March 9, 1926. 1,575,681

R. T. GRIFFITHS

RUBBER LINED ACID DRUM OR CONTAINER

Filed May 17, 1924

Fig. 1.

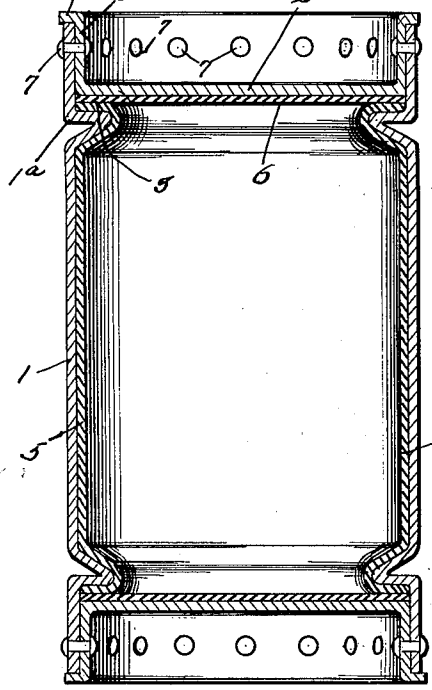


Fig. 2.

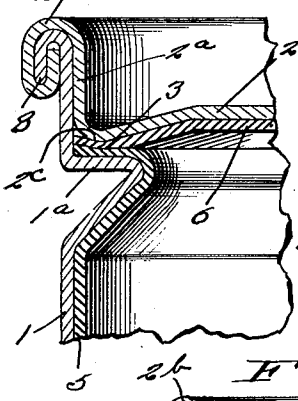


Fig. 3.

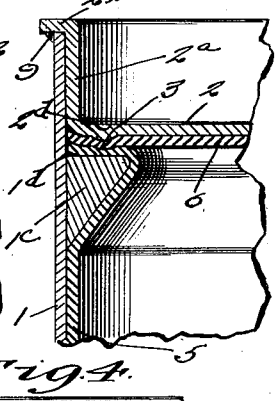


Fig. 4.

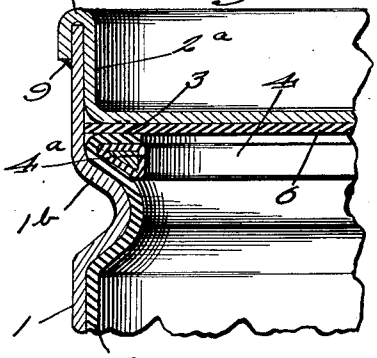


Fig. 6.

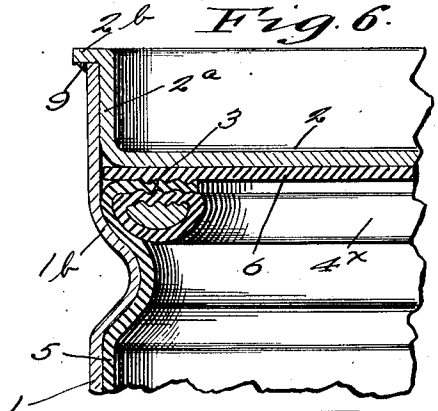


Fig. 5.

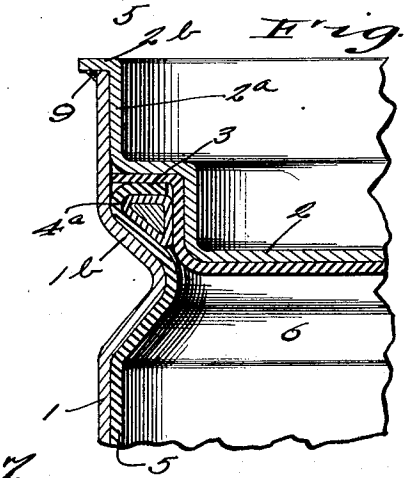
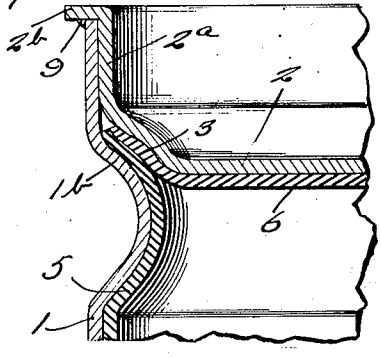


Fig. 7.



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UNITED STATES PATENT OFFICE.

RICHARD T. GRIFFITHS, OF AKRON, OHIO, ASSIGNOR TO THE MILLER RUBBER COMPANY, OF AKRON, OHIO, A CORPORATION OF OHIO.

RUBBER-LINED ACID DRUM OR CONTAINER.

Application filed May 17, 1924. Serial No. 713,984.

To all whom it may concern:

Be it known that I, RICHARD T. GRIFFITHS, a citizen of the United States, and residing at Akron, in the county of Summit, in the State of Ohio, have invented certain new and useful Improvements in Rubber-Lined Acid Drums or Containers, of which the following is a specification.

My present invention relates to rubber lined acid drums or containers and more particularly relates to methods of seaming and fastening the rubber linings in steel barrels or similar acid containers.

