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D. M. STEGNER

3,399,818

CONTAINER

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FIG. 1

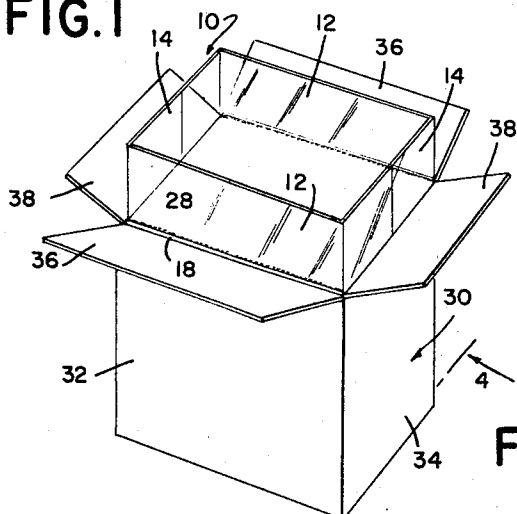


FIG. 2

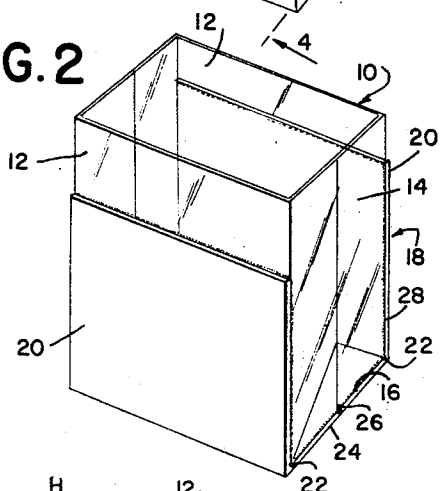


FIG. 3

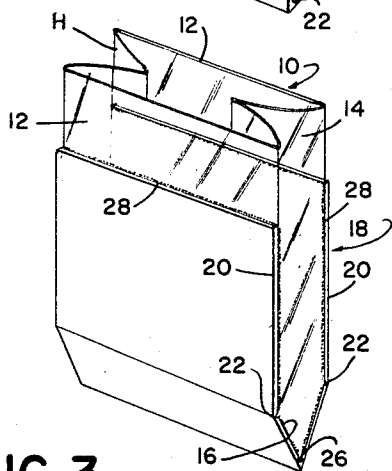


FIG. 4

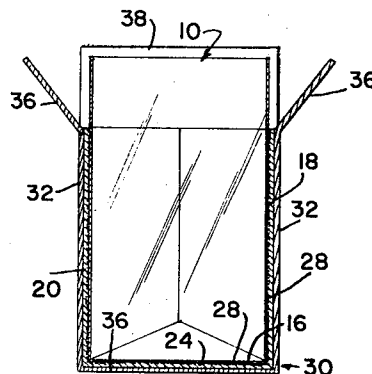


FIG. 5

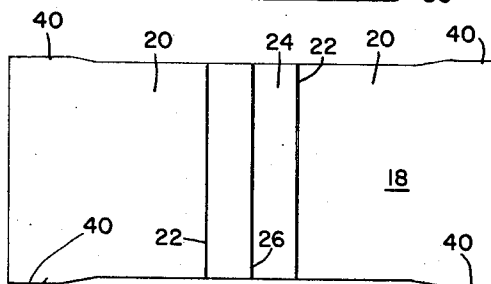


FIG. 6

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## ABSTRACT OF THE DISCLOSURE

This invention relates to a self-sustaining paperboard support member having side panels joined at fold lines to a bottom panel containing a central fold line parallel to the first said fold lines which has a flexible liner, such as a bag, adhesively secured to the side and bottom panels. When the fold lines are disposed in a common plane the bag is thereby distended and its top supported in a fully open condition whereby the support member and its adhesively attached bag or liner may be placed within a receptacle such as a box while the top of the bag is retained in fully open condition to facilitate filling of the same.

