Feb. 23, 1937. F. GETTELMAN 2,071,621

METAL BARREL

Filed Feb. 4, 1933 2 Sheets-Sheet 1

Fig. 1.

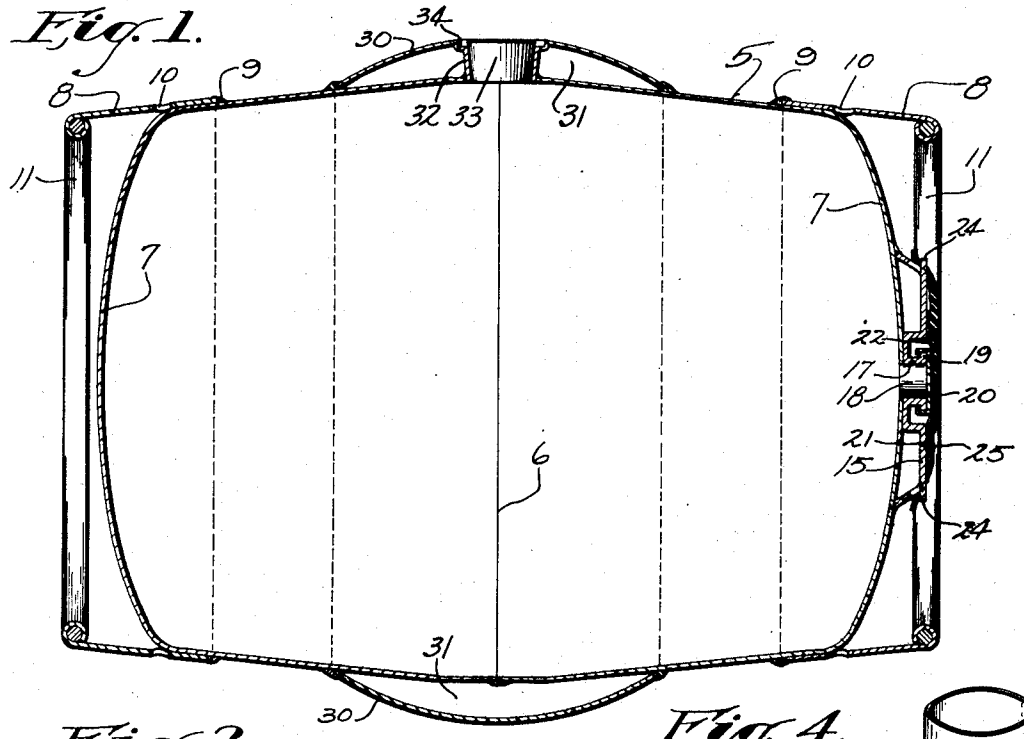


Fig. 2.

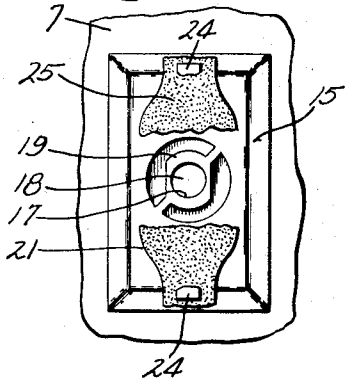


Fig. 4.

