

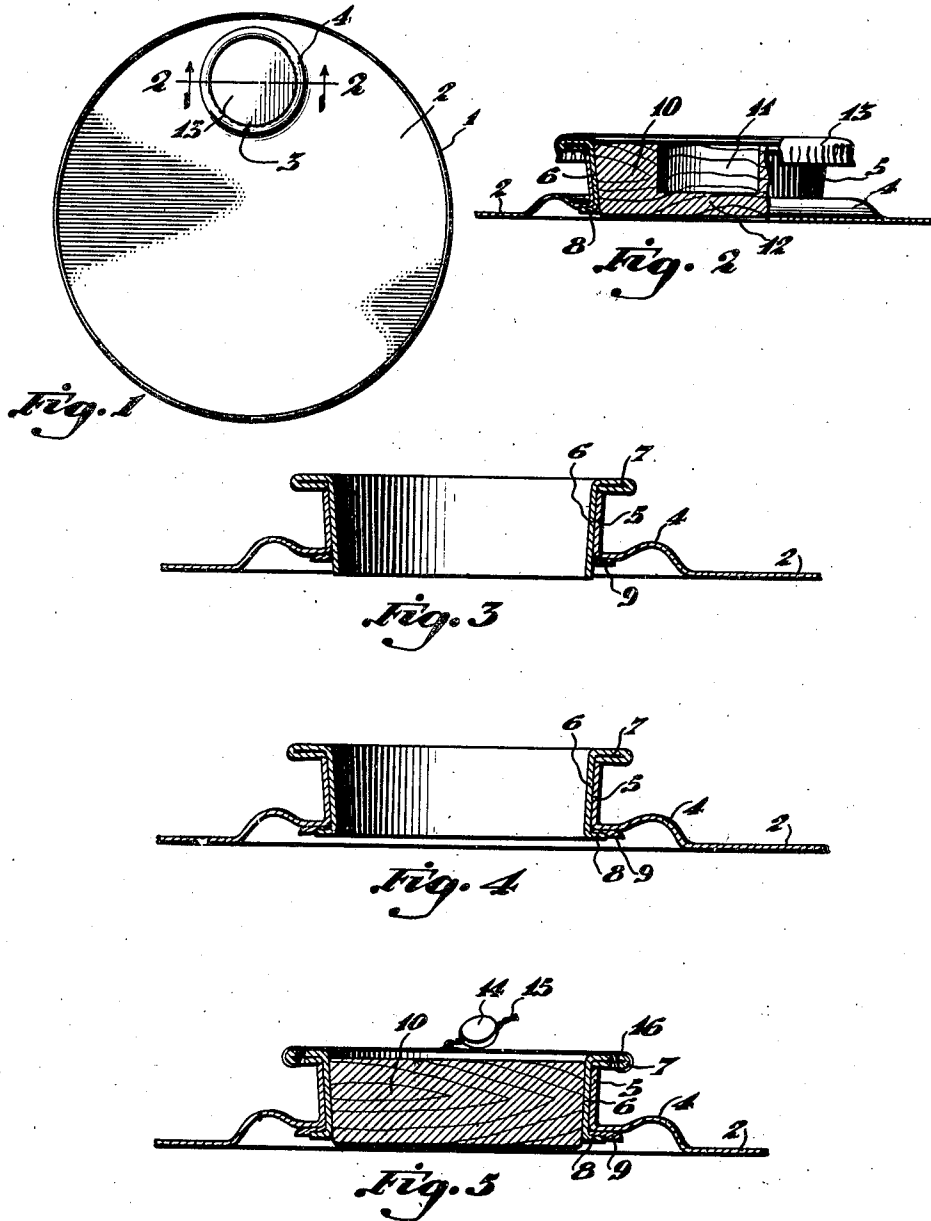
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BUSH FOR METAL BARRELS

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BUSH FOR METAL BARRELS

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This invention relates to barrels, casks and other similar containers particularly those made of metal such as steel or aluminum, and is specifically concerned with the means for effecting a closure of this type of container.

