

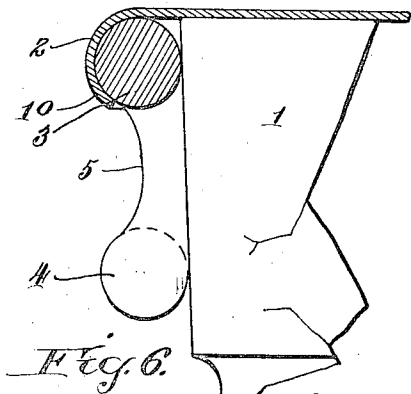
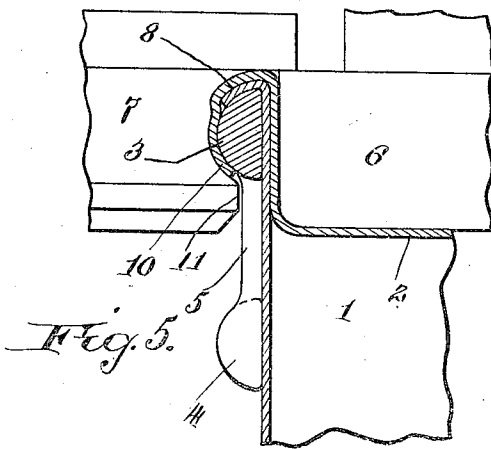
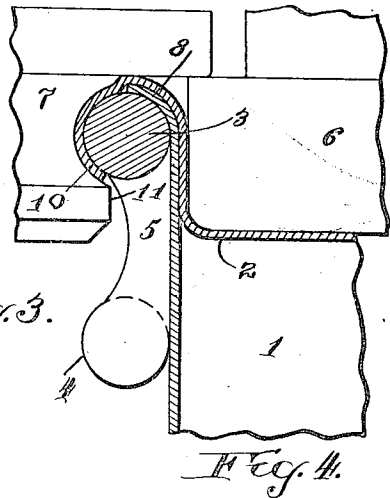
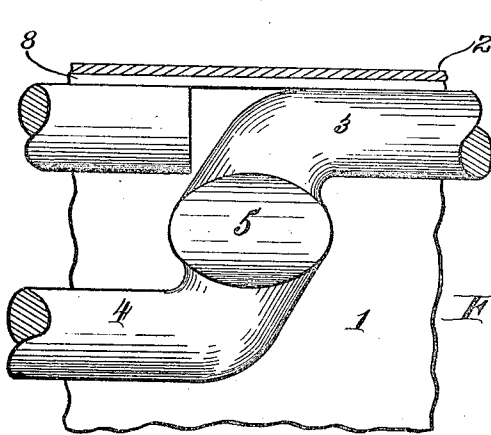
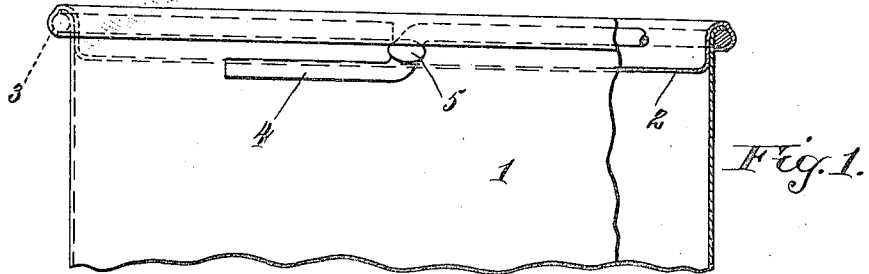
March 22, 1927.

