

March 10, 1936.

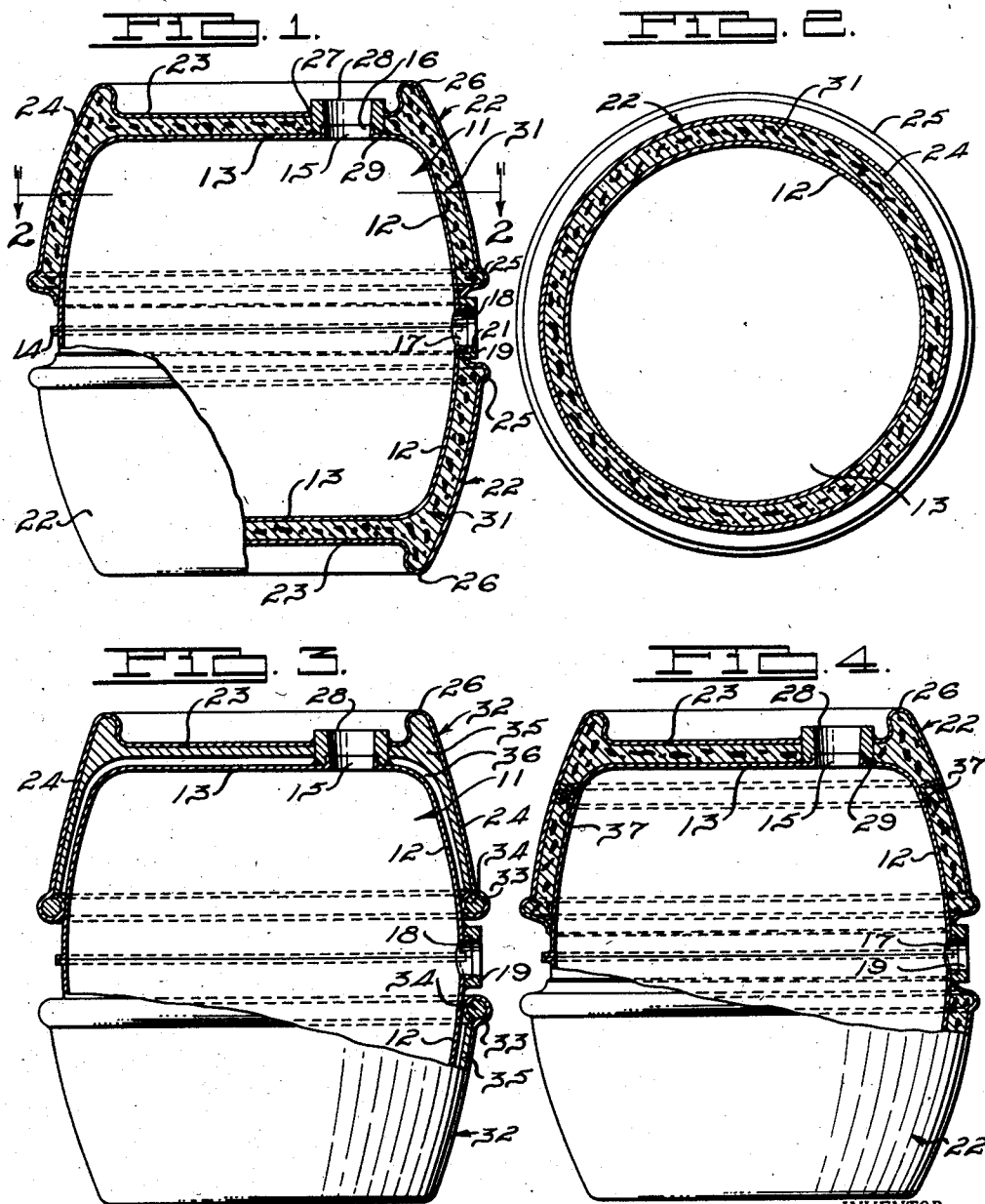
C. H. WIDMAN

2,033,268

BARREL

Filed May 12, 1933

2 Sheets-Sheet 1



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BY

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FIG. 5.

