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SHEET METAL CONTAINER

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Fig. 1

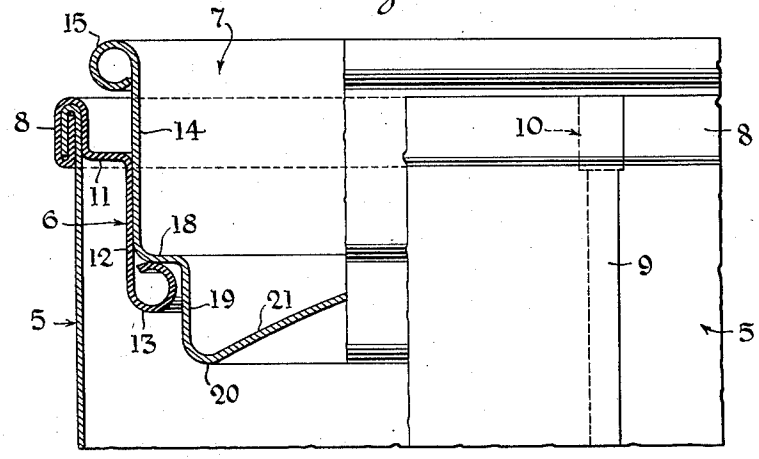


Fig. 2

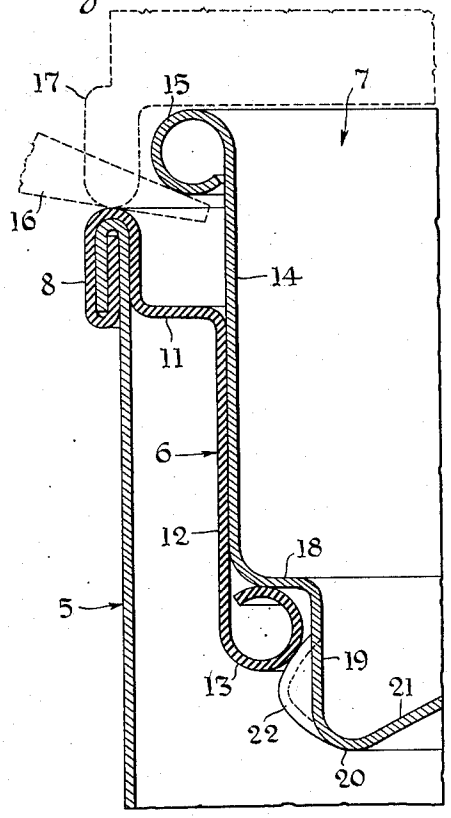
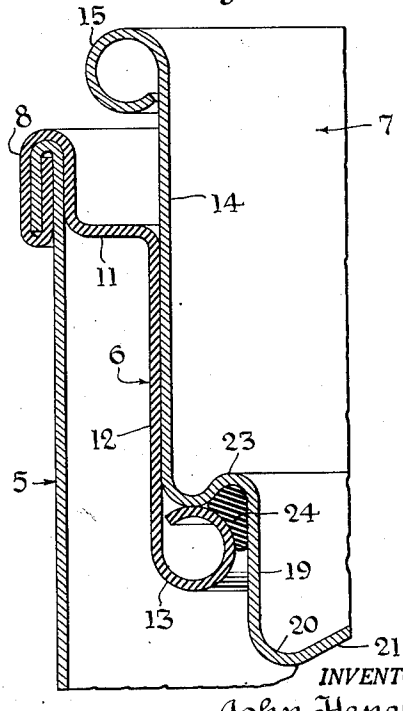


Fig. 3



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SHEET METAL CONTAINER

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2 Claims. (Cl. 220—60)

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The invention relates generally to sheet metal containers and primarily seeks to provide a novel container of the type embodying a friction plug closure and which, while adapted to more general usage, is particularly adaptable to the packaging of heavy liquids such as paint.

An object of the invention is to provide a novel container structure of the character stated wherein the body, which may be of the type having a standard lock and lap side seam, has a relatively wide open end to which is double seam secured a drawn metal collar including an offset or top wall portion disposed substantially perpendicularly to the body axis just short of the depth of and opposite the double seam, and a deep friction wall substantially paralleling the body wall and spaced therefrom only a slightly greater distance than the inward projection of the side seam and terminating in an inwardly turned seat curl or bead.

Another object of the invention is to provide a container structure of the character stated wherein the collar is turned inwardly at its lower end to form a seat curl or bead and wherein there is included a friction plug closure member having an upright wall disposed to engage in tight frictional contact with the deep friction wall of the collar, said closure member being offset inwardly at its lower end to receive said curl or bead and equipped with indentations disposed to yieldably lock under said curl or bead.

