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LINING FOR A LIQUID-TIGHT HEAVY DUTY FIBER CONTAINER

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1 Claim. (Cl. 229—14)

The invention relates to new and useful improvements in a heavy duty fiber drum of large capacity and especially adapted for storing and shipping liquids or semi-liquid products. In my prior application Serial Number 240,476, filed August 6, 1951, there is shown and described a heavy duty fiber drum for shipping liquids and semi-liquid products wherein a preformed liner snugly fits within the body wall of the drum and is secured at its ends only to the body wall so that it is substantially free from attachment to the body wall between the end portions of the liner. The liner in the prior application includes a liquid resisting material which is flexible and when a backing of paper is employed in connection with the liquid resisting material the backing paper selected is stretchable.

The present invention has to do with an improvement in the container of my prior application and has for its object to utilize the preformed liner for protecting the metal chime at the upper end of the container from contact with corrosive liquids or other products which might be packed in the container and which would corrode metal.

A further object of the invention is to provide a heavy duty fiber container of the above type wherein the liner for the body wall extends over the metal chime at the upper end of the body wall and a sealing disk for closing the container overlies the chime and is pressed into tight sealing contact with the liner on the chime by a gasket forming a part of the cover unit.

In the drawings which show by way of illustration one embodiment of the invention:

Figure 1 is a view in vertical section of a portion of a convolutely wound body wall having the metal chime at the upper end of the body wall attached thereto and also having the preformed liner in place for attachment to the body wall, the liner at the upper end thereof being folded back upon itself;

Figure 2 is a view of the upper end portion of the container similar to that of Figure 1, but showing the liner as folded over the chime onto the outer face thereof ready for filling and closing the container;

Figure 3 is a view showing the connection between the body wall and the bottom head and the liner secured to the container by extending it into said connection; and

Figure 4 is a view showing the upper end of the container with the sealing disk applied for closing the container, also the cover with its gasket applied for pressing the sealing disk and liner into a tight liquid seal and further showing the usual locking band for holding the cover in place.

In carrying out the invention the body wall indicated at 1 is formed by convolutely winding fiber board into a cylindrical shape of proper dimensions and thickness to form the body wall of a fiber drum. When the fiber drum is to be used for storing and shipping liquids and semi-liquid products it is necessary to provide the inner surface of the body wall with a liquid resisting material.

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The liner for the body wall of the drum is preformed. The liner may be an unsupported resinous film of liquid resisting material such as polyethylene. This polyethylene film may be laminated to a backing and when the backing is used it should be of a stretchable character such as crepe paper. A liner of this type attached to the ends only of the container body snugly fitting the inner face of the convolutely wound body wall is shown, described and claimed in the copending application supra.

The present invention has to do with the extension of a liner of the above type which initially is secured only to the lower end portion of the container. The liner being flexible and stretchable is dimensioned so that it may be folded over the chime attached to the upper end of the container body.

In the drawings, the liner is indicated at 2. It is made up as a seamless cylindrical liner dimensioned so as to snugly fit within the cylindrical convolutely wound body wall 1.

After the body wall 1 has been formed, a metal chime 3 is applied to the upper end thereof and secured in the usual way. In the securing of this chime to the body wall the body wall is formed inwardly as indicated at 4 and this provides an inwardly projecting bead in the body wall which is indicated at 5. The upper end portion 6 of the chime 3 is formed around the upper end of the body wall, thus providing a rounded bead constituting the mouth of the container.

A metal chime 7 is secured to the lower end of the body wall 1. The liner 2 is temporarily secured to the lower end of the body wall by taping as indicated at 8 or it may be heat sealed to the side wall of the lower end portion of the body wall. The purpose of this temporary connection is to facilitate the slipping of the preformed metal chime onto the lower end portion of the body wall. Before the chime is put in place the bottom head 10 is inserted a sufficient distance for seating, then the chime 7 is inserted with the inturned portion at the lower end of the chime dimensioned so as to receive the lower end of the body wall liner and the flanges of the parts constituting the bottom head 10. Then the body wall is formed inwardly to provide the shoulder 9 against which the head is to be seated. The body wall and the flanges of the bottom head are then rolled into a bead contacting the bottom head and forcing it into tight sealing engagement with the shoulder 9. The liner 2 extends down into the bead joining the bottom end to the body wall and is thus firmly anchored. After the body wall liner and bottom head have been joined and the container completed the upper end portion 2^a of the liner is folded inwardly back upon itself as shown in Figure 1. The purpose of folding the liner inwardly in the manner described is to prevent damage thereto until the drum is ready for filling and use.

In view of the fact that the liner is made of a flexible material it may be folded back in the manner described. When the container is at the place of use then the folded back portion 2^a of the liner is folded outwardly over the rounded bead formed in the chime 3 at the upper end of the container and over onto the outer face of the chime. This will protect the chime from contact with corrosive liquids or other products which might be packed in the drum that will corrode metal. After the drum has been filled with the product and is ready for closing, a sealing disk 12 is placed over the mouth of the container and this sealing disk will extend over the rounded portion of the bead 6 and down along the outer face of the chime 3. The sealing disk contacts with the liner. The cover 13, which is preferably of metal, is provided with a usual gasket 14.

After the sealing disk has been applied then the cover is placed on the container and the gasket will contact

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with the sealing disk directly over the upper rounded portion of the body wall. When the usual locking band 15 is applied it will force the cover gasket tightly into contact with the sealing disk and cause a tight liquid seal to be formed between the liner and the sealing disk.

It will be noted that the liner because of its being free from attachment to the body wall at the upper end thereof, and further because of its flexibility and stretchability may be extended so as to fold over the chime at the upper end of the body wall. The liner as illustrated performs a double function. First, protecting the chime from damage by contact of the contents of the container which contents may corrode metal and second, when a sealing disk is used and extended over the chime it may be pressed into a tight liquid seal connection with the liner.

It is obvious that minor changes may be made in the details of construction without departing from the spirit of the invention as set forth in the appended claim.

I claim:

A heavy duty fiber container comprising a body wall of fiber board having a metal chime covering the open upper end portion of the body wall and a metal chime at the lower end of the body wall which chime is rolled into a bead with portions of the bottom heading for securing the same to the body wall, a preformed seamless cylindrical liner of flexible liquid resisting material

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snugly fitting the inner face of the body wall, said liner being open at both ends thereof and dimensioned so that it extends into the securing bead at the lower end of the body wall and also extends over the upper end of the body wall and upper chime onto the outer face of said chime for covering the chime and protecting the same from contact by the contents of the container, said liner being attached at the lower portion to the body wall and free from attachment to the body wall at the upper portion thereof and the chime whereby said liner may be folded back upon itself into the container to prevent damage thereto during storage and shipping.

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