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PROTECTIVE SLEEVE FOR CHIME OF FIBER DRUM

Filed March 10, 1954

Fig. 1.

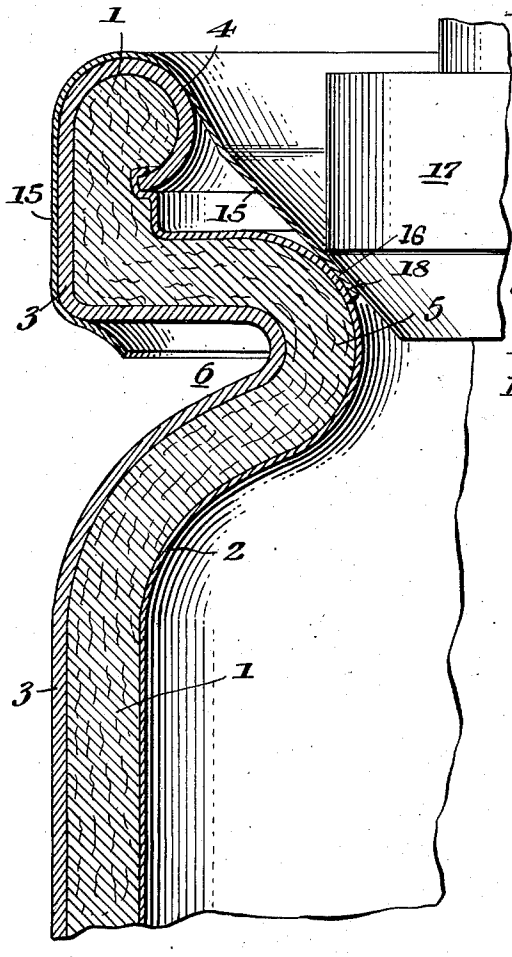
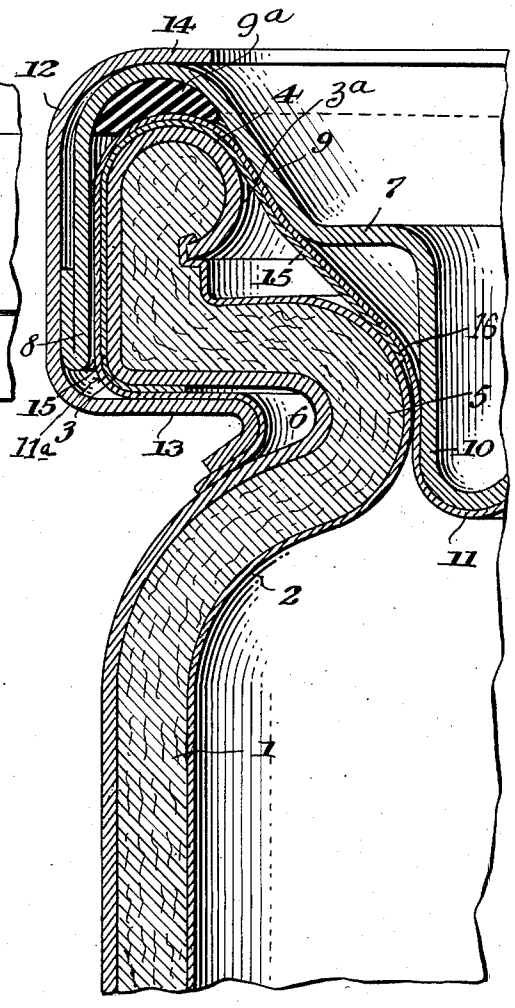


Fig. 2.



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PROTECTIVE SLEEVE FOR CHIME OF FIBER DRUM

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3 Claims. (Cl. 229—5.7)

This invention relates to new and useful improvements in a fiber drum of large capacity used for shipping liquid and semi-liquid products. Such drums now in use for this purpose include among other features a body portion of convolutely wound paper board, a liner for the body portion of liquid resisting material and a metal chime in the form of a ring or band encircling the body portion at the upper outer end thereof which chime extends inwardly and downwardly for tightly housing the top end portion of the body wall and liner. After the chime is attached it is deformed inwardly with the body wall to provide a rib on the inner face of the body wall and a groove on the outer face.

