Oct. 20, 1942. E. E. SHANOR 2,299,183

SHEET METAL BARREL OR DRUM

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Fig. 1.

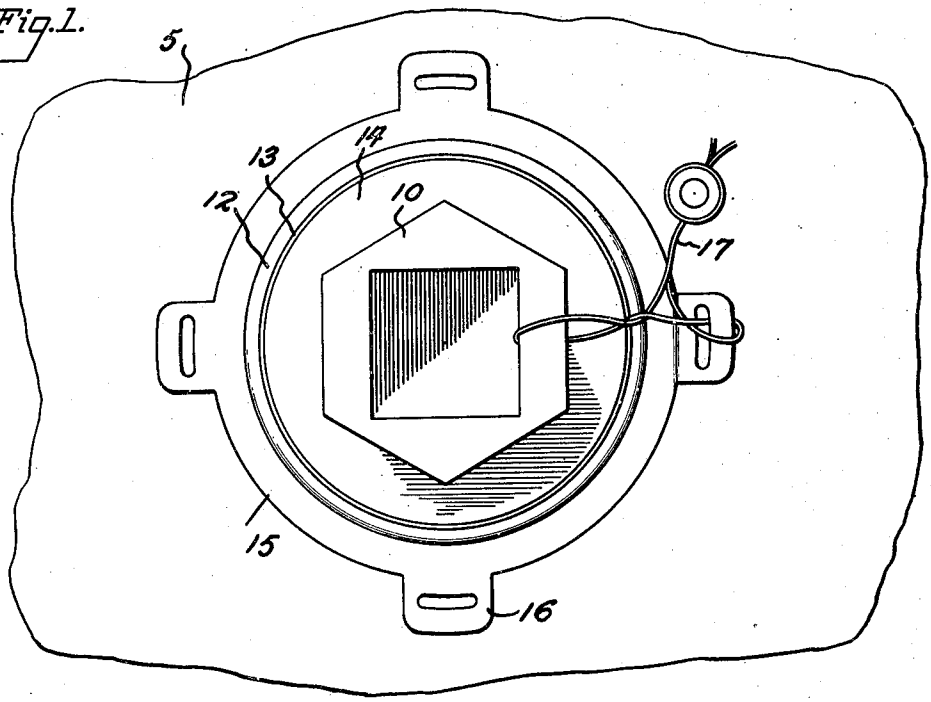


Fig. 2.

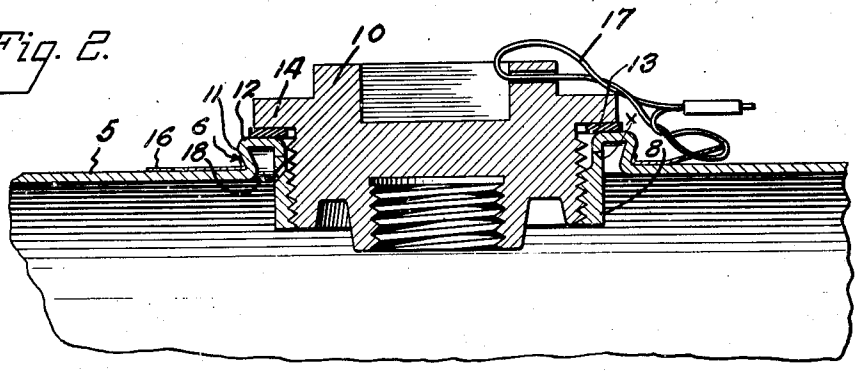
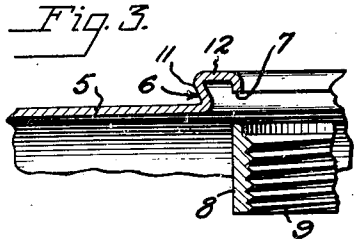


Fig. 3.



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Fig. 4.

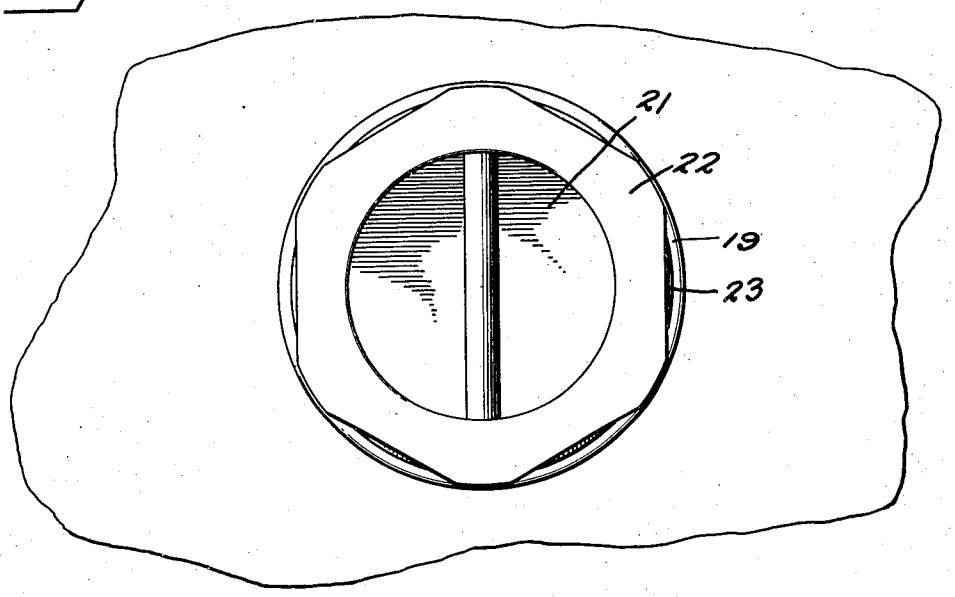


Fig. 5.

