April 21, 1964 G. O. SCHROEDER 3,129,867

LINED CONTAINER

Filed Jan. 30, 1961

Fig. 1

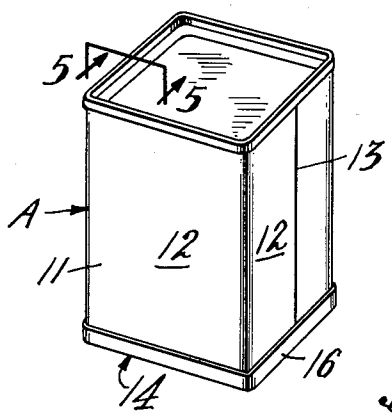


Fig. 2

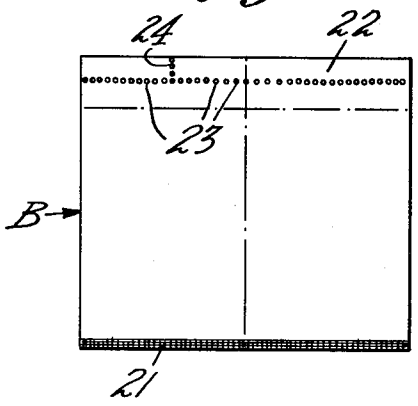


Fig. 3

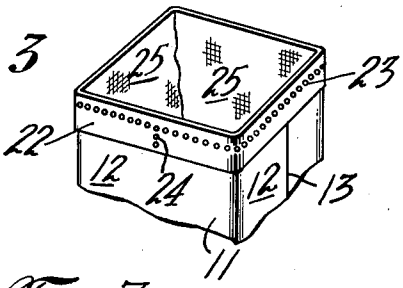


Fig. 4

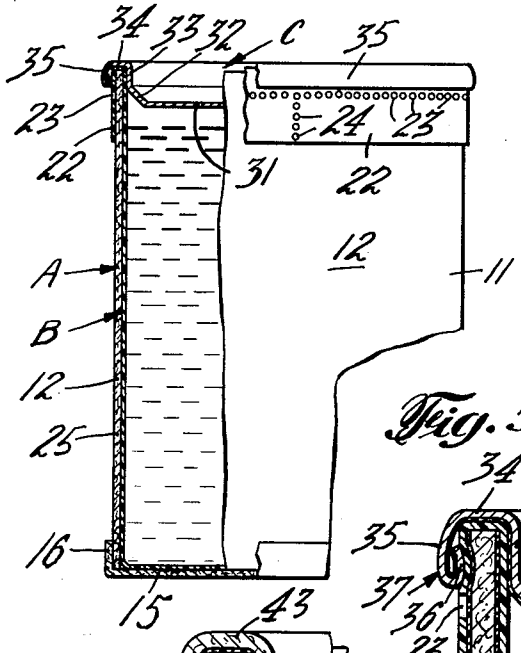


Fig. 7

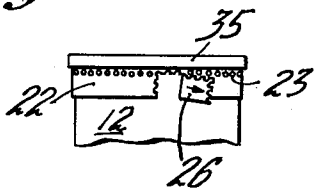


Fig. 5

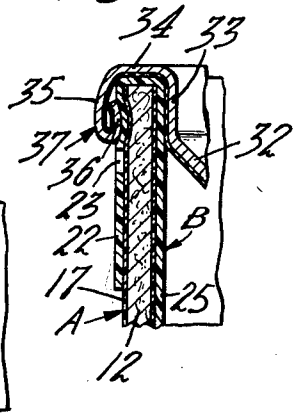


Fig. 8

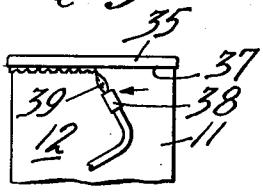
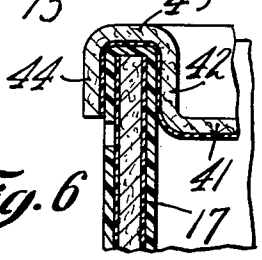


Fig. 6



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LINED CONTAINER

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4 Claims. (Cl. 229—14)

This invention relates to containers and to a method of producing lined containers for fluid products and has particular reference to draping an open end of a prefabricated liner bag over the exterior surface of an open end of a container during the insertion thereof, to locate a marginal edge portion of the bag in a predetermined position for insuring an ample part of the overlapped portion being secured in an end seam joint, after which the excess material of the liner bag extending beyond the joint may be removed.

