

March 9, 1943.

A. H. VAN HORN

2,313,459

CLOSING RING

Filed Jan. 15, 1941

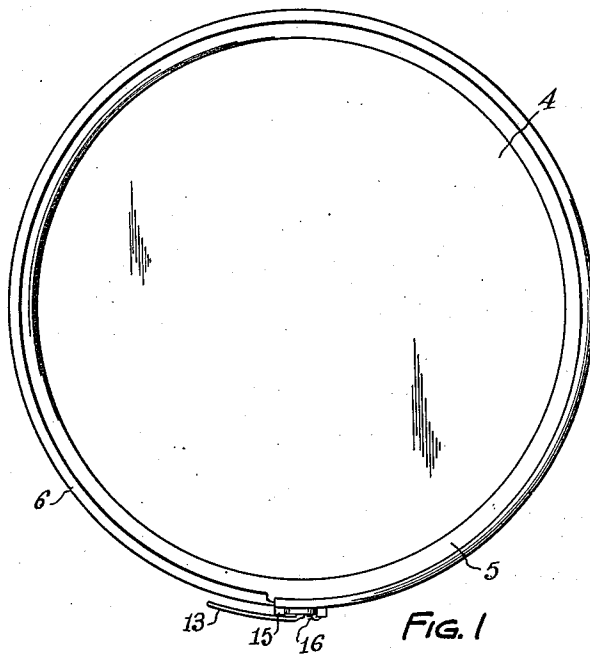
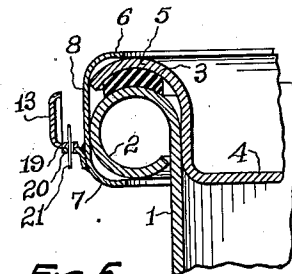


FIG. 5

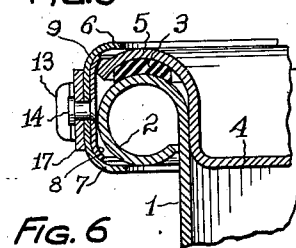


FIG. 6

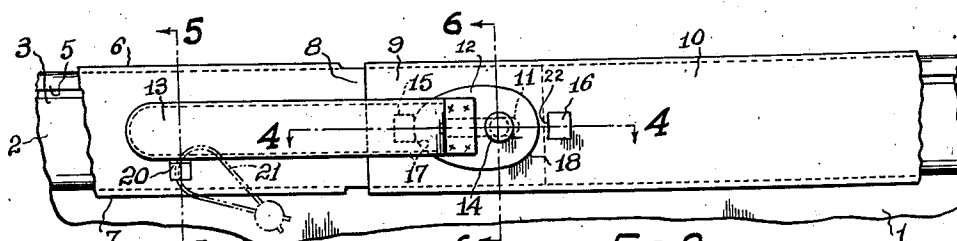


FIG. 2

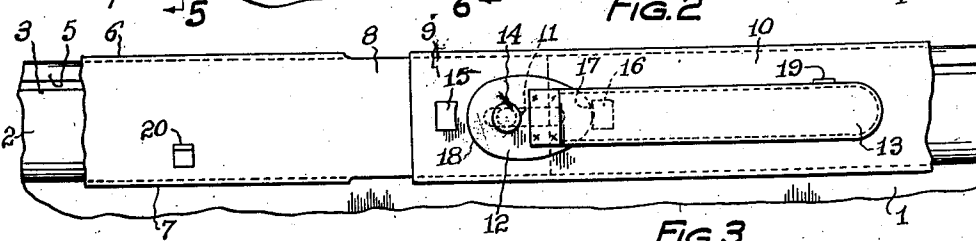


FIG. 3

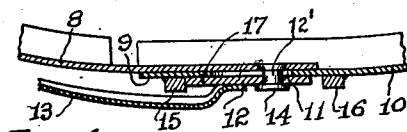


FIG. 4

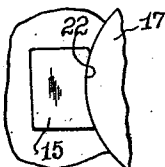


FIG. 7

INVENTOR:

Arthur H. Van Horn
Hawgood & Van Horn
HIS ATTORNEYS.

BY

UNITED STATES PATENT OFFICE

2,313,459

CLOSING RING

Arthur H. Van Horn, Rocky River, Ohio, assignor
to Cornell Securities Corporation, Cleveland,
Ohio, a corporation of Delaware

Application January 15, 1941, Serial No. 374,543

1 Claim. (Cl. 24—256)

My invention is an improvement in metallic receptacles and relates more particularly to an improved means for detachably securing a cover in place on the receptacle in fluid tight sealed relation thereto.

One of the objects of the invention is to provide a contractable clamping ring to removably secure the cover on the open end of the receptacle, with simple means operable in one direction for contracting the ring to seal the cover into fluid tight relation with the receptacle and operable in another direction to expand the ring so as to permit its removal and the removal of the cover from the receptacle.

A further object of the invention is to provide means by which the ring may be contracted and expanded by a single eccentrically operating member carried by one end of the ring and having operating engagement with stops or abutments carried by the other end of the ring.

Another object is to provide means of the above named character which can be applied to the outer ring wall to operate in a plane normal to the plane of the ring and which lies close to the outer circumference of the ring when the ring is contracted, thereby eliminating objectionable obstructions or protuberances which, when present, interfere with close storage of the receptacles or with stacking one receptacle upon another.

A still further object of the invention is to provide a split clamping and sealing ring of the class described in which the ends of the ring overlie or telescope one another, there being a rotatable eccentric member carried by one ring end operating between spaced stops or abutments on the other ring end to contract and expand the ring.