This invention relates to containers of the types which utilize flexible liners.

It has been rather common to employ flexible liners, such as polyethylene bags, in conjunction with boxes of various types, but it has been extremely difficult to insert such liners and maintain them in distended condition during a filling operation. Such liners not only tend to collapse, but they are frequently damaged by engagement with rough portions of the surrounding box during use and shipment. It has been proposed in the past to employ mandrels of various types for inserting such flexible bags into boxes, and in some cases the mandrels have been hollow and retained in position during the actual filling operation.

It is an extremely important aspect of the present invention that in its distended condition, the bag or liner have its side walls, end walls, and bottom wall completely supported with respect to a supporting receptacle therefor so that the relatively frangible bag or liner will not be subject to stresses that would cause tearing.

It is among the objects of the invention to provide a container comprising a collapsible bag or liner of flexible material having closed bottom, side and end walls; a self-sustaining paperboard support member having side panels joined at fold lines to a bottom panel containing a central fold line parallel to the first said fold lines; and means securing outer portions of said walls to said side panels respectively, for distending the bag when the fold lines are disposed in a common plane; the end walls having a minimum mutual spacing in distended condition at least as large as the width of the side panels so as to assure complete support of the end walls with respect to the walls of a suitable receptacle. The container as actually used will include a receptacle having a bottom portion engaging the bottom panel, side portions engaging the side panels respectively, and end portions engaging the end walls respectively.

With the bag in distended condition, the bottom panel of the support member engages and supports the bottom wall of the bag. The securing means preferably assumes the form of adhesive material and the bottom panel and bottom wall may be adhesively joined together as well. The more flexible the material composing the bag or liner, the more will the advantages of the present invention be realized and it will be understood that the present invention is eminently suited for use with bags or liners composed of extremely limp materials.

The support member may be provided with flaps extending from its side panels and/or flaps extending from

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its bottom panel to provide additional protection to the flexible bag or liner. The side panels may also be provided with means extending therefrom for engagement with the end portions of the receptacle to assist in maintaining the desired distended condition of the bag, once it has been established.

A more complete understanding of the invention will follow from a description of the accompanying drawings wherein:

FIG. 1 is a perspective view of an assembled container conforming to the present invention in condition for filling;

FIG. 2 is a perspective view of the inserted portion of the assembly of FIG. 1 in distended condition;

FIG. 3 is a perspective view of the partial assembly of FIG. 2 before it has been completely distended;

FIG. 4 is a sectional elevation taken along line 4-4 of FIG. 1;

FIG. 5 is a plan view of one form of support member in blank form; and

FIG. 6 is a plan view of another form of support member in blank form.

A collapsible bag or liner 10 of flexible material has an open upper end, side walls 12, end walls 14, and a closed bottom wall 16. A self-sustaining paperboard support member 18 as depicted in FIGS. 1 to 4, has side panels 20 joined at fold lines 22 to a bottom panel 24 containing a central fold line 26 parallel to the fold lines 22. By means of adhesive 28, indicated by stippling, the outer portions of the side walls of the bag or liner are secured to the side panels respectively of the support member. The bottom wall of the bag may likewise be secured by means of a suitable adhesive to the bottom panel 24 of the support member.

As best shown in FIGS. 2 and 3, the end walls of the bag or liner under distended condition will have a minimum mutual spacing at least as large as the width of the side panels 20 so that when the container is filled, the end walls of the bag will lie against supporting structure provided by an outer receptacle or housing 30, or other suitable supporting surfaces so that the end walls of the bag themselves will be subject to no tensile stresses that would tend to rupture them.

The receptacle 30, as shown in FIGS. 1 and 4 provides side portions 32, end portions 34, and a bottom portion 36. At the upper edges of the side and end portions, side flaps 36 and end flaps 38 respectively, are provided to serve as closure means for the receptacle after the filling operation has been completed.