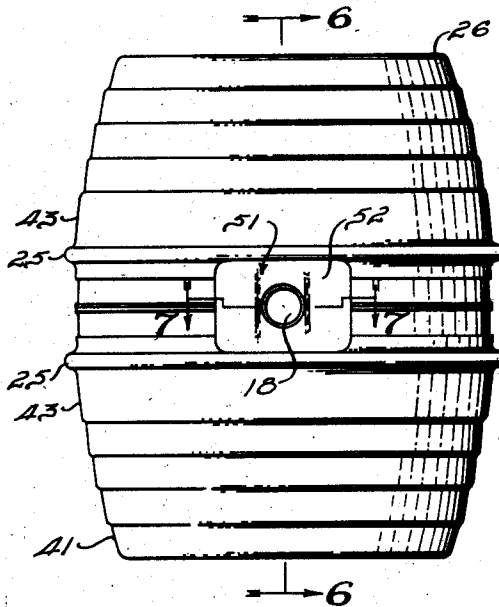


FIG. 6.

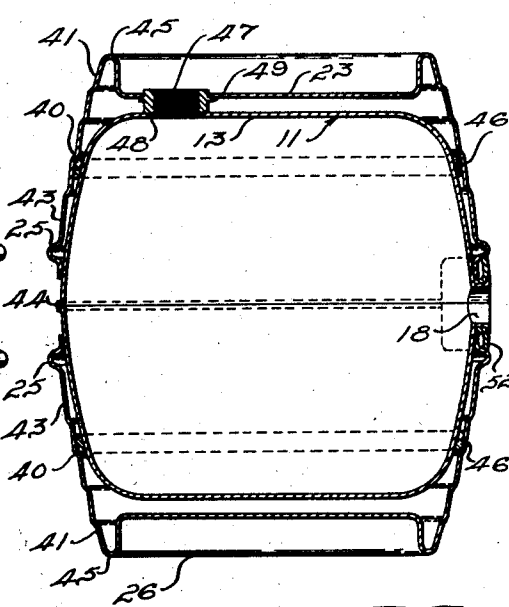


FIG. 7.

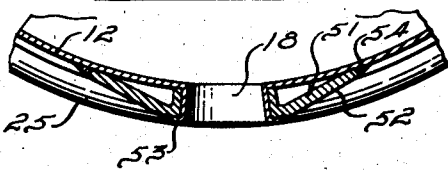


FIG. 8.

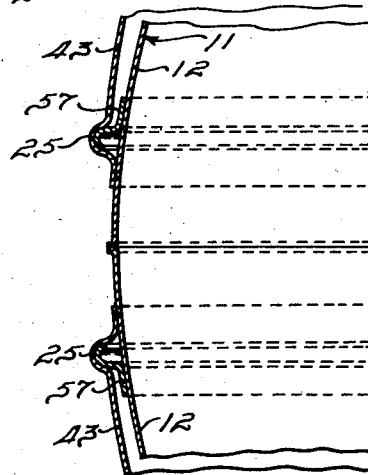
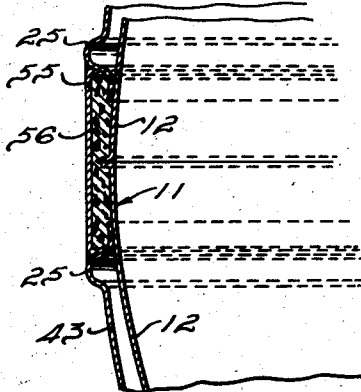


FIG. 9.

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UNITED STATES PATENT OFFICE

2,033,268

BARREL

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Application May 12, 1933, Serial No. 670,663

20 Claims. (Cl. 220—10)

My invention relates to barrels and particularly to a barrel of the all-metal type made up of similar preformed sections which are welded together to form a complete barrel with reinforcing elements spaced therefrom to provide insulating purposes.

Tight barrels which are employed by wine and cider makers, brewers and distillers, have usually been made of wood, preferably of well seasoned oak in the shape of staves which are preformed to provide a bilge to the barrel, that is to say, the bulge or enlargement at its central portion. The staves were preformed to accurately mate with each other throughout their lengths and were assembled together by hoops. The ends of the staves were beveled and grooves were provided near their ends in which heads were fitted to form the complete barrel. This operation required a considerable amount of time, skilled labor and expense.

