

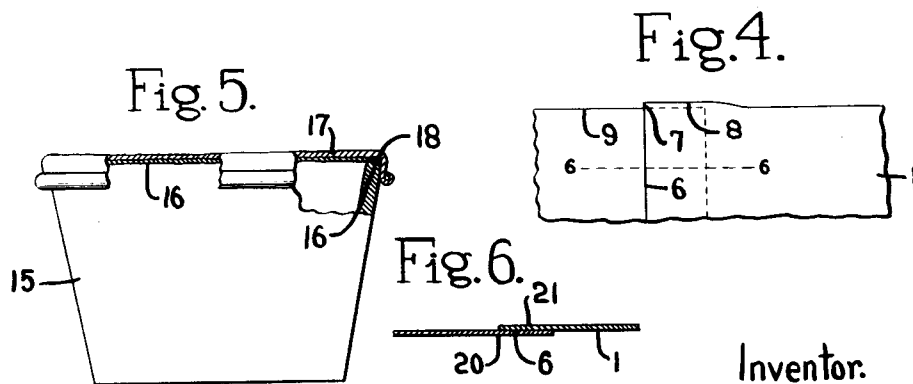
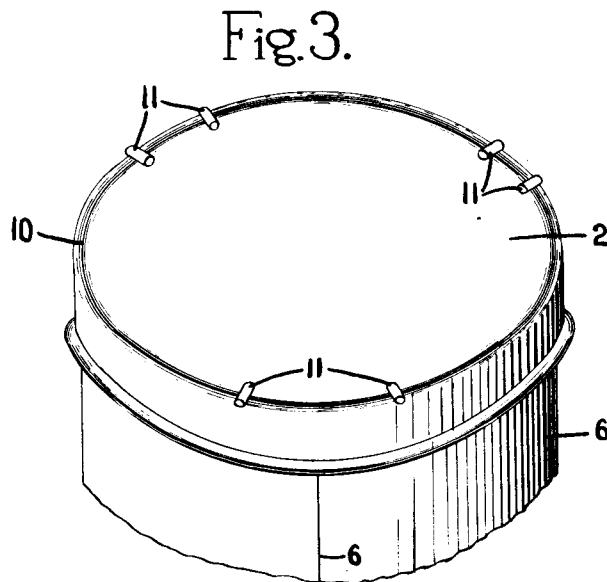
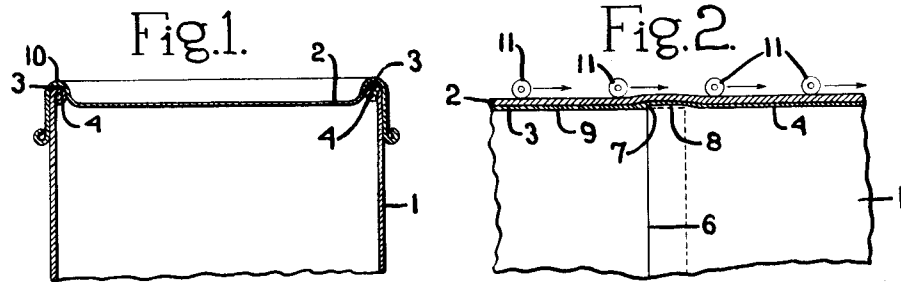
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H. SEBELL

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METHOD OF SEALING A CONTAINER

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UNITED STATES PATENT OFFICE

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METHOD OF SEALING A CONTAINER

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This invention relates to cans or containers that are sealed through the medium of a cap applied thereto and one of the objects of the invention is to provide a novel method of sealing a container by which an hermetically-tight seal can be made notwithstanding the fact that the top edge of the container to which the cap is applied is more or less uneven. There are many containers, such as tin cans, or glass jars and the like, which are sealed by means of a cover applied thereto with a gasket interposed between the cover and the top edge of the container. If the top edge of the container is at all uneven it has been deemed necessary to use a gasket of considerable thickness in order to make a tight seal, the thickness of the gasket being sufficient to permit the high places of the uneven top edge to become embedded therein while affording a proper seal at the low places of said edge.

It is the object of my present invention to provide a novel method of sealing a container by which a perfect seal can be made with a relatively thin gasket even though the top edge of the container is more or less uneven and in carrying out my invention I place the cover and gasket in position on the container and then apply a sealing pressure progressively along the zone of the cover which overlies the edge of the container. During this progressive application of the pressure each point in the cover throughout said zone is acted on independently and is forced tightly against the corresponding point of the container edge and hence it is possible to make the portion of the cover included in said zone conform to the container edge thereby producing a tight seal even though the edge of the container is more or less uneven.

In order to give an understanding of the invention I have illustrated in the drawing some ways of practising it which will now be described after which the novel features will be pointed out in the appended claims.

Fig. 1 is a vertical sectional view through

a can sealed in accordance with my invention;

Fig. 2 is an enlarged vertical sectional view through the cover and gasket along a line parallel to the edge of the can;

Fig. 3 is a perspective view of a can and illustrates the manner of sealing it;

Fig. 4 is an enlarged fragmentary view of the edge of the can body where the side seam occurs;

Fig. 5 is a view partly in section showing the invention as applied to a glass container;

Fig. 6 is a section on the line 6—6, Fig. 4.

In the drawing 1 indicates a container which is sealed by a cover 2, there being a gasket 3 overlying the top edge 4 of the container and confined between said edge and the cover.

In the making of the container whether it be of metal or of glass, the edge 4 is apt to be more or less uneven. The common way of sealing a container is to put the cover in place on the container with the gasket in proper position and then to apply a pressure to the cover to force it firmly home, the pressure usually being applied to the cover by means of a press.

