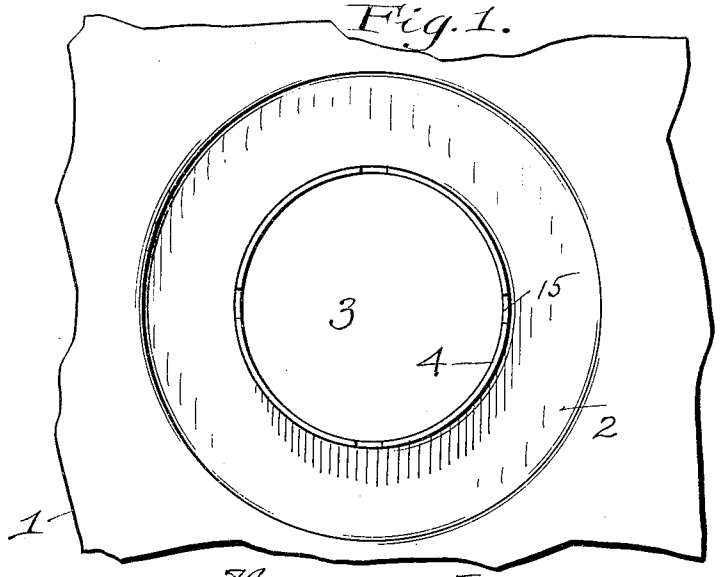
April 16, 1929. F. J. RUNSER 1,709,324

PRESSED IN BUNG RING

Filed Jan. 15, 1925

Fig. 1.



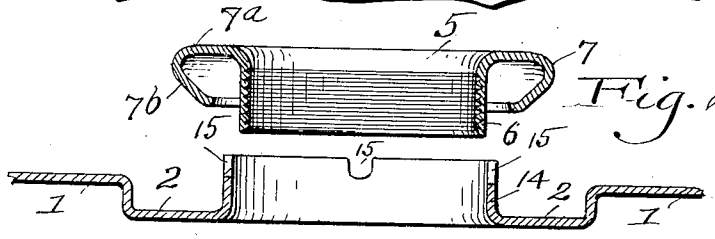


Fig. 2.

Fig. 3.

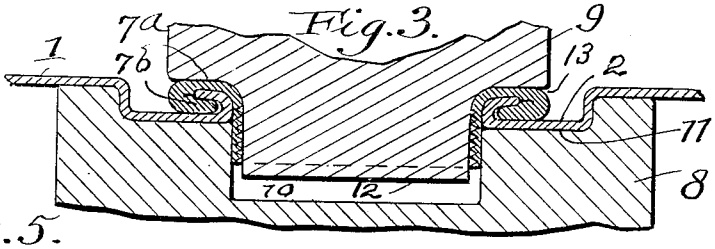


Fig. 5.

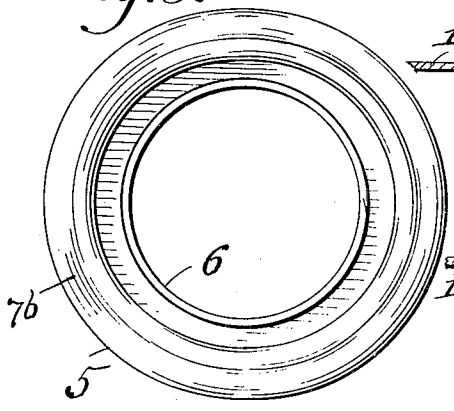


Fig. 4.

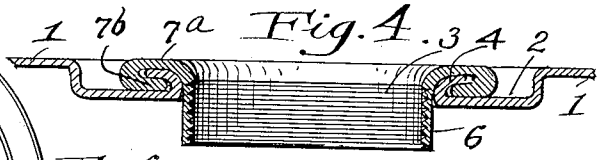
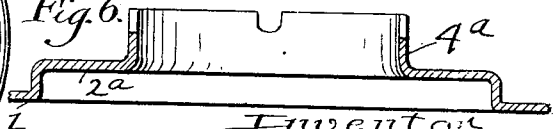


Fig. 6.



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Patented Apr. 16, 1929. 1,709,324

UNITED STATES PATENT OFFICE.