The present invention relates to improvements in barrel construction, one which is made of similar stamped metal elements which are welded together and provided with reinforcing elements which are spaced from the barrel to provide insulating qualities superior to those of the wood barrels having the additional feature of permitting the barrel contents to be readily cooled. The barrel proper is constructed of like parts which are welded together while two additional end-encompassing stampings, which are similar to each other, are disposed over the barrel proper to reinforce the barrel and to provide handholds and stacking ends thereto, as well as to provide annular ridges upon which the barrel may be rolled. The reinforcing elements are spaced from the barrel proper to provide an insulating area, one in which air may be trapped or which may be filled with cork, sawdust or similar insulating substance or which may have an insulating compound adhered to the side of the reinforcing member.

Accordingly, the main objects of my invention are: to construct a barrel of the tight type which is made entirely of metal having insulating properties; to form like stampings of conoidal shape which, when mated together, form a complete barrel having a bulge in the center and heads on both ends; to provide reinforcing end elements for the barrel portions so formed, which project beyond the bulge of the barrel portion upon which the barrel may roll; to weld the ends of the cap to the barrel proper to form preferably a tight seal therewith and a space between the cap and the barrel portion in which air, cork, sawdust or

other material may be disposed for insulating purposes; to provide flanged apertures in the barrel portion to which collars are welded or other-wire secured to form humps in the barrel and, in general, to fabricate a barrel from preformed metal elements which is rigid in construction, which is leak-proof and economical of manufacture, and which has insulating properties.

Other objects and features of novelty of my invention will be either specifically pointed out or will become apparent when referring, for a better understanding of my invention, to the following description taken in conjunction with the accompanying drawings, wherein:

Figure 1 is a broken plan view, partly in section, of a barrel embodying features of my invention.

Fig. 2 is a sectional view of the structure illustrated in Fig. 1, taken on the line 2—2 thereof.

Fig. 3 is a broken sectional view of a barrel, similar to that illustrated in Fig. 1, showing a modified form thereof.

Fig. 4 is a broken sectional view of a barrel, similar to that illustrated in Figs. 1 and 3, showing a further modified form thereof.

Fig. 5 is a view, in elevation, of a barrel, similar to that illustrated in the foregoing figures showing a modified form thereof.

Fig. 6 is a sectional view of the structure illustrated in Fig. 5, taken on the line 6—6 thereof.

Fig. 7 is an enlarged sectional view of the structure illustrated in Fig. 5, taken on the line 7—7 thereof.

Fig. 8 is an enlarged broken sectional view of a barrel, similar to that illustrated in the foregoing figures, showing a modified form thereof.

Fig. 9 is an enlarged broken sectional view of a barrel, similar to that illustrated in the foregoing figures showing a further form thereof.

In the co-pending application of C. H. Widman, Serial No. 665,139, filed April 8, 1933, and assigned to the assignee of the present invention, an all-metal tight barrel was illustrated which contains features similar to the present type of barrel construction. The barrel proper is constructed in the main, of two similar conoidal elements 11, which are of pot-shape, having outwardly diverging sides 12 and bottom 13. The edges are outwardly flanged at 14 and are abutted to each other and welded, preferably by a butt welding operation, to form a tight joint. It is to be understood that brazing, torch or elastic welding may be employed instead of the butt welding, or any other well known method in the art may be utilized. An aperture 15 is provided in one of the 55

barrel portions so formed, having a flange 16 thereabout. A semi-circular aperture 17 is provided in each half 11 of the pressed metal portions, having a semi-circular flange 18 thereabout which forms a complete aperture when the two halves are welded together. A collar 19, having a shoulder 21 therein, projects over the flange 18 of the aperture 17 in the side of the barrel portion. The collar is preferably made of cast iron or other rust resisting metal and is welded, brazed or otherwise secured to the flange 18.

