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JOSEPH RIMMELSPACHER AND ERNST HEPTING, OF NEWARK, NEW JERSEY

BUNG FOR CONTAINERS

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This invention relates to bungs for containers, and more particularly to a bung for oil drums, barrels and other receptacles used in the shipment or transportation of commodities.

The art has heretofore experienced considerable difficulty in preventing the closure bung from working loose under severe shocks and jars, to which such containers or receptacles are subjected by the rough handling thereof in loading the same upon or removing them from the transporting vehicle. It is the primary object and purpose of my present invention to provide a simple, effective and comparatively inexpensive means for tightly sealing the bung opening and securely locking the bung against turning movement from its applied position except by the application of a proper wrench and the use of considerable manual force.

More particularly, it is one of the important objects of my invention to provide a bung adapted for use in connection with the conventional internally threaded spud or ring which is fixed to the receptacle wall around the opening therethrough together with compressible means acted upon by the bung as it is threaded to closed position and exerting an axial expansive pressure against the bung to tightly jam the threads thereof against the cooperating threads of the spud thus producing a high frictional resistance which will effectively prevent casual turning movement of the bung.

It is also an additional object of the invention to provide such compressible means so constructed and associated with parts of the bung structure that said means will also exert a lateral expansive pressure against the bung and the threads of the spud or ring, thereby producing a supplementary locking effect upon the bung and also thoroughly sealing the bung opening against every possibility of the escape of the contents of the container therethrough.

With the above and other objects in view, the invention consists in the improved bung for containers or receptacles and in the form, construction, and relative arrangement of its several parts as will be hereinafter more fully

described, illustrated in the accompanying drawing, and subsequently incorporated in the subjoined claims.

In the drawing, wherein we have disclosed one simple and practical embodiment of the device, and in which similar reference characters designate corresponding parts throughout the several views,—

Figure 1 is a plan view showing one form of the device as applied to the container wall;

Fig. 2 is an enlarged sectional view taken on the line 2—2 of Fig. 1, and

Fig. 3 is a detail view of the bung and the sealing and locking washer, the latter being shown in section.

Referring in detail to the drawing, 5 designates a portion of one of the walls of a metal drum, barrel or other receptacle which is provided with the opening indicated at 6 therethrough.

A ring or spud 7 of any conventional form is welded or otherwise rigidly and permanently fixed to the container wall 5 around the opening 6. As herein shown, this spud is provided with an outwardly extending flange 8 internally threaded as at 9, an outwardly projecting annular shoulder 10 being formed at the inner end of the threads 9 for a purpose which will presently appear.

The bung or plug 11 is externally threaded as at 12 and provided on one end with a flange 13 of any desired polygonal contour for the application of a suitable wrench thereto. Preferably, this end of the bung is also centrally provided with the wrench receiving socket indicated at 14.

The other end of the bung 11 is formed with a concentric axially projecting reduced portion 15 which is unthreaded but has centrally formed therein a threaded bore 15'. Upon this unthreaded inner end of the bung, an annular locking and sealing washer 16 is adapted to be engaged. This washer is constructed of a compressible material, preferably cork, and in its initial form has a thickness somewhat exceeding the length of the cylindrical projection 15 of the bung. The compressible washer 16 is held in its applied position by means of the metal washer plate 17 engaged against the end face of the pro-

jection 15 of the bung, said washer plate being of greater diameter than said projection, and therefore, overlapping upon the washer 16. It will however, be noted that the diameter of the metal washer plate is such that its outer edge is spaced from the shoulder 10 of the spud or ring 7. This washer plate is rigidly fixed in its applied position by means of the screw 18 engaged through a central opening in said plate and threaded into the bore 15'. If desired, an adapter member 19 in the form of a short internally threaded sleeve may also be secured by the screw 18 to said bung, the closed end of the sleeve having a suitable opening therethrough to receive said screw and the locking washer indicated at 20 being interposed between the end wall of the sleeve and the head of the screw. Such adapters are commonly used for the purpose of conveniently attaching a faucet to the bung which will therefore project into the drum or container and be protected against injury. The consignee of a shipment, by unthreading the bung from the spud or ring 7, may readily remove this faucet and connect the same with the threaded ring or spud of a second opening provided in the wall of the container and through which the contents of the container may be withdrawn in measured quantities.

In addition to the sealing and locking washer 16, we also preferably provide an annular gasket 21 which is adapted to be interposed between the inner face of the flange 13 and the flange 8 of the spud or ring 7.

