Sept. 13, 1932. A. C. SPAHN 1,877,258

JAR CLOSURE

Filed April 11, 1929

Fig. 1.

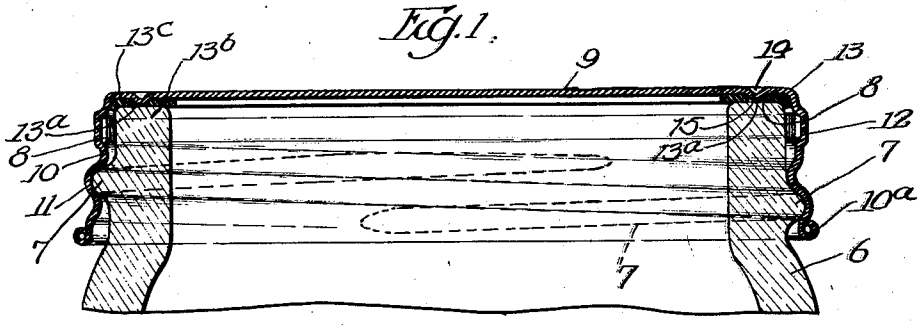


Fig. 2

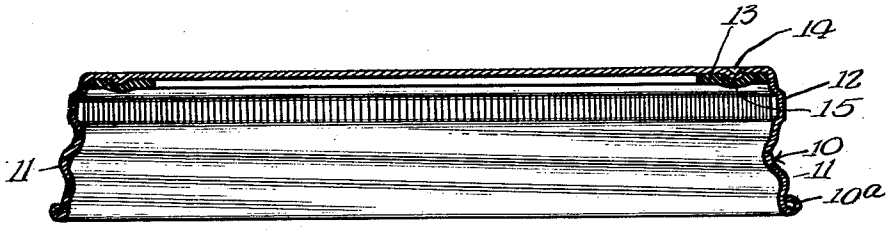


Fig 3

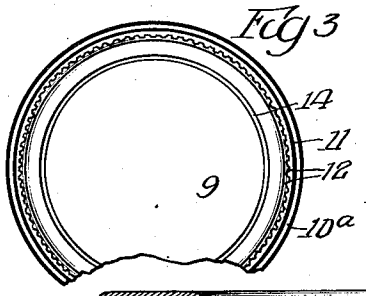
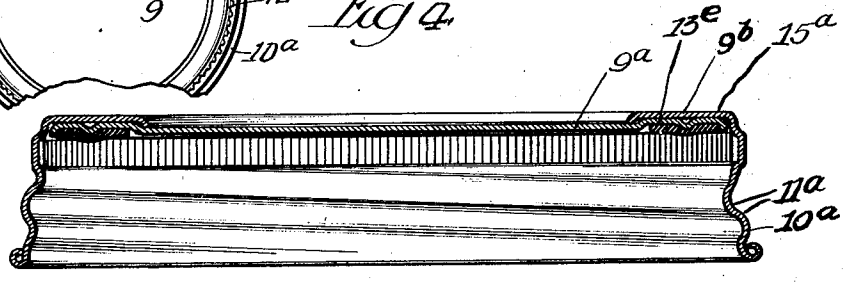


Fig 4.



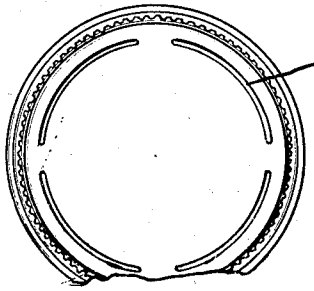


Fig.5

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1,877,258

UNITED STATES PATENT OFFICE

AUGUST C. SPAHN, OF EVANSVILLE, INDIANA, ASSIGNOR TO BERNARDIN BOTTLE CAP COMPANY, OF EVANSVILLE, INDIANA, A CORPORATION OF INDIANA

JAR CLOSURE

Application filed April 11, 1929. Serial No. 354,219.

The invention relates generally to closures and more particularly to screw caps for jars or other containers.

In the application of screw caps to glass jars or containers, an elastic packing ring or washer is usually interposed between the top of the cap and the top of the container to form a seal between them. In practice it has been found that the compression of the packing ring varies greatly according to the extent to which the cap is screwed onto the jar. This sometimes results in excessive compression of the ring, which, when formed of a rubber compound, will no longer form an effective seal after the cap has been once removed from the jar.

The primary object of the invention is to provide a screw cap which, when applied to a jar, will be arrested by stop means between the top of the cap and the jar so that annular portions of the elastic packing ring will remain pliable and elastic after the cap has been applied to form an efficient seal, and also so that after the cap has been once removed, said portions will retain their elasticity to form an effective seal when the cap is again applied to the jar.

In general this cap is characterized by means which will crowd or cut into the central portion of the packing ring and limit the movement of the cap toward the jar with substantial positiveness, so that the remaining portions of the ring will be compressed only to a limited degree and sufficiently to form a seal between the cap and the jar, and so said portions will retain their elasticity.

