Nov. 7, 1933. F. WESTERBECK 1,934,393

CONTAINER

Filed Sept. 6, 1930 2 Sheets-Sheet 1

Fig. 1.

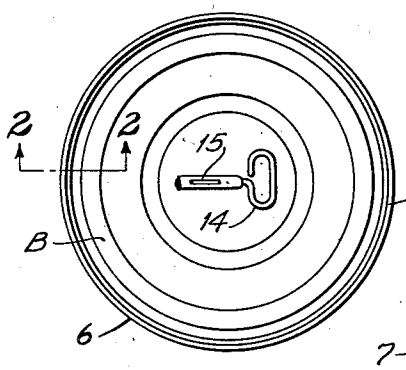


Fig. 3.

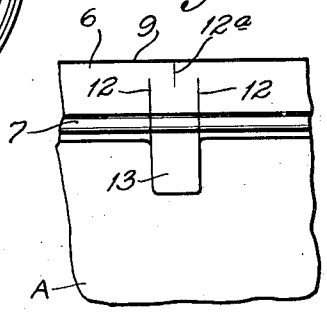


Fig. 2.

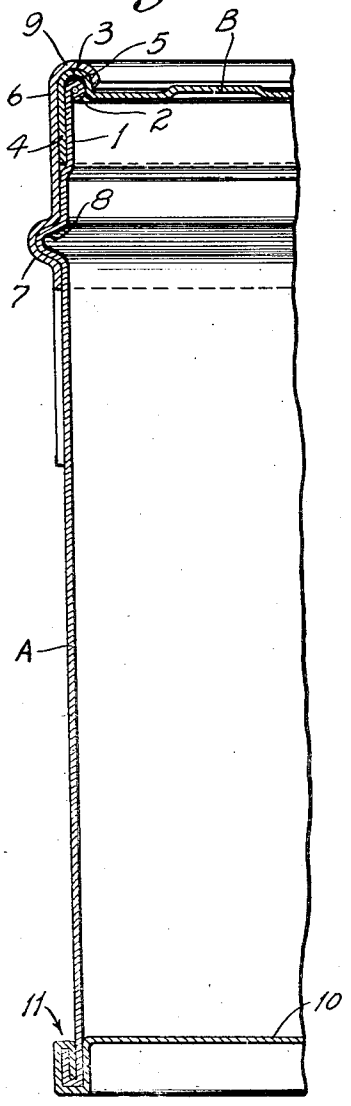
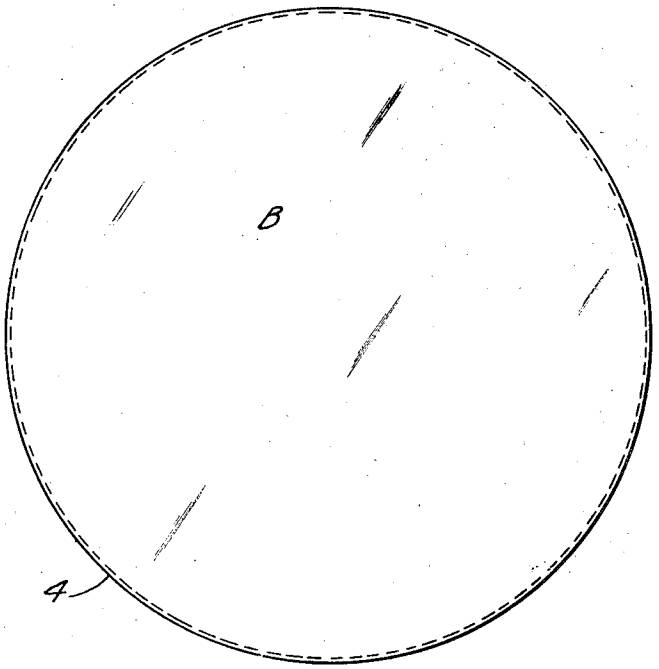


Fig. 4.



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Fig. 5.

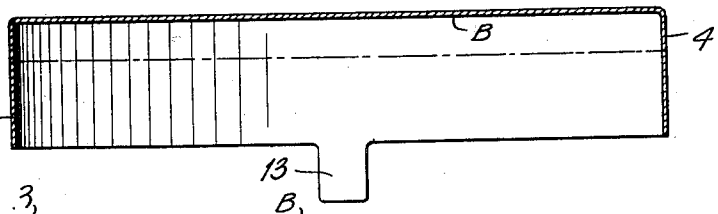


Fig. 6.



Fig. 7.