One of the objects of my invention is to provide means whereby the rubber lining is anchored in the container to prevent shifting thereof.

Another object of my invention is to provide means whereby the seams between the lining of the sides and the lining of the heads are held under compression and thereby relieved from strain..

A still further object is to provide means whereby the pressure on the seams just described is limited so that excessive pressure cannot be applied.

Other objects will be seen from the constructions shown and described in the accompanying drawing and description, and claimed in the claims.

Referring to the drawings in which like numerals designate like parts:

Figure 1 is a central longitudinal section of a metal barrel or drum constructed according to my invention.

Figures 2, 3, 4, 5, 6 and 7 are similar fragmentary views showing modified forms of my invention.

Heretofore it has been proposed to line metal containers such as steel barrels with acid-proof rubber so that they might be used for transporting acids or other corrosive fluids and take the place of glass carboys now used, which besides having a very small capacity, are breakable and must be handled with extreme care. It has been proposed to line these containers with hard rubber but that material is also quite breakable, so that blows which would dent the container would break the lining. Soft rubber linings have been proposed but the difficulty of fastening the rubber to the walls and of making secure seams therein has prevented progress in that direction.

I have devised a means whereby these difficulties have been overcome. I accomplish this by clamping the seams of the lining 5 between the adjacent parts of the container and by providing further means of limiting the pressure that may be so applied.

I accomplish my purpose by providing an annular shoulder 1^a on the inside of the container wall 1, near the head, seaming the lining of the sides and head so as to overlie this shoulder and providing the head with means to exert a limited pressure on the seam. The annular shoulder 1^a in the side wall 1 may be formed by rolling a bead in the side wall, which may be of angular formation, as shown at 1^a in Figs. 1 and 2, or of curved form as shown in Figs. 4, 5, 6 and 7, at 1^b. If desired, the shoulder may be made as a separate ring as shown at 1^c in Fig. 3, in which case it may be welded in place as shown at 1^b, or may be otherwise fastened by rivets or screws to the container wall. The head 2 of the container is preferably formed of one piece of metal and may be fastened to the side wall of the container by any form of chime construction ordinarily used, however, it should be so designed as to be provided with an outward turned flange 2^a designed to extend to the chimes and provided with stop means such as a radial shoulder 2^b for engaging the side wall 1, and limiting the distance which the head may be inserted into the container. The flange 2^a is made of such length as to slightly compress the seam 3, when the shoulder 2^b is against the flange 2^a.

It is preferable that the impinging metal parts be roughened or provided with surfaces having ridges, as illustrated in Figs. 2 and 3, at 2^c and 2^d in advance of the other head surface, whereby a better grip on the seam is provided.

In Figs. 4, 5 and 6, I have shown forms of my invention in which a metallic ring rendered corrosion proof by a rubber covering 4^a, is used as a further seam locking device, which ring may be of different shapes, as for example the triangular formation shown at 4 in Figs. 4 and 5, or the segmental shape shown at 4^x in Fig. 6. In these forms the rubber forming the side wall lining 5, is turned inward over the ring, which may be corrugated, as in Fig. 6, and the rubber lining 6 of the head is superimposed thereon and

held by the pressure exerted by the head. If desired, the end closure may be provided with a recessed portion 2^x to cooperate with the internal bead to form the seam securing space, as shown in Fig. 7.

In Fig. 1 the head has been indicated as fastened by rivets 7, in Fig. 2 by a locked seam 8, and in the other figures by welding 9, although any of the means shown may be used with any of the forms of seam construction illustrated.

The type of rubber lining used is preferably of the type in which the side adjacent the wall is vulcanized for strength and the other side unvulcanized pure rubber which has been found to be more acid resisting. However, I do not wish to limit this invention to such use as it might be used with linings of either vulcanized or unvulcanized rubber, or similar acid-resisting material. It is understood that the seams may be cemented together by the use of rubber cement or vulcanized together in place.

Having thus described my invention, what I claim is:—

1. A portable cylindrical acid-proof shipping drum, comprising a cylindrical body having inwardly projecting annular shoulders adjacent each end, closure heads secured to said ends, said body having a rubber lining the marginal portions of which overlie said shoulders, and said heads having rubber linings the marginal portions of which overlie said shoulders, said overlapping marginal portions of the linings being clamped between the shoulders and the heads.

2. A portable cylindrical acid-proof shipping drum, comprising a cylindrical body having inwardly projecting rounded shoulders adjacent each end, closure heads secured to said ends, said body having a cylindrical rubber lining with the end margins turned inward towards the center of the drum, relatively stiff corrosive-proof rings lying between said inwardly turned margins and said shoulders, and rubber lining sheets having their margins overlying said inwardly turned margins and clamped thereagainst by said heads.

3. The method of producing rubber lined acid-proof drums having permanently connected heads, which consists in providing a substantially cylindrical body having inwardly projecting shoulders adjacent said ends, and having a rubber lining the edges of which overlie said shoulders, applying to said body, heads provided with rubber linings, the margins of which overlie the edges of the body lining, applying pressure to the heads to compress the juxtaposed lining margins, and thereafter permanently securing the heads to the body.

In testimony whereof I affix my signature.

RICHARD T. GRIFFITHS.