FREDRICK J. RUNSER, OF CLEVELAND, OHIO, ASSIGNOR TO THE BYRNE MANUFACTURING COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

PRESSED-IN BUNG RING.

Application filed January 15, 1925. Serial No. 2,538.

This invention relates to pressed in bung rings for metal containers such for instance as steel barrels, drums, tanks and the like.

An object of the present invention is to provide a reenforcing ring for the bung receiving opening of a metal container which may be quickly applied to a barrel or other container at a small expense.

A further object of the invention is to provide a combined and reenforcing ring and bung receiving bushing which is joined to the sheet metal wall by a pressed interlocked seam which not only provides a rigid reenforcement around the opening, but also forms an effective seal against leakage around the exterior of the ring, making it unnecessary to weld or braze the ring in place.

A further object is to provide an interlocking connection between the flanges of the wall and reenforcing ring such that the reenforcing ring is positively locked against rotative movement in the opening.

With the above and other objects in view, the invention may be said to comprise the structure illustrated in the accompanying drawings hereinafter described and particularly set forth in the appended claims, together with such variations and modifications thereof as will be apparent to one skilled in the art to which the invention appertains.

Reference should be had to the accompanying drawings forming a part of this specification in which Fig. 1 is a top plan view of the apertured portion of the barrel or other container showing the outwardly pressed flange with which the reenforcing ring is interlocked; Fig. 2 is a sectional view showing the apertured portion of the container and the reenforcing ring ready to be applied thereto; Fig. 3 is a sectional view showing the reenforcing ring being pressed into place between suitable dies; Fig. 4 is a section through the bung opening and showing the completed structure; Fig. 5 is a top plan view of the structure shown in Fig. 4; Fig. 6 is a sectional view through the apertured portion of the container showing a modified construction.

Referring to the accompanying drawings, a portion of the sheet metal wall of a barrel or similar container is indicated by the reference numeral 1, the portion shown being that adjacent the bung receiving opening which may be formed either in the head or the cylindrical wall. The wall 1 is provided with a pressed in annular depression 2 surrounding the opening 3 and the opening 3 is surrounded by an outwardly extending flange 4 which extends outwardly at substantially right angles to the bottom of the depression 2. The reenforcing ring 5 is provided with a tubular portion 6 adapted to fit within the flange 4 of the barrel wall and with a peripheral flange 7 at its outer end which has an inner portion 7^a which extends outwardly at substantially right angles to the tubular portion 6 and an outer end portion 7^b which is bent inwardly and back toward the body portion 6. The reenforcing ring 5 is first formed as shown in Fig. 2 with the outer end portion 7^b inclined inwardly away from the portion 7^a and terminating short of the body portion 6 so that when the body portion 6 is slipped into the tubular flange 4 the flange 4 will be received between the body portion 6 and the edge of the reversely bent flange 7^b. After the ring 5 has been slipped into the opening 3 and over the wall flange 4, the ring is pressed into place and into interlocking engagement with the flange 4 by means of suitable dies 8 and 9, the die 8 being provided with a central recess 10 to receive the tubular portion 6 of the ring which projects inside the wall 1 and with a shallower depression 11 surrounding the depression 10 to receive the depressed portion 2 of the wall and the cooperating die being provided with a central projection 12 which fits within the tubular portion 6 of the ring and with a flat annular shoulder 13 which bears against the flat portion 7^a of the ring flange 7. When the dies 8 and 9 are brought together, the tubular portion 6 of the ring is held to true cylindrical shape between the walls of the recesses 10 and projection 12 and as the dies come together the inclined flange 7^b is forced against the bottom of the depression 2 and bent into parallelism with the portion 7^a of the flange. At the same time the tubular portion 6 of the ring is forced inwardly into the opening and the flange 4 of the wall 1 is bent outwardly into the space between the two portions 7^a and 7^b of the ring flange. The heavy pressure exerted upon the ring and barrel wall causes the inturned portion 7^b of the ring flange to be forced into close engagement with the bottom of the depres-

sion 2 and causes the outwardly bent flange 4 to be tightly clenched between the outer and inner portions 7^a and 7^b of the ring flange. Before the reenforcing ring has been secured in place as above described, the cylindrical portion 6 of the ring has internal threads cut therein to receive a threaded bung.