The drum is usually closed and sealed by a cover carrying a gasket and a sealing disc placed over the open end of the drum before the cover is applied. The gasket contacts the sealing disc and presses the same into tight sealing engagement with the upper outer portion of the chime. This leaves the portion of the chime inside of the gasket unprotected and liquids and fumes can migrate up so as to attack this unprotected portion of the chime and corrode the same. Furthermore, the entire upper portion of the chime is exposed during filling and dispensing the contents and spilled contents often lodge on the exposed chime with resulting corrosion of the same.

An object of the invention is to provide a drum of the above type with a protective sleeve which covers or encloses the exposed portions of the chime during filling, handling, shipping and dispensing the contents of the drum so as to prevent the contents of the drum from contacting and corroding the chime.

A further object is to provide a drum having a protective sleeve of the above type which sleeve is attached to the inner face of the drum between the innermost part of the chime and the contents of the drum so that if fumes, such as acids, penetrate the protective sleeve and cause corrosion of the chime, any resulting corroding particles will be retained by the sleeve and not contact and contaminate the contents of the drum.

A further object of the invention is to provide a novel method of attaching the protective sleeve to the drum.

In the drawings which show by way of illustration one embodiment of the invention in a fiber drum:

Figure 1 is a view in vertical section through the upper portion of a fiber body drum showing the protective sleeve secured to the upper face of the rib in the body wall and extending over and in contact with the chime, and a fragmentary view of a heat sealing tool in sealing position and

Figure 2 is a view similar to Figure 1 showing the cover and associated sealing disc applied to the drum.

In illustrating the invention, only a portion of a drum of large capacity is shown. The drum to which the protective sleeve is applied may be of the usual construction and in part includes a body portion **1** formed by convolutely winding fiber board into cylindrical shape of proper dimension and thickness to form the body wall

of the drum. Secured to the inner face of the drum and extending from end to end is a liner **2** formed of a liquid resisting material. This liner may be applied to the inner face of the body wall in any of the usual methods now employed. A chime **3** in the form of a ring fits over the upper end of the body wall in snug contact therewith. It is rolled inwardly as indicated at **4** to completely house the upper end of the body wall and seal the upper end of the liner. The chime is also formed inwardly to provide an inwardly projecting rib portion **5** on the inner face of the body wall and a groove **6** in the outer face of the body wall.

The drum is closed by a cover **7**. The cover is preferably formed of metal and is die shaped so as to provide a depending skirt **8** that slips down over the chime snugly fitting the same. The cover is also depressed inwardly from the skirt to provide an inclined wall **9** which makes sealing contact with the chime **4**. The cover is further die shaped so as to provide a vertical wall **10** which makes sealing contact with the inwardly projecting rib **5** of the body wall. The cover between the skirt **8** and the inclined wall **9** is provided with a rubber sealing gasket **9a**.

There is preferably associated with the metal cover a sealing disk **11** of flexible material which is laid across the mouth of the container and extends down over the chime as indicated at **11***a*. When the cover is applied, the rubber gasket will press the sealing disc against the chime as indicated at **11a**. When the cover is applied, After the sealing disc has been placed on the container then the cover is applied and the cover is held in place by a split clamping ring **12**. This clamping ring **12** extends inwardly at the lower portion thereof as indicated at **13** and it extends inwardly at the upper end thereof as indicated at **14**. The body wall, the liner therefor, the chime, the sealing disc, the cover and the clamping ring are all of the usual construction and further description thereof is not thought necessary.

When the drum is filled and closed, the portion of the chime **3a** lying inside the gasket **9a** is exposed to the fumes rising from the contents of the drum. Likewise, during filling and removing the contents the entire upper portion of the chime is exposed and spilled contents often lodge on the chime. If the contents contain corrosive ingredients which contacts the chime either during filling, handling, shipping and dispensing the same, corrosion of the chime will result, and the corrosive particle may reach the contents and contaminate the same. Therefore, the drum is practically limited in its use to the packaging of materials which have no corrosive ingredients.

The present invention is directed to a means for covering or enclosing the exposed portion of the chime so as to prevent the corrosive ingredients in the contents of the drum contacting and corroding the chime and if fumes from acid ingredients should penetrate through the protective means, said means will prevent the corrosive particles resulting from corrosion of the metal chime from contacting the ingredients and contaminating the same.

