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BUNG OR DISCHARGE HOLE FORMATION IN A SHEET METAL CONTAINER WALL

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Fig. 1.

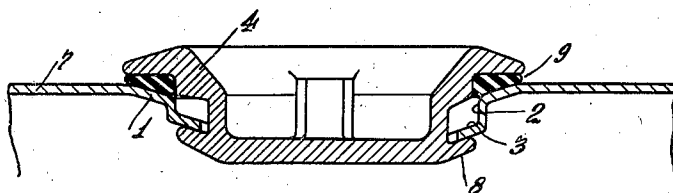


Fig. 2.

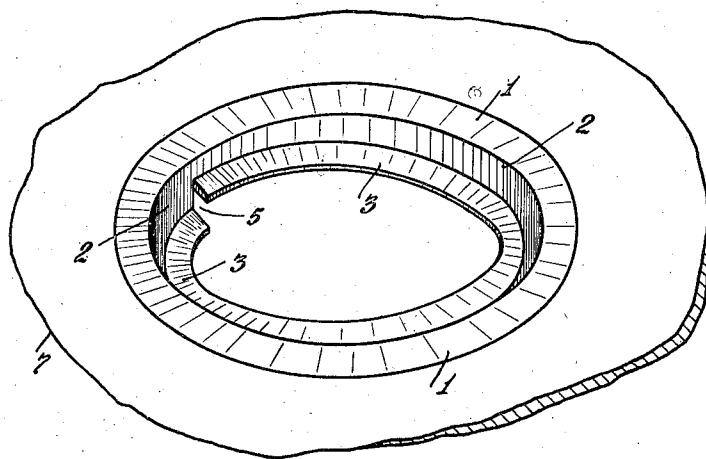
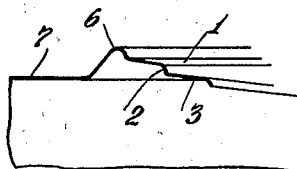


Fig. 3.



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BUNG OR DISCHARGE HOLE FORMATION IN
A SHEET METAL CONTAINER WALLEdmund Steven, Cologne-Kalk, Germany, assign-
or to American Flange & Manufacturing Co.
Inc., Chicago, Ill., a corporation of IllinoisApplication July 23, 1936, Serial No. 92,058
In Germany August 2, 1934

8 Claims. (Cl. 220—39)

The invention relates to sheet metal containers, having a bung or discharge hole adapted to receive a screw threaded bung or plug, and in particular to iron barrels for the transport of liquids.

An essential feature of the invention resides in the fact that a screw winding in the form of a collar or shoulder adapted to receive a screw threaded plug or bung of any kind is directly worked, in particular pressed, into the sheet metal of the container wall, so as to be sunk under the wall surface.

Up to the present an internally threaded bung or discharge hole bushing was riveted, welded or bordered into the opening of the iron transport barrel in a plurality of operations, whereby the edge of the bung hole bushing was always projected outwardly above the container wall surface in a disadvantageous manner.

Often a special gasket is simultaneously pressed in between the bushing and the container wall, which gasket, when detrimentally affected, in particular by the oil, cannot be renewed.

It is also known to border the sheet metal wall portion, surrounding or confining the bung hole and already deformed in a plurality of pressing operations, by further operations about an annular bead as the mouth of an inserted bung hole bushing. This has the drawback that the sheet metal of the container in view of the exceedingly strong expansion to which it is subjected, should be of superior quality, so that it will not tear at the bordering place. These laborious pressing and bordering operations and the use of a special pressed or cast and also machined bung hole bushing are necessary in order to avoid the simultaneous pressing in of a gasket, or the making of a welding seam and, finally, the rotation of the bung hole bushing during the screwing in of the bung or plug.

All of these disadvantages are avoided by forming the bung hole in accordance with the present invention, whereby no bushing has to be inserted and secured into the stamped bung hole.

Thus, in a simple manner, a firm and tight bung closure may be obtained. The screw thread confining the bung hole and a seat for a gasket which seat may taper downwardly, are produced by a single pressing action only. Due to the cylindrical depression of the bung hole and to the fact that the flank or face of the screw thread is directed downwardly, i. e. toward the interior of the container, the bung hole is reinforced and the screw thread is protected against damage, e. g. during conveyance of the

container by rolling without screwed-in bung or plug.

It is to be remarked that metal containers, whether empty or filled, are almost always transported with a screwed-in bung for the reason that then in case of denting the sheet metal container the screw connection of the bung closure remains undamaged. The invention constitutes a remarkable technical advance in regard to all known threaded bung closures of sheet metal transport containers, since without any additional material being used and by means of one single pressing action a bung hole, which does not project above the container wall, may be made liquid tight, rapidly and at a low cost of manufacture in an efficient manner.

The drawing illustrates two embodiments of the invention by way of example.

Fig. 1 is a vertical section of the bung hole of a metal container with screwed in bung.

Fig. 2 is a perspective showing of the bung hole, the bung having been removed.

Fig. 3 is a vertical section of a particularly shaped bung hole edge.

The bung hole screw thread which is pressed into the container wall, after the rolling of said wall has taken place, is provided as shown in Figs. 1 and 2 by a downwardly tapering edge portion or seat 1, a cylindrical wall portion 2 and a collar or shoulder shaped screw thread winding 3 between the ends of which, for the insertion of the bung 4, an interstice 5 is left.

Fig. 3 shows a particular formation of the mouth of the bung hole, in which a bead 6, projecting above the wall surface 7, reinforces the bung hole edge and further will prevent a gasket located on the seat 1 from being forced outwardly, even with a horizontal seat 1.