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—

Figure 1 is a top plan view of a metallic receptacle and cover, illustrating my invention applied in use;

Figure 2 is a side elevation showing the clamping ring applied to the receptacle and cover, and illustrates the position of the operating means when the ring is contracted;

Figure 3 is a view similar to that of Figure 2, and illustrates the position of the operating means when the ring is fully expanded to remove it from the cover and the receptacle;

Figure 4 is a horizontal section taken on line 4—4 of Figure 2;

Figure 5 is a vertical section taken on line 5—5 of Figure 2;

Figure 6 is a vertical section taken on line 6—6 of Figure 2; and,

Figure 7 is an enlarged elevation of one of the cam abutments.

My invention is particularly adapted for use with metallic containers such as shipping drums, pails or the like 1, in which either the container is formed with a bead 2 rolled about its upper open end or is provided with a lock seamed cover having a partial opening therein formed with a neck having a bead rolled about its outer end. In structures of this kind, it is the custom now to provide a packing ring 3 of suitable material to lay on the bead. The container cover 4 usually is provided with a circumferential flange 5 which overlies the packing ring and the bead.

The clamping ring comprises a split channelled ring having flanges 6 and 7 for engaging the cover flange 5 and the bead 2 respectively, to press the cover 4 into sealing contact with the packing when the ring is contracted.

In the present invention the ends 8 and 9 of the clamping ring 10 overlie one another regardless of whether the ring is fully contracted about the cover, or whether it is fully expanded to remove it.

The underlying ring end 8 is preferably devoid of the flanges 6 and 7 along that portion engaged by the other end 9 to permit the ends to be freely telescoped as shown in Figures 2 and 3.

In further carrying out my invention, I have provided an extremely simple and positive means for expanding and contracting the ring by simply rotating an eccentrically operating member in one direction or the other about a horizontal axis. This means is carried by the ring itself and is preferably located to operate along the outer circumference of the ring, as illustrated in the drawing, although it will be understood that in accordance with the invention this means may be located within the confines of the head or even below the bead of the container. But perhaps the simplest and most economical form of the invention is as illustrated, with the contracting and expanding means carried by the ring along its outer peripheral wall.

The overlying end 9 of the ring is slotted lengthwise at 11 to slidably receive a stud 12 which is fixed to the ring end 8. The stud projects through the slot and closely carries a rotatable cam or eccentric member 12 having a handle

portion or lever 13 projecting therefrom in a plane substantially parallel to the member 12. The stud is headed as at 14 to retain the cam or eccentric on the stud.

The ring end 9 is also provided with spaced stops or abutments 15 and 16 which may be welded to the outer surface of the ring as illustrated or they may be formed by slitting and upsetting the ring wall outwardly. The stops are in alignment with the elongated slot 11 in the ring end and are spaced sufficiently from the ends of the slot and from each other to accommodate the cam 12 along its major axis.

In Figure 3, the ring is illustrated in expanded position. To expand the ring the handle or lever 13 is moved to the position shown whereupon the cam 12 will be rotated so that its toe portion 17 lies in the direction of and abuts the stop 16. Since the cam is carried by the ring end 8 on the stud 12' the ring ends will be forced in opposite directions circumferentially to enlarge the circumference of the ring when the lever and cam are in the position shown in Figure 3.

When it is desired to contract the ring to seal the cover on the receptacle, the handle or lever 13 is swung vertically over the ring and then down to the horizontal position shown in Figure 2. Such action, of course, rotates the cam approximately 180° in a counter-clockwise direction about the stud 12' and first releases the expanding pressure against the stop 16 and as the toe 17 of the cam begins to engage the stop 15 in the approach of the handle to the horizontal position in Figure 2, the ring ends are forced to move in opposite directions circumferentially to reduce the ring circumference or to contract it tightly about the bead and cover flange and to thereby press the cover downwardly against the packing and bead in sealing relation. It will be noted that the lever 13 is offset from the plane of the cam as illustrated clearly in Figure 4. Thus the lever or handle will have freedom of movement over the stops 15 and 16 in its movement in either direction to contract or expand the ring.

I have also provided means for preventing unauthorized access to the interior of the sealed container and this means has the added advantage of preventing the lever from being moved

past its substantially horizontal position when the ring is contracted as shown in Figure 2. The lever carries a lug 19 which abuts a similar lug 20 on the ring end 8, both lugs being apertured to receive a sealing wire or the like 21.

In Figure 7, I have illustrated one of the stops 15 in more detail, that is, the face of the stop which is engaged by the toe 17 of the cam 12 is preferably formed with a depression or seat 22 into which the toe of the cam will come to rest. The stop 16 is similarly formed. Thus the lever in either extreme ring contracting or expanding position will be retained in such position against accidental displacement by the seating of the toe 17 in either depression 22.

It will be noted from Figure 4 that the entire ring closing assembly does not protrude beyond the outer circumference of the ring to any appreciable degree and therefore offers no objectionable obstructions when receptacles embodying this invention are stored side by side. Likewise, no interfering projections are present which would prevent stacking of the receptacles one above the other.

The invention offers many other advantages due to its simplicity of construction, positive operation either in contracting or expanding the ring, low cost of manufacture and ease of operation.

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 claim.

I claim:

In a transversely split sealing and clamping ring of the class described, in which the ends of the ring interfit for limited telescopic movement, means for expanding and contracting the ring including a pair of stops on the outer telescoping ring end and spaced circumferentially thereof, said ring end being slotted circumferentially between said stops, and a rotatable cam carried by the inner telescoping ring end and overlying said slot and the outer ring end, said cam having a portion engageable with but one stop when the cam is rotated in either direction and engageable with the other stop only when the cam is rotated through an arc of substantially 180°.

ARTHUR H. VAN HORN.