The metal barrels which are conventionally in use today, particularly in the handling of oil, are formed from a comparatively thin gauge of steel. This thin material is used primarily to reduce the cost of the product since, to a marked extent, the barrels used to transport oil are one-trip containers and are not returned to the refinery or other source of supply for refilling.

In the use of this comparatively thin gauge steel, it has been found to be impractical to close the barrel opening with any instrumentality such as a wooden plug or bung which requires pounding for a secure seat. In barrels of this type even a light pounding of the bung will bend or deform the metal in the near vicinity of the barrel opening. For this reason, at the present time, metal barrels are conventionally provided with an interior threaded bush into which a threaded screw cap is fitted. These caps are conventionally made from metal and are provided with notches or the like into which a tool may be fitted to screw the cap tightly into position in the bush.

Closures of this type provide an effective seal but they are much more expensive to manufacture than are bungs or plugs formed from wood or like materials. However, in order to provide an effective closure utilizing a wooden bung or plug, it is necessary to reinforce the bush and strengthen the portion of the top of the barrel adjacent the walls of the bush to withstand, without bending or deformation, the pressure necessary to force the bung into the bush to constitute a tight seal. Additionally, it is desirable to provide a bush which is adapted for use with a bung inserter which will seat the bung under steady and even pressure, as distinguished from the hard, uneven pressure of pounding.

With these and other purposes in mind, one object of the present invention has been to provide a steel barrel formed from conventional thin gauge steel, but having an opening adapted to receive under pressure a wooden bung without deformation of the metal adjacent the opening.

Another object has been to provide a steel barrel having a bung-receiving opening reinforced by a bush in such a way that it will withstand the pressure incident to the insertion of a wooden bung.

Another object has been to provide a bush hav-

ing an outwardly projecting peripheral lip formed from two plies of metal tightly maintained in position for cooperation with an inserter used to position the bung under pressure.

5 Another object has been to provide a bush for a steel barrel in which the entire barrel opening is reinforced by double thicknesses of material similar to that from which the barrel is fabricated and in which a very tight and effective seal
10 is formed without the use of a weld or rivets.

Another object has been to provide a complete closure means for the opening in a steel barrel including, in addition to the wooden bung which is the primary closure means, a secondary closure
15 cap for additional protection against leakage.

Another object has been to provide a structure of this general type readily adapted to be sealed with a protective seal to insure that the contents of the container are not stolen or unlaw-
20 fully removed.

Other and further objects and advantages will be apparent from a consideration of the further and more detailed description of the invention when considered in conjunction with the draw-
25 ing in which:

Figure 1 is a plan view of the top of a steel barrel of the type of the invention showing the outlet opening, the bush, and the particular
30 closure means of the invention positioned therein.

Figure 2 is a section along the line 2-2 showing details of the construction of the bush and the complete closure means including the bung
35 and cap.

Figure 3 is a similar section particularly illustrating the method of attachment of the bush employed in the invention.

Figure 4 is a similar section showing the opening with the bush completely assembled.

40 Figure 5 is another section showing a bung of a different type positioned in the opening, and seal means for protecting the contents of the barrel against unlawful use.

The barrel 1, the upper surface 2 of which is
45 shown in Figure 1, is preferably formed from steel of light gauge, and may be of any conventional construction since the invention is not concerned with the exact details of its construction at any other point except around the aper-
50 ture or opening generally designated as 3.

The details of the construction of the complete closure means can be best appreciated from a consideration of Figures 2 and 4. In these figures, 2 represents the upper surface of the
55 barrel. This surface has been configurated to

provide an annular external corrugation 4 and an upstanding flange 5, which completely encircles the barrel opening. The corrugation effectively strengthens the entire area around the opening. A reinforcing lining or bush, designated generally as 6, having a smooth inner surface for the reception of a bung, is positioned interior of the flange 5 and configured, as best shown in Figure 4, to form a laterally projecting lip of double thickness 7, and a projecting flange 8 of single thickness, also laterally projecting, which flange is adapted to lock the bush tightly against the upstanding flange 5. This upstanding flange 5, in turn, is tightly positioned against the under surface of the double thickness lip 7 of the bush, and assists in maintaining the rigidity of the latter by preventing any separation of the two thicknesses, particularly when a bung inserter is being used. The upstanding flange 5 and the vertical wall of the collar member 6 may be flared outwardly to an equal degree for the reception of a tapered bung.

