April 17, 1928. 1,666,221

H. SEBELL

CONTAINER

Filed Jan. 29, 1924

Fig. 1.

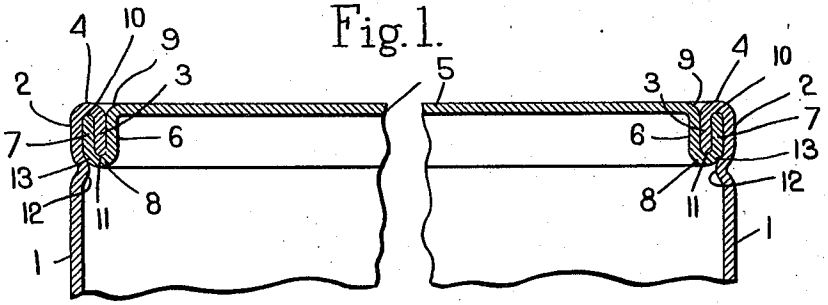


Fig. 2.

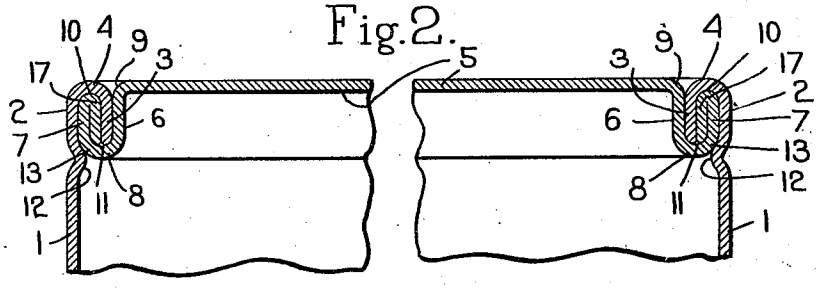


Fig. 3.

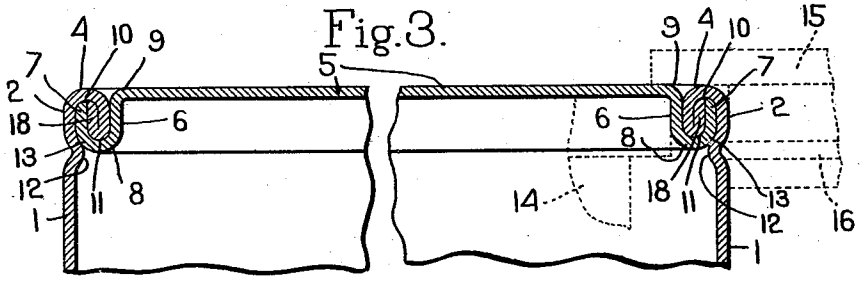
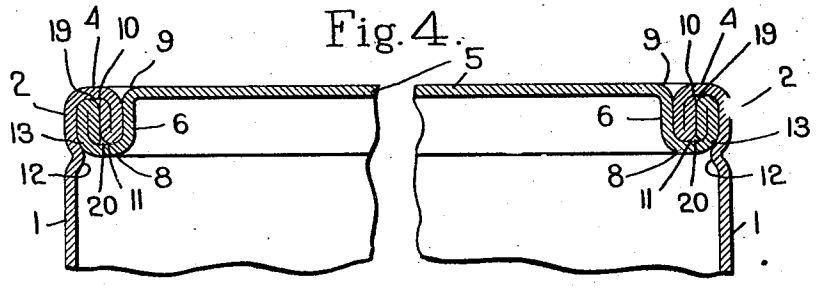


Fig. 4.



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UNITED STATES PATENT OFFICE.

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CONTAINER.

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This invention relates to a container or can and the object is to provide a container in which the top may be sealed with an especially tight seal to prevent gases from leaking into or out of the container from which the top may easily be removed when it is desired to open the container.

Another object of the invention is to provide an easily opened container which has an especially strong end so constructed that even though the container may easily be opened when properly manipulated it will stand extremely rough usage incident to packing, shipping, etc., without opening or breaking the seal.

A further object of the invention is to provide a container which may easily, quickly and cheaply be manufactured.

Other objects and features of the invention will more fully appear from the following description and the accompanying drawings and will be particularly pointed out in the claim.

In the drawings:

Fig. 1 is a section through one end of a container showing the container body with an opening and a closure therefor having unfolded flanges, the end of the body also being unfolded and turned in between the flanges to hold the closure in the opening;

Figs. 2, 3 and 4 are sections through the ends of containers showing various other forms which the invention may take.

