March 29, 1927. 1,622,547

J. E. SHARP

CLOSURE SEAL

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Fig. 1.

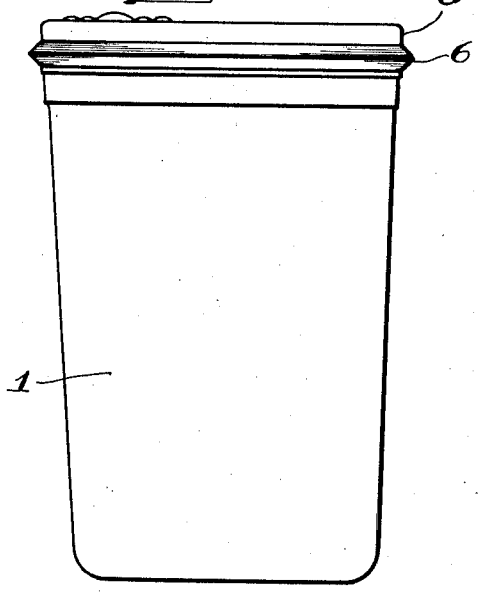
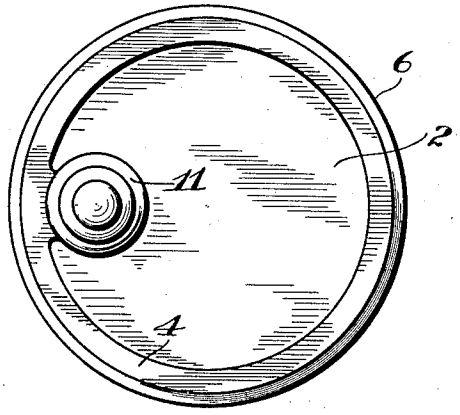


Fig. 2.



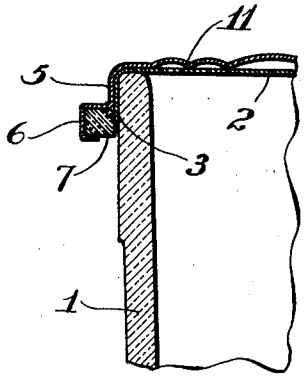


Fig. 3

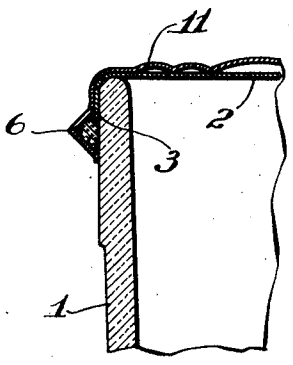


Fig. 4.

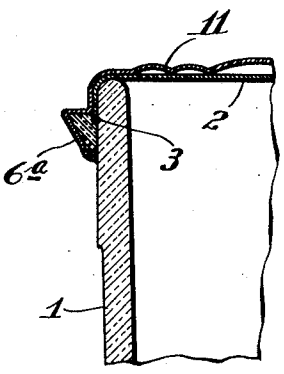


Fig. 5.

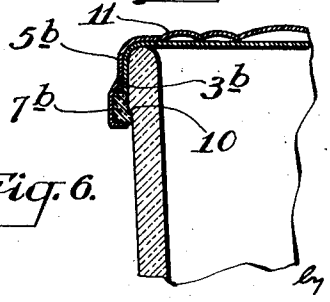


Fig. 6.

WITNESSES

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Fig. 7.

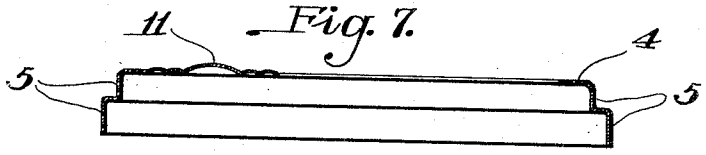


Fig. 8.

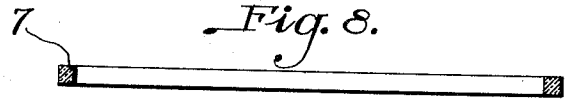


Fig. 9.