Reinforcing elements 22 are formed from sheet metal to encompass the end portion 11 of the barrel, being provided with a pressed-in head portion 23, downwardly projecting side portions 24, an outwardly pressed annular portion 25 which form rings which project beyond the bulge and the collar 19 of the barrel to permit the roll of the barrel in a straight direction. The upwardly projecting marginal portion 26 of the reinforcing member 22 forms the handhold for the barrel by which it may be lifted and carried and provides edges upon which the barrels may be stood or stacked, one upon the other. The reinforcing member 22 is spaced from the outer surface portion 11 of the barrel and the edges of the reinforcing elements 22 are welded separately to the bulge of the barrel forming a water tight joint therewith. The edge is preferably sprung onto the portion 11 of the barrel to have a tight engagement therewith.

An aperture 27 is provided in the head 23 through which projects a collar 28 having a shoulder 29 for engaging the flange 16 of the aperture 15. The collar 28 is brazed, welded or otherwise secured to the flange and to the marginal edge of the aperture 27 to form a water tight engagement therewith. In this construction of the barrel, the air space provided between the barrel portion 11 and reinforcing member 22 produces an insulation which prevents the rapid cooling of the barrel when removed from cold storage. At the same time the bilge or bulge portion of the barrel, which is uninsulated, permits the rapid cooling of the fluid when first installed in the refrigerator. During shipment the barrels are usually disposed on end so that the bilge portion is not subjected to the rays of the sun and the end reinforcing portions of the barrel will protect the contents of the barrel from being heated. While I specify that the air space alone will produce the insulating qualities, I have shown in the drawing an insulating material 31 such as cork, sawdust, sulphur, paper, celotex, asbestos, mineral wool-felt, or the like, which may be packed within the space before the reinforcing elements 22 are welded to the barrel proper, when greater insulating properties are desired.

The barrel, so reinforced and insulated, is sturdy of construction and will stand considerable abuse in use and in shipment. In view of the metal construction, the barrel will not leak, warp or decay, as in the case of wood barrels, and in view of the insulation provided between the reinforcing element and the barrel proper, increased insulating properties are provided especially in view of the feature of having the bilge portion of the barrel uninsulated so that it may be rapidly cooled. Cooling coils or ice may be provided at this portion of the barrel to aid in rapidly cooling the contents. It will be noted that only two sets of dies are necessary to form the barrel elements, one for forming the elements 11 and the other for forming the reinforcing members 22.

The only difference to be found in the two elements 11 is the aperture 15 provided in one of the elements which may be formed by a separate operation. For this reason, the tools for constructing such a barrel are retained at a minimum in number and cost.

In Fig. 3, I have shown a modified form of barrel construction wherein the pressed-out elements 11 are the same as those employed in the barrel described and illustrated in regard to Figs. 1 and 2 as well as the collars 19 and 28, while a slightly different type of reinforcing element 32 is employed. The element 32 is provided with the depressed top portion 23, side portion 24 and the handhold portion 26 and, in addition, a rolled section 33 is provided at the terminal end formed about a hoop 34. The rolled section 33 is sprung over the barrel portion 11 and is welded or otherwise secured thereto to form a tight seal. The rolled portion 33 functions in the same manner as the ridge portions 25 of the reinforcing element 22, upon which the barrel may be rolled.

In the construction illustrated, an insulating compound in the nature of a tar 35 or similar substance is poured onto the inner surface of the element 32 which adheres thereto and forms a unit therewith. An air space 36 is thereby provided between the section 11 of the barrel and the insulating material 35 which also has a beneficial insulating property. It is to be understood that this type of insulation may be employed with the construction illustrated in Figs. 1 and 2 or the packing material, such as saw-dust or cork, may be employed with the construction illustrated in Fig. 3. The hoop 34 with the roll section 33 thereabout, adds additional strength to the reinforcing element 32.

In Fig. 4, I have shown a further extension of the construction illustrated in Fig. 1, wherein a reinforcing ring 37 is welded to the reinforcing element 22 for the purpose of engaging the metal 11 of the barrel proper to be sprung thereover along with the terminal end of the member 22, to form a more rigid engagement with the barrel proper. While I have shown the reinforcing member 37 as being of continuous channel shape, it is to be understood that it may be employed in spaced sections or may be of Z-form or any other construction which will bridge the space between the barrel proper and the reinforcing element.

