

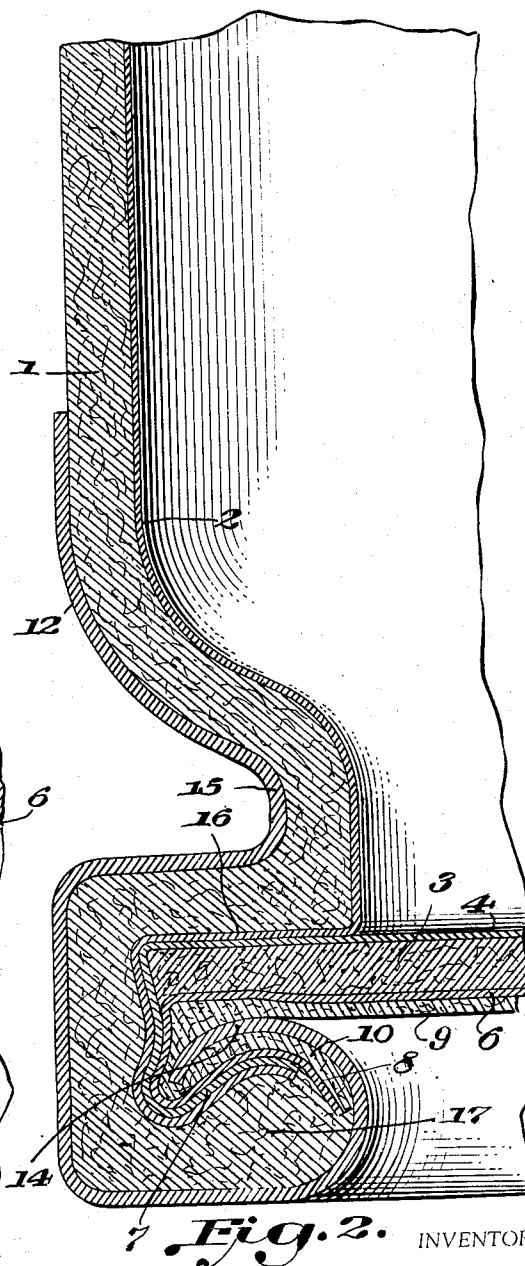
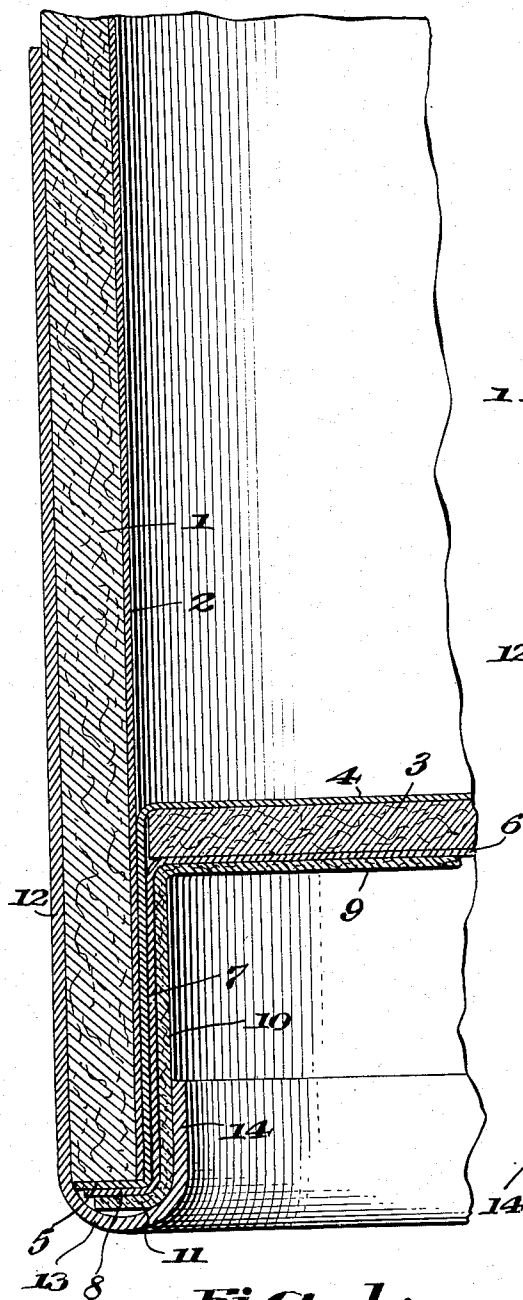
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HEAVY DUTY FIBER DRUM FOR LIQUIDS AND SEMILIQUIDS

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HEAVY DUTY FIBER DRUM FOR LIQUIDS AND SEMILIQUIDS

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1 Claim. (Cl. 229—5.7)

The invention relates to new and useful improvements in a heavy duty fiber container of large capacity and especially adapted for the storing and shipping of liquid and semi-liquid products.

An object of the invention is to provide a heavy duty fiber container wherein a metal chime surrounding the lower end portion of the body of the container and the flange of a metal tray embodied in the bottom end structure of the container are rolled together and interlocked in a bottom and bead abutting the bottom end of the container.

A further object of the invention is to provide a container of the above type wherein the liner for the body and the liner for the inner face of the bottom end are extended into the bead where they are pressed into a liquid tight seal without the use of glue or heat sealing so that upon severe handling and distortion of the bottom chime the liquid tight seal is unaffected.

In the drawings:

Figure 1 is a view in vertical section with all the parts of the side wall structure and bottom end structure in assembled position before rolling the chime, body wall and metal tray flanges into a bottom end bead;

Figure 2 is a view similar to Figure 1, but showing the body wall beaded to form a support for the bottom end structure and the chime, body wall, the metal tray flange, and the flanges of the inner and outer liners for the bottom end, all rolled into a bottom end bead.