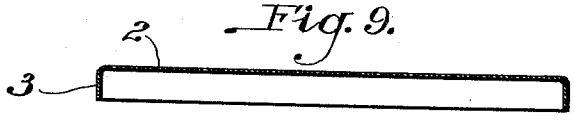


Fig. 10.

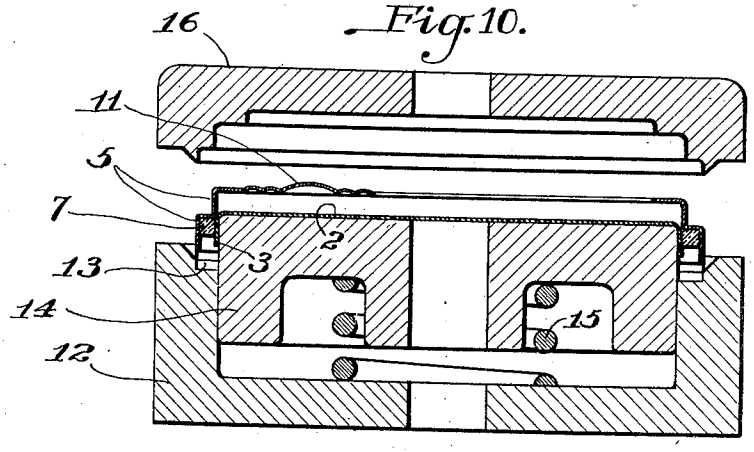
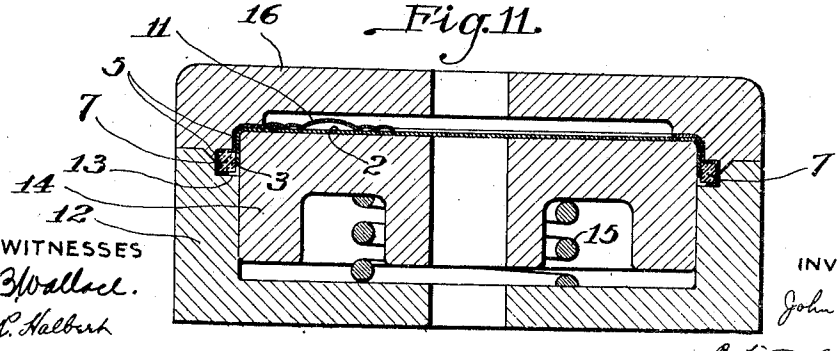


Fig. 11.



WITNESSES

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Patented Mar. 29, 1927. 1,622,547

UNITED STATES PATENT OFFICE.

JOHN E. SHARP, OF NEW KENSINGTON, PENNSYLVANIA, ASSIGNOR TO ALUMINUM COMPANY OF AMERICA, OF PITTSBURGH, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

CLOSURE SEAL.

Application filed October 1, 1925. Serial No. 59,815.

The invention relates to side seal closures for containers of various shapes and sizes, whether they have wide or narrow mouths, and regardless of the material of which they are made. However, it is particularly applicable to side seals for wide mouth containers, such as glass tumblers, and is illustrated and explained herein with reference to such applicability.

The object is to provide a seal which is simple in construction and economical to manufacture, which may be easily applied to, and which when applied affords a hermetic seal for the container, a seal which may be readily broken when desired, and which includes a cap having a depending annular flange which may be effectively used as a reclosure after the seal has been broken.

The invention is illustrated in the accompanying drawings of which Fig. 1 is an elevation of a tumbler provided with the seal; Fig. 2 is a plan view of the sealed tumbler; Fig. 3 a vertical sectional view of a portion of the tumbler showing the seal in the process of being applied to the tumbler; Fig. 4 a view corresponding to Fig. 3 showing the seal after application thereto; Figs. 5 and 6 views corresponding to Fig. 4 showing modifications of construction; Figs. 7 to 9 are vertical transverse sectional views showing in detail the three component parts of the closure seal before assembly to produce the composite structure in its ultimate form for use; Fig. 10 a view in vertical section illustrating the chuck employed for assembling the seal as well as the method of assembly, with the parts in the relative positions which they occupy prior to moving them to produce interlocking thereof; and Fig. 11 a view similar to Fig. 10 showing the same parts in their relative positions after actuation of the chuck to bring the parts of the seal to their locked or inter-engaged condition.