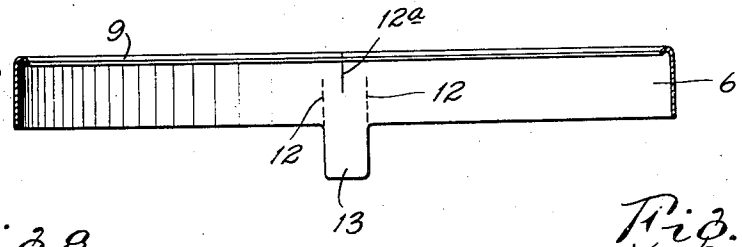


Fig. 8.

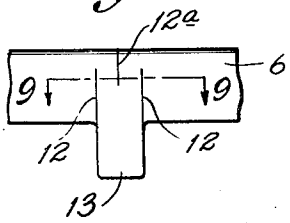


Fig. 9.

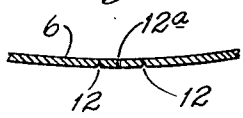


Fig. 11.

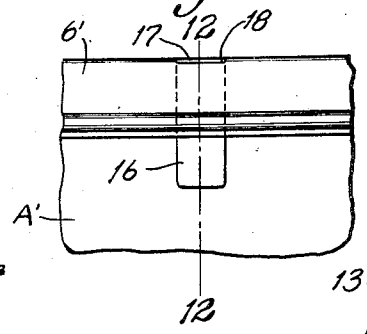


Fig. 10.

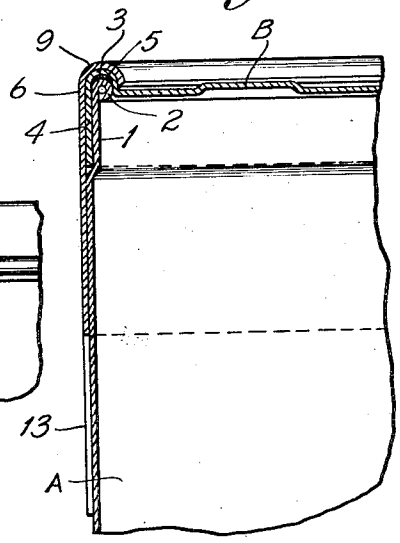


Fig. 12.

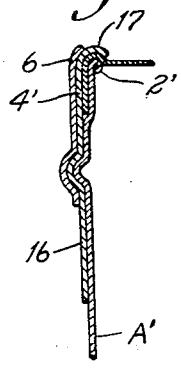


Fig. 13.

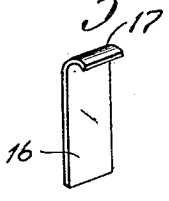
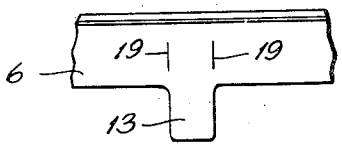


Fig. 14.



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UNITED STATES PATENT OFFICE

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CONTAINER

Frederick Westerbeck, University City, Mo.

Application September 6, 1930. Serial No. 480,113

5 Claims. (Cl. 220—61)

This invention relates to containers, and more specifically to sheet metal cans which are effectively sealed from the atmosphere.

This application is a continuation in part of an application filed by me on July 11, 1929, Serial No. 377,410.

Prior to this invention closures have been secured to sheet metal cans by metal bands. These bands are usually metal strips which have been joined at their ends. Due to the seams in these bands, they are expensive and have not proven effective sealing devices. Air enters at the seams and there is also danger of breakage at a relatively weak seam.

This invention comprehends the use of a seamless or endless sealing band whereby the danger of the entrance of air is minimized, or reduced, and weak joints in the band are eliminated.

Another object of this invention is to produce a closure and a strong, simple and accurate seamless sealing band from one piece of material so that material within the band may be utilized to form the closure. If the seamless sealing band alone was cut or stamped from a piece of sheet metal, there would be a large body of surplus metal removed from the stock, this surplus being the material inside of the blank from which the band is formed.

I will hereafter show how the seamless band and the closure may be easily, quickly and accurately formed at a low cost from a single piece of circular material, without leaving any excess or surplus material within the band.

Another object is to produce a seamless band so interlocked with the closure and can body that the closure cannot be removed without rupturing the seamless band. The seamless band, therefore, serves as a sealing member to prevent unauthorized refilling of the can.

A further object is to provide a simple and positive means whereby the seamless band may be ruptured to allow the removal of the closure from the can.

With the foregoing and other objects in view, the invention comprises the novel, construction, combination and arrangement of parts hereinafter more specifically described and illustrated in the acompanying drawings, wherein is shown the preferred embodiment of the invention. However, it is to be understood that the invention comprehends changes, variations and modifications which come within the scope of the claims hereunto appended.