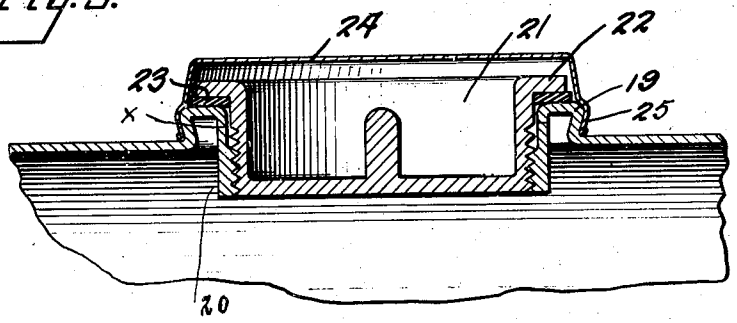
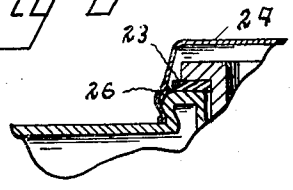


Fig 6



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UNITED STATES PATENT OFFICE

2,299,183

SHEET METAL BARREL OR DRUM

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Application December 29, 1939, Serial No. 311,651

4 Claims. (Cl. 285—49)

The invention relates broadly to sheet metal containers of the barrel or drum type such as generally employed in the transportation and storage of oils, greases, paints and the like. More recently there has been a demand for the use of this type of container in the handling of food stuffs, beverages, and other commodities which of necessity or desirably should be kept free from contamination.

In containers of the type indicated there is a flanged or sput opening designed to receive a plug, bung, or other stopper or closing member. Sometimes the opening is located on the head of the container and sometimes on the rolling side thereof. The plug or other stopper, and its accessories, in order not to suffer damage during authorized handling of the container, should not in the one case project beyond the protecting limits of the chime and should not in the other case project beyond the outside diameter of the rolling hoops and this has been a constant problem. The plug or other stopper sometimes has threaded engagement with a sput or ring which is usually a press-inserted fitting in the opening so that the threaded area is limited and gaskets largely are relied upon to insure liquid tightness and they are effective only at the outset.

The fittings heretofore provided have not been generally satisfactory because in the case of oils, greases, and the like, there have been serious volatile and other leakage losses due to the plugs working loose or due to the gaskets drying out and losing their elasticity; and because, in the case of foodstuffs, beverages and other commodities which of necessity, or desirably, should be isolated from sources of contamination, it is objected that the structure precludes or seriously hampers the proper lining of the container with lacquers and acid-proof coatings such as now generally specified and sometimes required by law. If there are cracks or crevices around the opening, the lining or coating materials cannot satisfactorily be applied because, as a general rule, such coatings require baking at high temperatures and the curing, which is the purpose of the baking, cannot be effected unless the coating is of uniform thickness and free of entrapped air, and air bubbles always are present wherever there are cracks, crevices or other manifestations of irregularity in the surface of the metal. Moreover, such irregularities as well as other manufacturing faults and faults of design of press-inserted fittings and welded fittings according to heretofore prevailing practices, are objectionable because they result in trapping areas for dirt, germs and other foreign matter, some of which areas not only cannot properly be lined or coated but are practically inaccessible to ordinary washing or sterilizing.

Objects of the invention are to provide a container of the kind indicated, including a fitting, which will present no cracks, crevices, or other faults liable to trap germs or other contaminating material, or calculated to preclude or seriously interfere with effective lining or coating, or to prevent adequate washing or sterilizing; to provide a fitting which will be a practical continuation of the container sheet and, therefore, will be as leakageproof as the container sheet; to provide a fitting in which any possible leakage will be necessarily via the thread connection and which will take care of that by a double seal arrangement; to provide a simple, effective and relatively inexpensive construction which will insure deep seating of the plug so that it and its accessories will not project beyond the chime or beyond the rolling hoops; and to provide a sput of appreciable thread area to accommodate the plug.

Other objects as well as the nature and characteristic features and scope of the invention more readily will be understood from the following detailed description taken in connection with the accompanying drawings, forming a part hereof, wherein

Figure 1 is a plan view of a sealed plug assembly embodying my improvements.

Fig. 2 is a sectional view of the same.

Fig. 3 is a detail showing the flange and sput in detached relation.

Fig. 4 is a plan view of a modified assembly adapted to the use of a sealing cap in lieu of a wire seal.

