US 20070217719A1

(19) United States

(12) Patent Application Publication (10) Pub. No.: US 2007/0217719 A1

Smith (43) Pub. Date: Sep. 20, 2007

(54) FLEXIBLE PLASTIC CONTAINER

(76) Inventor: **Mark A. Smith**, Plainfield, IL (US)

Correspondence Address:
ROCKEY, DEPKE & LYONS, LLC
SEARS TOWER
SUITE 5450
CHICAGO, IL 60606-6306 (US)

(21) Appl. No.: **11/376,851**

(22) Filed: **Mar. 16, 2006**

Publication Classification

(51) **Int. Cl.**

B65D 33/16		(2006.01)
B65D 33/00		(2006.01)
B65D 30/08		(2006.01)
B65D 35/56		(2006.01)
B65D 35/00		(2006.01)

(52) **U.S. Cl.** **383/66**; 222/105; 222/107; 383/109; 383/105; 383/906

(57) **ABSTRACT**

A flexible polymeric container for storing and dispensing liquids includes a first sidewall and a second sidewall connected together to define a fluid chamber therebetween. The first sidewall and the second sidewall are constructed of a coextrusion structure. The first sidewall and the second sidewall each have an inner surface facing the fluid chamber and an opposed outer surface. A fitment is attached to an outer surface of one of the first sidewall or the second sidewall. The fitment has an opening therethrough which has an axis substantially perpendicular to the outer surface. A pattern of protuberances on the inner surface of one of the first sidewall or the second sidewall defines a plurality of pathways having at least a first pathway and a second pathway intersecting one another. The protuberances facilitate evacuation of liquid when portions of the first sidewall and the second sidewall interlock during evacuation.