In Fig. 5, I have illustrated a slightly modified form of barrel wherein steps 40 are disposed in the side of reinforcing elements 41, for the purpose of adding strength thereto and to provide a web 43 near the bilge portion of the barrel on each side of the center line 44 thereof to contact with rails or the conveyors now employed in the art for wood barrels. The ring portions 25 of the reinforcing elements 41, are spaced on center lines not greater than $4\frac{1}{2}$ inches apart so they will fall within the space between the two rows of rolls of the conveyor which contact with the webs 43. The web 43 and ring 25 provide a web and flange similar to that on railway wheels by which the barrel will more readily be retained in correct position on the present conveyor rolls and will contact with rails to simplify the conveyor structure.

Holes 45 may be provided in the handhold portions 26 of the reinforcing end members 41, through which a liquid insulating material, such as sulphur, a plaster compound or the like, may be introduced in the space between the barrel portions 11 and the reinforcing portions 41.

After the substance solidifies, the holes 45 are welded closed. This type of insulation has the additional property of providing a solid material in the space between the elements 11 and 41 to further strengthen the construction. It will be understood that when such a liquid insulating material is not introduced between the space between the elements, the holes 45 need not be provided in the reinforcing portions 41 of the barrel.

In Fig. 6, I have illustrated a ring of insulating material 46 which may be of celotex, pasteboard, felt or any other material well known in the art to be suitable, engaged in one of the steps 40 which forms a shoulder to wedge the ring between the elements 11 and 41 to provide reinforcement between the elements. It is to be understood that the ring may be extended the full length of the side of the element 41 to be engaged by a plurality of the steps 40 and in this manner to reinforce the entire side ends of the barrel.

The bung 47, disposed in the headers 23 and 13 respectively of the elements 11 and 41, is of collar shape having a recess 48 on the lower end which is engaged by the peripheral edges of the head 13 and sealed thereto by welding or other means. An outwardly projecting annular flange 49 is provided on the side of the bung 47 which is engaged by the marginal edges of the aperture provided in the head 23. The inner surface of the bung 47 is threaded to receive a threaded plug (not shown) having a small hole therein in which a cork may be driven and which is of a form acceptable in the art for receiving spigots, pumps and the like when the barrels contain a liquid such as beer, ale and the like.

In Fig. 7, I have shown an enlarged section of a bung of preferred construction for the side of the barrel, wherein the semi-circular flanges 18 are extended to a greater degree than that illustrated in the structures shown in Figs. 1 to 4 inclusive. An inwardly flanged plate 51 is disposed over the united flanges 18, having sloping sides 52 which taper to engage the central bilge portion of the barrel. The cylindrical flange 18 is then expanded to taper inwardly and flanged over at 53 in engagement with the top of the plate 51 and is welded thereto. The plate 51 is welded to the bilge portion of the barrel at 54, and preferably around its entire periphery to prevent dirt and moisture from accumulating in the space between the plate and the barrel and to provide insulating qualities. The sloping sides 52 permit the nozzle of the washing machine to ride up the bilge of the barrel and drop within the opening of the bung to effect the washing of the barrel in the same manner as the machine operates on wood barrels.

In Fig. 8, I have shown a further extension of my invention wherein a metal belt element 55 may be disposed over the space between the projecting ring portion 25 of the barrel to enclose air or insulating material 56 therein to insulate the central bilge portion of the barrel. The element 55 is welded to the sides of the ring 25 as illustrated in the figure and is joined to the sides 52 of the plate 51 when the plate is employed but, since the nozzle of the washing machine may ride along the element 55 and drop within the collar 19 of the structure illustrated in Fig. 1, the plate 51 may be omitted and the collar 19 employed in lieu thereof.

In Fig. 9, I have illustrated a reinforcing ring 57 which I may employ on the barrel, engaged

within the protruding ring portion 25. The ring 57 is preferably press fitted to the side 12 of the barrel portion 11 to provide maximum reinforcing for the member at this point.