Fibre containers are particularly desirable for shipping purposes, because they are inexpensive to manufacture. One of the problems associated with the lining of such containers is in locating a desired amount of the open end of the liner bag over the open end of the container and in removing an excess marginal edge portion therefrom after the container is filled and sealed.

The present invention is directed to overcoming this problem by the use of a prefabricated liner bag provided with a telltale feature adjacent the open end of the bag which is included in the overlapped portion and whereby the liner bag may be located in a predetermined position to insure a desired overlapped edge portion of the bag being secured in the end seam joint. This tell-tale feature may be of any form or line of weakness formed in the bag serving as a weakened area along which the excess overlapped marginal edge portion of the liner bag bordering upon the end seam may be removed by tearing and/or flame treating it following the sealing of the container.

An object of the invention is the provision of a liquid proof container and a method of inserting and positioning a thermoplastic liner bag within a container and securing a marginal edge portion of the liner bag in an end seam joint during the sealing of the container.

Another object is the provision of such a container and of a method of producing the same with a liner bag held in position by an outwardly and downwardly folded edge portion of the bag overlapping the mouth of the container during filling and sealing without the use of adhesives or other holding means.

A further object is the provision of such a container and of a method of producing the same wherein a marginal edge portion of a liner bag is draped over the upper end or mouth of the container and wherein the overlapped marginal edge portion retains the liner bag in desired position within the container during filling and sealing and also insures a predetermined part thereof of being included in the end seam and thereby providing a leak proof joint.

Another object is the provision of a lined fibre container and of a method of producing the same wherein a marginal edge portion of the liner bag overlapping the upper end of the container is provided with a weakened or perforated area extending peripherally of the liner bag to provide a telltale for positioning the bag within the container and wherein the excess overlapped marginal edge portion extending beyond the end seam may be removed after sealing of the container by tearing along the perforated line and/or flame treating the torn edge of the liner bag adjacent the end seam.

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:

FIGURE 1 is a perspective view illustrating a container prepared in accordance with the method steps of the present invention;

FIG. 2 is an elevational view of a prefabricated liner bag prior to insertion into a container body;

FIG. 3 is a perspective view showing the upper end of a container body with parts broken away and illustrating the first step of inserting a liner bag therein with a marginal edge portion draped over the mouth of the container;

FIG. 4 is an elevational view of the container shown in FIG. 1 drawn to an enlarged scale, prior to sealing the top end member, parts broke naway and a vertical portion in section;

FIG. 5 is a fragmentary, vertical, sectional view taken substantially along the line 5—5 in FIG. 1 illustrating the liner bag secured in sealed position overlapping the rim of the container by a preferred form of top end member;

FIG. 6 is a view similar to FIG. 5 illustrating a portion of another form of top end member secured in sealed position;

FIG. 7 is an elevational view of the upper portion of the container shown in FIG. 4 with the top end member in sealed position and illustrating the step of removing the overlapped marginal edge portion of the liner bag by tearing along a line of perforations; and

FIG. 8 is a view similar to FIG. 7 illustrating the final step of preparing the instant container by flame treating the torn edge portion of the liner bag adjacent the top end seam.

As a preferred or exemplary embodiment of the instant invention the drawing illustrates a container A and a method of preparing the same by inserting and positioning a prefabricated liner bag B therein, after which the container is filled, closed and sealed by a top end member C.