1,622,236

J. E. GUNTER
EASY OPEN CONTAINER

Original Filed March 31, 1925

2 Sheets-Sheet 1



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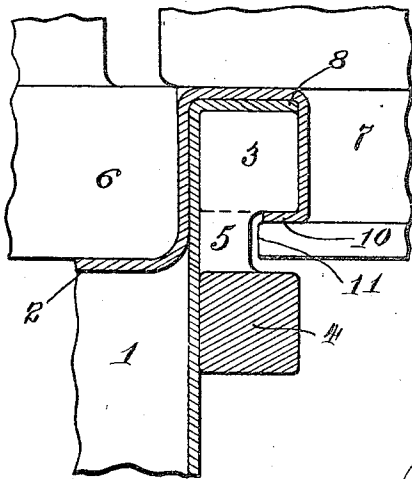
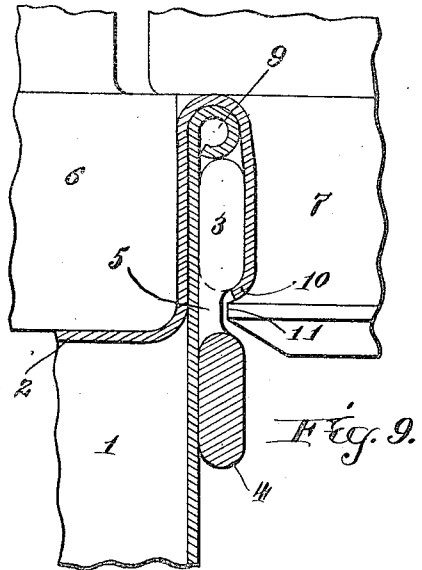
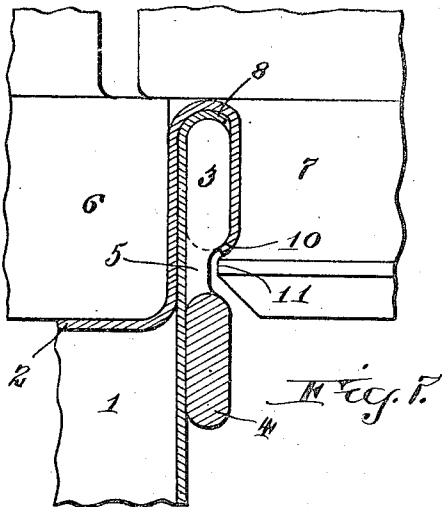
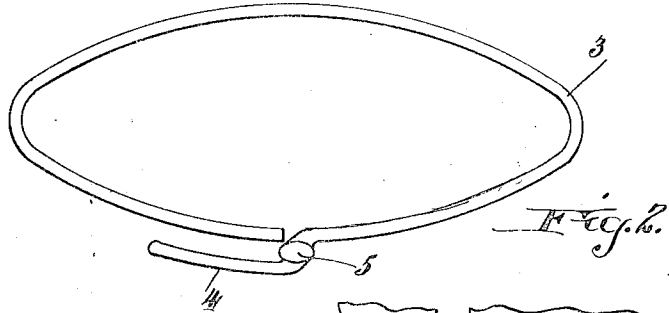
J. E. GUNTER

1,622,236

EASY OPEN CONTAINER

Original Filed March 31, 1925

2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE.

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EASY OPEN CONTAINER.

Application filed March 31, 1925, Serial No. 19,637. Renewed August 3, 1926.

My invention relates to new and useful improvements in closures for containers, and more particularly, to one in which the closure retaining means may be easily removed and that without destroying the further usefulness of the container.

Rubber and fibre gaskets have been used to retain the closure or cap on containers, but it has been found difficult to remove them, especially after the rubber has deteriorated. It has also been suggested that rigid retaining rings might be used, but thus far it has been necessary to use a separate tool to remove the ring, or if the tool has been attached to the container, it has been in the way of the seaming rolls used in closing the containers, thus not insuring a tight seal between the container and cap.

The objects of my invention are to do away with these disadvantages, and to make a closure retaining means that will be economical to make and to use, positive and lasting in its retaining qualities, and yet which may be very easily removed.

These and other objects and advantages will be brought out more fully hereafter.

In the drawings:—

Figure 1 is a front view of the top of a container (partially broken away) showing my invention.

Fig. 2 is a perspective view of the retaining ring.

Fig. 3 is an enlarged front view of part of the retaining ring on a container, with the bead shown in section.

Fig. 4 is a vertical section of the retaining ring on a container showing how the container closure is rolled around it, with a front view of the chuck and seaming roll partially broken away.