According to this invention, a container such as a tumbler 1 is hermetically sealed by a closure comprising three elements, namely, a closure cap having a peripheral flange adjacent the outer wall of the mouth of the container, a readily disruptible continuous ring which engages the outer portion of the top of the cap and which has a skirt which extends below the lower edge of a cap flange, and a gasket which is arranged between the flange of the cap and the skirt of the ring and which extends below the edge of the flange of the cap. The skirt of the ring is pressed inwardly upon the gasket so that the gasket in turn presses inwardly upon the outer surface of the flange of the cap and upon the wall of the container below such flange to seal the container.

The cap is preferably formed of metal and comprises a top portion 2 which extends over the mouth of a container, and a peripheral flange 3 which rather neatly fits the outer wall of the container adjacent to its mouth. The ring which engages the cap is also preferably formed of metal, the metal being of a character which may be readily torn, but which is nevertheless tough or rigid enough to retain the form into which it is pressed when the seal is made. This ring comprises a portion 4 which extends from the outer edge of the container inwardly over the outer portion of the top 2 of the cap, and a depending skirt 5, the lower edge of which extends a substantial distance below the lower edge of the cap flange 3. The ring skirt 5 is provided with an annular groove 6 for the reception of a gasket 7 which preferably takes the form of a ring made of rubber or rubber-like sealing material.

When the cap 2—3 is applied to the container and the ring 4—5 is applied to the cap, these parts of the closure appear substantially as indicated in Fig. 3, the lower edge of the skirt 5 being spaced from the outer wall of the container, and the gasket 7 being arranged in groove 6 between skirt 5 and flange 3. Thereafter the skirt is reformed in such a manner that gasket 7 is forced and held firmly against the wall of the container below the lower edge of flange 3 and at the same time firmly against the outer surface of flange 3 of the cap, thus hermetically sealing the container.

Groove 6 in the skirt 5 may be reformed during the sealing process, in the shape shown in Fig. 4, or other irregular forms such as indicated in Figs. 5 and 6, or it may take various other forms.

If desired, the outer wall of the container may, as shown in Fig. 6, be provided with a shoulder 10 below which the lower edge of the ring skirt 5^b and gasket extend to more firmly attach the closure to the container. In this embodiment of the invention

the lower edge of the cap flange 3^b preferably terminates above the lower edge of the shoulder, the gasket 7^b firmly sealing the space between the flange and a point slightly below the shoulder 10.

It has been previously explained that ring 4—5 is formed of disruptible metal. As shown in Fig. 2 the inner edge of the inwardly extending portion 4 of the ring is preferably provided with a tearing tab 11 which may be readily engaged to disrupt or tear the ring. To assure the tearing of the ring entirely through its lower edge, tab 11 is of substantial width at its point of juncture with the inner edge of the ring.

It is characteristic of the closure seal provided according to this invention that a hermetic seal may be easily effected by closure elements which are economical to manufacture and easy to apply. When applied, the skirt of the attaching ring presses the gasket firmly against the flange of the cap to hold the cap against the wall of the container and to seal the space between the cap flange and the wall of the container. Furthermore, the seal may be easily broken by merely tearing the disruptible ring, which may be done by engaging the tearing tab of the ring. When the ring is thus torn through, it and the gasket are easily removed, and the cap may thereafter be raised to open the container and may be subsequently used as a reclosure.

The closure seal constituting this invention lends itself to an extremely ready assembly which is considered as an important feature from the practical or commercial view point. The method of assembling and the chuck employed therefor are clearly illustrated in Figs. 7 to 11 of the drawings.

