle having a marginal flange fitting over the bead, of a contractible channeled clamping ring having walls engageable with and pressing the flange and the bead together when the ring is contracted, and means for contracting the ring including a lever pivotally connected to said ring and a link connecting an adjacent portion of the ring to said lever, said lever having an arm extending toward said flange and a shoe on said arm engageable with said flange for exerting a lateral pressure thereagainst when the ring is contracted.

5. The combination with a metallic container having a bead rolled about its open end and a removable cover for said container having a marginal flange fitting over the bead, of a contractible channeled clamping ring having walls engageable with and pressing the cover flange and bead together when the ring is contracted, and means for contracting the ring and simultaneously exerting a lateral pressure outwardly against the cover flange.

6. The combination with a metallic container having a bead rolled about its open end, and a removable cover for said container having a marginal flange fitting over the bead, of a split channeled clamping ring having walls engageable with and pressing the flange of the cover and bead together when the ring is contracted, and means for contracting the ring including a lever pivotally connected to the ring and lying in a plane between the said walls of the ring, and a link pivotally connected to another portion of said ring and to said lever.

7. The combination with a metallic container having a bead rolled about its open end, and a removable cover for said container having a marginal flange fitting over the bead, of a split channeled clamping ring having walls engageable with and pressing the flange of the cover and bead together when the ring is contracted, and means for contracting the ring including a lever pivotally connected to the ring and lying in a plane between the said walls of the ring, and a link pivotally connected to another portion of said ring and to said lever, a portion of said link lying in a plane outside the walls of the ring.

8. The combination with a metallic container having a bead rolled about its open end, and a removable cover for said container having a marginal flange fitting over the bead, of a contractible channeled clamping ring having walls engageable with and pressing the cover flange and bead together when the ring is contracted, and means for contracting the ring, said means including a pair of links pivotally connected to a portion of the ring, and a lever pivotally connected to another portion of the ring and to said links, said lever operating in a plane between the respective planes of the links.

9. In a clamping device for a metallic receptacle having a bead rolled about its open end and a cover having a flange fitting over the bead, a contractible channeled clamping ring to press the bead and the cover flange together when the ring is contracted, and means for contracting the ring including a lever pivotally connected to a portion of the ring and a link pivotally connecting said lever with another portion of the ring.

10. In a clamping device for a metallic receptacle having a bead rolled about its open end and a cover having a flange fitting over the bead, a contractible channeled clamping ring to press the bead and the cover flange together when the ring is contracted, and means for contracting the ring including a pair of links pivotally connected to a portion of the ring; and a lever pivotally connected to another portion of the ring and to said links, said lever operating in a plane between the respective planes of the links.

11. In a clamping device for a metallic receptacle having a bead rolled about its open end and a cover having a flange fitting over the bead, a contractible channeled clamping ring to press the bead and the cover flange together when the ring is contracted, and means for contracting the ring and simultaneously exerting a lateral pressure outwardly against the cover flange.

12. In a clamping device for a metallic receptacle having a bead rolled about its open end and a cover having a flange fitting over the bead, a contractible channeled clamping ring to press the bead and the cover flange together when the ring is contracted, and means for contracting the ring including a movable member pivoted to a wall of said ring and means connecting said member with an end of said ring for contracting the same, said ring wall lying in a plane intermediate the said connecting means, said contracting means being within the area enclosed by the ring.

In testimony whereof, I hereunto affix my signature.

VERNON E. CORNELL.