A gasket 9 is shown in Figures 3, 4, and 5. This gasket may be formed from cork or soft metal, or the like, and provides a tight seal between the upstanding flange 5 and the surface of the bush 6.

In Figure 2, the bung 10 provides the primary closure. This bung may be formed from wood, having its sides tapered inwardly to coincide with the tapered walls of the bush. It may be cut or compressed. In the type of bung shown in Figure 2, a hollow portion 11 is provided to facilitate the opening of the container for the insertion of a spigot or spout through the thin wall 12 which may be readily broken through. The bung shown in Figure 5 omits this hollow portion and is solid throughout.

In Figure 2, the additional closure element 13 comprises a cap adapted to be fitted over the lateral projecting flange 7 and crimped thereon. This cap acts as a reinforcing or secondary closure element in the event the bung should prove defective or for some reason leakage should occur.

In Figure 5, a closure seal 14 has its wire ends 15 inserted through the aperture 16 in the lateral extending lip 7 and then reinserted through the seal 14. This provides additional security against tampering with the contents of the barrel.

The bush 6 may be stamped from flat sheet material such as, for example, the scrap remaining after the round barrel heads have been stamped from a square sheet. The configuration of this member and of the metal of the upper surface of the barrel adjacent the opening may be performed with conventional forming machinery. The interlocking edges of the bush 6 around the top and bottom of the upstanding flange 5 effectively holds the bush in position and there is no necessity for welding or rivets. Whatever possibility there might be of leakage between the upstanding flange 5 and the bush is prevented by the gasket 9 which may be very tightly squeezed into position to form a perfect seal.

One of the particular features of the invention is the laterally projecting lip of double thickness 7. The doubling of the metal to form this flange

not only avoids any sharp edges, but provides a very firm ledge adapted to cooperate with a bung inserter.

A bung inserted is a simple tool which is adapted to engage with the neck of an opening and force a bung into the opening under considerable pressure. Since, in the operation of this tool, the lip of the bush acts as a fulcrum, and since considerable pressure is exerted, it is necessary that this lip be particularly strong and rigid. The seating of the under surface of the lip 7 on the upper surface of the upstanding flange 5 greatly assists in maintaining the rigidity of the lip. Although the closure means of the invention is particularly adapted for use with a bung inserter, the whole area surrounding the opening has been so strengthened and reinforced that it is quite practical to hammer bungs into an opening in a barrel employing this construction without bending or deforming the metal.

The completed closure means which has been illustrated and described presents a very effective way of sealing a metal barrel at a fraction of the cost involved in the use of screw caps. Furthermore, an equally effective seal is provided and one which can be removed with facility when the occasion demands.

Obviously, the opening in the barrel need not necessarily be in the top, as shown, although it is preferable that it be in a flat surface as otherwise the forming of the metal presents a somewhat more difficult problem.

Having fully described my invention, I claim:

1. In a metal barrel or like container a wall having an opening therein, a neck upstanding around the periphery of said opening, an annular sheet metal bush fitted in said opening interiorly of the neck, said bush having smooth flared inner sides for the reception of a tapered wooden bung; the upper edge of said bush being bent substantially perpendicular to the outer edge of the neck and reversely bent downwardly to form an extended lip of double thickness; the under edge of the reversely bent portion being contacted and supported by the upper edge of the neck; the lower edge of the bush being likewise bent outwardly to engage the inner surface of the wall of the container and restrain vertical movement of the bush in the neck.

2. A metal barrel or like container having an opening therein surrounded by an upstanding peripheral flange, an annular sheet metal bush fitted in said opening interiorly of the flange, said bush having smooth flared inner sides for the reception of a tapered wooden bung, the upper edge of said bush being bent outwardly and reversely bent downwardly to form an extended lip of double thickness, the under edge of the reversely bent portion being contacted and supported by the upper edge of the flange, an annular gasket positioned interiorly of the container and surrounding the inner edge of the opening therein, the lower edge of the bush being bent outwardly peripherally below the gasket and contacting said gasket and maintaining it in sealing engagement between the bush and the container.

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