Fig. 5 is a sectional view of the structure, Fig. 4, with the sealing cap added; and

Fig. 6 is a detail, showing the sealing of the cap seal.

In the preferred practice of my invention the sput or plug-seating ring is located substantially within the confines of the container and for all practical purposes is a continuation of the container sheet, being sprung from an outwardly directed boss which is flared to provide adequate seating for a sealing gasket for the plug as well as for a separate and independent gasket which cooperates with a sealing cap, the skirt or rim of which is shaped to fit the flare. It follows that since the plug-seating ring is a continuation of the container sheet, there can be no leakage through the wall and that any possible leak-

age via the threads is inhibited by the multiple sealing arrangement. Again, it is important to note that there are no cracks, crevices or other surface faults tending to prevent proper lining or coating of the container, and that the chamber of the boss is freely accessible to washing and sterilizing.

In the embodiment, Figs. 1 and 2, numeral 5 represents a container sheet or wall having an opening, the bounding part of which is bent outwardly, then radially towards the axis of the opening and then inwardly parallel with said axis, thereby to provide a reinforced and relatively stiff channular bead or flange generally indicated at 6. To the reentrant lip or skirt 7, which defines the edge wall of the opening, there is metallically bonded in end abutting relation, as by welding, a ring or sput 8 having an appreciable screw threaded thickened area as at 9, to accommodate a deep seating screw plug 10. The lip and the sput may be welded in various ways, including flash welding. However, I have found it advantageous to use a percussion weld x because this type of weld produces no objectionable flash or disturbance in surface or dimensions at the weld area.

The leg 11 of the embossed flange 6 is somewhat flared so that there is adequate expanse of radial metal as at 12 to provide a gasket seat for a gasket 13 which cooperates with the conventional sealing flange 14.

At 15 is indicated an escutcheon plate comprising a sheet metal ring surrounding the flange 6 and snugly fitting the container sheet. Generally it is applied before the embossing operation so that thereafter it will be interlocked with the flaring part of the embossed flange. The member 15 is formed in such way, for example, with slotted radial fingers 16, as to cooperate with the plug 10 in the use of a tamper-indicating or sealing wire 17.

Adequate drainage is afforded through the provision of the drainage openings 18 in the ring or sput 8.

It will be manifest from the foregoing that an effective sput and plug assembly, including the use of precautionary devices, is provided which will fulfill all of the requirements of the industry, including that of complete protection against damage to the assembly during authorized handling of the container.

In the preferred construction, Figs. 4 and 5, a sealing cap is employed in lieu of the sealing wire. In this construction the same arrangement of embossed flange and sput prevails. The hollow flaring boss is generally indicated at 19, the sput at 20 and the plug at 21. The plug is of the cup type with a radial offset or sealing flange 22 to cooperate with a gasket 23. While the plug shown is of the cup type, this is not essential. 24 is the sealing cap which is fixedly secured in sealing relation by crimping its skirt 25 about the flaring wall of the boss.

In the detail, Fig. 6, it will be noted that the flaring of the hollow boss has the merit that it not only provides for adequate support of a sealing gasket for the plug, but also adequate support for a sealing gasket 26 which cooperates with the sealing cap.

Having described the invention, what is claimed as new:

1. A sheet metal barrel or drum having a wall formed with an opening with provision for the deep seating of a plug without press fitting and other offsetting conditions likely to trap food and to prevent continuous lining and complete washing with antiseptic, the opening being defined by an external embossment of the wall, said embossment being outwardly flared, thence continued as a flat radial portion and terminating in a perpendicular skirt which enters the opening and is parallel with the axis thereof, and a plug receiving fitting aligned with the skirt and having an end homogeneously united to the bottom edge thereof, the outside diameter of the fitting being substantially the same as that of the skirt whereby the parts are in substantially flush relation and there are no crevices or the like which prevent continuous lining of the receptacle.

2. A sheet metal barrel, drum or like container having a wall formed with an opening the bounding metal of which is first outwardly embossed to provide for sealing wholly externally of the opening and is then inwardly directed as a perpendicular skirt parallel to the axis of the opening, and a plug receiving fitting within the confines of the receptacle and integrally joined in end to end relation with said skirt, said integral joint being manifested as a flash weld whereby the structure is characterized by an absence of beading or lapping metal and the skirt and fitting have substantially the same mean diameter.

3. In a sheet metal barrel, drum or like container, means for supporting a plug seating member without press fitting and other offsetting calculated to prevent continuous lining of the container or thorough antiseptic washing thereof or to trap food, said means comprising a straight wall continuation, inwardly of the opening and parallel to the axis thereof, of an external embossment of a wall of the container, and an internally screw threaded sleeve having substantially the same outside diameter as said continuation and metallically joined thereto in end to end relation.

4. A sheet metal barrel, drum or like container having a wall formed with an opening bounded by an outwardly directed boss to provide a gasket seat externally of the opening, said boss also having a terminal portion extending into the opening and parallel to the axis thereof, and an internally threaded ring within the confines of the drum butt welded to said terminal portion and having substantially the same outside diameter as said terminal portion.

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