If the edge 4 is at all uneven, that is, if it has some places that are higher than others, the pressure which is applied to the entire cover will, of course, be taken largely by the high spots of the edge 4 and it frequently happens that at the low spots the gasket is not firmly clamped between the cover and the edge with the result that the container will probably not be tightly or hermetically sealed.

In my present invention I avoid this difficulty by applying the sealing pressure progressively throughout the zone of the cover which overlies the edge 4 so that at each point the cover is forced into firm sealing engagement with the gasket and the edge 4.

The container shown, which is a tin can, has a can body formed with the usual side seam 6, which is an overlapping seam formed by overlapping two edges 20, 21 of the blank from which the body is made, and then soldering them together. The material of the

can body is shown as curled over at its upper edge 4, as is commonly done in tin cans, thereby presenting a folded edge to receive the gasket 3 rather than a raw edge.

5 In the formation of this folded edge 4 it is not always easy to produce an edge which is absolutely true and at the places where the seam 6 is located there will be produced a shoulder 7 caused by the overlapping of the edges of the blank from which the can body

10 is made.
In the can body having this construction the edge 4 will present the high portion 8 at the seam and the low portion 9 adjacent the seam. This, however, is only illustrative of one way in which a can or container is formed which has a high portion and low portion in the sealing edge 4.

15 In the case of glass containers that are molded into shape, such as shown at 15 in Fig. 5, it frequently happens that the sealing edge 16 will be more or less uneven due to uneven shrinkage of the glass when it cools.

20 In sealing a can or container in accordance with my method the cover and the gasket are placed in position and then the zone of the cover which represents that portion directly over the gasket and the edge 4 of the container is subjected to a progressive sealing pressure which is yieldingly applied at one or more points. This zone is indicated by the shaded area 10 in Fig. 3.

25 The sealing pressure may be applied throughout the zone progressively in various ways without departing from the invention. One way would be to subject said zone to the action of one or more pressing rolls 11 which are caused to move over and around the zone 10 of the cover 2 in such a manner as to apply a rolling pressure to the zone progressively. This may be accomplished either by causing the can to be turned underneath the rolls or holding the can stationary and causing the rolls to travel

30 around said zone, or both can and the rolls may have a turning action. In any event, the action of the presser rolls 11 is to force each part of the can cover in the zone 10 into firm sealing relation with the container edge 4 and this action will occur notwithstanding the fact that the edge 4 may be more or less uneven.

35 The various rolls 11, if more than one is used, will be so supported that they have an independent vertical movement, so that each roll can act independently in causing the cover to conform to any irregularities in the edge of the container. If a plurality of rolls are used and they are mounted in a head the independent vertical movement of the rolls can be secured by having each roll backed by a spring.

40 In the case of an uneven edge caused by the presence of the seam 6 which produces the shoulder 7 it is desirable to cause the

roll to travel in a direction toward said shoulder as indicated by the arrows in Fig. 2 because as the roll travels towards the shoulder it will tend to crowd the material of the gasket 3 firmly into the corner which the shoulder forms.

45 This progressive sealing may also be accomplished through the application of hammer-like blows to the zone 10, said zone being subjected to the hammering action progressively. A hammering action will force the material of the zone into firm sealing contact with the edge 4 and produce an hermetic seal even though the edge is uneven.

50 The progressive action of the rollers 11 or of the hammer-like blows causes the cover to conform to the contour of the upper edge 4 or 16 so that all portions of the cover in the zone 10 will be pressed equally firmly against the top edge of the can. The result will be that a perfect seal may be provided by means of a relatively thin gasket because the can top will be depressed into firm engagement with any low portions in the top edge 4 as well as into firm engagement with the high portions.

55 Reference has been made to a glass container 15 such as shown in Fig. 5. In said figure the cover is indicated at 17 and the gasket at 18. In applying my improved method to sealing a container of this type the progressive pressure applied around the zone of the cover 17 which overlies the edge 16 will cause the cover to conform to said edge 16 so that an hermetic seal can be provided with a thin gasket even though the edge 16 is more or less uneven.

I claim:

1. The method of sealing a container which consists in placing a cover on the container with a gasket between the cover and the edge of the container and then subjecting the annular portion of the cover overlying said edge and gasket to a rolling sealing pressure which is yieldingly applied progressively around said annular portion and continuously and at all points in the same direction, whereby said portion of the cover is caused to conform to the edge of the container.

115 2. The method of sealing a container which consists in placing a cover on the container with a gasket between the cover and the edge of the container and then applying a sealing pressure to the cover progressively throughout the zone thereof comprising the portion which overlies the edge of the container and the gasket through the medium of yieldingly-mounted rolls which roll over said portion in a circular path having its center in the axis of the can and each of which has an independently yielding movement whereby said portion of the cover is caused to conform to the edge of the container.

3. The method of sealing a container which consists in placing a cover on the container with a gasket between the cover and the edge of the container and then subjecting the portion of the cover overlying said edge and gasket to a sealing pressure which at any instant is yieldingly applied at spaced points but which is progressively applied around said portion in the same direction at all points.

4. The method of sealing a container which consists in placing a cover on the container with a gasket between the cover

and the edge of the container and then subjecting the annular portion of the cover overlying said edge and gasket to the action of a yieldingly-mounted sealing roll which has its axis extending radially to the axis of the can and which at any instant engages said portion at one point only and has a traveling movement around said annular portion continuously in the same direction.

In testimony whereof, I have signed my name to this specification.

HARRY SEBELL.

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