It will thus be seen that I have constructed a barrel substantially of metal, of parts which are similar and which, when welded together, form a unit construction having all the desirable properties of a wooden barrel of the same type which, in addition, is more durable having greater longevity and, in addition, is provided with unique insulating properties. The novelty resides in completely insulating the end portions of the barrel and leaving the bilge portion uninsulated. It is apparent, that during shipment, very little heat will be lost at the central portion of the barrel when the barrels are stood on end. The uninsulated portion of the barrel is of material advantage in rapidly cooling the fluid within the barrel, preferably by packing ice directly thereon or disposing a cooling coil thereabout which, is an advantage not provided in a wood barrel. The construction is unique in having the annular ridges on the reinforcing members disposed on either side of the bilge portion of the barrel, to permit the barrel to be rolled in a straight line, while a further utility resides in the simplicity of the construction, of forming only two kinds of elements to construct the complete barrel.

While I have described and illustrated several embodiments of my invention, it will be apparent to those skilled in the art that various changes, omissions, additions and substitutions may be made therein without departing from the spirit and scope of my invention as set forth in the accompanying claims.

I claim as my invention:

1. A barrel made of two pot-shaped metal elements which are secured together at their marginal edges, and pot-shaped reinforcing members having ring portions which extend outwardly beyond their terminal ends, which ends engage the sides of the elements along substantially their entire periphery to have the sides and the ends of the members spaced therefrom for insulating purposes.

2. A barrel made of two like metal stampings of pot-shape which are welded together at their terminal ends and pot-shaped reinforcing elements having inwardly projecting end portions which engage the stampings near the bulge portion along substantially their entire periphery to form a space between the stampings and reinforcing elements for insulating purposes.

3. A barrel made of two like metal elements of pot-shape which are welded together at their terminal ends, pot-shaped reinforcing stamped metal elements having inwardly projecting edge portions which engage the central portion of the barrel near the bulge thereof along substantially their entire periphery to provide a space between the barrel ends and the reinforcing elements, and an insulating material provided in said space.

4. A barrel made of two like sheet metal elements which are provided with semi-circular flanged apertures and secured together with the apertures in aligned relation to form a circular flanged opening, like pot-shaped reinforcing members having ring portions which extend laterally beyond the ends of the members, which ends engage the sides of the elements along substantially their entire periphery to have the elements and members otherwise spaced.

5. A barrel made of two like sheet metal elements which are provided with semi-circular flanged apertures and secured together with the apertures in aligned relation to form a circular flanged opening, like pot-shaped reinforcing members having ring portions which extend laterally beyond the ends of the members, which ends engage the sides of the elements along substantially their entire periphery to have the elements and the members otherwise spaced for insulating purposes, and an insulating material provided in the space between the elements and members.

6. A barrel made of two like sheet metal elements which are secured together at their marginal edges, and like reinforcing members having inwardly pressed end portions forming a head and downwardly projecting side portions which are further preformed to provide outwardly projecting annular portions, the terminal ends only of which engage the sides of the elements along substantially their entire periphery.

7. A barrel made of two like sheet metal elements which are secured together at their marginal edges, and like reinforcing members having inwardly pressed end portions forming a head and downwardly projecting side portions which are further preformed to provide outwardly projecting annular portions, the terminal ends only of which engage the sides of the elements along substantially their entire periphery, and insulating material disposed in the space between said elements and members.

8. A barrel made of two like elements which are secured together at their marginal edges, pot-shaped reinforcing members secured at substantially their entire peripheral edges to the elements forming an insulating space between the elements and the reinforcing members, and annular ring portions formed in the sides of the reinforcing members upon which the barrel may be rolled, an insulating material between the elements and the reinforcing members, a bung ring in the central peripheral portion of the barrel, and a collar secured to one end portion of the barrel and to the head portion of the reinforcing member to span the space therebetween.

9. A barrel which includes, in combination, a central metal container portion, like pot-shaped reinforcing stamped metal elements having inwardly projecting edge portions which engage the central portion of the container portion along substantially their entire peripheral edges and otherwise spaced to provide an insulating space between the container portion and the reinforcing elements, said inwardly projecting edge portions being spaced from each other, and a member joining said reinforcing elements to each other in spaced relation to said container portion.