The invention has to do with a fiber drum of large capacity and is particularly designed for storing and shipping of liquid and semi-liquid products. The body wall 1 of the container is built up to a suitable thickness of fiber board in order to give strength to the body wall for the purposes stated. This body wall is initially formed in cylindrical shape from end to end thereof. The inner face of the body 1 has a liner 2, said liner may be made of any suitable material. The liner is coated with a liquid resisting material such as polyethylene, Vinylite, Saran, Pliofilm, or any other type coating that will resist the materials which are to be packaged and which are also strong and flexible enough to withstand the final forming of the body, as well as shipping abuses.

The heading structure for closing the lower end of the body is preformed and then inserted in the body a sufficient distance so as to provide a rolled bottom end bead for joining the bottom to the body. The bottom end structure includes a filler disk 3 built up of layers of fiber board glued together and may be formed of a thickness which will give the desired strength to the body end structure. On the inner face of this filler disk 3 is a liner 4 which may be of fiberboard, kraft paper, or a stretchable crepe paper coated on its inner face with polyethylene or some similar material which is liquid resisting. This liner 4 is in the form of a tray with a flange which extends across the end of the filler disk and outwardly therefrom to the end of the body wall where it is turned laterally over the end of the body wall as indicated at 5 in Figure 1 of the drawings.

A tray 6, predrawn from metal into pan form is next applied to the outer face of the filler disk. Prior to the inserting of the tray in the assembly, it may be coated with a relatively permanent tacky adhesive so as to hold it as a unit with the remainder of the end structure. This metal tray 6 has a flange 7 which is of sufficient length so that it extends along the container body to the end thereof where the outwardly turned end 8 overlies the end of the

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body wall when the end structure is assembled in the cylindrical body.

In the present illustrated embodiment of the invention, a protecting cover 9 is provided for the outer face of the metal tray 6 and the flange 7 thereof. This covering for the metal tray is preferably formed of a plurality of plies of kraft board laminated together with asphalt and with the outer ply of a melamine wet strength paper to give wet scuff resistance. This protecting covering 9 when employed is also provided with a flange 10 which extends to the end of the body wall and is turned the same as indicated at 11 in Figure 1 when the end structure is assembled in the cylindrical body. The principal purpose of this cover 9 is to protect the metal tray from water that might be present on wet floors as well as moisture, or to resist corrosive fumes that would pass through a plain sheet of kraftboard. When the container is used where these conditions do not exist, then this protective covering may be omitted.

A metal band or chime 12 is next applied to the outer face of the body wall. This band is shaped so that it extends inwardly at 13 around the end of the body wall and the tray flanges and laps onto the inner face of the inner tray flange as indicated at 14.

After this chime has been applied then the body wall is submitted to a forming mechanism which forms an inwardly extending rib or groove 15 in the band 12, the body wall 1 and the lining 2 thereon. This inverted groove is so disposed in the body wall that it forms a substantially horizontal extended ledge or shoulder 16 against which the bottom end structure is clamped and supported. After the body wall has been formed inwardly to form this support for the bottom and the end portion of the body wall, the chime and the tray flanges are rolled inwardly to form a bottom end bead 17. This bead is formed under terrific pressure which causes the bead to firmly contact with the bottom heading and clamp the same tightly against said shoulder or ledge 16. The end portion 14 of the chime will extend all the way around the bead and forms in effect a hook within which is housed the body wall and the end portions of the flanges of the tray members constituting the heading structure. The flanges 7 of the metal tray imbedded in the end structure extends around into this hook of the chime and forms in itself a hook within which the end of the chime extends. In other words, the chime and a flange of the metal tray are interlocked by these hook ends.

The terrific pressure which is employed in the forming of this bead from the chime, body wall and tray flanges will cause the fiber board of the body, the liner 4 and the covering tray 9 to fill all the spaces within the bead and thus make a very tight liquid-proof seal. This interlocking of the hook ends and the packing of fiber in between said hook ends and throughout the bottom end bead, thus forming a solid bead, produces a joint which is very strong, and one that is not likely to be damaged so as to affect its serviceability during handling, or when dropped on its chime from a loading platform or the floor of a truck.

The terrific pressure which is employed in the forming of this bead from the chime, body wall and tray flanges, will force the liner 2 of the body wall and the liner 4 of the end structure into intimate contact and thus produce a liquid-tight seal without the use of glue or any heat sealing of these parts.

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

I claim:

70 A heavy duty fiber container comprising a body of fiber board having an inner protecting liquid proof liner extending all the way to the bottom end of the body wall, a bottom heading consisting of a filler disc of laminated fiber board, an inner liquid proof protecting liner having a flange extending outwardly along the body wall and its liner to the end of the body wall when assembled, an outer metal tray having a flange extending outwardly along the body wall to the end thereof when assembled and an outer protective disc of kraft board laminated together with asphalt, said outer protective disc having a flange extending outwardly along the body wall to the

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end thereof, and a metal chime surrounding the lower end portion of the body, said chime and body wall being formed inwardly to provide an abutment shoulder against which the bottom heading is clamped, said chime, body wall, body liner and the flanges of the bottom heading being curled inwardly and forced against the outer face of the bottom heading and forming a solid liquid tight bead in which the body wall liner and the inner protecting liner of the bottom heading are brought into intimate contact and in which the hook end of the metal tray flange extends into and is interlocked with the hook end formed on the end of the chime.

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