Another object of the invention is to provide a container structure of the character stated wherein the closure plug friction wall terminates at its upper end in an outwardly turned curl or bead which extends above and inwardly of the double seam by which the collar is attached to the container body in position for having a lifting tool inserted thereunder and engaged with said seam as a fulcrum for effecting a lifting out or removal of said closure, said collar curl also being disposed to project upwardly and nest as a centering projection within the double seam at the bottom of a container resting upon the first mentioned double seam.

Another object of the invention is to provide a container structure of the character stated wherein the closure member offset is so formed as to provide an annular seat for carrying sealing material in position for engaging and providing a seal against the curl or bead at the bottom of the collar.

With the above and other objects in view that will hereinafter appear, the nature of the invention will be more clearly understood by reference

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to the following detailed description, the appended claims, and the several views illustrated in the accompanying drawing.

In the drawing:

Figure 1 is a fragmentary part side elevation and part vertical cross section illustrating a container closure embodying the invention.

Figure 2 is an enlarged fragmentary vertical cross section illustrating the improved closure and one of a plurality of indentations disposed to yieldably lock under the curl or bead at the lower end of the collar, a prying tool being shown in position for prying the closure out of its friction mounting, and a container fragment being shown as nested over the closure member and resting upon the top double seam of the container in dotted lines.

Figure 3 is a view similar to Figure 2 showing a sealing medium carried by the closure member in position for engaging in sealing contact with the curl or bead at the lower end of the collar.

In the drawings in which like numerals of reference indicate like parts in all of the figures, 5 generally designates the can body, and 6 generally designates the collar which forms a friction seat for the closure member which is of the friction plug type and is generally designated 7.

The collar is attached to the body by a standard double seam 8, and the body may have a standard lock and lap side seam including the lock or hook portion 9 and the lap portion 10, said lap portion starting in the conventional manner just below the double seam 8 and being formed into said seam structure. The collar has a horizontal offset 11 extending inwardly from the double seam 8 in a direction perpendicular to the axis of the can body at a point just above the lower limit of and opposite the double seam 8. The offset 11 extends inwardly a limited distance sufficient to clear the hook portion 9 of the side seam, and at the inner terminus of the offset, the collar turns downwardly to provide a deep skirt wall 12 which parallels the can body wall but is entirely free of contact with any portion thereof, including the side seam structure. At its lower end, the friction wall 12 terminates in an inwardly bent curl or bead 13 which forms a stop seat for the closure member generally designated 7.

The closure member has an upright wall 14 dimensioned to engage in a tight friction fit within the collar wall 12 and which terminates at its upper end in an outward curl or bead 15. When the closure member is fully seated within the collar, said curl or bead 15 extends above and is

spaced inwardly of the double seam 8 so as to provide about 1/16 inch clearance inwardly and above said double seam in which to receive a prying tool 16 in the manner clearly illustrated in Figure 2 of the drawing. By engaging the prying tool under the bead 15 and on the double seam 8 as a fulcrum, the closure member can be readily lifted out of its friction seat.

It will also be apparent by reference to Figure 2 that by reason of the particular positioning of the closure member curl or bead 15 above and inwardly of the top double seam 8 of the container structure, said curl or bead forms a centering means for the bottom double seam 17 of a container nested over said curl or bead and resting on the top of said double seam 8 in the manner indicated in dotted lines in Figure 2.

The closure member 7 is provided with an offset 18 extending inwardly in a horizontal direction or perpendicular to the axis of the closure wall 14, and this offset or shoulder provides a stop limiting downward movement of the closure member within the collar friction wall 12 and definitely determining the amount of projection of the closure member curl or bead 15 above the top double seam 8. At the inner terminus of the offset 18, the closure wall is turned downwardly in a direction substantially paralleling the wall of the container body to provide an upright wall 19 extending within and through the collar curl or bead 13. The upright and offset closure wall 19 is joined as at 20 with the upwardly domed center body 21 of the closure member.

When it is desired to provide a very secure attachment of the friction plug closure member 7 within the receiving collar 6, the upright wall portion 19 of said closure member may be provided with a plurality of outwardly extending indentations 22 effective to yieldably lock under the collar curl or bead 13 in the manner clearly illustrated in Figure 2. Such indentations will serve to secure the closure member against inadvertent displacement during shipment, and yet will not objectionably resist the prying off of said closure member.

