July 26, 1960 E. WATHNE 2,946,477

BEAD SEAMS FOR METAL CONTAINERS

Filed Oct. 16, 1956

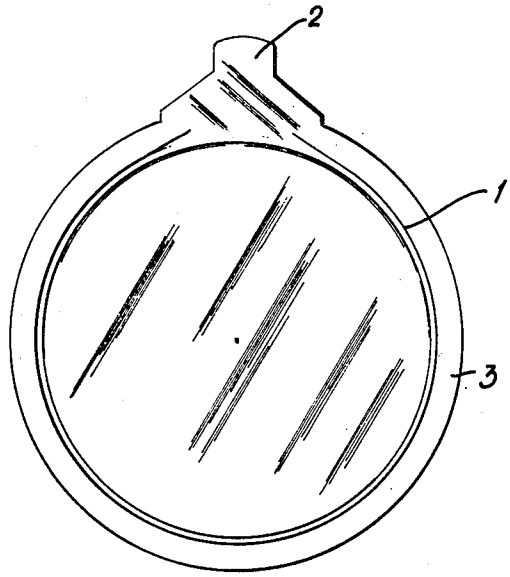


FIG. 1.

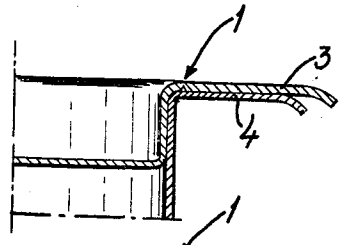


FIG. 2.

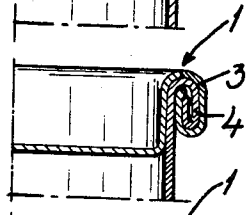


FIG. 3.

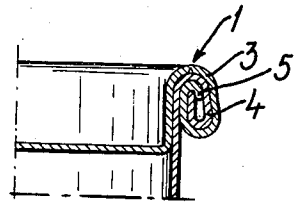


FIG. 5.

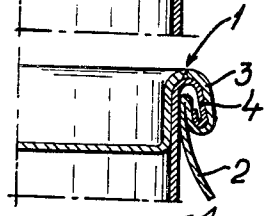


FIG. 4.

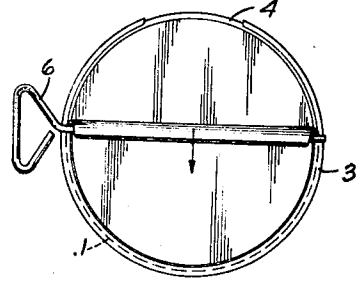


FIG. 6.

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BEAD SEAMS FOR METAL CONTAINERS

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The invention concerns an improved bead seam for square, round or oval cross-section containers by means of which a lid is seamed to the body of the container.

A seam commonly in use for metal containers, the so-called double seam, consists of a downwardly bent marginal edge of the container around which is bent the marginal edge of the lid of the container, both edges being jointly rolled together to form the seam. By a second seaming action the seam is pressed hard onto the side of the container. The second pressing action on the seam may easily cause the lid to be pressed upwards, so that an open space is produced between the two marginal edges being seamed together.

Fluid contents of the container may as a result exude into such open space and thus destroy the usual rubber sealing washer. The washer will lose its elasticity and will no longer serve to keep the container hermetically sealed. The pressing of the seam may also have a tendency to crack the top of the seam and therefore it is not advisable to place a weakening line at the top of the seam as is preferred.

The object of the present invention is to devise a seam that avoids the aforesaid drawbacks, a seam that will ensure a perfect closure to a container and able to stand up to a high inner pressure and a seam that will make for easier opening of the container.

According to the invention a bead seam is characterised by the fact that the two marginal edges from which the seam is to be formed are rolled in cylindrical shape downwards, inwards and upwards and onto the side of the container, leaving a minimum of space in the interior of the seam, a weakening line being produced on the top of the seam.

The weakening line is preferably placed on the lower side of the marginal edge of the container lid so that it will be covered by a rubber washer.

During the seaming operation the two marginal edges forming the seam are drawn tightly towards each other so that no fluid from the container can exude between them and destroy the rubber washer.

The seam is capable of withstanding a pressure of up to 70 lbs./sq. inch.

As the seam has no tendency to crack at its upper side, due to the seaming operation, a weakening line therefore can be placed there, so that the lid will be torn away at the same level as the container opening key is rolled, and hence the opening will be by far easier compared to the orthodox manner where a weakening line is placed on the lower part of the lid, and the lid must be lifted up to the key before it can be torn away and this makes the opening hard.

The accompanying drawing shows one practical example of a seam for containers according to the invention, and wherein:

Figure 1 shows in under plan a lid for a container with a weakening line placed on the marginal edge which is to be seamed.

Figures 2 to 5 show in section on an enlarged scale the production of seams according to the invention. Figure 2 shows the marginal edges of container and lid before seaming, Figure 3 after the seaming, and Figure 4 shows a section through the seam at an opening lip. Figure 5 shows a modified form of seam and Figure 6 is a plan view of a container embodying the invention and in process of being opened by a key.

The weakening line 1 is placed on the lower side of the marginal edge 3 on the lid. When seaming, the marginal edges 3—4 from which the seam is to be formed are rolled to an approximately cylindrical form, downwards, inwards and upwards, leaving a minimum of space centrally of the seam. The seam is at the same time rolled onto the side of the container.

The space in the centre of the seam has the dimension of a sewing needle.

As shown in Figure 4 the seaming method permits an opening lip 2 to be contained in the seam with a small loop, so that the lip 2 does not easily break at its root. In Figure 5 the marginal edge 3 of the container lid has been bent around the marginal edge 4 of the container before seaming so that the edge 3 after seaming acts as a locking hook 5.

As will be particularly understood from Figure 6, the container is opened by means of a key 6 having a shank of greater length than the diameter of the container. As the key shank is turned by its handle portion and rolled across the upper end of the container the lid is torn from the container and wound on the said key shank. As the lid is rolled upon the key shank and in order to permit the same, the side wall of the depressed central portion of the lid is crushed.

What I claim and desire to secure by Letters Patent is:

1. In combination with a can having a continuous side wall providing along its top marginal edge with a lip in the form of a roll presenting an upwardly facing toroidal surface disposed just beyond the confines of said side wall, a lid having a depressed central portion of an area substantially equal to the area of the can and in conformity therewith, said central portion of the lid being fitted snugly into the top of said can, said lid also having a peripheral edge portion overlying and snugly engaging said top marginal edge lip of the can, said marginal edge portion of the lid being provided with a score line extending substantially completely thereabout but having spaced end portions defining a portion of the marginal edge of the lid which is devoid of such score line, said score line being in a position in the marginal edge portion of the lid in relation to said can lip so as to lie above the uppermost portion of said upwardly facing toroidal surface, said lid also including a tab integrally formed therewith at that portion thereof which is devoid of the score line, the disposition of the score line relative to the toroidal surface permitting a key to bear directly upon the outermost marginal edge portion of the lid immediately adjacent the score line to permit the removal of the whole central portion of the lid by a rolling up action upon such key.

2. The combination as defined in claim 1 wherein the terminal ends of said score line which are disposed in

spaced apart relationship to each other are in the form of convergent straight line portions which, if extended, would intersect in an obtuse angle whereby such terminal end portions of the score line are directed outwardly toward said tab.

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