Jan. 18, 1944. L. O. STANLEY 2,339,544

SINGLE WALLED CONTAINER

Filed Oct. 17, 1940

Fig. 1.

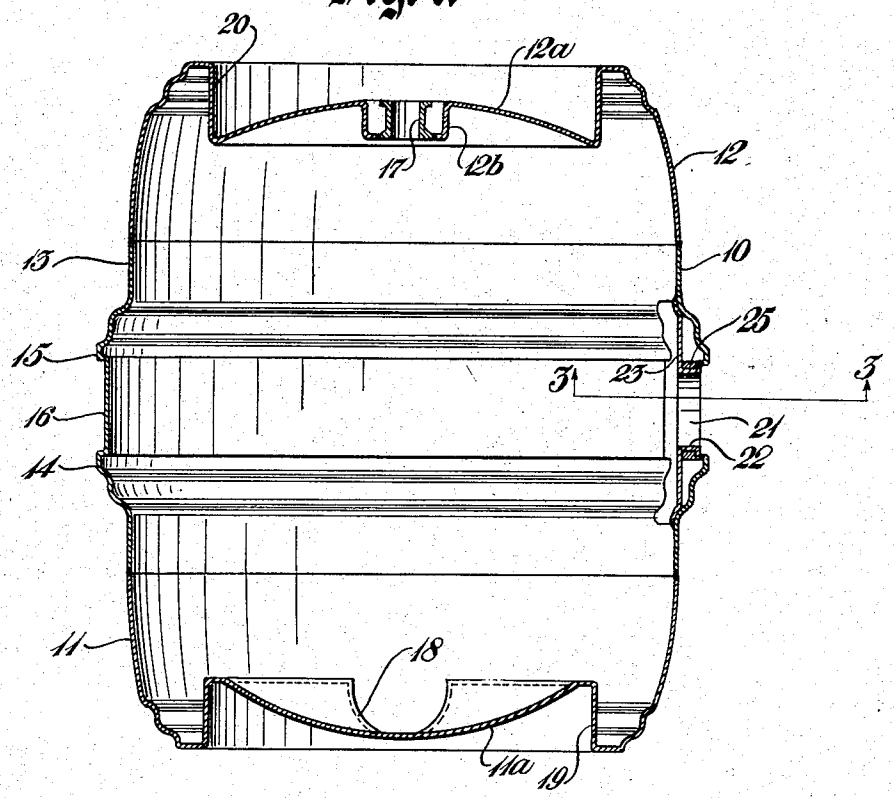


Fig. 2.

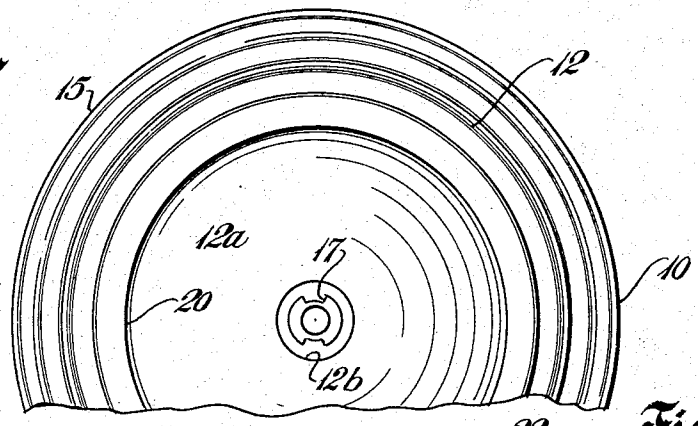


Fig. 4.

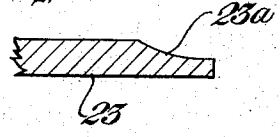


Fig. 3.

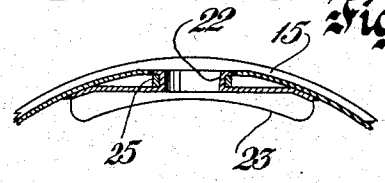
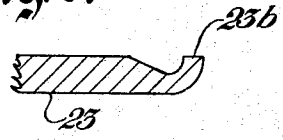


Fig. 5.



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SINGLE WALLED CONTAINER

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2 Claims. (Cl. 220—71)

This invention relates to containers, especially to single walled metallic containers and methods of manufacturing same.

Heretofore several types of single walled containers have been produced. One especial problem in all single walled metal containers is to provide a bung opening which is not only adapted to drain the container completely, but which also does not interfere with rolling the container upon its outer surface. This problem is aggravated by the fact that the bung openings of a container must be adapted to stand rough usage, so that they usually must be reinforced in some manner.

The general objects of the present invention are to provide an improved single walled container and a novel method of manufacturing single walled containers.

Further objects of the invention are to provide an inexpensive, readily practiced method of forming a container which is adapted to stand rough usage and still have a long serviceable life.

The above and other objects will be manifest from the following specification, which is described with particular reference to the accompanying drawing, in which:

Figure 1 is a vertical sectional elevation of a container constructed in accordance with the invention;

Figure 2 is a fragmentary plan view of the container of Figure 1;

Figure 3 is a fragmentary sectional elevation on line 3—3 of Figure 1; and

Figures 4 and 5 are enlarged fragmentary sectional elevations showing the edge of the reinforcing plate before it is secured to the container.

