July 27, 1943. E. O. THEN 2,325,084

CONTAINER

Filed June 6, 1941

Fig 1

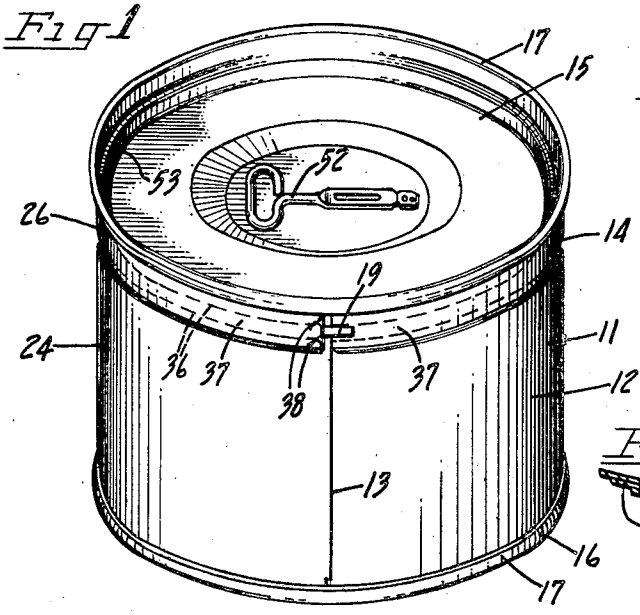


Fig 6

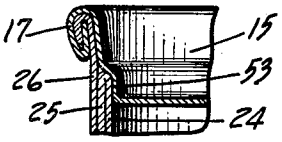


Fig 3

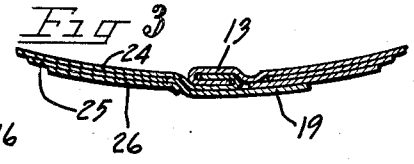


Fig 2

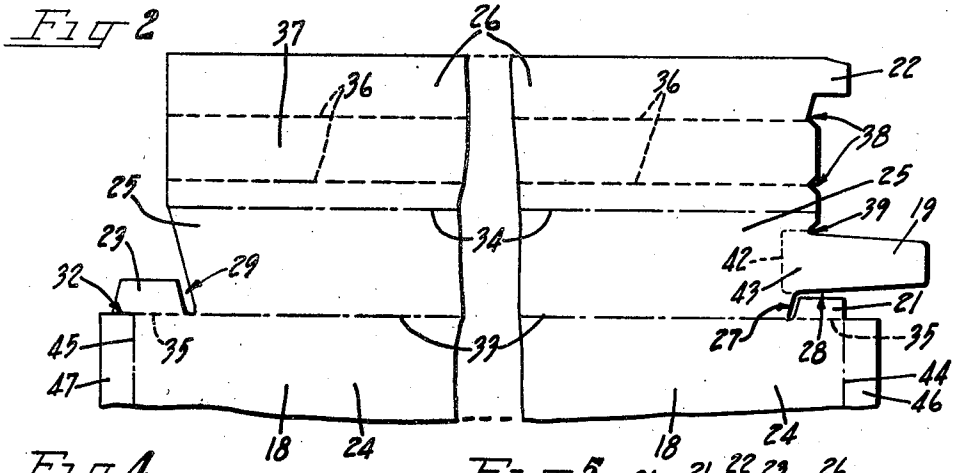
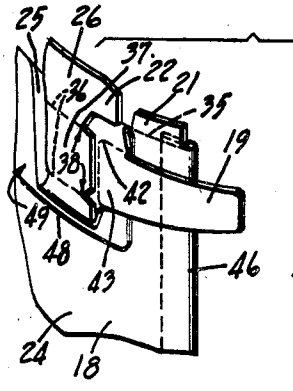


Fig 4



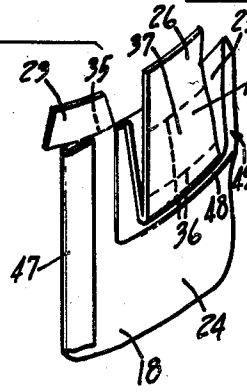
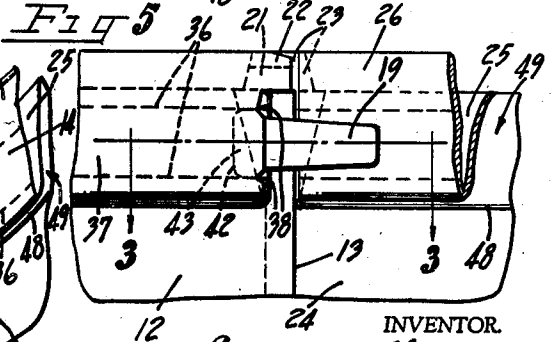