In the usual container or can in which foodstuffs are packed the ends or closures for the cans, such as the top and bottom are held on the body of the container by having the end of the body and the edge of the closure rolled and folded to form a seam. This seam when properly made joins the can end to the body so securely that they can not be separated without destroying either the body or the end. It sometimes happens that in forming this seam the edge of the closure body or the edge of the flange on the closure is slit, or the flange or the end of the body is wrinkled during the folding process with the result that air may leak into the can or the gases in the can may leak through the seam into the atmosphere, thus causing the deterioration of the food within the container.

With the container of the present invention, however, the body of the container and the closure therefor are formed separately so that any imperfection occurring during the forming of these parts can be noted, and the container is assembled from the pre-formed parts in such manner that the parts are put under no strain and have no tendency to break or permit the completed container to leak.

Another feature of the invention is the fact that with a container constructed in accordance with the present invention there are a number of recesses or places where a sealing material may lie to provide a tight juncture between the body and closure of the container.

A further feature of the invention is the fact that even though the closure for the container is tightly and securely held on the body thereof, the container may easily be opened when struck in the proper manner but will firmly resist any opening operations which are performed thereon in an improper manner.

The container illustrated in Fig. 1 is of extremely simple construction. In this figure, 1 designates the lower portion of the body of the container and 2 designates the upper portion of the body which is in line with the lower portion. The end 3 of the body of the container is bent at 4 so that said end lies parallel with but spaced from the upper portion 2 of the body. The closure for the container consists of a central portion 5 and a rim which comprises an inner flange 6 and an outer flange 7 which may be, and preferably are, integral with the central portion of the closure. The inner and outer flanges are connected by the bend 8 and spaced from one another to receive the end 3 of the body, and the rim is connected to the central portion of the closure by the bend 9. Thus a recess 10 is provided in the body of the container to receive a sealing material and another recess 11 is provided in the closure for like purposes and when the parts are in the position shown in Fig. 1 there are two sealing recesses in the juncture between the closure and the body of the container which recesses when filled with the sealing material form a seal which effectively prevents any passage of gas into or out of the container.

The formation of the inner and outer flanges to provide the recess 11 causes the central portion of the closure to be so positioned that it forms a panel in the end of the container which lies more or less on the level of the extreme end of the container de-

pending upon the length of the flange 6 and the desired depth of the recess 11. In the container illustrated the central portion or panel of the closure is on the level with the bend 4 of the body thus providing the deep recess 11 and also giving the end of the can a finished appearance. With the panel of the closure as shown in the drawings the end of the container is practically smooth and except for the small crevice at the juncture of the panel and bend 4 of the body there is no place for the lodgment of dust which collects on the top of the usual containers when they are stacked on shelves or otherwise stored awaiting shipment and sale. It is to be understood, however, that the invention disclosed in this application is not to be limited to a container having the panel on the level of the extreme end of the container as, if the feature of having the end of the container dust proof is not desired, the panel may be lowered as much as desired to provide the recess 11.

The closure is held within the container by the frictional engagement of the outer flange 6 with the upper portion 2 and the end 3 of the body and also by the frictional engagement of the end of the body with the flanges. In order to more securely hold the closure in the end of the container the body may be provided with a projection 12 which extends within the container under the bend 8 and contacts with the shoulder 13 formed by the bend. Although the projection may have any form it is preferably a continuous beading formed after the closure has been placed in the end of the container at the same time that the flanges and end of the body are pressed together to secure the closure to the body of the container. Although the projection extends inwardly sufficiently to prevent the closure from dropping down into the container away from the body end, it is yet so resilient that it permits the closure to slip away from the end of the container when pressure is applied to the closure at its periphery. The projection thus assists the flange in holding the closure in the open end of the container but still permits the closure to be forced away from the flange when it is desired to open the container. In opening the container the closure is struck by a series of light blows progressively around its periphery. These blows break the sealing material and force the closure downwardly away from the end of the body and the closure may then be drawn through the opening end of the container so that the contents of the container may be emptied.

The container illustrated is made by providing the body without the projection 12 and then turning the end of the body inward parallel with the main portion thereof but spaced therefrom to form the recess 10. The closure may be made by stamping the panel and inner downwardly extending flange from a sheet of the desired metal, preferably tin, and then turning the edge of this flange in an outward and upward direction until it lies parallel with the inner flange to form the outer flange and the recess 11.

