

March 2, 1943.

W. F. PUNTE

2,312,359

EASY OPENING CONTAINER

Filed April 9, 1941

2 Sheets-Sheet 1

Fig. 1.

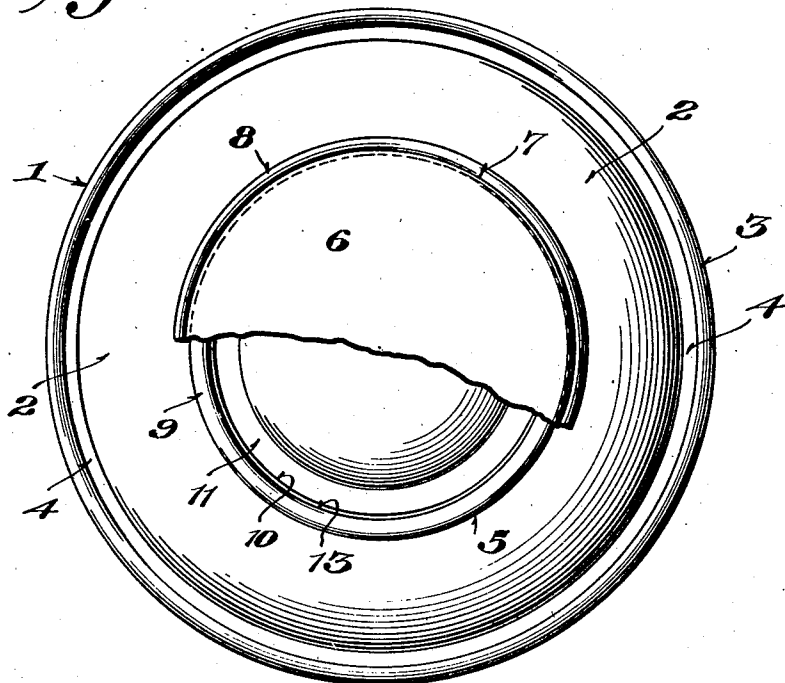


Fig. 2.

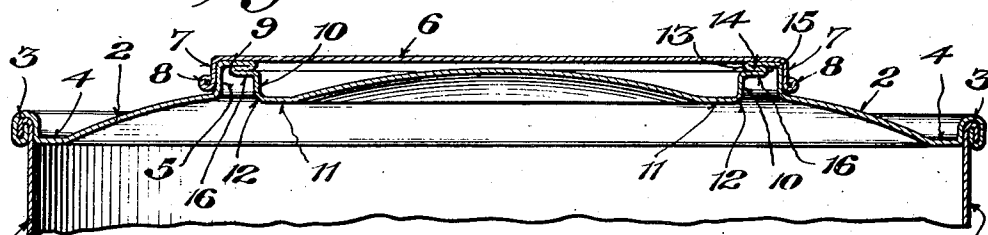
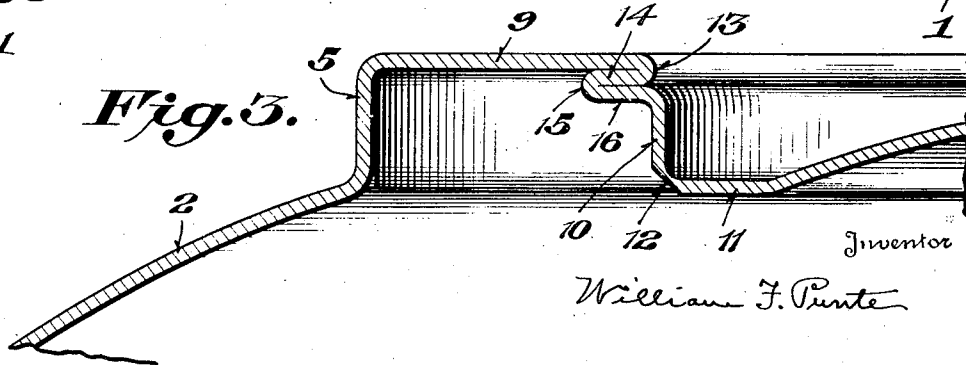


Fig. 3.



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Fig. 4.

