Dec. 22, 1936. F. KRUEGER 2,065,282

CONTAINER SEAM

Filed May 6, 1936

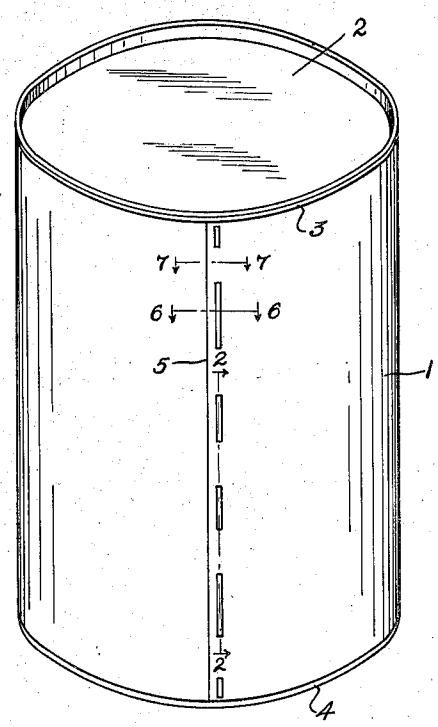


Fig. 1

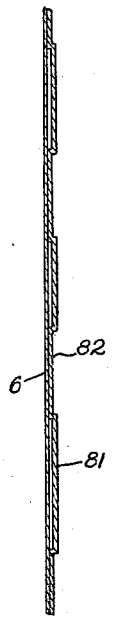


Fig. 3

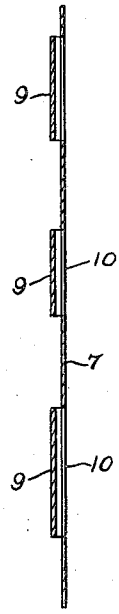


Fig. 4

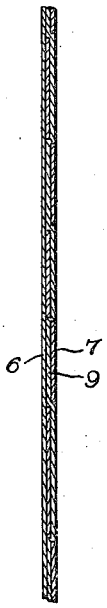


Fig. 2

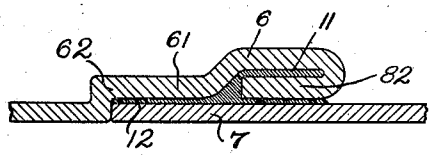


Fig. 7

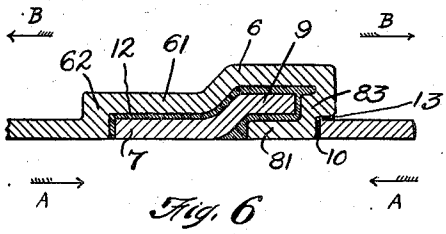


Fig. 6

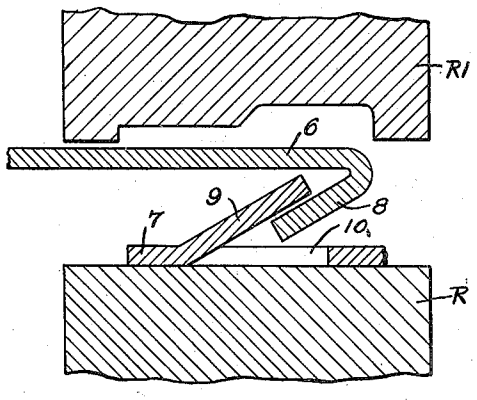


Fig. 5

INVENTOR.

BY Frank Krueger

Ralph Oberlin & Ray

ATTORNEYS.

Patented Dec. 22, 1936

2,065,282

UNITED STATES PATENT OFFICE

2,065,282

CONTAINER SEAM

Frank Krueger, Brooklyn, N. Y., assignor of one-third to Howard U. Herrick, Claverack, N. Y., and one-third to H. H. Pinney, Shaker Heights, Ohio

Application May 6, 1936, Serial No. 78,271

3 Claims. (Cl. 220—75)

The present invention relates to a novel construction for a seam or joint between the wall portions of a container fabricated from sheet metal or similar material. More particularly the invention pertains to a new and better form of construction for the side seam joining the side wall portions of a container.

The general object and nature of the invention is to provide such a container seam which possesses greater strength, is capable of being made at more reduced cost, and results in a substantial saving in material, as compared to similar constructions heretofore used and known in the art. Briefly outlined, the novel container seam construction comprises a plurality of spaced tongues extending away from the edge of one wall portion and engaging with a reversely bent or crimped edge on the other wall portion of the container, whereby tensional force tending to pull the seam apart is resolved into shearing stress upon portions of the body of material. Such construction also includes the bonding or joining of portions of the crimped edge directly to the body of the wall portion to which they are contiguous, thereby producing a much firmer anchorage of such crimped portions than has heretofore been possible where such crimped portions have been bonded to the opposite wall of the seam, and not their own adjoining wall portion.

The novel seam construction also provides abutments or shoulders adapted to counteract the effect of compressive force exerted upon the seam and tending to force one wall portion into further overlapping position with respect to the other. The construction possesses the further advantage in that there results a minimum thickness or bulge of material at the seam which not only produces a smoother and more sightly appearance, but also permits a tighter and better seal at the juncture of such seam with another seam such as the top and bottom wall seams of the container.

Additional objects and advantages of the invention shall become apparent as the following description proceeds.