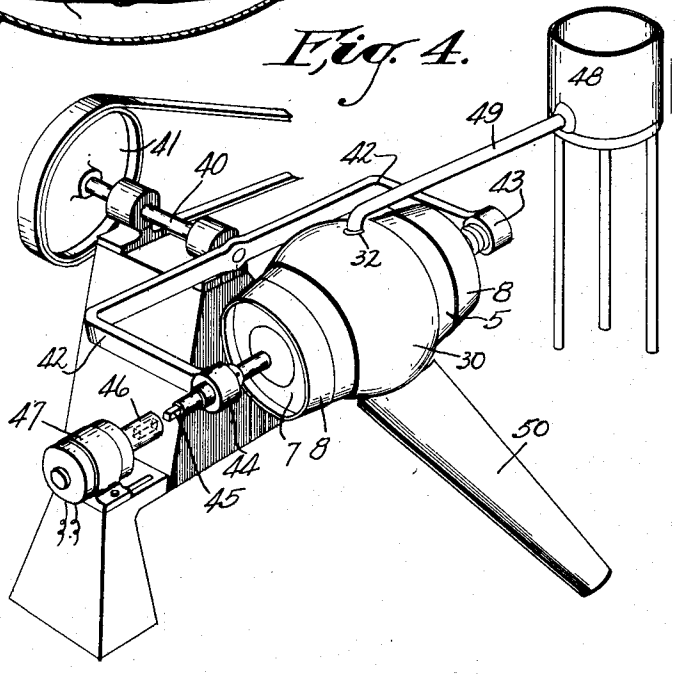
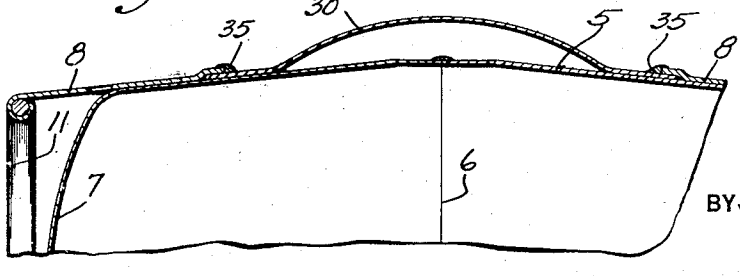


Fig. 3.



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Filed Feb. 4, 1933 2 Sheets-Sheet 2

Fig. 5.

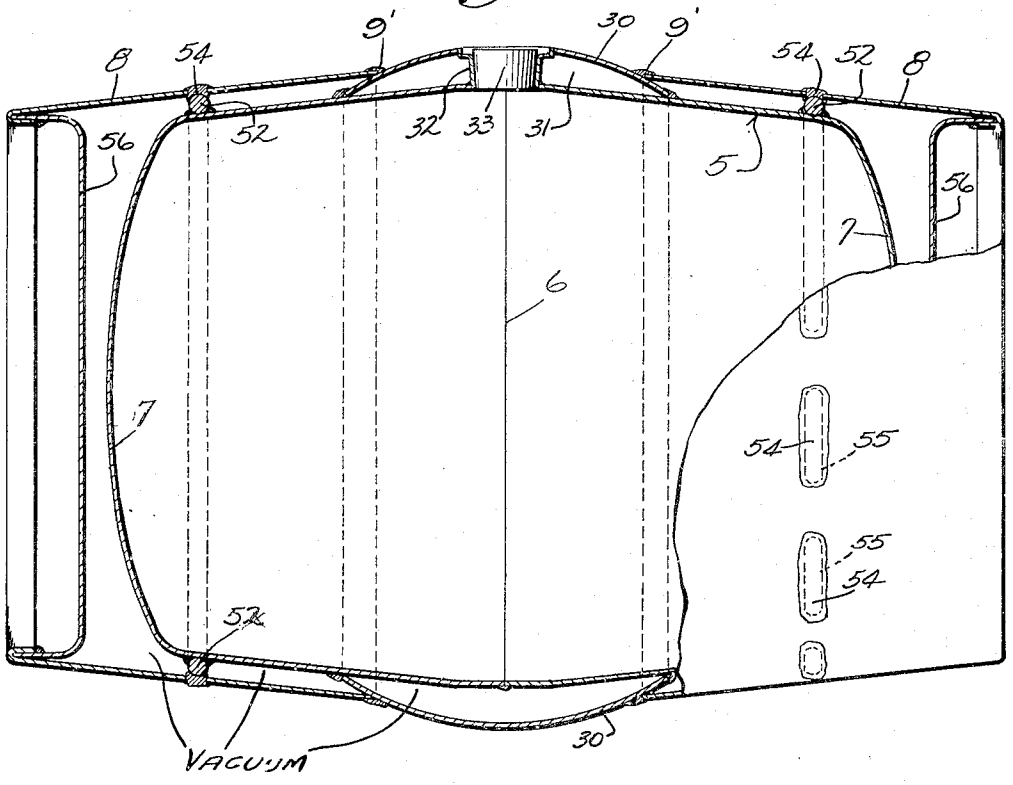


Fig. 6.