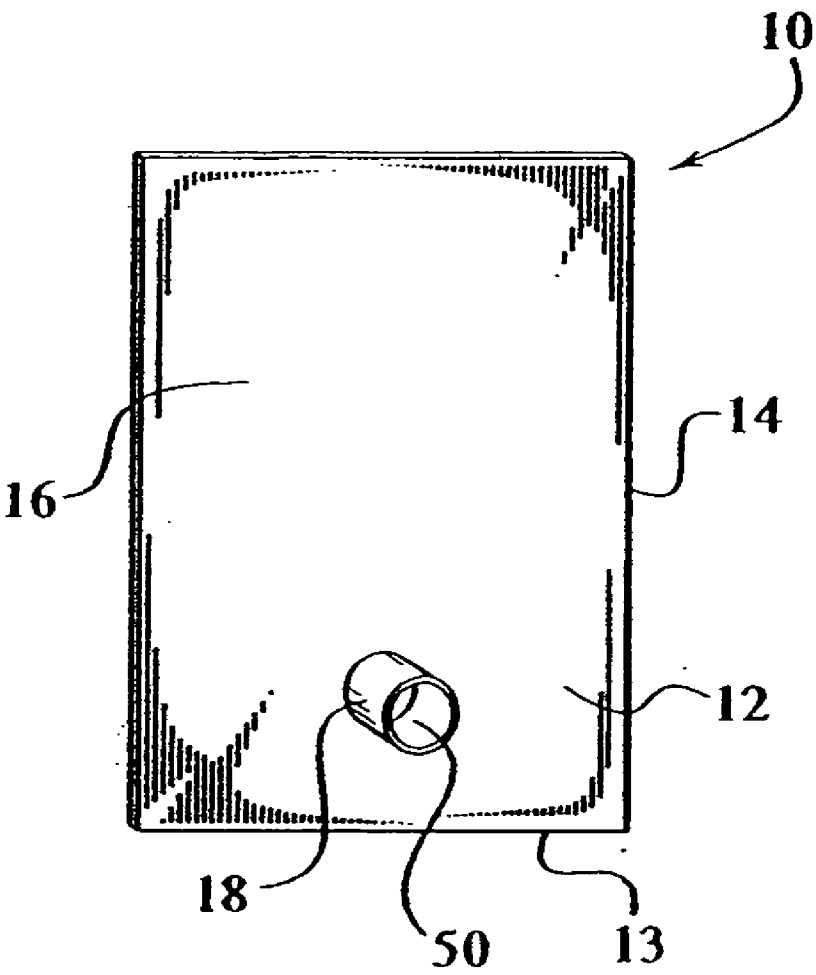


FIG.1

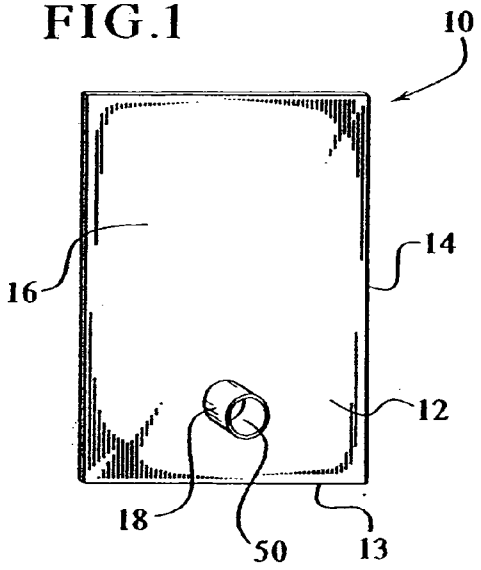


FIG.2

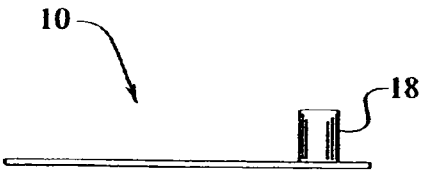


FIG.3