Fig. 1 is a top view of the can with the closure secured thereto.

Fig. 2 is an enlarged vertical section taken on the lines 2—2 of Fig. 1.

Fig. 3 is a fragmentary view of the sealing band and the can, showing the tongue whereby the sealing band is ruptured.

Fig. 4 is a top view of the closure as it appears before the seamless sealing band is severed therefrom.

Fig. 5 is a vertical section taken through the center of the closure shown in Fig. 4.

Fig. 6 is a vertical section of the finished closure.

Fig. 7 is a vertical section of the seamless sealing band as it appears when it is in condition to be placed on the can.

Fig. 8 is a fragmentary view of the sealing band, showing the weakened portions and the slit to insure a complete rupture of the sealing band.

Fig. 9 is a section taken on the line 9—9 of Fig. 8.

Fig. 10 is a fragmentary vertical section of the can showing the arrangement before the seamless sealing band is beaded to the can body.

Fig. 11 is a fragmentary view similar to Fig. 3 showing a separate tongue extending from the seamless sealing band.

Fig. 12 is a vertical section taken on the line 12—12 of Fig. 11.

Fig. 13 is a perspective view of the separate tongue.

Fig. 14 is a fragmentary view similar to Fig. 8, showing the weakened portions separated from the edges of the sealing band.

A designates a cylindrical can body having an upper margin 1 contracted or slightly reduced in diameter as clearly shown in Figures 2 and 10. The upper margin is provided with a curled closure seat 2.

The closure B has an annular bead 3 which contacts with the inner and outer faces of said curled closure seat 2. The annular flange 4 depends from the annular bead 3 of the closure B and surrounds and is seated on the upper margin of the can body. As shown in Fig. 2 and Fig. 10 the thickness of the flange 4 is equal to the reduction in diameter at the upper margin 1, and the outer face or exterior of the flange 4 is flush with and approximately the same in diameter as the outer face or exterior of the portion of the can body immediately below said flange 4. A sealing compound 5 may be inserted between the curled closure seat 2 and the annular bead 3.

The annular seamless sealing band 6, as shown in Fig. 10 surrounds and is firmly seated upon the flange 4 and a portion of the can body A below

said flange. The seamless band 6 is secured to both the closure B and the can body A to prevent any displacement of the sealing elements. The lower portion of the seamless band 6 is beaded to the can body by the bead 7 in the seamless band interlocked with the bead 8 in the can body, as shown in Fig. 2. The upper portion of the band is secured to the closure by the inwardly extended annular curved portion 9 which is seated upon and secured to the annular bead 3 of the closure.

The bottom 10 is secured to and interlocked with the can body A as shown at 11 in Fig. 2.

When the can has been sealed as shown in the foregoing description, the closure may be removed by a very simple operation. The seamless band 6 is provided with weakened lines 12 which extend inwardly from one edge of the band but do not extend entirely across the band. If the weakened lines extended from one edge to the other edge of the band, the band would be subject to the danger of accidental breakage while in service.

The tongue 13 is integral with the band and extends from the weakened portion of the band so that the side edges of the tongue are parallel to the weakened lines 12.

The closure B may be provided with a key 14 which may be soldered thereto so that it may be easily removed. The key has a slot 15 through which the tongue may be inserted. The key is then turned and the band will be ruptured at the weakened lines 12.

However, since the weakened lines do not extend entirely across the band, the tongue will in some cases be pulled off in lines converging from the upper ends of the weakened lines without tearing entirely across the band. To insure a complete severing of the band a slit 12^a may extend from the edge of the band opposite the tongue to a plane lower than and between the upper ends of the score lines 12. As shown in Fig. 3, the length of said slot 12^a is less than the transverse width of said sealing band so as to prevent an undue weakening of said band. The slit 12^a is cut entirely through the sheet metal, but the score lines 12 are formed by grooves in this metal.

Figures 11, 12, and 13 show a separate tongue 16 to sever the seamless band. The separate tongue 16 is located between the seamless band 6', and the flange 4' and can body A', as shown in Fig. 12. The separate tongue has an inwardly curved portion 17 which is seated upon the closure. The top of the seamless band has an opening as shown at 18 in Fig. 11, so that the curved portion 17 of the separate tongue will not prevent the closure from being firmly seated upon the closure seat 2'. The separate tongue extends from the weakened portion in the seamless band 6', and this band may be ruptured in the manner heretofore described in referring to the integral tongue 13.

Fig. 14 shows the seamless band as provided with weakened lines 19 which extend transversely of the band, the ends of said lines being separated from the top and bottom of the band. This arrangement of lines when used without the slit, as shown in Fig. 8, will produce a very strong band but it will not in all cases be completely ruptured.