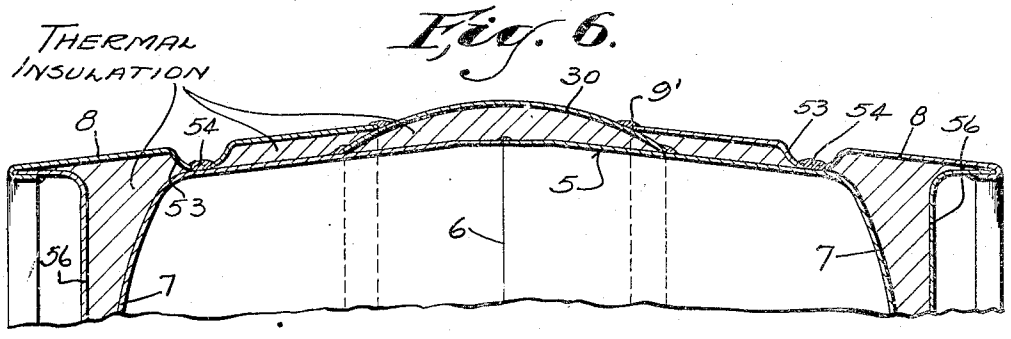
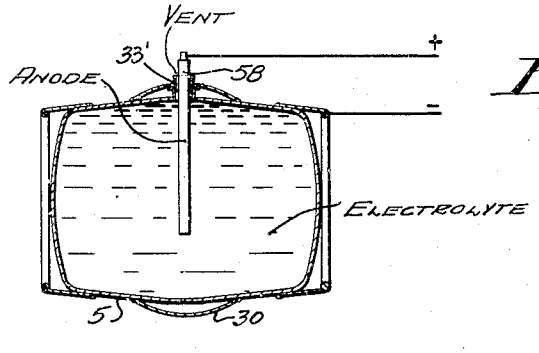


Fig. 7.



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UNITED STATES PATENT OFFICE

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METAL BARREL

Fredrick Gettelman, Milwaukee, Wis.

Application February 4, 1933, Serial No. 655,177

4 Claims. (Cl. 220—10)

This invention relates to improvements in metal barrels.

It is the primary object of the invention to provide a barrel in which the chamber which receives the contents may be made of relatively light metal having a perfectly smooth interior suitably reinforced to permit of its handling without damage, and assured of sanitation by means which provides adequate bung and tap bowl fittings wholly outside of the storage chamber and to either of which all portions of the storage chamber are readily drained.

More specifically stated, the purpose of the present invention is to provide a relatively light metal chamber having protecting sleeves encircling and extending beyond its ends, and a girth band of concave form and cross section extending about the largest diameter of the chamber to reinforce the same and to provide a space between the band and the chamber or shell in which a bung is received to be protected during handling of the barrel and to avoid interference with the free draining of its contents.

Further objects of the invention are to provide a new and improved means for protecting a stamp applied to a barrel closure; to minimize the cost of manufacturing metal barrels by providing sufficient reinforcement so that the weight of expensive materials may be reduced; to provide a novel means for protecting contents of the barrel; to provide a novel means for protecting the material of the barrel from corrosion; and to provide a barrel which may readily be rolled about and easily manipulated.

In the drawings:

Figure 1 is a view in transverse axial section through a barrel embodying the invention.

Figure 2 is a fragmentary detail in end elevation, of a portion of the protective device for the government stamp.

Figure 3 is a fragmentary detail similar to Fig. 1 but in a different plane showing a slightly modified construction.

Figure 4 is a diagrammatic view illustrating in perspective, a means for tinning or otherwise coating the interior of the barrel.

Figure 5 is a view in transverse axial section, and partially in side elevation, illustrating a modified form of barrel embodying the invention.

Figure 6 is a fragmentary detail similar to Fig. 5 and illustrating a further slight change in construction thereof.

Figure 7 diagrammatically illustrates an electro-plating process for coating the interior of the barrel for the protection of its contents.

Like parts are identified by the same reference characters throughout the several views.

The container proper comprises a shell 5 which may be made up of two separate end portions welded together about a central line 6, which preferably represents a larger diameter than the diameter of the shell adjacent its heads 7.

