

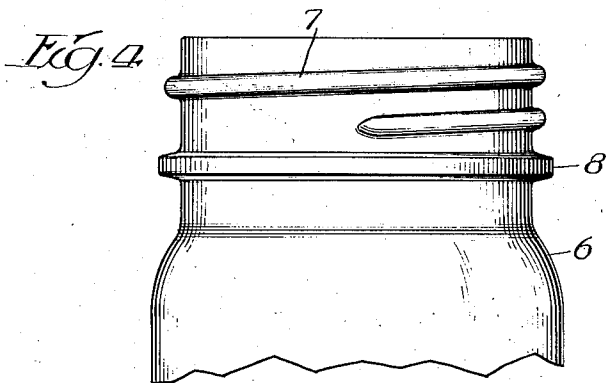
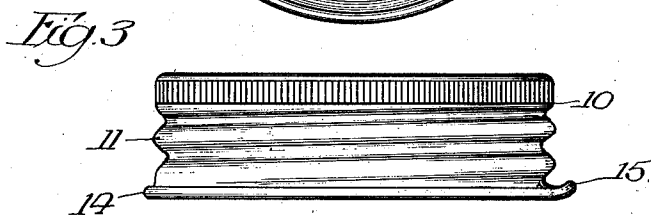
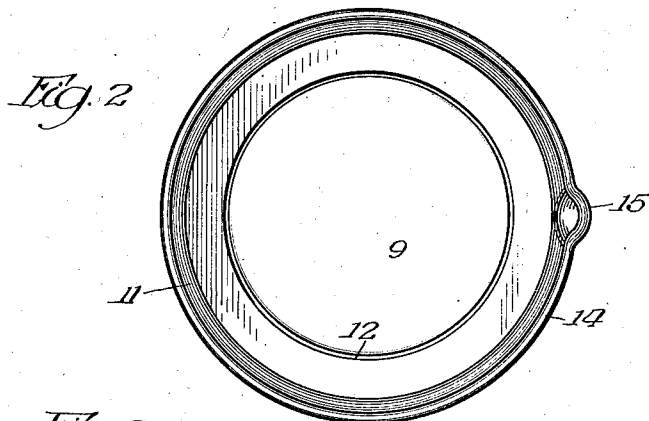
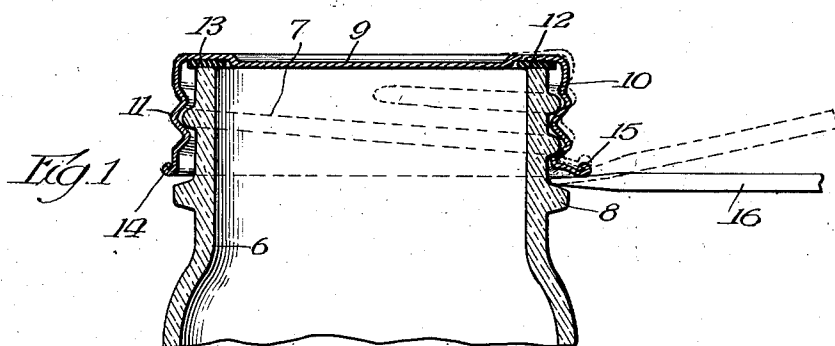
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JAR CLOSURE

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JAR CLOSURE

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2 Claims. (Cl. 215-43)

The invention relates generally to sheet metal caps for closing jars and like receptacles. More particularly the invention relates to that type of jar-closing cap which is provided with a sealing ring for engaging the mouth of the jar and embodies an internal screw thread in the skirt thereof for engagement with an external screw thread on the neck of the jar so that the sealing ring may be jammed between the top of the cap and the jar to form an air tight closure which is adapted to retain the contents of the jar under vacuum.

It has heretofore been proposed to seal jars under vacuum with screw caps. In practice it has been found that whereas screw caps serve efficiently to retain the contents of the jars under vacuum they are extremely hard or difficult to remove from the jars on account of the vacuum. To remove a screw cap applied to a jar under vacuum it has usually been necessary to puncture the top of the cap to break the vacuum before the cap can be unscrewed from the jar, or it has been necessary to apply a tool with a long lever for gripping the screw cap to make it possible to unscrew the cap while it is held by the vacuum.

One object of the present invention is to provide a jar closing screw cap of the type under consideration which is adapted to seal the jar under a vacuum seal and is provided with means by which a portion of the top of the cap can be easily distorted or sprung sufficiently to break the vacuum in the jar by a simple form of pry. By providing a cap of this type with which it is possible to break the vacuum by distorting or springing the cap without puncturing or tearing it, the cap may be used to close the jar to preserve its contents under seal without vacuum and no powerful tool which provides efficient leverage for unscrewing the cap while under vacuum is necessary.

Another object of the invention is to provide a screw cap which is adapted to be distorted or sprung by a simple form of pry and can be produced without materially increasing the cost of production by reason of its adaptability for this purpose.

The invention consists in the several novel features which are hereinafter set forth and are more particularly defined by the claims 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 section of a cap embodying the invention in connected relation with a jar;
Fig. 2 is an inverted plan of the cap;
Fig. 3 is a side elevation of the cap; and
Fig. 4 is a side view of the neck portion of the jar.