The container A provided for the above purpose preferably comprises a substantially rectangular body 11 formed from a single sheet of fibrous material, of approximately .012 to .022 inch in thickness, which is creased and folded at right angles to provide four side walls 12 of the container (FIGURES 1 and 3). The opposite edges of the sheet are joined in a lap seam 13 which extends longitudinally of the body on one of the side walls 12. The lap seam joint 13 is secured together by a suitable adhesive.

The container A is closed at its bottom end by a bottom end member 14 (FIGURES 1 and 4) which preferably is square and may be formed from any suitable material such as plain metal or fibrous material. The bottom end member includes a panel wall 15 having four surrounding flange walls 16 which are folded at right angles relative to the panel wall and these walls are secured to the exterior side walls 12 of the container body by a suitable adhesive.

In instances where the present containers are subjected to dampness, the fibrous material from which the container bodies 11 and the bottom end member 14 are formed, may thus be coated with a suitable moisture resistant material 17. This may be done prior to cutting the material into blanks or following the assembly of the container parts.

The liner bag B (FIG. 2) preferably is prefabricated from a seamless tube of thermoplastic material such as polyethylene film having a thickness of .002 to .003 inch. Each liner bag is formed by fusing and cutting such a tube at spaced apart intervals along its length, which length

preferably is longer than the height of the container. Hence each liner bag is provided with a fused section 21 extending transversely of the bag to bond the oppositely disposed inner surfaces of the tube together and thus provide a bottom end for the bag. At the opposite end a marginal edge portion 22 is set off by a weakened area or a perforated line 23 which extends peripherially of the bag. A short perforated line 24 also is provided and is located in the marginal edge portion of the bag and extends longitudinally thereof between the perforated line 23 and the terminal edge of the bag.

With both the container A and the liner bag B prepared in the manner hereinbefore described, the initial step of inserting the liner bag within the container may now be performed. This is accomplished by opening the bag B as viewed in FIG. 2 at its upper end in order to provide or set apart four side walls 25 which preferably are disposed so that the line 24 will be positioned substantially mid-way of one of the side walls 25 when the liner bag is fully inserted into the container A (FIG. 3). It is at this time that each side wall 25 is engageable with an interior surface of a container side wall 12.

In order to insure predetermined positioning of the liner bag within the container and also provide an ample amount of the liner bag material bordering the marginal edge thereof being seamed in the top end joint, the liner bag preferably is folded or draped in overlapping relation over the top edge of the container. This step or action is facilitated by the telltale feature the weakened or perforated line 23 provides in positioning it in a prearranged location relative to the top edge of the container (FIGURES 3 and 4).

It is thus seen that the folded over marginal edge portion 22 and adjoining portions of the side walls 25 of the liner bag retains the bag in the desired position within the container without the use of adhesives or other holding means so that the container may be presented for the next operation or step of filling the container with a fluid material. Such filling may be carried out in any conventional manner and which for the purpose of this invention requires no further explanation.

Following the filling operation, the next step is the closing and sealing of the contents within the container. As a preferred form of the invention the top end member or cover C is thus provided, which is positioned and secured to the top of the container in a manner so that both the upper marginal edge of the container and the overlapped edge portion of the liner bag may be secured together in a single end seam joint. FIGURE 4 of the drawing illustrates such a cover in position preparatory to being secured to the container.

The preferred form of cover C is formed of metal such a tin plate and has substantially the same configuration as the bottom end member 14 which is square. The cover C is provided with a central panel 31 having an outwardly and upwardly sloping surrounding wall section 32 merging into an upstanding countersink wall 33. At the upper edge the wall 33 merges into a top peripheral wall 34 which at its outer edge extends downwardly in a depending wall 35 which terminates at its lower edge in an inwardly and upwardly bent hemmed edge 36.

The cover C provided with the sloping wall 32 facilitates it being assembled onto the container since considerable care must be exercised so as not to displace the liner bag from its overlapped position. The smooth hemmed edge 36 (FIGURES 3 and 4) provides protection against any raw edge of the cover C coming into contact with the fragile liner bag either before or after being secured to the top edge of the container.