The chuck consists of the cup shaped member 12 having the inner portion of its upper edge recessed as at 13 and its bore slidingly fitted with a plunger 14 normally urged upwardly slightly beyond the upper edge of the member 12 by means of a coiled compression spring 15. The top of the plunger is so shaped as to neatly receive the closure cap 2—3 thereupon in the manner indicated in Figs. 10 and 11. The remaining portion of the chuck is shown at 16 being appropriately shaped to cooperate with the several parts when pressed upwardly into contact therewith to produce an interlocking engagement of the cap 2—3 and disruptible ring 4—5, as well as the turning radially inwards of the lower margin of the depending skirt 5 below the gasket 7.

In operation, with the chuck member 16 spaced from the member 12 and plunger 14, the component parts of the closure illustrated in Figs. 7 to 9 are placed in the relative positions shown in Fig. 10 with the cap 2—3 seated upon the plunger, the gasket 7 encircling its depending flange 3, and the ring 4—5 superposed upon the cap and gasket. After partial assembly in this manner, the chuck member 12 together with the parts carried thereby are bodily raised and pressed into contact with the upper chuck member 16, as illustrated in Fig. 11. Movement from the position shown in Fig. 10 to that of Fig. 11, due to the cooperation of the several portions of the chuck effectively completes the assembly of the parts of the closure seal bringing them to their ultimate interlocked positions ready for use, and with the lower margin of the skirt 5 bent inwardly under the gasket.

Reverse movement of the chuck, that is, lowering of the member 12 with the parts carried thereby, permits the spring pressed plunger 14 to force the finished closure seal out of the recess 13. The completed seal is then removed from the plunger, either manually or automatically by any appropriate mechanism suitable for this purpose.

According to the provisions of the patent statutes, I have explained the principle and operation of my invention, and have illustrated and described what I now consider to represent its best embodiment. However, I desire to have it understood that, within the scope of the appended claims, the invention may be practiced by other forms of construction than those particularly illustrated and described.

I claim as my invention:

1. A closure seal for a container comprising in combination with a container, a closure cap having a depending peripheral flange conforming to and adjacent the outer wall of the mouth of the container, a readily disruptible continuous ring engaging the outer portion of the top of said cap and having a skirt depending below the lower edge of said cap flange, said skirt being provided with a gasket-retaining groove, and a sealing gasket arranged in said groove between said flange and skirt and overlapping the lower edge of the flange, said skirt pressing said gasket inwardly upon the outer surface of said flange and upon the outer wall of the container below the flange to seal the container and attach the closure to it.

2. A closure seal for a container comprising in combination with a container, a closure cap having a depending peripheral flange conforming to and adjacent the outer wall of the mouth of the container, a readily disruptible continuous ring having an inwardly extending portion engaging the outer portion of the top of said cap and having a skirt depending below the lower edge of said cap flange, said ring being provided at the edge of its inwardly extending portion with a tearing tab and said skirt being provided with a gasket-retaining groove, and a sealing gasket arranged in said groove

between said flange and skirt and overlapping the lower edge of the flange, said skirt pressing said gasket inwardly upon the outer surface of said flange and upon the outer wall of the container below the flange to seal the container and attach the closure to it.

3. A closure seal for a container comprising in combination with a container having its outer wall provided with a shoulder adjacent the mouth of the container, a closure cap having a depending peripheral flange conforming to and adjacent the outer wall of the mouth of the container and terminating above the said shoulder, a readily disruptible continuous ring having an inwardly extending portion engaging the outer portion of the top of said cap and having a skirt depending below the said shoulder, said ring being provided at the edge of its inwardly extending portion with a tearing tab and said skirt being provided with a gasket-retaining groove, and a sealing gasket arranged in said groove between said flange and skirt and overlapping the lower edge of the flange, said skirt pressing said gasket inwardly upon the outer surface of said flange and upon the outer wall of the container below the flange to seal the container, and the lower edge of said skirt being turned inwardly below the lower edge of said shoulder.

4. A closure seal for containers comprising a closure cap having a central body portion and a depending peripheral flange, a readily disruptible continuous ring engaging the body portion provided with a skirt neatly encircling the said depending peripheral flange and extending below the said flange, said skirt being equipped with a retaining groove, and a gasket seated within said groove overlying the said flange and extending to a point below the flange whereby to leave a portion of the inner periphery of the gasket exposed.

In testimony whereof, I sign my name.

JOHN E. SHARP.