As a result of the rupturing of the seamless band the can cannot be resealed and used again. Furthermore, the bead 8 in the can body will prevent another seamless band from being placed on the can in the manner that the seamless band was originally located thereon.

The method of making the foregoing sheet metal containers will now be described. The cylindrical can body A is formed in the usual manner, and the upper margin 1 of the can body is then contracted or reduced to a slightly less diameter.

The closure B with the depending flange 4, the seamless band 6, and the tongue 13 are formed from one piece of sheet metal.

A large circular disk with a protruding tongue is cut or stamped from a piece of sheet metal, to produce the article shown in Figures 4 and 5. The closure B is thus formed integral with the band 6 and tongue 13 as shown in Figures 4 and 5. The depending flange of the closure B is severed at the dot and dash lines in Fig. 5 to separate the seamless band 6 from the closure. The closure, with its flange 4, is then contracted and the upper part of the closure may be formed into the shape shown in Fig. 6. The contracted closure B is then placed on the can body, and the contracted flange 4 is located and seated upon the reduced upper margin. The flange 4 and the upper margin of the can body A have been slightly contracted so that the inner face of the flange will contact with the outer face of the upper margin, and the outer face of the flange 4 will be flush or in alinement with that portion of the can body immediately below the flange 4, as shown in Fig. 10.

The upper portion of the seamless band 6 is curved inwardly as shown in Fig. 7, and the weakened lines 12 are formed in the seamless band. The seamless band is then placed around and seated upon the depending flange 4 and a portion of the can body below said closure, and the inwardly curved upper portion of the seamless band is interlocked with the annular bead 3 on the closure.

The can now appears as shown in Fig. 10. The lower portion of the band is then beaded to the can body, as shown at 7 and 8 in Fig. 2.

The can is then ready to be filled, and after the filling operation, the bottom 10 is secured to the can body, as shown in Fig. 2.

In the foregoing description it has been stated that the closure B with the depending flange 4, the seamless sealing band 6, and the tongue 13 are made from one piece of sheet metal. In making these elements for a cylindrical can this step has a very great advantage because it almost entirely eliminates the production of waste material. In this method, the closure and seamless band are formed from a single disk. However, when circular disks are cut from sheet material, there are certain portions between the disks which are not ordinarily used in making cans. The tongues 13 are cut from said portions. The tongues, therefore, are formed by material that is ordinarily wasted; they are strongly secured in place, and there is no extra labor of cutting the tongues or locating them in place.

From the foregoing description of this invention it is apparent that a strong and highly satisfactory can is produced at a relatively low cost. All of the sealing elements are firmly secured to the can. The seamless band is interlocked with the can body, and the closure is secured to the seamless band so that the closure cannot be displaced. The seamless band has no weak joints permitting free entrance of air, and due to the fact that the depending flange of the closure is in alinement with the can body, the seamless

sealing band will firmly contact with both the flange of the closure and the can body to form an improved seal around the closure.

I claim:

1. A sheet metal container comprising a can body, a closure, a seamless sealing band having a pair of weakened lines extending inwardly from one edge and a slit extending from the other edge to a position between said weakened lines, and a tongue whereby said band is ruptured, said tongue being parallel to said weakened lines.

2. A sheet metal container comprising a body member provided with a contracted upper margin having an inwardly curled closure seat at its upper edge, a closure having a depending flange surrounding and seated on said contracted upper margin below said curled closure seat, the exterior of said flange being approximately flush with the exterior of the body member, and a seamless sealing band surrounding and seated on said flange and a portion of said body member below said flange.

3. A sheet metal container comprising a body member having a contracted upper margin smaller in diameter than the remainder of said body member, a closure having a depending flange surrounding and seated on said contracted upper margin, the outer face of said flange being approximately flush with the outer face of the said body member and a seamless sealing band surrounding and seated on said flange and body member below said flange.

4. A sheet metal container comprising a body member provided with a contracted upper margin, a closure having a depending flange surrounding and seated on said contracted upper margin, a seamless sealing band surrounding and seated on said depending flange and said body member below said flange, said depending flange being in alinement with the portion of the body member below said seamless sealing band.

5. A container comprising a body portion, a closure, and a sheet metal sealing band provided with a tongue whereby said band is ruptured, said sealing band having a weakened line extending inwardly from an edge thereof at each side of said tongue so as to provide a weakened portion across the tearing plane of said tongue, said sealing band also being provided with a slit extending from the opposite edge of said band to a position between said weakened lines, the length of said slit being less than the transverse width of said sealing band so as to prevent an undue weakening of said band.

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