If desired, the inwardly offset portion of the closure member may be shaped as at 23 to receive a sealing means 24 in the form of a gasket or sealing compound deposit disposed to engage in sealing contact with the collar bead or curl 13 in the manner clearly illustrated in Figure 3.

The herein disclosed container structure is simple in form and can be economically manufactured, and the particular arrangement and shaping of the friction contacting surfaces of the closure member and the receiving collar provide a very tight seal even after the closure member has been removed a number of times. The spacing of the collar wall 12 a limited distance only from the can body wall and the specific positioning of the collar offset 11 provides just the proper amount of rigidity to assure against damaging and distortion of the friction wall by blows against the outside of the container, and yet sufficient yield is provided in the friction wall to assure the provision of efficient friction sealing contact throughout the whole circumference of the friction engaging surfaces of the collar and the closure member.

The spacing away of the collar friction wall 12 also assures the provision of uniform diameter of said wall and provides an overhanging lower edge portion at the curl or bead 15 which will minimize splashing of liquid within the container as filled cans are being conveyed from a filling machine to a closing or plugging machine, and this overhang also provides an efficient brush wipe when the container is used in packaging paint.

In the friction plug receiving collar formed in the manner herein described, it will be apparent that the provision of annular channels in which paint or other liquids can collect and objectionably foul the closure is avoided, and it is unnecessary in effecting the attachment of the collar to the can body to engage the plug or closure receiving friction surface of the collar with the seaming chuck. In this manner, the friction sealing surface is not subject to variations due to variations in the engaging chuck surfaces. It will also be apparent by reason of the formation of the collar herein disclosed it is possible to provide a container structure in which are included the standard forms of double end seams and lock and lap side seams, another very advantageous feature.

While examples of specific embodiment of the invention are herein disclosed, it is to be understood that variations of the specific structure of the cooperating parts of the invention are comprehended in the invention as defined in the appended claims.

I claim:

1. A sheet metal container comprising a body portion having an outwardly turned flange at the upper edge thereof, a drawn metal collar extending into the open end of said body and having a flange rolled outwardly into a seam with the flange on the body, the inner face of said collar being dimensioned so as to provide a friction seat for a closure plug, the lower portion of said collar being rolled inwardly, upwardly and outwardly into a resilient hollow bead with its free edge close to said inner face and slightly outwardly and downwardly turned, a friction plug closure member having a depression surrounded by a substantially vertical wall conforming to and frictionally engaging said inner face of the collar, the lower portion of the vertical wall of the closure member being offset inwardly to receive the hollow bead at the lower end of the collar and shaped to provide an annular stop shoulder disposed for overlying the bead adjacent the free edge thereof and an upwardly and inwardly projected pocket for containing a sealing material, sealing material in said pocket in position for opposing the collar bead and said offset also being extended below the bead on the lower portion of the collar and having outwardly and upwardly directed indents therein at circumferentially spaced intervals for engaging outwardly and upwardly against said resilient hollow bead and securing the closure member to the container with said annular stop shoulder pressed tightly against said collar bead and with the sealing material pressed in tight sealing contact against said resilient collar bead.

2. A sheet metal container comprising a body portion having an outwardly turned flange at the upper edge thereof, a drawn metal collar extending into the open end of said body and having a flange rolled outwardly into a seam with the flange on the body, the inner face of said collar being dimensioned so as to provide a friction seat for a closure plug, the lower portion of said collar being rolled inwardly, upwardly and outwardly into a resilient hollow bead with its free edge close to said inner face and slightly outwardly and downwardly turned, a friction plug closure member having a depression surrounded

by a substantially vertical wall conforming to and frictionally engaging said inner face of the collar, the lower portion of the vertical wall of the closure member being offset inwardly to receive the hollow head at the lower end of the collar and shaped to provide an annular stop shoulder disposed for overlying the bead adjacent the free edge thereof and an upwardly and inwardly projected pocket for containing a sealing material, sealing material in said pocket in position for opposing the collar bead and said offset also being extended below the bead on the lower portion of the collar and having outwardly and upwardly directed indents therein at circumferentially spaced intervals for engaging outwardly and upwardly against said resilient hollow bead and securing the closure member to the container with said annular stop shoulder pressed tightly against said collar bead and with the sealing material pressed in tight sealing contact against said resilient collar bead, said friction plug vertical wall terminating at its upper end in an outwardly and then downwardly, inwardly and upwardly curled resilient bead disposed wholly above and spaced upwardly and inwardly within the inner diameter of said double seam to present a resilient downwardly directed shoulder against

which to receive a prying tool, and also providing a centering projection for nesting within the bottom seam of another like container structure stacked thereon.

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