10. A barrel including, in combination, a central metal container portion, like pot-shaped reinforcing stamped metal elements having inwardly projecting edge portions which engage the central portion of the container portion along substantially their entire peripheral edges and otherwise spaced to provide a space between the container portion and the reinforcing elements, said inwardly projecting edge portions being spaced from each other, and a member joining said reinforcing elements to each other in spaced relation to the container portion, and an insulating material provided between said members and bulge portion of the container portion.

11. A barrel made of two pot-shaped metal elements which are secured together at their marginal edges, and pot-shaped reinforcing members secured at substantially their entire peripheral edges to the elements forming an insulating space between the elements and the reinforcing members except for a peripheral area at the said marginal edges of the elements which is exposed to the atmosphere.

12. A barrel made of two pot-shaped metal elements which are secured together at their marginal edges, and pot-shaped reinforcing members secured at substantially their entire peripheral edges to the sides of said elements forming an insulating space between the elements and the reinforcing members, said edges of the members being spaced from each other to have a peripheral area at the said marginal edges of the elements exposed to the atmosphere.

13. A barrel made of two pot-shaped metal elements which are secured together at their marginal edges, pot-shaped reinforcing members secured at substantially their entire peripheral edges to the sides of said elements forming an insulating space between the elements and the reinforcing members, and a bung ring secured at the bilge portion of the barrel, the exposed sides of which slope to engage the peripheral bilge portion of the barrel.

14. A barrel made of two pot-shaped metal elements which are secured together at their marginal edges, pot-shaped reinforcing members secured at substantially their entire peripheral edges to the elements forming an insulating space between the elements and the reinforcing members, and a bung ring element projecting outwardly from the bilge portion of the barrel having exposed sides which slope to engage said bilge portion.

15. A barrel made of two like elements which are secured together at their marginal edges, pot-shaped reinforcing members secured at substantially their entire peripheral edges to the sides of said elements and forming an insulating space between the elements and the reinforcing members, an annular ring portion formed in the sides of the reinforcing members upon which the barrel may be rolled, and insulating material between the elements and the reinforcing members.

16. An all metal barrel including, in combination, an inner liquid containing portion made up of like elements which are secured together near the bilge portion of the barrel, outer pot shaped reinforcing elements secured to the liquid containing portion near the bilge and in spaced relation to each other, and a belt provided at the bilge portion spanning the reinforcing elements and rigidly secured thereto to maintain the two reinforcing elements in unit engagement.

17. A barrel of the all metal type having an inner liquid containing portion, outer pot shaped reinforcing portions which encompass the inner liquid container portion and engage the bilge portion thereof, and a belt bridging the reinforcing portions and rigidly secured to the outer reinforcing portions.

18. An all metal barrel fabricated from sheet metal stampings which comprises an inner liquid container portion and outer pot shaped reinforcing portions in spaced relation to the liquid containing portion except for the portions which engage the inner liquid container portion, and a band surrounding said barrel having its edges secured to said reinforcing portions to form an outer unit construction therewith.

19. An all metal barrel fabricated from sheet

metal stampings which comprises, an inner liquid container portion and outer pot shaped reinforcing portions in spaced relation to said liquid containing portion, except for the portions which support the inner liquid containing portion, said reinforcing elements being spaced from each other, a band united to said spaced reinforcing portions and extending circumferentially around the barrel forming with said reinforcing portions an outer unit construction, and insulating material provided in the space between the inner and outer portions of the barrel.

20. An all metal barrel fabricated from sheet metal stampings which comprises, an inner liquid

containing portion, outer pot shaped reinforcing portions mounted in spaced relation with respect to said inner portion, said outer portions engaging the inner portion of said barrel through-out annular areas on either side of the axial central portion thereof, a band extending circumferentially around the barrel, spaced from said inner portion and having its edge portion united to said pot shaped reinforcing elements to form therewith a unitary outer construction, and insulating material provided in the space between the inner and outer portions of said barrel.

CHARLES H. WIDMAN.

CERTIFICATE OF CORRECTION

Patent No. 2,033,268.

March 10, 1936.

CHARLES H. WIDMAN.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 4, first column, line 74, claim 10, strike out the words "bulge portion of"; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 14th day of April, A. D. 1936.

Leslie Frazer

Acting Commissioner of Patents.

(Seal)