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CONTAINER

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The present invention relates to a fibre carton or container for the packaging of flowable products such as liquids, granulated substances and the like and has particular reference to a tray-like bottom for the container and a one-piece blank therefor.

In the manufacture of containers made from fibre material such as paper board, a creased blank is provided and the blank is folded along the crease lines to form the container. The folding of the blank puckers out the fibre material along the crease lines and results in a ridge extending along each line. When these ridges occur at places where a face-to-face contact of container parts is required, it is often difficult to obtain a sufficiently tight fit between the parts to render the joint leakproof.

It is an object of the instant invention to provide a fibre container produced from a folded blank and having a leakproof tray-like bottom formed in such a manner as to compensate for the ridged corners of the container body so that the joint between the body walls and the tray-like bottom may be rendered leakproof.

Another object is to provide such a tray-like bottom from a one-piece blank so that the bottom itself is leakproof.

Another object is to provide a one-piece container body having tapered side walls to receive the tray-like bottom with a wedging action so as to facilitate a tight, leakproof fit between the body walls and the bottom.

Numerous other objects and advantages of the invention will be apparent as it is better understood from the following description, which, taken in connection with the accompanying drawings, discloses a preferred embodiment thereof.

Referring to the drawings:

FIG. 1 is a perspective view of the lower end of a container in inverted position and embodying the instant invention, with parts broken away;

FIG. 2 is a perspective view of a tray-like bottom member used in the container shown in FIG. 1;

FIG. 3 is an enlarged sectional view of one corner of the container, with the bottom member in place;

FIG. 4 is a reduced scale plan view of a one-piece blank for the bottom member; and

FIG. 5 is a reduced scale plan view of a one-piece blank for the container body.

As a preferred and exemplary embodiment of the instant invention the drawings illustrate a bottom closure 11 (FIG. 1) for a substantially rectangular fibre container body 12 suitably liquid-proofed to produce a container for the packaging of milk, juices and the like products. The container body 12 preferably is made from a single paper board blank 14 (FIG. 5) which is coated on one face, to be the inner face of the body, with a thermoplastic film such as polyethylene or other suitable substance to render the body liquid-proof.

The blank 14 (FIG. 5) is suitably scored or creased to divide it into four body side walls 16, 17, 18, 19 respectively separated from each other and hingedly connected together along crease lines 21, 22, 23. A glue flap 25 is hingedly connected along the side seam edge of the wall 16 by a crease line 26.

The four side walls 16, 17, 18, 19 preferably are of trapezoidal configuration, the upper ends of each of the walls being slightly wider than the lower ends to im-

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part a slight taper of approximately one half of one degree to the side walls of the finished container body. At their lower ends, each side wall is provided with a bottom glue flap 28 hingedly connected to its wall along a crease line 29.

When the blank 14 is folded along the crease lines 21, 22, 23, 26 into rectangular formation the material along the crease lines puckers inwardly and produces a ridge or projection 30 as shown in FIG. 3. With the blank in this folded condition and its glue flap 25 adhesively bonded to the inner face of the side seam marginal edge portion of the side wall 19 to produce the tapered side wall container body 12, it is ready to receive its bottom member to produce the bottom closure 11 (FIG. 1).

The bottom closure 11 (FIG. 1) preferably comprises the bottom glue flaps 28 of the container body 12 and a web cornered tray-like bottom member 31 (FIG. 2). The bottom member 31 preferably is made from a single light weight paper board blank 33 (FIG. 4) having a thickness less than the thickness of the body blank 14, and being coated on both faces of the blank with a film of polyethylene or other suitable substance to render the bottom member 31 liquidproof.

The bottom member blank 33 is of rectangular configuration and is divided into a centrally located rectangular bottom panel or section 35 (FIG. 4) surrounded by four rectangular flange sections 36, 37, 38, 39 hingedly connected thereto along bottom crease lines 41, 42, 43, 44 respectively. The four flange sections 36, 37, 38, 39 are connected to each other at their ends by four corner sections 46, 47, 48, 49. Each of these corner sections are defined by crease lines 51, 52 disposed at right angles to each other and a diagonal crease line 53 which terminates at a corner notch 54 formed in the outer corner of the corner sections.

These crease lines divide the corner sections into rhomboidal portions 56 hinged along the crease lines 51 to the ends of the flange sections 36, 38 and adjacent rhomboidal portions 57 hinged along the crease lines 52 to the ends of the flange sections 37, 39, the rhomboidal portions of each corner section being hinged to each other along the diagonal crease lines 53.