Fig 5



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Patented July 27, 1943 2,325,084

UNITED STATES PATENT OFFICE

2,325,084

CONTAINER

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Application June 6, 1941, Serial No. 396,929

3 Claims. (Cl. 220—54)

This invention relates to a sheet metal can or container having a tearing strip set off by score lines cut in the outer wall fold of a body extension and has particular reference to a tearing tongue which is extended as an integral part of the inner wall fold of the body extension and which is secured to the tearing strip adjacent the longitudinal side seam so that the tearing strip may be removed in opening the can.

The instant invention contemplates an improved tearing tongue construction applicable to a tearing strip container having an integral folded body wall extension on the outside of the body wall proper, wherein the body wall is formed with a longitudinally soldered lock side seam designed to extend between end closure members of the sealed container, such as described in my copending application filed of even date and identified by Serial Number 396,931.

An object of the invention is the provision of a tearing strip container having folded walls adjacent an upper end which constitutes a body extension, the walls of such extension being cut away at the longitudinal side seam of the can which has a tearing tongue extended from the inner wall of the extension and which is soldered to an end of the tearing strip in the outer wall fold.

Another object of the invention is the provision of a container of the character described having a fully locked longitudinal side seam which extends from one end of the can to the other to provide increased strength for the body and wherein the circumferential double fold on the outside of the body is cut away at the side seam region so that a tearing tongue extended as an integral part of an intermediate fold may project out over the side seam, the base of the tongue being provided with a break away area set off by a score line in the intermediate fold and which outlined area is soldered to the end of the tearing strip in the outermost fold, whereupon pulling the tongue separates the break away area from the intermediate fold which thereafter remains attached to the tearing strip and which upon removal opens the container.

Numerous other objects and advantages of the invention will be apparent as it is better understood from the following description, which, taken in connection with the accompanying drawing, discloses a preferred embodiment thereof.

Referring to the drawing:

Figure 1 is a perspective view of a sealed container embodying the instant invention;

Fig. 2 is an enlarged fragmentary view of upper end portions of a flat blank from which the container body is produced;

Fig. 3 is an enlarged sectional detail of the body wall proper and the folded body extension at the longitudinal side seam as viewed along the line 3—3 in Fig. 5 and illustrating a tongue extending from an intermediate wall fold;

Fig. 4 is a fragmentary perspective view of opposite upper ends of the body blank shown in Fig. 2 after being folded and after the blank has been formed into tubular shape and illustrating the tongue projected from a middle wall fold, just prior to having the hooked edges interlocked;

Fig. 5 is a fragmentary view in side elevation of the part of the container body shown in Fig. 4 after the upper ends of the body have been joined in a longitudinally locked side seam and illustrating the extended tearing tongue projecting over the seam and over the outermost wall fold at the body extension; and

Fig. 6 is a sectional detail taken through the top double seam and the adjacent folded body wall of the sealed container.

As a preferred embodiment of the invention the drawing illustrates a sealed cylindrical sheet metal container 11 (Fig. 1) which includes a tubular body 12, the edges of which are joined together in a longitudinal fully locked side seam 13. The body also has a multiple circumferentially folded wall 14 adjacent its upper end. Top and bottom end closures 15 and 16 are secured to the body in double end seam joints as at 17.

The body member 12 is produced from a substantially flat rectangular body blank 18 (Fig. 2). Such a body blank may be uncoated on one or both sides or printed or lithographed as for example in decorated containers. The body blank 18 is formed with a tearing tongue 19 at one edge of the blank and with a short lap projection 21 which is spaced just below the tongue. An outer lap extension 22 is formed above the tongue at the same edge. A lap projection 23 is formed on the opposite edge of the body blank.

The body blank 18 comprises a major body wall section 24, an intermediate body wall extension 25 and an outer wall extension 26. The lap projections 21, 23 extend upwardly from the body wall section 24. The projection 21 is notched or slit as at 27, 28 while the projection 23 is notched at 29 and slit as at 32. This provides for a distinct line of bend or fold 33 between the major body wall section 24, and the intermediate wall extension 25. A similar line of bend or fold 34, which is parallel to

the line of bend 33 and to the upper end of the body blank, designates the boundary between the wall extensions 25 and 26.