Fig. 5 is a view similar to Fig. 4 in which the retaining ring has a semi-cylindrical shape.

Fig. 6 shows the retaining ring applied to a container having nearly straight edges.

Fig. 7 is a view similar to Fig. 4 but looking from the other side, and in which the retaining ring has been flattened.

Fig. 8 is a view similar to Fig. 7 in which a square retaining ring is used.

Fig. 9 is a view similar to Fig. 7 in which a bead has been rolled onto the edge of the container.

Similar numerals refer to similar parts throughout the several views.

The container 1 is preferably made of metal, although the invention may be applied to another kind of a container, as a glass, for example, as shown in Fig. 6. The container may also be of any desired shape. The cover 2 extends beyond the side of the container, so that it may be bent over and rolled around the retaining ring 3. The container preferably has an outwardly flanged rim 8 which gives the retaining ring a good grip on the container. If the contents of the container are to be processed, or subjected to heat, it may be desirable to roll a bead on the container, as at 9, to be more certain that the cap will not blow off.

The retaining ring may be made of any material which will hold its form against the stresses which are exerted on it and have sufficient tensile strength to be pulled out, and it has a handle 4 projecting from its path shown here to be offset from the ring, though obviously the handle may be bent straight down, or it may be bent back in the direction of the ring. The important point is, that it be bent out of the line of the ring a sufficient distance to clear the seaming roll and also to enable an operator to grasp it firmly. At the point where the handle becomes the ring, its juncture with the ring, it is flattened, or thinned, "bumped" or rolled to make it thinner than the ring, as shown at 5. This portion of the handle preferably retains the same cross-sectional area as the ring and handle, so that there will be no unnecessary weakening, though only tensile strength sufficient to remove the ring is required.

In applying the cap, the ring is placed around the container, with the handle projecting away from the container edge, the cap placed on, and a chuck 6 may be placed in the cap, while the seaming roll 7 bends the edge of the cap around the ring, pressing it firmly against the container and its flanged rim. The seaming roll bends the edge 10 under far enough so that points of pressure in the ring are displaced more than 180 degrees, and the farther around the edge 10 is bent, the firmer the grip of the cap on the ring and consequently, of the cap on the container. The thinned part 5 may be as thin as desired consistent with strength and economical operation. It is the thin portion 5 which permits the edge 11 of the seaming roll to unobstructedly pass around the cap

and, consequently, which permits the cap to firmly hold the ring at the place where the handle projects.

When it is desired to remove the cap, all that is necessary is to draw downwardly on the handle; this will pull the ring down, and the ring will straighten out the bead on the cap sufficiently for the cap to clear the edge of the container, and then the cap may be easily removed by hand. No extra tool is required which so often slips and digs into one's hand, or the table; no sudden jar takes place to spill the contents. When it is used on a glass jar, the jar is not broken by trying to knock the cap off.

This cap may be applied to the container at the can factory and then the other end attached with a seamer in the usual way by the packer after the contents are put into it.

The cap may be of the friction type, as shown in Figs. 1, 3, 4, 5, 7, 8 and 9, so that it can be used again, but after the container has once been opened by removing the ring, it cannot again be closed without detection, as is the case with the usual friction top can. The use of the friction cap also partially relieves the container body of pressure which tends to crush its walls, and a better seal is obtained.

The container can be used for any article and can be shipped and knocked around without any danger of the cap jumping out or of loss of contents.

I claim:

1. In combination, a container, a cap thereon, a rigid retaining ring with a projecting handle, said retaining ring being between and bearing upon said container and cap at points displaced cross-sectionally more than 180 degrees and firmly retaining the latter in place, said projecting handle having a thickness between the container and cap at the point where it projects from said container and cap less than that of the retaining ring between its opposite bearing surfaces between the container and cap, whereby said ring is unobstructedly held in between said container and cap.

2. In combination, a container, a cap thereon, a rigid retaining ring with a projecting handle, said ring surrounding the mouth or opening of said container and the edge of said cap forming a bead partially surrounding said ring laterally and forcing the same into close and retaining contact with said container, said projecting handle having a thickness between the container and cap at the point where it projects from said container and cap less than that of the retaining ring between its opposite bearing surfaces between the container and cap, whereby the curvature of the extreme lip of said bead is not obstructed by said handle.