Since considerable turning force is often required to loosen the bung, it is important that the bushing in which the bung is screwed be so attached to the barrel that it will not be loosened when subjected to severe strains incident to the removal or insertion of a bung. In order to securely hold the reenforcing ring against turning movement in the opening, the flange 7 is preferably formed slightly out of round, preferably slightly oval in shape as shown in Fig. 5 so that when pressed into interlocking engagement with the flange 4 there will be an interlock against rotative movement of the ring. To further insure the locking of the reenforcing ring against rotation, the flange 4 is preferably provided with one or more notches 15 in the edge thereof so that when the reenforcing ring is pressed into place as shown in Fig. 3, the metal of the portions 7^a and 7^b of the ring flange is caused to flow into the notches 15 and thereby provide a positive interlock against rotative movement of the reenforcing ring on the flange.

The depression 2 is preferably formed of a depth such that when the reenforcing ring is pressed into place the outer surface of the seam upon the outer side of the barrel is flush with the surface of the barrel surrounding the opening. The depression 2 in itself adds to the rigidity of the wall adjacent the bung opening and the interlocked seam surrounding the opening provides a very rigid support for the bung receiving portion 6. By reason of the fact that the interlocking seam is formed upon the outside of the barrel, impacts against the bung portion do not tend to loosen the connection between the reenforcing ring and wall. In addition a very effective liquid seal is provided between the interlocking flanges of the wall and ring, making it unnecessary to weld or braze the joint to make it fluid tight. If the joint should become loose after long usage, the depression 2 makes it convenient to seal the connection by adding metal in the channel by welding or brazing.

Whenever the bung is placed in the cylindrical wall, the inward depression such as shown in Figs. 1 to 4 is preferable since the bung ring is thus protected against direct impact while the barrel is being rolled, however, when the bung is provided in the head of a barrel it may be desirable to form the reenforcing depression from the inner side of the head so that it projects outwardly as shown in Fig. 6 in which the depression 2^a projects from the outer surface of the wall and the flange 4^a projects outwardly from the raised portion 2^a.

Having described my invention, I claim:

1. A bung structure for steel barrels or similar containers comprising a sheet metal wall having an outwardly projecting flange surrounding the opening, a reinforcing ring having a tubular portion in the opening and a peripheral flange bent back upon itself to receive the wall flange and pressed into tight clamping engagement with the wall flange to form a fluid tight seam, said seam being pressed against the outer side of said wall, one of said flanges having edge portions varying from true circular shape whereby the said ring is locked against rotative movement in the opening.

2. A bung structure for metal barrels or other containers comprising a sheet metal wall having an opening and a flange surrounding the opening, and a reinforcing ring having an internally threaded cylindrical portion fitting in the opening and a peripheral flange bent back upon itself to receive the wall flange and pressed into tight clamping engagement therewith to form a fluid tight seam, said seam being pressed against said wall, said wall flange having notches in the edge thereof and said ring flange having portions pressed into said notches to lock said ring flange against rotative movement in the opening.

3. A bung structure for steel barrels or similar containers comprising an outwardly projecting flange on the container surrounding the bung opening, a reinforcing ring having a tubular portion in the opening and a peripheral flange bent back upon itself to receive the container flange and pressed into tight clamping engagement with the container flange to form a fluid-tight seam, said seam being pressed against the outer side of the container wall, one of said flanges having edge portions deviating from true circular shape, whereby the said ring is locked against relative movement in the opening.

4. In a bung structure for barrels or other sheet metal containers having a bung opening and a flange surrounding the opening, a reinforcing ring having an iternally threaded cylindrical portion fitting in the opening and a peripheral flange bent back upon itself to receive the wall flange and pressed into tight clamping engagement therewith to form a fluid-tight seam, one of said flanges having notches in the edge thereof, and the other flange having portions pressed into said notches to lock said ring flange against rotative movement in the opening.

In testimony whereof, I hereunto affix my signature.

FREDRICK J. RUNSER.