

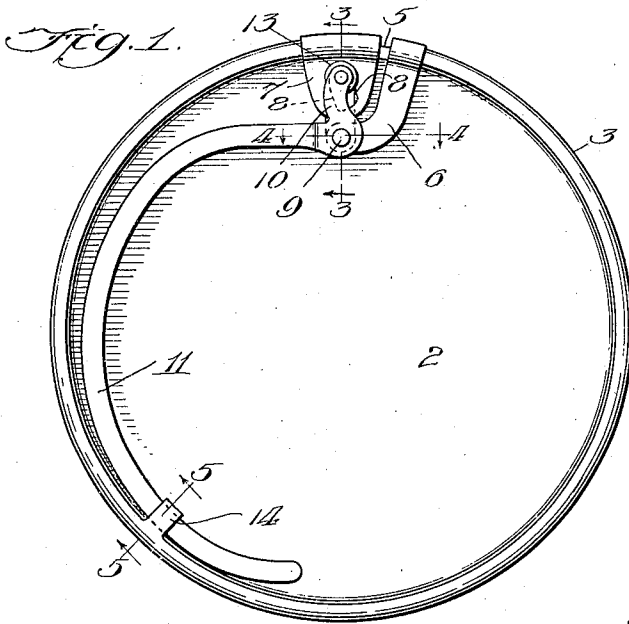
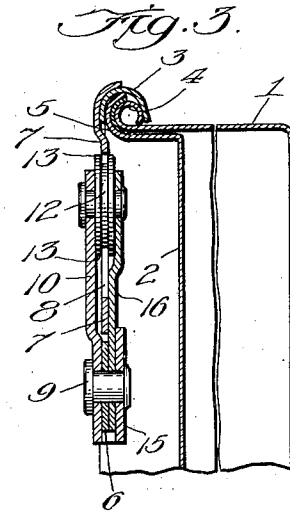
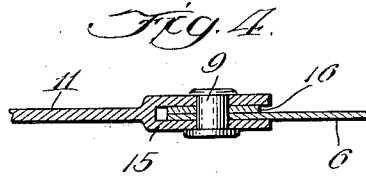
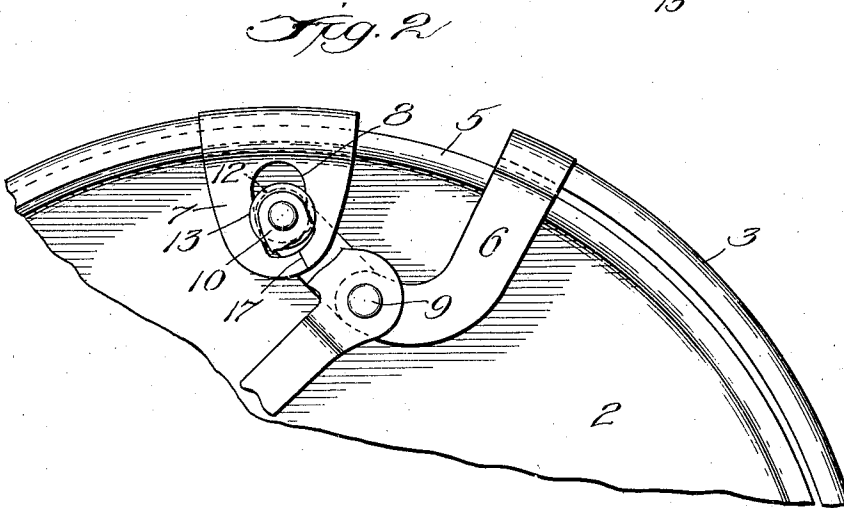
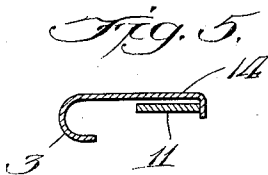
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RING FOR SECURING HEADS TO CONTAINERS

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RING FOR SECURING HEADS TO
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tional Steel Container Corporation, a corpora-
tion of Illinois

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4 Claims. (Cl. 220—61)

It is common to provide metal barrels, drums or other round containers with heads that are held on by contractile rings, channel-shaped in cross section, which embrace beads on the containers and bead-engaging lips or flanges on the heads.

The object of the present invention is to produce a simple, sturdy and powerful mechanism for contracting such a ring and securely locking it upon the container while contracted.

The various features of novelty whereby my invention is characterized will hereinafter be pointed out with particularity in the claims; but, for a full understanding of my invention and of its objects and advantages, reference may be had to the following detailed description taken in connection with the accompanying drawing wherein:

Figure 1 is a top plan view of a container equipped in accordance with my invention, the head being locked in place; Fig. 2 is a view on a much larger scale, similar to Fig. 1, showing only a fragment of the container and the ring opened or expanded; Fig. 3 is a section on a still larger scale on line 3—3 of Fig. 1; Fig. 4 is a section, on the same scale as Fig. 3, on line 4—4 of Fig. 1; and Fig. 5 is a section on line 5—5 of Fig. 1, the scale being substantially the same as that of Figs. 3 and 4.

Referring to the drawing, the container 1, the head or cover 2, and the contractile holding ring 3 are all old and well known and, of themselves, form no part of the present invention. The ring is divided at only one point, so that it has two free ends which are spaced only slightly apart when the ring is tightly closed on the bead 4 on the container and the bead-engaging lip 5 on the head or cover.