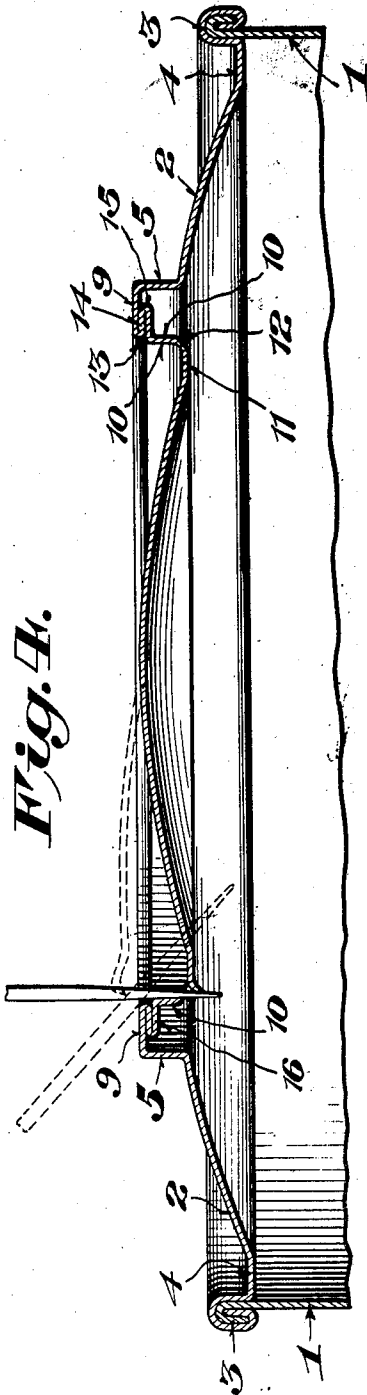
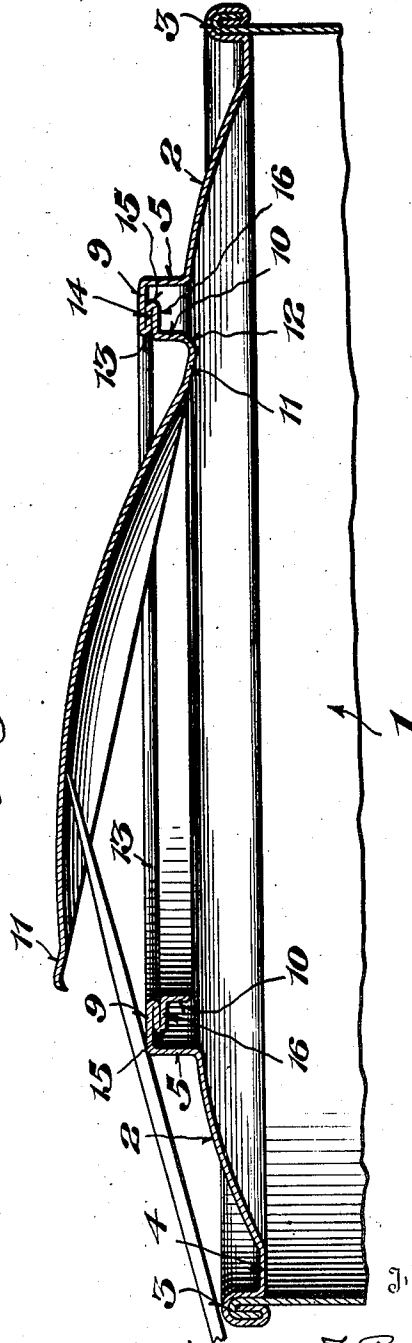


Fig. 5.



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UNITED STATES PATENT OFFICE

2,312,359

EASY OPENING CONTAINER

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Application April 9, 1941, Serial No. 387,763

2 Claims. (Cl. 220—27)

The invention relates to new and useful improvements in an easy opening sheet metal container, and more particularly to a container wherein the metal is ruptured in order to give access to the contents thereof.

An object of the invention is to provide a sheet metal container having a depression formed in the top end thereof surrounded by a wall disposed substantially at right angles to the bottom wall and having the metal at the angle thinned, with a means for strengthening the support for the depending wall surrounding the depression to facilitate the rupturing of the metal at the thinned portion.

A further object of the invention is to provide an easy opening container of the above type wherein the strengthening means resides in the folding of the surrounding wall underneath the top end into contact therewith and back upon itself so that the vertical wall is disposed substantially beneath the first-named fold.

In the drawings which show by way of illustration one embodiment of the invention—

Figure 1 is a plan view of a container embodying the improvements, with the protecting frictionally-held cover broken away to show the structure therebeneath;

Fig. 2 is a sectional view through the upper portion of the container with the frictionally-held cover in place on the container end;

Fig. 3 is an enlarged sectional view through the portion of the container end containing the novel feature of structure;

Fig. 4 is an enlarged view similar to Figure 2, but showing the cover removed, and in full lines the puncturing and pryout tool inserted for the initial rupturing of the container end at the thinned portion, and showing in dotted lines the pryout tool used as a lever for raising the torn out portion as the rupturing continues, and

Fig. 5 is a view similar to Figure 4, but showing the torn out portion raised and the rupturing of the metal nearly completed.

The invention is embodied in a sheet metal container which is preferably cylindrical in shape. The container includes a body portion having a bottom end (not shown) double-seamed thereto, and a top end which is likewise double-seamed to the body portion. This is the usual form of structure employed in the forming of an hermetically closed sheet metal container. The invention has particularly to do with the construction of the container top whereby the container may be hermetically sealed and easily opened and access had to the contents thereof. The con-

tainer top has the usual depression for the chuck of the double-seaming mechanism. The end also has a raised section which is spaced away from the double seam. This raised portion provides a vertical frictional wall to which a protective closure cap may be secured, which is used to protect the weakened section and also to reclose the container after opening. Centrally of the raised portion is a depression surrounded by a substantially vertical wall which joins the bottom wall at an angle, and the metal at the angle is thinned to facilitate the rupturing of the metal. The wall surrounding the depression at the upper end thereof is folded underneath the top end into contact therewith and back upon itself so as to form a rigid support for the surrounding wall beneath the same. This not only facilitates the rupturing of the metal at the thinned portion by pressure applied thereto, but it places the raw edge of metal left on the end, when the end is ruptured, well down in the opening formed, so that the hand of the operator is not likely to be injured by contact therewith.