A score line 35 is cut across each lap projection 21, 23 for a purpose hereinafter described. The outer wall extension 26 has parallel score lines 36 which set off a tearing strip 37. Two V-shaped notches 38 are cut in the edge of the wall extension 26 so that the apex of each notch is directed into a score line 36. The tearing tongue 19 extends from the edge of the intermediate wall extension 25 and preferably is located to register in alignment with the tearing strip 37 when the body blank is folded.

A notch 39, similar to notch 38 is cut in the edge of the intermediate wall extension adjacent the tongue 19 and is directed into a score line 42. This score line is arranged to outline a break-away area at the base of the tongue and is identified by the numeral 43. Lines of bend 44, 45 set off opposite marginal edges 46, 47 of the major body wall section 24 for the side seam.

Fig. 4 of the drawing illustrates the upper portions of the two edges of the body blank 18 after the intermediate and the outer wall extensions 25 and 26 have been folded downwardly on the body wall section 24 along the lines of bend 33 and 34 and have been shaped into the double wall extension 14. The folded body at such time is in its formed tubular shape. This view also shows how the intermediate and outer wall extensions are cut away at the longitudinal seam region leaving the top of the lap projection 23 in the same plane as the top of the outermost wall 26.

The marginal edge 46 is folded inwardly to form the outer hook section for the lock seam of the container body. The marginal edge 47 also is folded, but in an outward direction to form the inner hook of the seam. The area 43 at the base of the tongue 19 is shown herein as being disposed directly beneath the tearing strip 37 in the outermost wall extension. The tongue 19 is projected outwardly beyond the hook section 46.

Figure 4 of the drawing also indicates that a rolling or similar operation has been previously performed on the major body wall surface 24 so that the body wall above a line of depression 48 has been necked in to provide a depressed pocket 49 for a purpose hereinafter described. The side seam region at each edge of the body blank is not depressed but remains unaltered.

The inner and outer hook sections of the folded marginal edges 46, 47, upon being interlocked when the can body is fully formed, constitute the longitudinal lock seam 13. As will be subsequently explained, this seam extends substantially the full body height of the container. At such completion of the can body, the hook sections of the side seam are bumped down in a conventional manner to produce the completely formed lock seam. It is desirable, at such a bumping operation, to also squeeze together the double wall extension 14, which comprises the intermediate and outer folded walls 25 and 26, so that they fully seat in the pocket 49, as in Figs. 1 and 5. When thus formed, the exterior surface of the outermost wall is then flush with the outer surface of the body wall proper.

Figure 5 of the drawing shows how opposite ends of the outermost wall extension 26 in the fully bumped container body, overlap upon the lap projections 21, 23 adjacent the longitudinal side seam. This view also shows how the outer lap 22 overlaps upon the lap projections 21 and 23 above the folded wall section at the longitudinal joint. Such a container body is now ready for soldering of the side seam. This includes soldering the base of the tongue 19 to the tearing strip 37 and sealing down the body extension edges.

The fluxing and soldering of the longitudinal side seam may be done in the usual manner. The solder usually is applied to the exterior of the body by a solder roller and the construction of the fully bumped container which includes a substantially continuous flush surface along the side seam, permits such application. The open space between adjacent edges of the cut-away wall extensions 25 and 26 affords unrestricted access to the seam crack by the solder roller.

The solder region of the completely soldered container body extends as an unbroken bond for the full length of the lock seam, including the area at the base of the tearing tongue and including the surface beneath the tongue where it engages the container body wall proper. The solder also extends between the lap projections of the cut-away body walls of the extension, thus bonding such walls and laps together and securing them to the container body wall in a hermetic seal.

The fully soldered container body is now ready to receive its bottom end 16 (Fig. 1). Such a body may be flanged in the usual manner, whereupon the bottom is double seamed or otherwise secured in position to form the end seam 17. This prepares the container for receiving its contents. When such a container is filled with its contents, the top end 15 is double seamed or otherwise secured to the upper end of the outermost wall extension 26, to the outer lap projection 22 and to the lap projection 23 in the end seam 17. This completely seals the container with its contents. Such sealed containers usually have a slotted key 52 secured to the cover 15, as by welding, for convenience in opening the container.

