

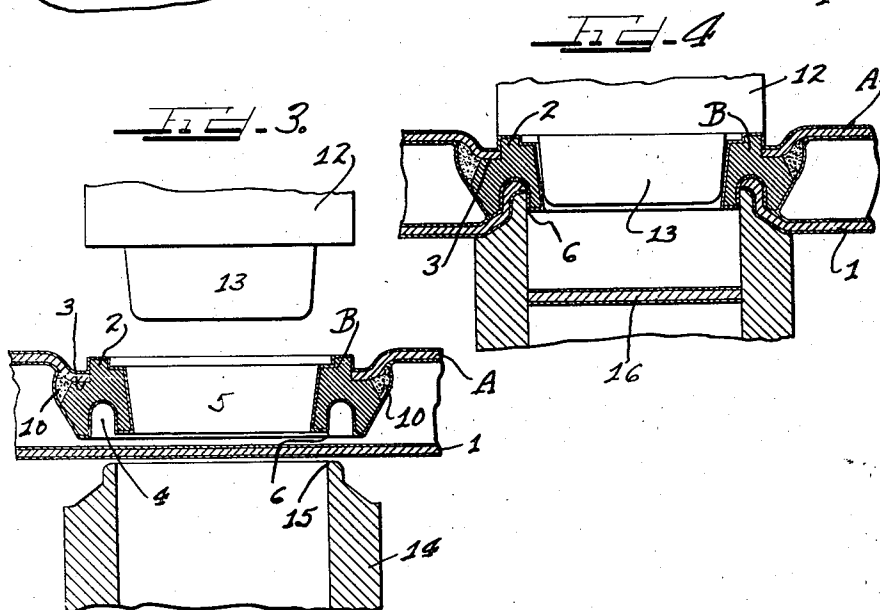
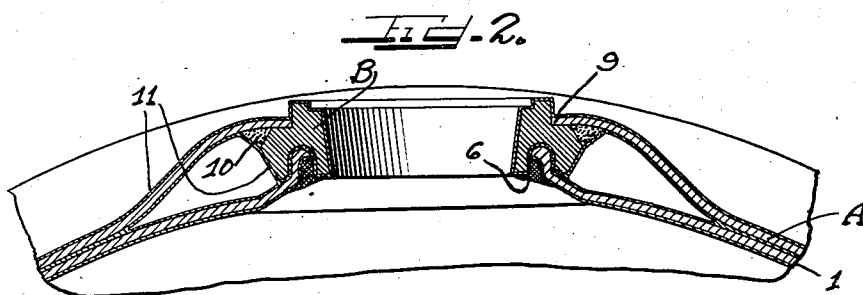
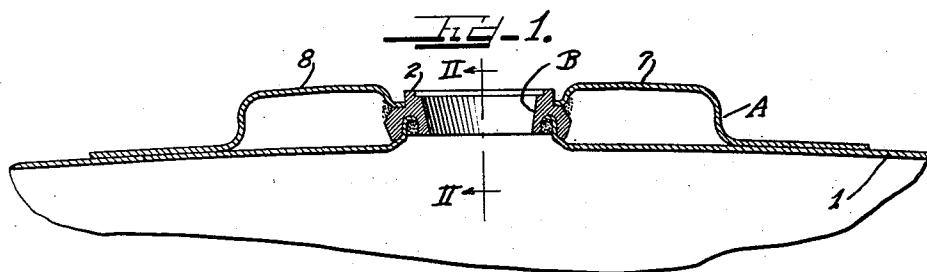
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METHOD OF INSERTING BUSHINGS IN METAL BARRELS

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METHOD OF INSERTING BUSHINGS IN METAL BARRELS

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4 Claims. (Cl. 29—148.2)

The present invention relates to method of inserting bushings in metal barrels, and more particularly to method of applying filling bung bushings to bodies of metal barrels.

5 An object of the present invention is to provide a novel method of attaching filling bung bushings in place in metal barrels.

Another object of the present invention is to provide a process whereby bushings may be secured in place in metal barrels in such manner as to prevent displacement thereof in use and also to produce leak-tight joints between the bushings and the surrounding portions of the barrels.

15 The above, other and further objects of the present invention will be apparent from the following description, accompanying drawing, and appended claims.

20 The present application is a division of applicants' copending application Serial No. 691,592, filed September 30, 1933, entitled "Metallic container".