In the use of the device as above described, after the sealing ring 16 has been assembled on the reduced inner end of the bung 11 and secured in place by the washer plate 17 and screw 18, the gasket 21 is inserted over the threaded part of the bung against the flange 13. The bung is then screwed or threaded inwardly into the threaded flange of the ring or spud 7 and after the sealing ring 16 engages upon the shoulder 10, upon further turning movement of the bung in the same direction, said ring 16 will be compressed. It will of course, be understood that when the washer plate 17 was applied and tightened against the end face of the extension 15 of the bung by means of the screw 18, the inner part of the washer 16 was somewhat compressed, owing to the fact that the thickness of said washer slightly exceeds the length of the extension 15. Therefore, when the further compression of said washer occurs under the inward threading movement of the bung, it tends to exert a highly expansive force or pressure both axially and laterally, the outer side of said compressible material of the washer interlocking with the threads 9 of the ring or spud while said washer at its inner side is forced into very tight frictional binding contact against the periphery of the extension 15 of the bung. For the same rea-

son, said compressible sealing ring will exert an outward axial pressure against the bung at the inner end of the extension 15 thereof until it becomes no longer possible to thread the bung inwardly due to the jamming of the threads thereof with the threads of the ring flange 8 which produces such a high frictional locking action that reverse rotation of the bung or unthreading movement thereof from the flange 8 such as would be incident to heavy shocks or jars, is also effectually prevented. At the same time, the outer annular gasket 21 is placed under a heavy compressive force. Thus in this manner, it will be evident that the opening through the spud or ring 7 is tightly sealed both at the inner and outer ends of the bung while at the same time the bung is securely locked in its applied position and loosening thereof by outward turning movement of the bung in the spud or ring 7 which would destroy the effective sealing action of the ring 16 and permit of the seepage of the contents of the container outwardly through the bung opening or the escape of air or gases therethrough is obviated. In order to remove the bung, it is necessary to apply the proper wrench to the outer end of the same and exert a very heavy manual turning force in order to overcome the frictional binding action between the threads of the bung and the threads on the ring or spud 7.

From the foregoing description considered in connection with the accompanying drawing, it will be seen that we have produced a very simply constructed, inexpensive and efficient sealing bung for containers or receptacles. The device is particularly advantageous for use in connection with such metal drums, casks or barrels as are commonly employed for the shipment of oils and lubricants which are frequently subjected during transportation, to rough and abusive handling. However, our invention may also be employed in connection with other forms of receptacles of metal or other materials used as containers for various other commodities.

While we have herein shown and described a preferred practical embodiment of our present invention, it is nevertheless to be understood that the essential features thereof may also be incorporated in various other alternative structural forms, and we therefore, reserve the privilege of resorting to all such legitimate changes therein as may be fairly embodied within the spirit and scope of the appended claims.

We claim:

1. In combination with an internally threaded spud provided at the inner end of its threads with an inwardly projecting annular shoulder, an externally threaded bung, said bung at its inner end having a reduced axial extension, an annular sealing and locking washer engaged upon said bung extension, said washer being composed of a com-

pressible material, a retaining plate engaged against the end face of the bung extension and overlapping upon the inner portion of said washer, and an attaching screw for said
5 plate having threaded engagement in the bung extension, the outer part of the compressible washer engaging the shoulder of the spud upon inward threading movement of the bung whereby said washer is placed under
10 compression to exert lateral inward and outward expansive pressure against the threads of the spud and the bung respectively and to also exert a direct outward axial pressure against the bung to frictionally lock the
15 threads thereof with the threads of the spud and thereby prevent casual reverse turning movement of the bung.

2. In combination with an internally threaded spud provided at the inner end of
20 its threads with a narrow inwardly projecting annular shoulder, a bung having an externally threaded portion to engage the threads of the spud and provided with a reduced axial extension projecting from said
25 threaded portion of materially less diameter than the internal diameter of said shoulder, an annular sealing and locking washer of compressible material normally of greater thickness than the length of said bung extension and closely surrounding the latter, and means
30 retaining said washer in assembled relation with the bung to be handled as an entity therewith, said means including a part engaging the inner portion of the washer and holding
35 the same under compression, whereby upon the inward threading movement of the bung into the spud, the outer portion of said washer is engaged upon the shoulder of the spud and placed under compression to interlock said
40 washer with the inner threads of the spud and exert an outward axial force against the bung to frictionally lock the threads thereof with the threads of the spud.

In testimony that we claim the foregoing as
45 our invention, we have signed our names hereto.

JOSEPH RIMMELSPACHER.
ERNST HEPTING.

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