To the accomplishment of the foregoing and related ends, said invention, then, consists of the means hereinafter fully described and particularly pointed out in the claims.

The annexed drawing and the following description set forth in detail certain structure embodying the invention, such disclosed means constituting, however, but one of various structural forms in which the principle of the invention may be used.

In said annexed drawing:

Fig. 1 is a perspective view of a customary form of container showing a side seam therein constructed according to the principles of the invention; Fig. 2 is an enlarged cross-sectional view of the side seam and taken substantially along line 2—2 of Fig. 1. Figs. 3 and 4 are disassembled, enlarged sectional views of the opposite wall portions which respectively form the assembled joint as shown in Fig. 2; Fig. 5 is an enlarged cross-sectional view of the seam illustrating one of the steps of assembly; Fig. 6 is an enlarged cross-sectional view of the seam taken substantially along line 6—6 of Fig. 1; and Fig. 7 is an enlarged cross-sectional view of the seam taken substantially along line 7—7 of Fig. 1.

Now referring more particularly to the drawing and in Fig. 1 thereof, there is shown a container having a cylindrical side wall 1 and end walls such as the top wall 2 which are joined thereto by the end seams or joints 3 and 4. The cylindrical side wall 1 has overlapping wall portions which are joined to each other at the side seam or joint indicated generally by the numeral 5.

Now directing attention to Fig. 5, the side wall of the container has overlapping end portions 6 and 7. The wall portion 6 carries a reversely bent or crimped edge portion 8 which is adapted to fit under a series of spaced tongues as punched out of the opposite wall portion 7, leaving the slots or openings 10. The last described structure is then subjected to a compressing and shaping action by means of suitable rolls or dies R and R1. The lower roll or die R has a flat face and the upper roll or die R1 has a contoured surface which conforms to the resultant shape of one side of the seam as shown in Figs. 6 and 7.

A bonding material, such as solder in the case of a sheet metal container, is applied to the parts of the seam, such as by a sweating operation, during its formation. The resultant and final form of the seam is best illustrated in Figs. 6 and 7. The crimped edges 8 are formed into portions 81 fitting into the openings 10, and into other portions 82 bonded directly to the overlapping wall portion 6 by means of the layer of solder 11. The edge portion of the overlapping wall portion 7 is bonded directly to the portion 61 of the opposite overlapping wall portion 6 by means of the layer of solder 12. Another portion 83 of the crimped edge 8 is formed into an

offset or rectangular contour which presents a shoulder for the reception of the edge of the opening 10. The bonding material on shoulder 13 joins the last-named shoulder and edge to each other and thus presents a continuous area of sealed surface to surface contact throughout the length of the seam.

The overlapping wall portion 6 also presents another shoulder portion 62 which receives the end of the opposite overlapping wall portion 7. The shoulders presented by the portions 62 and 83 thus serve as abutments counteracting any forces exerted upon the seam in the direction of the arrows A in Fig. 6.

Forces exerted in the opposite direction, or in the direction of the arrows B of Fig. 6 tend to place the overlapping wall portion 7 under shearing stress, which results in a much stronger joint as compared to the ordinary double crimped seam wherein forces tending to pull the walls of the seam apart are resolved into bending stresses tending to unwrap or to bend straight, the convolutions of the crimps.

It will be noted that the tongues 9 are so located as to be spaced from each other throughout the length of the seam, spaced from the lateral edges, viz., the top and bottom edges of the container side wall 1, and have their base portions spaced inwardly from the end edge of the overlapping wall portion 7 and with their free ends extending in a direction away from such last-named end edge.

It will be noted from reference to Figs. 2, 6 and 7 that the maximum thickness of the seam at any point in its cross section is equal to three wall thicknesses, or in other words, a three-ply thickness. There therefore results a substantial saving in the amount of metal required in the seam as compared to the amount of metal in a four-ply or six-ply seam of a double or triple crimped seam heretofore used in the art.

Further referring to Figs. 6 and 7, it will be seen that the exterior side of the seam presents a substantially smooth and undeformed surface which is not only of pleasing appearance, but also is well adapted for the application of a protective coating or label on the container.

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards the structure herein disclosed, provided the means stated by any of the following claims or the equivalent of such stated means be employed.

I therefore particularly point out and distinctly claim as my invention:—

1. In a container seam, the combination of overlapping wall portions, each having an end edge, one of said edges having a reverse bend, a series of tongues in one of said overlapping wall portions interlocking with the said reverse bend, said tongues having their base ends positioned inwardly from said end edge, and having their free ends directed away from said end edge.

2. In a container seam, the combination of overlapping wall portions, each having an end edge, a reversely bent edge on one of said overlapping wall portions, a series of tongues in the other of said overlapping wall portions interlocking with said reversely bent edge, said tongues extending with their free ends directed away from and being spaced from said end edge, bonding material joining those portions of said bent edge which are not in engagement with said tongues to the body of its contiguous wall portion, and bonding material directly joining a part of said overlapping wall portions to each other.

3. In a container seam, the combination of overlapping wall portions, a reversely bent edge on one of said overlapping wall portions, and spaced tongues struck out from the other of said overlapping wall portions forming openings, said tongues being interlocked with said bent edge, and spaced shoulders in said bent edge adapted to receive the edges of said openings.

FRANK KRUEGER.