3. The method of assembling a container with a cap and a rigid retaining ring having

a projecting handle, said handle being thinner than said ring at its juncture therewith, which consists in placing the ring around the container with the handle projecting away from the container edge, and bending and rolling the edge of the cap around said ring so that said cap firmly holds said ring against said container, the thinned portion of said handle permitting the bending and rolling tool to pass unobstructedly around said ring.

4. The method of assembling a container having an outwardly flanged edge with a cap and a rigid retaining ring having a projecting handle integral therewith, said handle being thinner than said ring at its juncture therewith, which consists in placing the ring around the container and under said outwardly flanged edge with the handle projecting away from the container edge, and bending and rolling the edge of the cap around said ring so that said cap firmly holds said ring against said container and its outwardly flanged edge, the thinned portion of said handle permitting the bending and rolling tool to pass unobstructedly around said ring.

5. In combination, a container, a cap thereon, a rigid retaining ring with a projecting handle, said ring surrounding the mouth or opening of said container, and the edge of the cap forming a bead, said bead extending below a horizontal line lying in and passing through the center of a cross section of the ring band and surrounding said ring to the extent that the angle toward said center made by the extreme lip of the cap which bears on the ring with the said horizontal line is less than ninety degrees, said projecting handle having a thickness between the container and cap at the point where it projects from said container and cap less than that of the retaining ring between its bearing surfaces between the container and cap, whereby the curvature of the extreme lip of said bead is not obstructed by said handle.

6. The method of assembling a container with a cap and a rigid retaining ring having a projecting handle, said handle being thinner than said ring at its juncture therewith, which consists in placing the ring around the container with the handle projecting away from the container edge, and bending and rolling the edge of the cap around said ring so that it extends below a horizontal line lying in and passing through the center of a cross section of the ring band and the angle toward said center that the extreme lip of the cap which bears on the ring makes with said horizontal line is less than ninety degrees, the bending and rolling tool passing around said ring and unobstructedly over the thinned portion of said handle.

7. The method of assembling a container, cap and rigid retaining ring having a projecting handle, which consists in placing the retaining ring around the container mouth or opening with the handle projecting away from the container mouth or opening, the wall of said container mouth or opening not being indented adjacent said projecting handle, placing the cap on the container, bending an outer portion of the cap longitudinally continuously around and inwardly below an outer periphery of said ring, the internal surface of said inwardly bent portion not being bulged outwardly where said handle projects.

8. In combination, a container the outer wall of the mouth or opening of which presents a smooth continuous surface, a cap thereon, a rigid retaining ring having a projecting handle, said ring surrounding said outer wall of the mouth or opening of the container, and the edge of the cap forming a continuous bead partially surrounding said ring laterally and forcing the same into close and retaining contact with said container, the internal surface of said bead not being bulged outwardly where said handle projects.

9. The method of assembling a container the outer wall of the mouth or opening of which presents a smooth, continuous surface with a cap and retaining ring having an integral projecting handle, which consists in placing the retaining ring around said outer wall of the mouth or opening of the container with the handle projecting away from the container edge, placing the cap on the container, and applying radial pressure to the periphery of the cap to form a continuous bead thereon, which partially encloses said retaining ring and presses the same firmly against said container, the internal surface of said bead not being bulged outwardly where said handle projects.

10. In combination, a container the outer wall of the mouth or opening of which presents a smooth continuous surface, a cap thereon, a rigid retaining ring having a projecting handle, said ring surrounding said outer wall of the mouth or opening of the container, with the handle projecting away from said mouth or opening, and the edge of the cap forming a continuous bead enclosing and surrounding said ring to the extent that the inner diameter of the extreme lip of the cap bearing on the ring is greater than the outer diameter of the container adjacent said ring and less than the outer diameter of the ring, the internal surface of said bead not being bulged outwardly where said handle projects.