Other objects of the invention and the various advantages and characteristics of the present cap construction, will appear from a consideration of the following detailed description.

The invention consists in the several novel features hereinafter set forth and more particularly defined by claim at the conclusion hereof.

In the drawing which accompanies and forms a part of this specification or disclosure and in which like numerals of reference denote corresponding parts throughout the several views; Fig. 1 is a vertical sectional view showing a cap embodying the invention secured in place on a jar. Fig. 2 is a section of the cap before it is applied to the jar. Fig. 3 is a plan of the cap. Fig. 4 is a section showing the invention applied to a two-piece screw cap. Fig. 5 is a plan of a cap showing a modified form of stop means.

The cap which forms the subject of the invention is adapted for use in connection with a glass jar 6, the upper portion of which has formed on its outer periphery an integral screw-thread 7, and the top 8 of which is substantially flat with rounded corners joining the inner and outer peripheries of the wall of the jar. The cap is formed of sheet metal, and comprises a top wall 9 adapted to extend over the top of the jar and, a depending integral flange or skirt 10, which is formed with a screw-thread 11 to engage the screw-thread 7 on the jar so that relative rotation in one direction will force the top of the cap toward the top of the jar, and relative rotation in the opposite direction will remove the cap from the jar. The lower edge of the skirt is rolled over or beaded, as at 10^a, to stiffen the lower edge of the cap. An annular series of vertical corrugations 12 is formed in the skirt 10 of the cap above the screw-thread so that the cap may be gripped for turning. An elastic packing washer or gasket 13, formed of suitable material, such as a rubber compound, fits against the underside of the top 9 of the cap, and is flat. This washer is of sufficient width to extend laterally beyond the inner and outer edges of the top face 8 of the jar. An annular groove 14 is formed in the top wall 10 of the cap to form a bead 15 which projects downwardly from the inner face of the top wall of the cap. This bead is disposed adjacent the center of the top face 8 of the jar. When the cap is screwed down on the jar, the bead 15, which has a depth equal to about one-half of the normal thickness of the elastic washer 13, will be crowded into or through the elastic washer, as at 13^a, until the bead has cut or been crowded approximately through the gasket, or until the bead will serve as a substantially positive stop for limiting the movement of the

cap toward the jar. In practice this bead may cut entirely through the washer for this purpose or it may be compressed to such an extent that the cap will be positively arrested. The annular portion 13^b inside of the bead will be compressed to the desired limited degree to form a seal between the inner portion of the top face 8 of the jar, and the outer portion 13^c of the washer will be compressed substantially to the same degree. As a result the portions 13^b and 13^c of the washer will retain sufficient elasticity so that after the cap is removed and is again applied to the jar they will form an efficient seal. The outer margin of the washer 13 extends beyond the outer corner of the top face 8 of the jar, and is confined by the upper portion of the flange 10, so that the outer margin of the gasket will be forced downwardly to form a side seal adjacent the upper outer corner of the jar.

The invention exemplifies a closure with a screw-cap and a sealing ring or gasket adapted to be compressed between the jar and the top of the cap by the screw-connection and stop means adapted to crowd or cut through or approximately through the elastic ring to limit the movement of the cap toward the jar to preserve the requisite degree of elasticity in the inner and outer portions of the gasket, so that the latter will be effective after removal and reapplication of the cap.

In Fig. 4, the invention is illustrated as applied to a two-piece screw cap with a top wall 9^a separately formed from a cap section comprising an annular portion 9^b overlying the marginal portion of said top and a skirt 10^a formed with a screw-thread 11^a. In this form of the invention, the bead 15^a is formed in the top plate 9^a and acts on a washer 13^e in the same manner as has previously been described.

In the form of the invention shown in Fig. 5, a series of indents 13^f are used in lieu of the annular indent shown in Figs. 1 to 3. These indents are of the same depth and coact with the jar and act upon the elastic washer as described in connection with the form of the invention shown in Figs. 1 to 3.

The invention is not to be understood as restricted to the details set forth, since these may be modified within the scope of the appended claim, without departing from the spirit and scope of the invention.

Having thus described the invention, what I claim as new and desire to secure by Letters Patent, is:

In a jar closure the combination of a sheet metal cap comprising a top wall and a skirt, a jar, said skirt and jar being provided with coacting screw-means for forcing and securing the cap on the jar, an elastic sealing member between the jar and said wall, and a series of arcuate indentations projecting from the under face of said wall and operative to press sharply into portions of the elastic sealing member to limit positively the movement of the cap toward the jar when the cap is secured thereon, said indentations being comparatively narrow and sharp and adapted to limit the compression of other portions of the sealing member so they will retain their elasticity and being so spaced apart that the inner and outer portions of the sealing member are adequately cross connected and hence remain in connected relation regardless of the extent to which the indentations cut into the member.

Signed at Evansville, Indiana this 6th day of April, 1929.

AUGUST C. SPAHN.