The heads 7 are preferably convex, so that all portions of the shell 5 will drain toward any point thereof which happens to be lowermost. This feature is of great advantage not only in emptying the barrel, but particularly in washing.

Projecting beyond each head of the barrel at the ends thereof, is an annulus 8 conforming to the taper of the barrel and welded thereto at 9. Each annulus is preferably provided with a series of ports 10 so that when the barrel is standing on end any liquids tending to accumulate within the annulus 8 will be drained therefrom to protect the metal from corrosion.

The annuli 8 are preferably made of relatively heavy metal as compared with the container 5. They are heavily beaded at 11 to withstand the hard usage encountered during the manipulation of the barrel in practice.

Fully protected by one of the annuli 8 is a tapped fitting 15 which includes a sleeve 17 adapted to receive a stopper 18 and flanged over at 19 to provide anchorage for a detachable cap 20. In the respect just described the fitting 15 may be of any conventional type.

In order to receive the government stamp, the fitting 15 is preferably provided with a rather extensive planiform surface at 21 to which a stamp or seal 22 may be applied over the cap 20 and the stopper 18. To protect the stamp while the barrel is in transit it is preferred that the fitting 15 be formed to provide tongues at 24 over which the apertured ends of an elastic protector 25 may be engaged. The protector may conveniently be made of rubber or elastic fabric.

The same protecting means is claimed in my companion application 9,255 filed March 4, 1935, and accordingly is not claimed herein.

One of the very important features of the invention consists in the provision of a concave girth band 30 applied about the central, maximum diameter portions of the shell 5. The convexity of this band 30 is much greater than that of the shell itself, so that a comparatively wide space is formed at 31 which is sufficient to receive the inwardly tapered bung fitting 32. This bung fitting is of sufficient dimensions to receive and properly to hold a tapered bung plug 33 of adequate size, without any projection of said bung

beyond the girth band 30. The fitting is preferably shouldered outwardly at 34 to expose the end of the bung.

Together the band 30 and the annuli 8 comprise means for rigidly reinforcing and strengthening the shell 5 which may consequently be made of relatively light material. If desired, the annuli 8 and the girth band 30 may be so extended as to contact each other and permit of a weld uniting these elements as shown at 35 in Fig. 3. Either construction permits the shell or container proper to be made of relatively thin and light-weight material, since the girth band 30 and the annuli 8 at the ends of the barrel are, in either case, so positioned as to take all shocks during the rolling and upending of the barrels. The girth band 30 not only protects the barrel but greatly facilitates the upending thereof.

It is particularly to be noted that the entire contents of the barrel may be withdrawn either through the tap fitting 15 or the bung fitting 32, upon withdrawal of the closure 18 or bung 33. As above noted, this feature not only effects economy of the contents of the barrel, but greatly promotes sanitation since it permits of the perfect drainage of the barrel in the washing thereof.

Because of the reinforcement provided as aforesaid, it is possible economically to make the container or shell 5 of light weight stainless steel or other similar non-corrodible metal. It is also possible to use ordinary iron and to tin the interior or apply any other protective coating through the means disclosed in Fig. 4.

A shaft 40 driven by pulley 41 carries a pair of arms 42 which support a tailstock 43 and a headstock 44 releasably engaged with the heads of the barrel. The headstock has a squared end 45 which may be engaged by a chuck 46 carried by a motor 47 or otherwise driven.

The coating material may be supplied from a tank 48 through a pipe 49 through the bung hole 32 of the barrel, after which the bung hole may be closed, the pipe 49 swung aside, and the barrel rotated end over end about the axis of shaft 40. In the course of this rotation the coating material will be fairly widely distributed over the inside of the barrel and the shaft 40 may then be brought to rest with the headstock 44 in alignment with chuck 46. The headstock may now be rotated to turn the barrel on its axis, thus centrifugally distributing the remainder of the coating about the interior side walls of the shell 5. Any surplus of coating material remaining in the barrel may be discharged on to trough 50 for delivery where desired.

An interesting feature of the above described mechanism consists in the fact that it enables the barrel to be tinned throughout its interior. The barrel is "pickled" interiorly with the usual bath to prepare the surface for tinning. Instead of separately heating the barrel or immersing it in a tinning solution, I simply deliver to the barrel from reversoir 48 a sufficient quantity of hot tin so that the heat contained in the tin itself will raise the barrel to the proper temperature. The surplus tin will be drained out after the tumbling and centrifugal operations above described, and may be reheated and used in a subsequent tinning operation.