The cap which forms the subject matter of the invention is shown in connection with a glass jar 6 having a substantially straight sided or cylindrical neck and a spiral bead on the outer periphery of the neck forming an integral, external screw thread 7. The outer face of the thread is preferably arcuate or approximately semi-circular in cross section. Below the thread there is formed an integral outwardly projecting annular rib-forming shoulder 8. The cap is formed of resilient sheet metal and comprises a circular top wall 9 adapted to extend over the mouth of the jar, and an integral annular depending skirt 10 which has rolled therein an internal screw thread 11 for engaging the screw thread 7 on the jar. A sealing ring 12 is confined in a groove 13 in the margin of the top wall of the cap and is adapted to be clamped tightly against the mouth of the jar to form a seal which is adapted to retain the contents of the jar under vacuum when the cap is tightly clamped against the top of the jar. The lower edge of the skirt 10 of the cap is rolled outwardly and then inwardly into a bead 14 to stiffen the lower end of the skirt. In applying the cap, the jar, after it has been filled, is usually placed in a vacuum chamber and while the vacuum is maintained in the jar the cap is screwed tightly onto the jar to render the sealing ring 12 effective to keep the jar and its contents under vacuum. For hot packs, the screw cap is clamped on the top of the jar while the jar and its contents are hot. When the jar has been thus sealed and the vacuum is maintained, the vacuum, together with the pressure from the screw thread connection between the cap and the jar serves securely to hold the cap against removal with such force that it is either necessary to first puncture or tear the cap to break the vacuum or to apply a powerful lever to unscrew the cap from the jar. In order to render the cap removable without first puncturing it or without a powerful lever, the lower rim of the cap at bead 14 is bent outwardly as at 15 to form a projection for the application of a pry. Preferably the projection is formed by bending outwardly the lower marginal portion of the skirt 10 of the cap including the bead so as to form a rounded or curved projecting portion. When the cap is

screwed onto the jar so as to form the vacuum seal, the projecting portion 15 of the cap is spaced sufficiently from the top of the shoulder 8 on the jar to permit an ordinary pry 16 to be inserted between the shoulder and the projection. When the pry 16 is placed between the shoulder 8 and the lower end of the cap as shown in Fig. 1, while the cap is tightly sealed, the inner end of the pry will solidly fulcrum on the shoulder 8 and by twisting or lifting the outer end of the pry the pry will engage the projection 15 and bend and force upwardly the portion of the cap overlying the pry. The pry will easily exert sufficient upward pressure on the overlying portion of the cap above it to flex or distort the marginal portion of the top 9 of the cap upwardly as indicated by dotted lines in Fig. 1. This will release the sealing ring at the deflected portion of the cap sufficiently to permit air to enter the jar and break the vacuum without unscrewing the cap. It will be observed that the screw thread on the jar 7 has a rounded outer periphery and that the screw thread in the cap is rather shallow. When the pry is applied to the cap the contacting screw surfaces on the cap and the jar, while sufficient normally to hold the cap, will facilitate the riding up of the skirt portion of the cap above the pry so that the deflection or distortion of the top of the cap will be sufficient to admit air to the jar around the sealing ring 12. In other words the pry serves to deflect a localized portion of the top of the cap to break the vacuum in the jar without first unscrewing the cap against the force of the vacuum pressure. The gauge of the metal in the cap is also of sufficient thinness to permit this distortion or flexing of the cap by the pry.

The invention exemplifies a jar closing screw cap which can be easily sprung or distorted by an ordinary or simple pry to break the vacuum in the jar when it is to be opened, thus avoiding the necessity of puncturing the cap preparatory to its removal from the jar. The cap may be produced without substantial increase in cost over the ordinary screw cap. Any available device such as an ordinary screw driver will serve as a pry so that it is not necessary to provide a special removing tool.

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 claims 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:

1. As a new article of manufacture, a sheet metal cap adapted to seal a vacuumized jar and comprising an imperforate circular top wall with sealing means around the marginal part of the inner face thereof and an integral annular skirt depending from the top wall and having the central portion thereof shaped to form an internal screw thread for engaging an external screw thread on the neck of the jar and having the bottom margin thereof rolled back to form a reinforcing bead and deflected outwardly and upwardly at a localized portion thereof to form a concavo convex boss-like projection for receiving a pry and facilitating outward flexure of the superjacent portion of the skirt and top wall by the pry in connection with venting of the jar prior to cap removal.

2. The combination of a jar adapted to be sealed under vacuum and provided with a cylindrical neck having on the outer periphery thereof an annular outwardly projecting shoulder-forming rib and also having on its outer periphery and above and spaced from the rib a spiral bead of substantially semicircular cross-section forming an external screw thread, and a cap for the jar comprising a circular sheet metal top wall overlying the top of the neck of the jar and having a downwardly facing annular groove in the margin thereof with a sealing ring therein in engagement with the top of the jar neck, and a cylindrical sheet metal skirt of greater diameter than said jar neck connected to and depending from the top wall, surrounding but spaced from the neck of the jar and having the central portion thereof deflected inwardly to form an internal screw thread in engagement with the bead formed external screw thread on the neck of the jar and coacting with said external thread to clamp the cap in place, and also having the bottom margin thereof terminating slightly above the shoulder forming bead and rolled back to form a reinforcing bead and deflected outwardly and upwardly at a localized portion thereof to form a concavo convex boss-like projection for receiving a pry seated on the rib and facilitating outward flexure of the superjacent portion of the skirt and top wall by the pry in connection with venting of the jar prior to cap removal, said skirt being formed of such thinness and having the internal screw thread thereof so much more shallow than the external thread on the jar neck that it is possible readily to spring or distort said superjacent portion of the skirt and top wall for vacuum breaking purposes.

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