After the body and closure are formed material is placed in the several recesses. Although various kinds of sealing material may be used the preferred material is a liquid which is quite fluid as placed in the recesses but which becomes viscous as it is exposed to the air and dries until when thoroughly dry it is an elastic solid. The closure and body are permitted to stand until the sealing material is dry at which time the container may be assembled by inserting the closure through the end of the container not shown on the drawings, and pushing it through the container until the flanges and body end are properly seated in the recesses and interlock in the position shown in the drawings. In order that the parts may interlock properly but still permit the closure easily and freely to be moved through the body of the container, it is necessary that the diameter of the closure be just the same as the internal diameter of the container.

As the flanges on the closure and the end of the body are forced into engagement the sealing compound is pressed between the contacting surfaces to give an exceptionally tight seal. With the closure in the end of the body the container is placed in a can machine which presses the upper portion 2 of the body and the inner flange 6 toward each other to join the closure to the body. The machine comprises the chuck 14 which extends up in the container to bear against the inner flange 6 of the closure, and the roll 15 which bears with great force against the upper portion 2 of the body to squeeze the rim of the container into a rigid, tightly sealed structure. If the beading or projection 12 is desired a roll is used which has the boss 16 on it to form the beading and press it into the desired shape contacting with the shoulder 13.

The container shown in Fig. 2 is made in practically the same way as is the container shown in Fig. 1. In the container shown in Fig. 2, however, the outer flange 7 of the closure is folded upon itself at 17 to provide a rim which is stronger and more rigid than the rim of the container shown in Fig. 1 but yet provide a container which will open easily and without the use of a can opener or other special tool.

The container shown in Fig. 3 is as strong and as easily opened as that shown in Fig. 2, but in this case the end of the body is folded upon itself at 18 to give the desired strength to the rim.

A container of the form shown in Fig. 4 has an exceptionally strong and rigid rim

and is very tightly sealed but may be opened with ease. Both the end of the body and the outer flange of the container are folded upon themselves thus giving a rim for the container which contains six thicknesses of metal. The recesses 10 and 11 are of double width and thus hold a large quantity of the sealing material. With a container having a rim of this type there are two open spaces 19 and 20 left entirely around and within the container rim. The sealing material collects in these spaces as the container is being made and forms two sealing rings or gaskets within the contaner rim and through which gas or any of the contents of the container must pass before they can leak from the container. It is obvious that such leakage is practically impossible.

A container of the type shown and described herein opens quite easily if properly manipulated, but stoutly resists all efforts to open it if the efforts are not properly directed. To open the container it is necessary to tap the closure progressively around the periphery at or near the bend 9. If the blows are delivered at the periphery, the rim of the closure receives a large component of the force of each blow and the rim is gradually driven downward away from the end of the body until the closure is entirely free. If the closure is struck at or near the center of the panel, however, a very small component of the force of the blow is effective at the rim of the closure to drive the rim downward, the majority of the force of the centrally delivered blow tending to pull the rim of the closure toward the center of the container. This tendency is stoutly resisted, however, by the rigidity of the combined flanges and body which together form the rim of the container. Thus the container described herein is tight and strong and will not open unless the closure is properly struck, but if it is manipulated in the manner above set forth the container opens quite readily without the use of a special tool or in any way cutting or tearing the closure away from the body.

Having thus described the invention what is claimed as new and desired to be secured by Letters Patent is:

A metal container comprising a body having an opening therein and a closure removably retained in said opening and having a central portion and a rim comprising an inner flange and an outer flange uniformly spaced from each other throughout their extent but connected to provide a recess in the closure to receive a sealing compound, said flanges being parallel and lying substantially perpendicular to said central portion, said body being formed with an annular bead which engages the closure and which is resilient laterally, the end of the body around the opening being turned over said outer flange into the space between said flanges to provide a recess in the body to receive a sealing compound and to press the outer flange between the body and said body end, the body end being pressed between said flanges, whereby the closure is held in position closing the opening by the frictional engagement of the outer flange with the body and end thereof, and by the frictional engagement of the body end with the flanges and by the engagement of the bead with the closure, but the closure may be removed from the opening by pressing downwardly on the closure adjacent the inner flange to disengage the flanges from the container end and force the closure over said bead.

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

HARRY SEBELL.