A further means of interiorly providing a metallic coating for the receptacle 5 involves the electroplating of the interior of the barrel by completely filling the receptacle with a suitable electrolyte, introducing one electrode through the bung hole, and using the barrel as the other electrode in a circuit which will deposit metal from the electrolyte upon the interior of the barrel. As in the tinning process above described, this electrolytic method has the advantage of using the plating metal only where needed to protect the contents of the barrel without going to the expense of plating or coating the exterior.

In Figs. 5 and 6 I have shown a thermally insulated container which, in addition to the advantages of the constructions heretofore described, has the further advantage of protecting the contents of receptacle 5 from heat and cold. The construction is very similar to that above described except that the annuli 8 are made slightly larger in diameter than the annuli shown in Figs. 1 and 3, and are therefore spaced from receptacle 5 at all points. The inner margins of annuli 8 are welded at 9' to the girth band 30 and are spaced from the ends of receptacle 5 either by means of rings 52, as in Fig. 5, or by integral internally formed ribs 53, as in Fig. 6.

In either case the final weld 54 may, as a matter of convenience, be made by forming the annulus 8 with peripherally spaced slots 55 through which the welding material 54 extends to join the annulus 8 with the underlying surface.

False heads 56 are welded to annuli 8 and serve to complete an enclosure about the inner receptacle 5. The space within girth band 30 and annuli 8 in this form of construction is insulated either through the use of a suitable insulating material or by withdrawal of the air to produce such degree of vacuum as is practicable.

The construction shown in Figs. 5 and 6 retains all the advantages of the above described constructions so far as concerns clearance in which the bung hole and tap fittings may be located. Additionally, constructions shown in Figs. 5 and 6 have a relatively high degree of thermal insulation value.

Fig. 7 diagrammatically illustrates the electroplating method above referred to. It will be noted that a special bung 33' is equipped with an electrode 58 which extends toward the center of the barrel. The barrel is filled with electrolyte, and the electrode and the barrel are properly connected with the terminals of a plating circuit.

I claim:

1. A barrel comprising the combination with an inner shell provided with a girth band encircling the shell in marginal connection therewith and centrally spaced therefrom, of sleeves encircling the end portions of said shell connected with said girth band in spaced relation to said shell, means positively spacing the end portions of said sleeve from the end portions of said shell and comprising an integral radially offset portion of each sleeve bridging the space between said sleeve and the adjacent portion of the shell connected with the shell, and heads in said sleeves enclosing the ends of said shell.

2. A barrel comprising an inner shell, a girth band encircling said inner shell and having its central portion spaced therefrom and its margins connected with said inner shell between the center and the ends thereof, enclosures for the ends of said shell, said enclosures comprising head and annuli, the annuli being centrally connected with the ends of the shell and marginally connected with said girth band intermediate its center and margins and in spaced relation to the shell, whereby said enclosures and girth band together comprise an outer shell connected upon a plurality of axially and peripherally spaced

annular lines with the inner shell and providing a series of annular peripheral chambers for thermal insulation, said girth band being slightly convex to receive and distribute the rolling strain on the outer shell.

3. A barrel comprising the combination with an inner shell, of an outer shell including annuli encircling the ends of the inner shell, heads in said annuli, and a girth band element connecting said annuli and projecting convexly in a radial direction beyond said annuli to provide a load distributing and rolling support for the barrel, said girth band element being continuously convex between its marginal connections with the inner shell, said annuli engaging the convex portions of the girth band element within its outer periphery, and means rigidly connecting said outer shell and inner shell together upon axially spaced peripheral lines adjacent the ends of the inner shell and therebetween.

4. A barrel comprising the combination with an inner shell provided with a girth band encircling the shell in marginal connection therewith and centrally spaced therefrom, of an outer exposed shell encircling the end portions of the inner shell and connected with said girth band in spaced relation to the inner shell, and means positively spacing the end portions of said outer shell from the end portions of the inner shell, said means comprising a radially off-set portion on one of the shells and connected to the other shell.

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