25 The accompanying drawing illustrates various steps followed in employing the process of the present invention and the views thereof are as follows:

Figure 1 is a fragmental sectional view through a mid-portion of a metal barrel provided with a filling bushing applied in accordance with the principles of the present invention.

30 Figure 2 is an enlarged fragmental section, showing the manner of sweating the various elements of the barrel together in permanent association.

35 Figure 3 is a fragmental sectional view of a punch and die arrangement, showing the manner of punching the hole in the barrel body in register with the bung bushing wherein the bushing is utilized as a punch, and showing certain elements and features in section.

40 Figure 4 is a view similar to Figure 5, showing the manner of curling the marginal portion of the hole in the barrel body into a recess formed in the bung bushing, by die action.

45 The drawing will now be explained.

At the present time, metal barrels for beer and like beverages, are widely used. These barrels may be made as single walled barrels, or double walled barrels.

50 In the manufacture of single walled barrels, bilge rings are employed to surround the exteriors of the barrels at the mid-length thereof, and it is usual to insert the filling bung bushings in the bilge rings.

55 Ordinarily such barrels are manufactured by forming the body portion as a cylinder, with open ends, and then securing the bilge ring to the barrel body by expanding the body into the well-known barrel shape. Experience has proved that when
60 holes are cut in the barrel bodies, while still in

cylindrical shape, for the bung bushings, then when the barrels are expanded to fit the bilge rings, the holes so punched are elongated, thus making impossible leak-tight connection to the bung bushings, with the result that the finished barrels so constructed are not fit for use, especially for containing beer or like fluids.

The present invention concerns itself with a method whereby filling bung bushings may be readily applied to steel barrels that a bung bushing may be welded or sweated to a bilge ring, the ring then applied to a cylindrical barrel body, the body expanded, in the usual manner, and then, after a tight fit has been effected between the barrel body and bilge ring, the structure is subjected to die action whereby the bung bushing is utilized as a punch element for forming a hole in the barrel body in register with the bung bushing, for receiving the bung bushing.

In the accompanying drawing, a barrel body 1 is shown as provided with a bilge ring, A, made in accordance with the manner described in copending application Serial 691,592.

A filling bung bushing B, preferably of steel, is suitably fashioned to provide an upstanding flange 2 and a laterally extending annular shoulder 3, adjacent the outer or upper end of the bushing. The lower or bottom face of the bushing is provided with an annular recess 4, for a purpose to be later explained. The bushing B has a central opening 5 through it for receiving a bung or cork, with the edge 6 made as sharp as possible so that this edge may be utilized as a punch for a purpose to be later explained.

The bilge ring A is illustrated as comprising two runners or ribs 7 and 8, which are separated by a portion of the bilge ring, which portion is fashioned with an opening 9 for receiving the bushing B. The opening 9 is of a size as to receive the upstanding flange 2 of the bushing B, and to rest against the annular shoulder 3. The bushing B is inserted through the opening 9, from inside the bilge ring, prior to the application of the ring to a barrel body.

After the bushing has been inserted in the opening 9, in the manner stated, the bushing is welded or sweated to the bilge ring about said opening, by welding or sweating along and adjacent the shoulder inside the ring, as indicated at 10. This manner of attaching the bushing to the bilge ring affords permanent connection and provides a leak-tight joint.

After the bushing B has been inserted in the manner described, the bilge ring is then applied about the barrel body 1 and the body expanded to effect a tight fit between the body and bilge ring. Figure 3 illustrates the relationship between the runners 7 and 8 of the bilge ring A and the adjacent portion of the barrel body 1, 60

after the bilge ring has been applied to the body, and the body has been expanded.

After the bushing B has been applied to the bilge ring, in the manner stated, and prior to the application of the ring to the barrel body, the ring and bushing are completely tinned as indicated at 11. The ring is then applied to the barrel as heretofore described. After the ring has been applied to the barrel body as described, a tool 12 having a reduced portion 13 dished to fit the interior opening 5 of the bushing B, is applied against the exterior of the bushing B with the part 13 entering the opening 5 in the bushing and with the extremity of the portion 13 against the surface of the barrel body A within the opening 5 of the bushing. The portion 13 is tapered slightly for the purpose of centering the tool 12 in the bushing B.