When screwing in the bung 4, the edge 8 of the bung thread enters into the interstice 5. After a complete revolution of the bung 4, whereby the gasket 9 is compressed, the lower side of the thread portion 3 will be in close engagement with the bung edge *f*. This edge, with a view to differences in thickness of the gasket 9 may be somewhat longer than a complete screw winding. Due to the tapering formation of the seat 1 the gasket 9 made from leather, rubber or the like will, even if the bung is screwed in as firmly as possible, not be forced outwardly but, to the contrary, inwardly, so that the gaskets used need not be particularly good and even those that are slackly applied may be used. Through the interstice 5 substantially all of the liquid can flow out of the container if the latter is reversed with its

bung hole turned down. Due to the downwardly tapering gasket seat 1 and the downwardly inclined helically or spirally wound shoulder 3 the bung 4 will also be centered if the bung diameter at the bottom of the groove in the bung is somewhat irregular, so that this diameter does not require fine machining. Notwithstanding this the gasket 9 will not be laterally displaced.

The tapering or horizontal gasket seat 1 may also be pressed into the container wall so as to be sunk a distance equal to the thickness of the gasket 9, whereby the seat is protected and even with a horizontal seat 1 and excessive screwing on of the bung 4 the gasket cannot be forced outwardly.

I claim:

1. A bung or discharge hole formation in a sheet metal container wall wherein all the elements thereof are formed from the container wall stock, comprising a downwardly tapering seat for a gasket, a cylindrical wall portion at the lower end of said seat, and a screw winding in the form of a spiral collar or shoulder at the lower end of said cylindrical portion, said spiral collar or shoulder being transversely inclined and sloping inwardly with respect to the container, the ends of said screw winding being spaced apart so as to form an interstice to permit of the screwing in of a screw threaded bung and substantially complete discharge of the liquid contents of the container.
2. A discharge hole formation for a sheet metal container wall, comprising a bead formed in said wall surrounding said hole, a horizontal gasket seat disposed below said bead, a cylindrical wall portion extending from the inner edge of said gasket seat and a screw winding in the form of a spiral shoulder at the lower end of said cylindrical wall portion, said shoulder being transversely inclined and sloping inwardly with respect to the container, all of the elements of said formation being pressed from the material of said container wall.
3. A closure plug for containers, comprising a head portion, a base portion and an intermediate neck portion, the upper peripheral face of said head portion being downwardly inclined, the undersurface of said head being formed with a rectangular annular gasket receiving surface with a deformable gasket on said surface, said base portion having a screw thread portion therearound, said screw thread portion being laterally inclined to assure a tight engaging action with the co-mating screw thread portion with which the same is engaged.
4. In closure construction for containers, a container wall having an opening therein, an inwardly extending neck portion formed in the container wall surrounding said opening, the inner end of said neck portion being formed to provide a screw winding the ends of which are spaced apart to form an interstice for reception of the engaging portion of a plug, a tapered gasket surface formed out of said container wall stock and provided at the top of said neck portion between the same and the surrounding container wall, all of said formations lying below the plane of the container wall and a screw plug engaged in said neck, said plug having a flange therearound with a

downwardly tapered upper face, the underface of said flange being undercut to form a gasket receiving ledge and a gasket on said ledge, means at the end of said plug remote from said flange for engaging the screw winding of said neck to secure and tighten said plug therein, whereby engagement of said plug in said neck will cause said gasket to be pressed between said ledge and said gasket receiving surface.

5. A discharge hole formation for a sheet metal container wall, comprising a pressed-in neck formed with a reinforcing rib surrounding the same and with a screw thread portion, comprising a spiral shelf, said shelf being transversely inclined and sloping inwardly with respect to the container, said rib and portion being both on the same side of the container wall and being formed out of the stock of said wall.

6. A discharge hole formation for a sheet metal container wall, comprising an annular bead surrounding said hole, a gasket seat below said bead around the inside thereof, a neck extending inwardly from said gasket seat below the plane of said container wall and a screw winding in the form of a laterally extending shoulder pressed from said neck, the ends of said screw winding being spaced apart to form an interstice extending throughout the major portion of the height of said neck, all portions of said formation being pressed out of the stock of said container wall, whereby a screw threaded bung may be engaged with the screw winding and substantially complete discharge of the liquid contents of the container may be obtained.

7. A discharge hole formation for a sheet metal container wall, comprising a pressed-in neck, a gasket receiving surface surrounding said neck and tapering downwardly toward the same from the plane of said container wall, a reinforcing rib between said neck and the bottom of said receiving surface, and a plug engaging thread formed at the bottom end of said neck, said thread comprising an inwardly extending, inclined ledge, all of said formations being pressed from the material of said wall and extending below the plane of the same, whereby a rigid discharge opening free of outside obstructions is provided.

8. A closure for the opening in a sheet metal container wall, comprising a neck portion extending inwardly from the surface of said wall, said neck being formed with a tapered gasket receiving surface at one end thereof and with a thread formation comprising a spiral shelf at the other end thereof, said shelf being transversely inclined and sloping inwardly with respect to the container said surface, neck and formation being formed out of the stock of said wall, a screw plug engaged in said neck, said plug having a flange therearound at one end thereof, said flange having a downwardly tapering upper surface, a gasket carried by said plug beneath said flange and a thread formation at the other end of said plug formed to engage the thread formation of said neck, whereby engagement of said plug in said neck will provide a liquid-tight closure presenting a minimum of obstruction to extraneous objects.

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