Referring in detail to the accompanying drawing, a container 10 is shown, which container is made from end sections 11 and 12 which are secured by butt joints to a medial container section or ring 13 which has spaced rolling rings 14 and 15 formed thereon. The rolling rings 14 and 15 are formed in an enlarged rolling band 16 that is formed in the container ring 13, which band is continuous and may be formed by rolling it into the container ring 13. Both of the container sections 11 and 12 have dome shaped heads 11*a* and 12*a*, respectively, provided therefor and a tapping fitting is provided in the head 12*a*. This fitting may comprise a tap bushing or liner 17, the outer edge of which is flush with the surface of the dome 12*a*. The liner 17 extends inwardly of the container and connects thereto through an axially inwardly extending ring or flange 12*b* formed on the container head 12*a*. A tapping trough 18 is formed in the head 11*a* to aid in removing all of the contents of the container. The trough 18 extends between the dome of the head 11*a* and the inner wall of a double walled chime 19 formed in the container section 11. The tapping trough gradually increases in size as it approaches the chime 19 and is arcuate in section throughout. The dome or deepest point of the head 11*a* is formed in a portion thereof opposite to the tapping liner 17 whereby all of the contents of the container can be removed therefrom. A strengthening and reinforcing double walled chime 20 also is formed in the container section 12.

A bung opening 21 is formed in the container ring 13, which opening is defined by a bung liner 22 which is formed integrally with a reinforcing plate 23. In some case, the bung liner 22 is formed separately and butt welded to the plate 23. This reinforcing plate 23 is formed with a predetermined contour so that the edges of the reinforcing plate 23 contact the inner surfaces of the container ring 13. While the outer edges of the reinforcing plate are irregularly contoured, the center portion of the plate 23 is flat and may even taper slightly in a radially outward direction to the base of the liner 22 to aid in draining the container completely when the bung opening is placed at the lowermost side thereof. The reinforcing plate 23 is positioned in the container 10 by atomic welding, by which method the remaining joints of the container also are made. This method comprises fusing pieces of metal together by the heat set up by an electric arc directed upon the metal parts to be united and directing a stream of hydrogen against the surfaces as they are being fused together, whereby oxidation of the heated metal is prevented.

In the container shown, the reinforcing patch 23, which preferably is made from the same metal as the remainder of the container, has the bung liner 22 formed integrally thereon. After this bung liner is formed, the radially outer edges 23*a* of the reinforcing plate are beveled off, or coined in any suitable manner to form a slightly curved surface. Then the thin outer end of the plate is bent up upon itself at 23*b* as shown in Figure 5 to aid in fusing the plate to the container. The reinforcing patch usually is formed to the exact contour desired before the edges are prepared for being fused to

the container. After the reinforcing plate has been treated as outlined above, the patch is placed on the inner surface of the container section 13 with the bung liner 22 extending out through the bung aperture. The reinforcing patch and container are then clamped in proper position with relation to each other and an electric arc is progressively directed upon the entire edge portion of the plate. This electric arc usually is set up by an atomic hydrogen welding head which plays a stream of hydrogen upon the surfaces being subjected to the arc. The turned up edge portion of the reinforcing plate is melted by the arc and secures the reinforcing plate to the container section 13 when it solidifies. Usually it is desirable to prevent oxidation of the outer surface of the container ring 13. This can be done by clamping a metal plate (not shown) to the outer surface of the container and providing a narrow groove in such plate that follows the contour of, and radially overlies, the edges of the reinforcing plate 23. Hydrogen is introduced into and burned in this groove as the reinforcing plate is fused into position to prevent an unsightly outer surface from being formed on the container.

Preferably, the container of the invention is made from stainless steel material which is cold worked to the final shape desired, whereby the material is strengthened. A reinforcing sput 25 may be provided on the other surface of the bung liner 22 to reinforce same. Note that the outer end of the bung liner 22 is pressed outwardly and downwardly against the sput 25 and may be welded to the adjacent surfaces of the container ring 13 to form a permanent watertight seal between the bung opening and the container. Before securing the outer end of the bung liner in this manner, it is advisable to test the weld formed at the edges of the reinforcing plate 23 to determine whether or not it is watertight and to make it so if it is not watertight initially.

The present invention enables a continuous rolling surface to be rolled into a container section, whereby the cost of forming such ring is held to a minimum. Furthermore the reinforcing plate on the interior of the container does not interfere with rolling the container on its side and the container is provided with a reinforced bung opening which permits the container to be completely drained.

It will be appreciated that the foregoing description of the invention is for illustrative purposes only and that the scope of the invention includes modifications thereof such as are covered by the appended claims.

What is claimed is:

1. In a single walled metallic container, a body portion comprising end body sections of substantial axial length, an intermediate body section joining said end sections in welded relation, said end sections having re-entrant dome shaped container head portions, said intermediate body section being in the form of a continuous band having a radially outwardly extending middle portion of substantial width, said middle portion having a cylindrical re-entrant portion of substantial width formed with spaced rolling rings at its edges, said cylindrical re-entrant portion having a bung aperture formed therein, said container having a reinforcing plate attached to the inner surface of said intermediate section by means of a fluid tight weld at the outer edge of said plate, said plate being bridged over the bung aperture in said re-entrant portions, said plate having a bung aperture formed therein and a bung liner traversing the space between said apertures, said liner being attached at its opposite ends to said plate and to said cylindrical re-entrant portion respectively.

2. In a single walled metallic container, end sections of substantial axial length formed with chimes, and an intermediate section, said intermediate section having a radially outwardly extending middle portion, the edges of said portion extending radially outwardly a further distance forming spaced smooth rolling surfaces for the container, said intermediate section having a bung aperture formed in said enlarged central portion, a reinforcing plate having its edge portion welded to the inner surface of said enlarged portion, the central portion of said plate being bridged over the bung aperture in said enlarged central portion, said plate having a bung aperture formed therein and a bung liner traversing the space between said apertures and being attached to said plate and to said enlarged central portion.

LESLIE O. STANLEY.