11. In combination, a container the outer wall of the mouth or opening of which presents a smooth continuous surface, a cap thereon, a retaining ring, said ring sur-

rounding said outer wall of the mouth or opening of the container, the edge of the cap forming a continuous bead enclosing and surrounding said ring to the extent that the inner diameter of the extreme lip of the cap bearing on the ring is greater than the outer diameter of the container adjacent said ring and less than the outer diameter of the ring, and said ring having one end projecting from said bead to form a handle by which to remove said ring, the internal surface of said bead not being bulged outwardly where said handle projects.

12. A rigid retaining ring for holding a cap on a container, said ring being adapted to be placed between the walls of the container and the edge of the cap, and by its resistance to compression and shear, to hold the cap on the container, said ring having a handle projecting from its path and said handle being thinner than said ring at its juncture therewith.

13. A rigid retaining ring for holding a cap on a container, said ring being adapted to be placed between the walls of the container and the edge of the cap, and by its resistance to compression and shear, to hold the cap on the container, said ring having a handle projecting from its path and said handle being thinner at its juncture with the ring than the ring is thin between its resisting surfaces between the container walls and cap edge.

14. In combination, an open end container portion, a cap thereon, said container portion and cap being provided with adjacent surfaces forming a space having a contracted exit, a rigid member disposed in said space of greater width facing said contracted exit than the width of the contracted exit, a projecting handle on said member of a thickness between said adjacent surfaces not greater than the width of the contracted exit, said member being adapted to be removed through said contracted exit, and during removal, tending to pry apart said adjacent surfaces.

15. A container seam comprising a container wall, a rigid retaining ring having a projecting handle and a removable and replaceable cap; characterized by the cap having an outwardly facing wall parallel to and engaging an inner substantially vertical wall of the container, the cap also extending laterally beyond the wall of the container and having a continuous down-turned wall contracted inwardly below an outer periphery of the retaining ring and firmly holding it against the outer wall of the container, the internal surface of said down-turned inwardly-contracted wall not being bulged outwardly where said handle projects.

16. A container seam comprising a flared container wall, a rigid retaining ring hav-

ing a projecting handle and a removable and replaceable cap; characterized by the cap having an inner outwardly facing wall parallel to and engaging an inner wall of the container, the cap also extending laterally beyond the wall of the container and having a continuous down-turned wall contracted inwardly below an outer periphery of the retaining ring and firmly holding it against the outer flared wall of the container, the internal surface of said down-turned inwardly-contracted wall not being bulged outwardly where said handle projects.

17. The combination with a container of a cap having an inner outwardly facing wall parallel to and engaging an inner wall of the container, the cap also having an outer depending wall forming with the outer wall of the container a space, a retaining ring around the container in said space, said ring having integral therewith a handle projecting from said space, the retaining ring being engaged and held in place by the outer cap wall and in turn holding the cap upon the container, the internal surface of said outer cap wall not being bulged outwardly where said handle projects.

18. The combination with a container of a cap having an inner outwardly facing wall parallel to and engaging an inner wall of the container at its mouth, the cap also having an outer depending wall forming with the outer wall of the container a space, a retaining ring around the container in said space, said ring having integral therewith a handle projecting from said space the lower

edge of said outer depending wall being bent inwardly below and against said retaining ring, the internal surface of said outer depending inwardly bent wall not being bulged outwardly where said handle projects.

19. The combination with a container of a cap having an inner outwardly facing wall parallel to and engaging an inner wall of the container at its mouth, the cap also having an outer depending wall forming with the outer wall of the container a space, a retaining ring around the container in said space, said ring having integral therewith a handle projecting from said space, said retaining ring pressing outwardly against said outer depending wall placing it under tension and holding the cap upon the container, the internal surface of said outer depending wall not being bulged outwardly where said handle projects.

20. A rigid annular retaining ring for holding a cap on a container having a handle projecting from the plane of the ring, the difference between the internal and external radii of said ring being greater than the difference between the length of lines drawn from the center of said ring to the inner and outer surfaces of said handle where it projects from the plane of said ring, said ring being adapted to be placed between the wall of a container and the edge of a cap of a container and to hold the cap on the container.

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