When the sealed container is to be opened, the tearing strip 37 may be removed by engaging the end of the extended tearing tongue 19 into the opening of the slotted key 52. Such application and partial turning of the key breaks the solder bond beneath the tearing tongue 19 at the longitudinal joint. Continued turning movement of the key severs the tearing tongue from the intermediate wall 25 along the score line 42 whereupon the tearing tongue remains with the tearing strip 37 of the outer fold. The tearing strip is then easily broken in the regular manner along the score line to complete the opening of the container.

The removal of the tearing strip from the outermost wall extension leaves only the lap projections 21, 23 as a connection with the opened container. Raising the cover 15 at the opposite side and bending the lap projections 21 and 23 at the score lines 35, fractures the projections at this region and completely separates the cover from the opened container. The separate cover thereafter serves as a reclosure member.

In applying such a reclosure to the opened container, the severed marginal portion of the outermost wall extension 26, which remains secured to the cover 15 frictionally engages with the intermediate wall extension 25 as an exterior slip closure element. At the same time a depending annular wall 53 of the cover 15 frictionally engages the inside of the smooth body wall 24 of

the opened container with an interior friction fit.

It is thought that the invention and many of its attendant advantages will be understood from the foregoing description, and it will be apparent that various changes may be made in the form, construction and arrangement of the parts without departing from the spirit and scope of the invention or sacrificing all of its material advantages, the form hereinbefore described being merely a preferred embodiment thereof.

I claim:

1. A key opening metallic container, comprising a tubular body having an integral folded circumferential wall area of triple thickness adjacent one end thereof, the outermost of said folded walls having a circumferentially disposed tearing strip set off by score lines, a tongue formed in the intermediate of said triple thickness walls and projected from an edge thereof, an end closure member secured to the said outermost wall, said body having a continuous uninterrupted soldered longitudinal lock seam disposed radially inwardly of said tearing strip and tongue and extending to the joint between said body and closure to strengthen the body, the base of said tongue being soldered to said outermost wall to secure the tongue to said tearing strip, whereby pulling outwardly on said tongue in said intermediate wall breaks through the score lines in said outermost wall and removes the tearing strip to open the container and to provide a container reclosure member.

2. A key opening metallic container, comprising a tubular body having an integral folded circumferential wall area of triple thickness adjacent one end, the outermost of said folded walls including a circumferentially disposed tearing strip set off by score lines, a tongue formed in the intermediate of said triple thickness walls and having its base set off by score lines in said intermediate wall, said tongue being projected from an edge of said intermediate wall, an end closure member secured to the said outermost wall, said body having a continuous uninterrupted soldered longitudinal lock seam disposed radially inwardly of said tearing strip and tongue and extending to the joint between said body and closure to strengthen the body, the base of said tongue being soldered to said outermost wall within said base score line to secure the tongue to said tearing strip and to provide for removal of the tongue from the intermediate wall, whereby pulling outwardly on said tongue in said intermediate wall breaks through the score lines in said outermost wall and removes the tearing strip to open the container and to provide a reclosure member having frictional engagement with the said circumferential wall area of the opened container body.

3. A sealed key opening metallic container, comprising a tubular body having an integral folded circumferential wall area of triple thickness at its upper end, the outermost wall of said area including a circumferentially disposed tearing strip set off by score lines, a tongue formed in the intermediate wall of said area, a bottom end closure member secured to the lower end of said body, a top end closure member secured to the said outermost wall of said area and to an adjacent portion of said body wall, said tubular body wall being bent out of its circumferential plane adjacent the lower edge of said folded wall area to provide a flush exterior surface for said outermost area wall and the tubular body wall below said area, said body having an uninterrupted longitudinal lock seam extending continuously between said top and bottom end closure members and between adjacent spaced end portions of said folded wall area to strengthen the body, the base of said tongue being soldered to said outermost wall adjacent said tearing strip to secure the tongue to the tearing strip, portions of said folded body wall area being cut away and soldered down at said longitudinal lock seam, whereby pulling outwardly on said tongue in said intermediate wall breaks and removes the tearing strip in said outermost wall to open the container, such removal of the top end closure with its attached outermost folded body wall area providing a reclosure member having frictional engagement with said tubular body wall and said folded body wall area.

EDWARD O. THEN.