Referring more in detail to the drawings, the invention as illustrated includes a container body 1 to which a top end 2 is secured by means of a double seam 3 of the usual construction. The top end is provided with the usual depression 4 for the chuck used in the double-seaming operation. As shown, the end of the container is curved upwardly for a distance inward from the double seam, and is thence bent upwardly so as to provide a vertical friction wall 5. A protective friction cover 6 having a depending skirt 7 and a rolled bead 8 at the lower end thereof is adapted to contact with this friction wall 5 for covering the portion of the end encircled by the friction wall. Extending inwardly from the friction wall 5 is a substantially horizontal or flat portion 9. A depression is formed in the flat portion 9, which depression is surrounded by a substantially vertical wall 10 arranged substantially at right angles to the portion 11 of the bottom wall of the depression which joins the same. The metal at the angle is thinned as indicated at 12. When the metal is thinned in the manner stated, it may be ruptured comparatively easily by pressure applied thereto as indicated in Figure 4 of the drawings, and at the same time, the metal is not likely to be broken at the thinned portion by internal pressure within the container against the bottom wall of the depression. This thinning of the metal produces what is commonly known as a pinch score. The pinch score is shown, de-

scribed and claimed in my prior Patent #2,120,186, granted June 7, 1938.

The particular novel feature in the present application resides in the manner of supporting this vertical wall 10. As clearly shown in Figures 3 to 5, the metal forming the wall 10 is folded at 13 back underneath the flat portion 9 of the top end as indicated at 14. It is then again folded at 15 back upon itself as indicated at 16. The folded back portions 14 and 16 are in contact, and are also in contact with the under side of the flat portion 9. The vertical portion of the depending wall 10 is substantially directly beneath the fold 13. This folding back of the metal in the surrounding wall provides a very rigid supporting means for the vertical wall. When pressure is applied to the metal as indicated in Figure 4, for the initial rupturing thereof, the vertical wall will be so rigidly supported by these folded back portions that it will remain substantially in its original position, and the metal will be torn along the thinned portion therefrom. As shown in dotted lines in Figure 4, the tool as soon as it has penetrated the metal and started the initial rupturing thereof, is used as a lever for prying out the part which is to be torn away. In doing this, the lever rests against the fold 13 as a fulcrum, and the folding back of the metal makes a very rigidly supported fulcrum for the lever so that the metal in the wall 13 will not be bent upwardly, bringing the raw edge to a position where it may be contacted with by the hand of the operator. The vertical section of the surrounding wall remains in its initial position during the entire rupturing and tearing away of the bottom wall of the depression. This places the raw edge of metal left on the end during the rupturing, well down away from the opening formed, and therefore, the hand of the operator is not likely to be injured from contact with this raw edge of the metal.

While it is preferred to fold the metal in the surrounding wall in the manner described for the purpose of strengthening the support for the vertical wall, and the parts which are to be ruptured, it will be understood that minor changes may be made in the manner of folding the metal and the arrangement thereof without departing from the

spirit of the invention as set forth in the appended claims. As shown in the drawings, the depression is formed centrally of the end of the container and a relatively large opening is provided when the metal is torn away. It will be understood that this depression may be placed off-center in the end and may be relatively small, without departing from the spirit of the invention as set forth in the appended claims. It will also be understood that while the portion which is torn away is shown as dome-shaped, that this may be otherwise shaped and may be made flat and beaded if desired.

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

1. An easy opening container comprising a body, metal top and bottom ends hermetically joined thereto, said top end having a depression formed therein surrounded by a wall disposed at an angle to the bottom wall of the depression, the metal at the angle being thinned, said surrounding wall at the upper end thereof being folded underneath the top end into contact therewith and back upon itself and into contact to form a rigid support for the surrounding wall beneath the same and a rigid fulcrum support for a tool used for rupturing and prying out the metal forming the bottom wall of the depression.

2. An easy opening container comprising a body, metal top and bottom ends hermetically joined thereto, said top end having a raised portion providing a vertical friction wall with which a protective cover is adapted to contact, said raised portion having a depression formed centrally therein surrounded by a wall disposed at an angle to the bottom wall of the depression, the metal at the angle being thinned, said surrounding wall at the upper end thereof being folded underneath the top end into contact therewith and back upon itself and into contact to form a rigid support for the surrounding wall beneath the same and a rigid fulcrum support for a tool used for rupturing and prying out the metal forming the bottom wall of the depression.

WILLIAM F. PUNTE.