Fixed to each end of the ring member is an inward projection lying in the plane of the ring, these projections being indicated at 6 and 7. The projection 6 is an L-shaped member one arm of which extends radially of the ring while the other arm extends laterally toward the projection 7. The projection 7 is a short, wide plate which can move into the angle of L in the projection 6 when the ring is closed. The member 7 has therein a cam slot 8 which lies at a substantial angle to a radius of the ring intercepting the same; the direction of inclination of the slot being such that the angular distance between the radial arm of the projection 6 and the slot decreases as the distance from the ring increases.

Pivoted at the angle thereof to the free end of the projection 6 as at 9, is a bell-crank lever comprising a short arm 10 and a long curved arm 11. The short arm of the bellcrank lever overlies

the projection 7 and has at its free end a cam roll 12 engaged in the cam slot, the diameter of the roll being equal to the width of the working portion of the slot. The roll is flanged at both ends, as indicated at 13, one flange overlying and the other flange underlying the plate of which the projection 7 is formed, and preventing the roll from jumping out of the slot.

When the lever is swung in one direction, namely the counterclockwise direction as viewed in Fig. 1, the projections 6 and 7 are spread apart, expanding or opening the ring, as shown in Fig. 2. While the ring is in this condition it may be removed from the container, releasing the head or cover. Upon swinging the lever in the clockwise direction, with the parts as shown in Fig. 2, the cam roll rides in the cam groove in the member 7 and forces this member laterally toward the member 6, contracting or closing the ring. It will be seen that because of the angle at which the cam slot lies, the trailing edge bounding the slot, the left hand edge in Figs. 1 and 2, extends inwardly and laterally behind or under the cam roll so that the ring end carrying the projection 7 cannot spring outwardly from the container as the ring is tightened. Therefore, after the ring has been tightened on the container it cannot become loose until the lever is swung into a release position.

The long arm of the lever is curved so as to follow the contour 4 and lie close to the ring when the latter is in its head-securing position; and the free end thereof may be inserted under a suitable hook-shaped projection 14 on the inner side of the ring at a point remote from the gap in the ring and be locked after having been tightened about the container.

If desired, the lever may be made bifurcated at the angle thereof, as at 15, to embrace the supporting member 6. Furthermore, the cam roll may have trunnions at both ends, one to be received in an opening in the lever arm 10 and the other to have a bearing in one end of a strap 16 underlying the members 6 and 7; the other end of the strap extending into the jaw 15 and being fastened by the pivot 9.

It will be seen that my improved construction is simple and rugged and that a powerful leverage may be applied thereby forcibly to contract the ring. In other words, the opening and closing means consists of a single lever with its pin or cam roll, doing away with links or similar parts that have heretofore been interposed between an operating lever and the ring. The operating member may therefore be described as a rigid

member or as a one-piece device even though the strap 16 be a separate element; this strap simply paralleling and being co-extensive with the short arm 10 of the lever proper.

5 The slot 8 may be open at one end if desired. However, in order to prevent the ring from being spread too far, when off the container, the slot may normally be closed so that the cam roll cannot be withdrawn therefrom. To this end
10 I have shown the cam slot as stopping short of the inner edge of the part 7. The marginal strip of metal thus left along the inner end of the slot is cut through as indicated at 17 and, in assembling the structure, the lips thus pro-
15 duced, may be bent in opposite directions to enable the cam roll to enter the slot. After the roll is in the slot the lips are again flattened and again constitute an effective closure for the end of the slot.

20 While I have illustrated and described with particularity only a single preferred form of my invention, I do not desire to be limited to the exact structural details thus illustrated and described; but intend to cover all forms and ar-
25 rangements which come within the definitions of my invention constituting the appended claims. I claim:

1. A device of the character described, comprising a divided contractile ring, said ring having in-
30 ward projections in the plane thereof at the free ends, a rigid lever pivoted to one of said projections to swing in the plane of the ring, the second projection having therein a cam slot extending transversely of the adjacent part of the ring, a
35 cam roll on one arm of said lever engaged in said slot, and means on the ring remote from the free

ends to engage the other arm of the lever and hold it to lock the ring in a contracted condition.

2. A device of the character described, comprising a divided contractile ring, said ring hav- 5 ing inward projections at the free ends, a one-piece lever pivoted to one of said projections for swinging movements in the plane of the ring, the second projection having therein a cam slot, one arm of said lever extending into the first end of said second projection, and an element on 10 said arm of the lever engaged in said slot to cause the ring to be contracted when the lever is swung in one direction.

3. A device of the character described, comprising a divided contractile ring, said ring hav- 15 ing at the free ends inward projections, a one-piece lever pivoted near one end to one of said projections for swinging movements in the plane of the ring, the second projection having therein a cam slot, the short end of the lever overlying 20 said slot, an element on the short end of said lever engaged in said slot, and means on the ring remote from said projections to engage the long arm of the lever and hold it to lock the
25 ring in a contracted condition.

4. A device of the character described, comprising a divided contractile ring having at the free ends inward projections, a bellcrank lever having a long arm and a short arm pivoted at the angle thereof to one of said projections, the 30 second projection having a cam slot transverse to the adjacent part of the ring, and a roller on the free end of the short arm of the bell-crank lever engaged in said cam slot.

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