It will be clear that the bottom portion of the receptacle engages the bottom panel of the support member, the side portions of the receptacle engage the side panels of the support member respectively, and the end portions of the receptacle engage the end walls of the bag respectively, throughout their area so as to avoid all stresses in the bag that might otherwise result from the weight of the filling material. After the container has been filled, the projecting portions of the bag 10 extending above the receptacle 30 can be folded, whereupon the flaps 36 and 38 of the box can be folded and secured in closed condition.

It is desirable that the width of the side panels 20 of the support member be in frictional engagement with the end portions 34 of the receptacle so that when the insert assembly made up of the bag 10 and support member 18 is distended from a collapsed or semi-collapsed condition such as that depicted in FIG. 3 to a distended condition such as that shown in FIG. 2, the distended condition will be maintained by virtue of the frictional engagement between the support member and the receptacle.

The support member 18 depicted in FIG. 5 in blank form contemplates side panels 20 having slight projections 40 from the edges that engage the end portions of the

receptacle 30 to provide added frictional engagement if necessary or desirable.

The support member in blank form depicted in FIG. 6 has its side panels 20 provided with side flaps 42 and end flaps 44 with intermediate fold lines 46. The bottom panel 24 is also provided with flaps 48 capable of being turned upwardly along fold lines 50. Here again, the bag or liner will have its side walls adhesively or otherwise suitably secured to the side panels 20 of the support member, and if desired, the bottom wall 16 similarly secured to the bottom panel 24. The flaps 42 will serve to protect the end walls 14 of the bag or liner and the end flaps 44 will serve as a closure. The flaps 48 can be used, by the application of a suitable adhesive, to maintain the assembly in distended condition, once it has assumed that condition. Two of the flaps 42 have foldable flaps 52 as shown.

The collapsible or limp bag or liner may be composed of paper, cloth, foil, laminated materials, or plastic materials such as polyethylene and polyvinyl chloride. Whereas a gusseted bag has been illustrated in the drawings, layflat bags can also be used. The advantage of the gusseted bag in connection with the present invention is that it will be completely protected by the support member under collapsed conditions. In the case of a layflat bag, its end walls will extend beyond the support member under collapsed conditions.

The support member may be composed of various types of paperboard such as corrugated board, fiber board, or chip board. When the bag and its support member are introduced into the receptacle for which they are intended, it is merely necessary to press downwardly on the side panels 20 of the support member to flatten the bottom panel 24 in order to distend the bag automatically and hold it in distended condition for filling, requiring no mandrel nor any other manipulation of the bag.

Such variations as will be suggested by the foregoing description to those skilled in the art are contemplated as coming within the scope of the appended claims.

I claim:

1. A container comprising a collapsible bag of flexible

material having closed bottom, side and end walls and an open top; a self-sustaining paperboard support member entirely open at opposite outer ends thereof and having side panels joined at fold lines to a bottom panel containing a central fold line parallel to the first said fold lines; and means securing outer portions of said side walls to said side panels respectively immediately adjacent said opposite outer ends, for distending said bag and maintaining said top fully open when said fold lines are disposed in a common plane; said end walls having a minimum mutual spacing in distended condition at least as large as the width of said side panels, and said end walls in distended condition being substantially coplanar with the respective outer ends of said support member.

2. A container according to claim 1 including a receptacle having a bottom portion engaging said bottom panel, side portions engaging said side panels respectively, and end portions engaging said end walls respectively.

3. A container according to claim 1 wherein with said bag in distended condition, said bottom panel engages and supports said bottom wall.

4. A container according to claim 1 wherein said securing means comprises adhesive material.

5. A container according to claim 1 wherein said bottom panel and bottom wall are adhesively joined.

6. A container according to claim 1 wherein said bag is formed of limp material.

7. A container according to claim 2 including means extending from said side panels engaging said end portions.

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