An essential feature of this bottom blank formation is that the corner crease lines 52 are parallel with and slightly offset relative to the bottom crease lines 41, 43 as shown in FIG. 4 while the corner crease lines 51 are coextensive with the bottom crease lines 42, 44 for a purpose to be hereinafter explained.

The tray-like bottom member 31 is produced from the above described blank 33 by folding the corner sections 46, 47, 48, 49 upwardly and inwardly along their diagonal crease lines 53. This action hinges the corner sections along their crease lines 51, 52 and also hinges the flange sections along their crease lines 41, 42, 43, 44 with the result that the flange sections 36, 37, 38, 39 are disposed in an upright or erect position surrounding the central bottom section 35 as shown in FIG. 2 and the rhomboidal portions 56, 57 of the corner sections 46, 47, 48, 49 are in contiguous relation within the tray-like formation.

While in this folded position, the rhomboidal portions 56, 57 of each of the corner sections 46, 47, 48, 49 are adhesively secured together and are bent back against and are adhesively bonded to the inner faces of the two opposed flange sections 36, 38 to complete the web cornered, tray-like bottom member 31 as shown in FIG. 2.

With the blank 33 creased and folded in this manner, the off-set crease lines 52 hereinbefore mentioned provide a narrow upright channel or recess 59 adjacent each corner of the tray-like bottom member 31 for the

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reception of the ridge or projections 30 along the body crease lines 21, 22, 23, 26.

To complete the container, the tray-like web cornered bottom member 31 is inserted into the top end of the body 12 and pushed down to the smaller bottom end of the tapered body until it seats against the bottom glue flaps 28. In this position the bottom member 31 is wedged tightly in the bottom end of the body 12 with the body crease line ridges or projections 30 wedged tightly in and filling the corner recesses 59 in the bottom member, thus producing a tight joint.

While the bottom member 31 is in this wedged-in position it is secured against displacement by being bonded to the bottom glue flaps 28. This preferably is effected by heat sealing the polyethylene coated glue flaps 28 to the polyethylene coated bottom member panel 35. This heat sealing may also be extended upwardly along the side walls of the body to bond the upright flange sections 36, 37, 38, 39 of the bottom member 31 to the body side walls and to fuse the body ridges or projections 30 to the bottom member in its corner recesses 59. There thus results, a hermetically tight, liquid-proof and leakproof bottom closure for the container.

It is thought that the invention and many of its attendant advantages will be understood from the foregoing description, and it will be apparent that various changes may be made in the form, construction and arrangement of the parts without departing from the spirit and scope of the invention or sacrificing all of its material advantages, the form hereinbefore described being merely a preferred embodiment thereof.

I claim:

1. A self-sustaining tubular container comprising a body formed from a blank of flat fiber material and having four side walls defined by side crease lines, said body having inwardly extending corner projections along said side crease lines, a web corner tray-like bottom member formed from a blank of flat fiber material and disposed within said body, said member comprising a rectangular bottom panel, opposed first and second pairs of upright flange sections connected to said panel along

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defining first and second pairs of bottom crease lines respectively, and web corner sections connected to adjacent flange sections at the corners of said panel along defining corner crease lines, said corner crease lines adjacent said first pair of said flange sections being coextensive with said second pair of bottom crease lines, said corner crease lines adjacent said second pair of said flange sections being outwardly offset relative to said first pair of bottom crease lines, said corner sections being folded diagonally and disposed against the inner surfaces of said first pair of said flange sections and projecting inwardly from said second pair of said flange sections whereby said folded web corners have upstanding corner recesses which accommodate and fit around said inwardly extending corner projections of said body, and means bonding said flange sections to the inner surfaces of said body side walls to provide a leakproof joint between said body side walls and said bottom member.

2. A container of the character defined in claim 1 wherein said body side walls are tapered inwardly at the bottom end of said body, and wherein said tray-like bottom member is in tightly wedged relation in said body.

3. A container of the character defined in claim 1 wherein the contacting portion of said body and said tray-like bottom member are coated with a thermoplastic film defining said bonding means and wherein said thermoplastic coated portions are fused together to provide a tight seal.

4. A container of the character defined in claim 3 wherein said thermoplastic film is polyethylene.

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