In the illustrated embodiment of the invention a sleeve **15**, preferably of a thermo-adhesive material, is attached at its inner end to the upper rounded portion of the rib **5** and extends outwardly over the chime **3** and downwardly along the outer face thereof. The sleeve covers or encloses the exposed portions **3a** of the chime at all times, when the cover is removed for filling and dispensing and when the cover is closed during the handling and shipping. This will prevent the corrosive ingredients in the contents from corrosively contacting the chime, and if the fumes from the contents be of an acid character and should penetrate the protective sleeve and

cause corrosive particles to form, still the sleeve being connected to the drum body below the chime will prevent such corrosive particles from contacting the contents of the drum and contaminating the same.

The novel method of making the protective sleeve 15 and attaching the same to the drum will now be described in detail. A seamless tube of thermo-adhesive material is formed of a diameter less than that of the chime but slightly greater than the opening through the rib of the drum. The material must be stretchable and liquid resisting. The tube is cut into lengths to form protective sleeves for the drums. One end of the sleeve is then stretched over the outside of the chime 3 and into the groove 6. The sleeve is of sufficient length so that it may be turned inwardly over the chime into intimate contact with the same and onto the upper rounded portion of the rib 5 as indicated at 16 in the drawings. A heating tool 17 having a truncated cone shaped heating surface 18 dimensioned to enter the rib opening of the drum but not to pass therethrough is then inserted in the mouth of the drum. The tool is brought into contact with the inner edge portion of the sleeve and presses the sleeve into firm contact with the surface of the rib and at the same time imparts heat to the thermo-adhesive material sufficiently to firmly attach the sleeve to the rib. While a thermo-adhesive material is preferred it will be understood that any suitable stretchable material may be used and a thermo-adhesive applied to the sleeve in the region where it is to be attached to the drum. The sleeve is shown as attached to the upper curved portion of the rib 5 which greatly facilitates the securing of the sleeve to the body wall by a heat sealing tool.

I claim:

1. The method of attaching a protective sleeve to a fiber drum having a metal chime surrounding the upper portion and edge of the drum and having an inwardly projecting rib adjacent the upper end of the body of said drum, comprising stretching the outer end portion of a sleeve of stretchable heat sealable material initially of smaller diameter than the chime over and into intimate contact with the outer surface of the chime, forcing the inner portion of said sleeve inwardly over the chime and into contact with the upper rounded portion of the rib of the drum, inserting a heating tool into the mouth of the drum and into contact with the sleeve and pressing said sleeve against said rib for a time sufficient to heat seal the sleeve to the rib.

2. The method of attaching a protective sleeve to a fiber drum having a metal chime surrounding the upper portion and edge of the drum and having an inwardly projecting rib adjacent the upper end of the body of said drum comprising cutting a sleeve length from a tube of stretchable heat sealable material initially of smaller diameter than the chime, stretching one end portion of the sleeve so that the inside of the tube is placed in contact with the outside of the chime, folding the sleeve inwardly so that the inside surface of the tube makes contact with the upper rounded portion of the rib of the drum, inserting a conical heat sealing tube into the mouth of the drum and into contact with said sleeve for pressing said sleeve against the rib to heat seal the sleeve to the rib.

3. A fiber drum comprising a body wall of fiber board, a liner for said wall, a chime surrounding and fitting the upper end portion of said body wall and extending inwardly over the end thereof and tightly housing the end portion of the body wall and gripping the upper inner edge of the liner, said chime being deformed inwardly with the body wall to provide a rib projecting inwardly on the inner face of the body wall and a corresponding groove on the outer face thereof, an open-ended protective sleeve of stretchable liquid-resisting material having its inner end sealed to the liner over the body rib, its intermediate portion closing the area between the rib and the chime and its outer end overlapping the outer face of the chime.

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CERTIFICATE OF CORRECTION

Patent No. 2,798,654 July 9, 1957

Thomas H. Gibbs, Jr.

It is hereby certified that error appears in the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

In the grant, line 1, and in the heading to the printed specification, line 4, name of inventor, for "Thomas H. Gibbs" read --Thomas H. Gibbs, Jr.—.

Signed and sealed this 27th day of August 1957.

(SEAL)
Attest:
KARL H. AXLINE
Attesting Officer

ROBERT C. WATSON
Commissioner of Patents