A die 14 having a sharpened edge at 15 is then applied inside the barrel body in alignment with the bung bushing B. Pressure is then applied to the parts 12 and 14 and the die 14 pushed against the barrel body 1 adjacent the bushing B. Continued movement of the die then forces the barrel body portion against the sharpened edge 15 of the bung bushing whereupon this sharpened edge cuts or blanks a portion of the barrel body A from the body, as indicated at 16 in Figure 4. Continued movement of the die then forces the marginal portion of the hole so formed into the recess 4 of the bushing B thereby crimping the margins of such hole and displacing it out of the surface of the barrel body 1. When the part 16 has been blanked from the barrel body, as described, and the margins of the hole so formed crimped into the recess 4 of the bushing, the members 12 and 14 are removed and the deformed marginal portion of the barrel body which has been forced into the recess 4 of the bushing is then sweated or welded in such recess, thereby permanently securing the bushing to the barrel body A, making a leak-tight connection therewith, whereby the bushing B is thus securely and permanently connected to the barrel body and to the bilge ring A.

Utilization of the method here described provides an opening in the barrel body in register with the filling bung bushing, which opening is of proper size for receiving the bushing and whereby the margin of the opening so formed is secured to the bung bushing in such manner as to make a leak-tight joint and to connect the parts together in permanent integral and homogeneous association.

Preferably the barrel body 1 is tinned inside and outside, as is also the bushing B, as well as the bilge ring A, consequently all of the parts may be permanently connected together by sweating as well as by welding, whichever is preferable.

It will be observed that the method of the present invention contemplates the application of a filling bung bushing to a steel barrel in an expeditious and economical manner, and in such fashion that the bushing is permanently joined with the bilge ring and with the barrel body in such manner as to preclude any leakage adjacent the bushing.

Utilization of the bushing as a punch member for cutting the hole in the barrel body makes it possible that the hole so cut is of proper size and position, with respect to the bushing, so that there is no possibility whatsoever of the hole being elongated or distorted, thus making it commercially impossible to so connect the margin of the hole with the bushing in leak-tight manner.

The connection between the filling bushing and the barrel, as described, is very strong and sturdy, able to withstand rough treatment to which such barrels are subjected when filled as well as empty.

The invention has been described herein more or less precisely as to details, yet it is to be understood that the invention is not to be limited thereby, as changes may be made in the arrangement and proportion of parts, and equivalents may be substituted, without departing from the spirit and scope of the invention.

We claim as our invention:

1. In the method of attaching a bung bushing to a metal barrel, the steps comprising providing a bilge ring, forming an aperture in said ring, welding a bung bushing in said aperture, applying said ring about a barrel body, expanding said barrel body into tight engagement with said ring, and then punching a hole in the barrel body by utilizing said bushing as a punch, then permanently securing the margin of said hole to the bushing.

2. In the method of attaching a bung bushing to a metal barrel, the steps comprising providing a bilge ring, forming an aperture in said ring, welding a bung bushing in said aperture, applying said ring about a barrel body, expanding said body into tight engagement with said ring, applying a die against the interior of said body in alignment with said bushing, then punching a hole in said body by applying pressure to said die and said bushing and utilizing said bung bushing as a punch for cooperating with said die, then with the die crimping the margin of the hole so formed to the bushing.

3. The method of attaching a bung bushing to a metal barrel which consists in providing a bilge ring, forming an aperture in said ring, welding a bung bushing in said aperture, applying said ring about a barrel body, expanding said body into tight engagement with said ring, applying a die against the interior of said body in alignment with said bushing, then punching a hole in said body by applying pressure to said die and utilizing said bung bushing as a punch for cooperating with said die, then with the die crimping the margin of the hole so formed to the bushing, and welding or sweating the crimped portion of said body to said bushing.

4. The method of attaching a filling bung bushing to a metal barrel which consists in providing a bushing with an upstanding flange and an outwardly directed annular shoulder adjacent the outer end of the bushing and forming an annular groove in the bottom surface of said bushing, providing a bilge ring and forming an opening in it of a size to receive the upstanding flange of said bushing, inserting said bushing in said opening from the inside of said ring with the bushing flange projecting through said opening, welding or sweating the ring to the bushing adjacent and along said shoulder inside said ring, applying said ring about a barrel body in tight engagement, then punching a hole in the barrel body by utilizing the bushing as a punch, then forcing the marginal portion of the hole so punched out of the barrel surface and into the said annular groove in said bushing, and welding or sweating said marginal portion of said hole to said bushing in said groove to close the joint between said barrel body and said bushing.

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