In order to fully protect the fluid contents from coming into contact with the metal surface of the cover C, the interior surface is coated with a material which is inert to such contents. This may be done prior to or after the cover C is formed into shape as illustrated in FIGURE 4 in any suitable manner.

With the cover applied on a filled container as shown in FIG. 4, the cover is ready for the next step or operation of being secured onto the container for sealing the same. This may be done by any suitable die seaming machine at which time the outer hemmed edge is pressed inwardly to firmly grip the upper edge portion of the container and the liner bag in a leakproof top end seam joint 37 (FIG. 5).

Following the sealing of the container, the next step or operation is the removal of the marginal edge portion 22 of the liner bag. This is accomplished by initially tearing along the perforated line 24 from the outer edge of the liner bag upwardly as viewed in FIG. 7 toward the perforated line 23 and thereafter along the latter line for a short distance to provide a tearing tongue 26 which thereafter facilitates tearing of the complete marginal edge portion 22 from the liner bag.

After tearing of the marginal edge portion from the container, the container is considered complete for substantially all purposes. However, it will be noted that there still may remain a residual narrow torn edge adjacent the top end seam 37 which if desired may be removed by a flame treating operation to improve the appearance of the container. This treatment is the final step of the instant invention.

The flame treating operation is performed by a jet 38 which directs a flame 39 against the residual torn edge of the liner bag. Hence as the jet is gradually moved along relative to the container or vice versa, the heat of the flame causes this edge to shrivel or shrink upwardly toward the end seam joint 37 as viewed in FIG. 8 to produce a smooth edge therealong.

The filled container as viewed in FIG. 4 may also be closed by a different form of cover C and thus, as an example of a modified form, FIG. 6 of the drawing illustrates a cover formed of fibre or of thermoplastic material such as polyethylene. When fibre is used the interior surface thereof preferably is coated with an inert material such as polyethylene. The cover C (FIG. 6) like the metal cover hereinbefore described, also is square in configuration and is provided with a central funnel 41. A countersink wall 42 surrounds the panel wall and merges into a top peripheral wall 43 with an outer marginal edge portion thereof being bent downwardly into a depending flange 44.

When a coated fibre or polyethylene cover is used for closing the container (FIG. 6) they are heat sealed to the upper marginal edge portions of both the liner bag and the container in a leakproof end seam joint in any suitable manner. The marginal edge portion 22 remaining after the sealing of this form of container is thereafter removed in the same manner as hereinbefore described in connection with the metal cover. Also in like manner the residual torn edge of the liner bag is flame treated to provide a smooth edge at the terminal edge of the depending flange 44.

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 and that changes may be made in the steps of the method described and their order of accomplishment 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 lined container for fluid products, comprising: a fibre container body having a fibre bottom end member secured thereto; a liner bag formed of thermoplastic film disposed within the container and having an open end overlapping the rim at the mouth of the container; a top end member secured to the overlapped portions of said liner bag for closing and sealing the open end of said bag in an end seam joint at the mouth of said

container; a continuous line of weakness in the overlapping marginal edge portion of said bag bordering and spaced from the end seam joint of the sealed container and another line of weakness extending transversely of and terminating at said first line of weakness at one side of the container, whereby said marginal edge portion may be initially torn inwardly from the edge of the liner bag toward said end seam to provide a tearing tongue, which facilitates removal of the marginal edge portion from the sealed container and subsequent flame treatment along said line of weakness to remove the same and provide a smooth edge along said end seam joint.

2. The container as defined in claim 1 wherein the top end member is a metal end coated with a material inert to the contents filled within the container and wherein said metal end is provided with a smooth hemmed edge pressed inwardly for securing and sealing said metal end to the container.

3. The container as defined in claim 1 wherein the top end member is formed of thermoplastic material which is heat sealed to the overlapped portions of the liner bag at the mouth of the container for sealing the same.

4. The container as defined in claim 1 wherein the top end member is formed of fibre having its inner surface coated with polyethylene which end member is heat sealed to the overlapped portions of the liner bag at the mouth of the container for sealing the same.

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