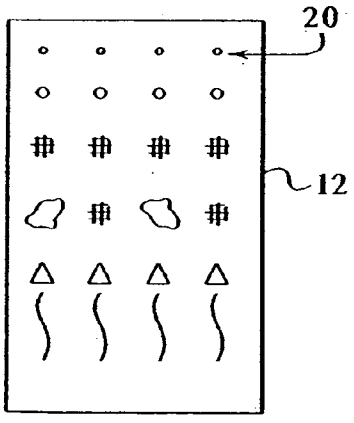


FIG.4

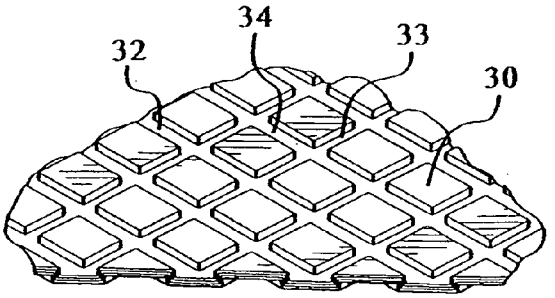


FIG.5

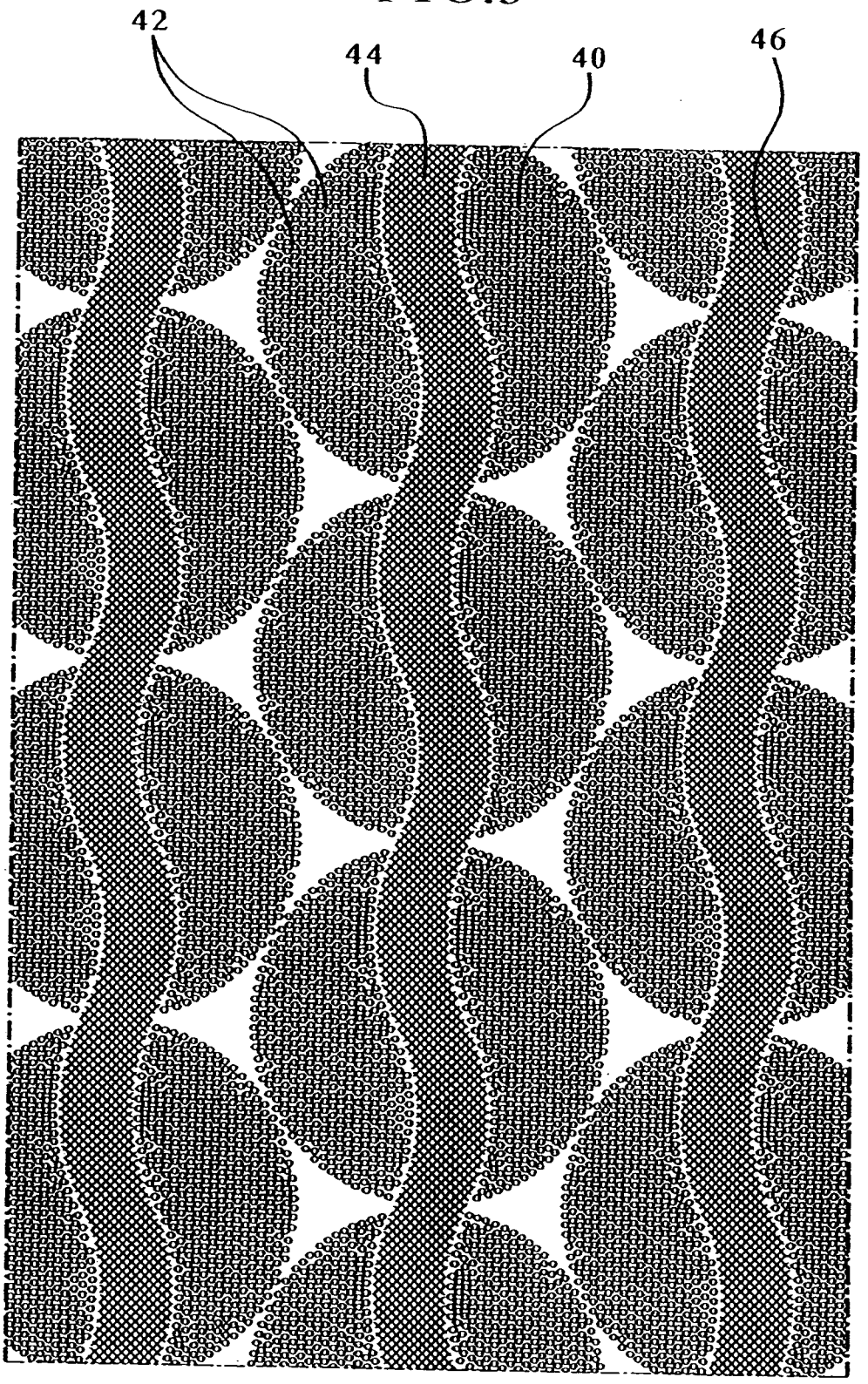


FIG. 6

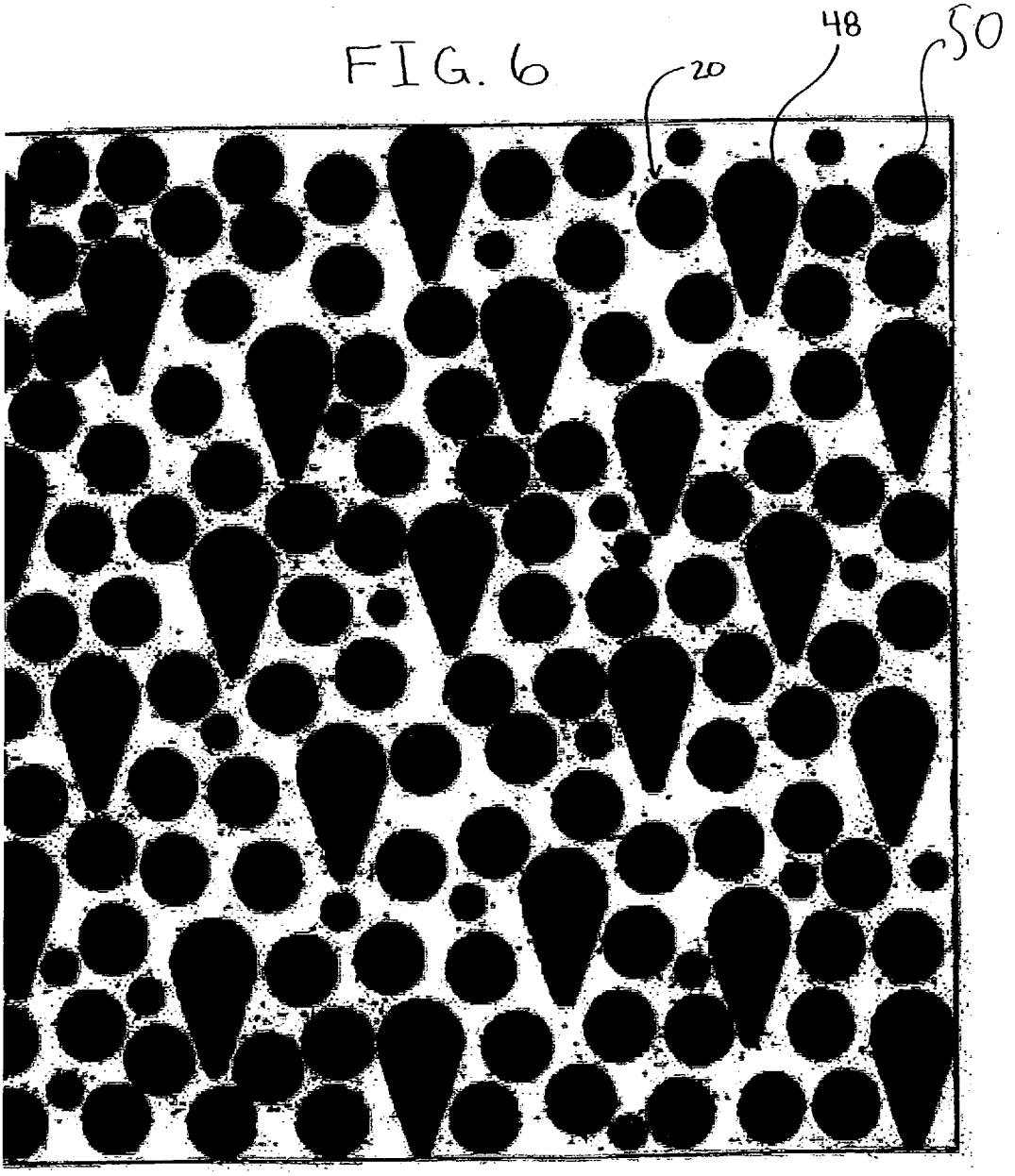
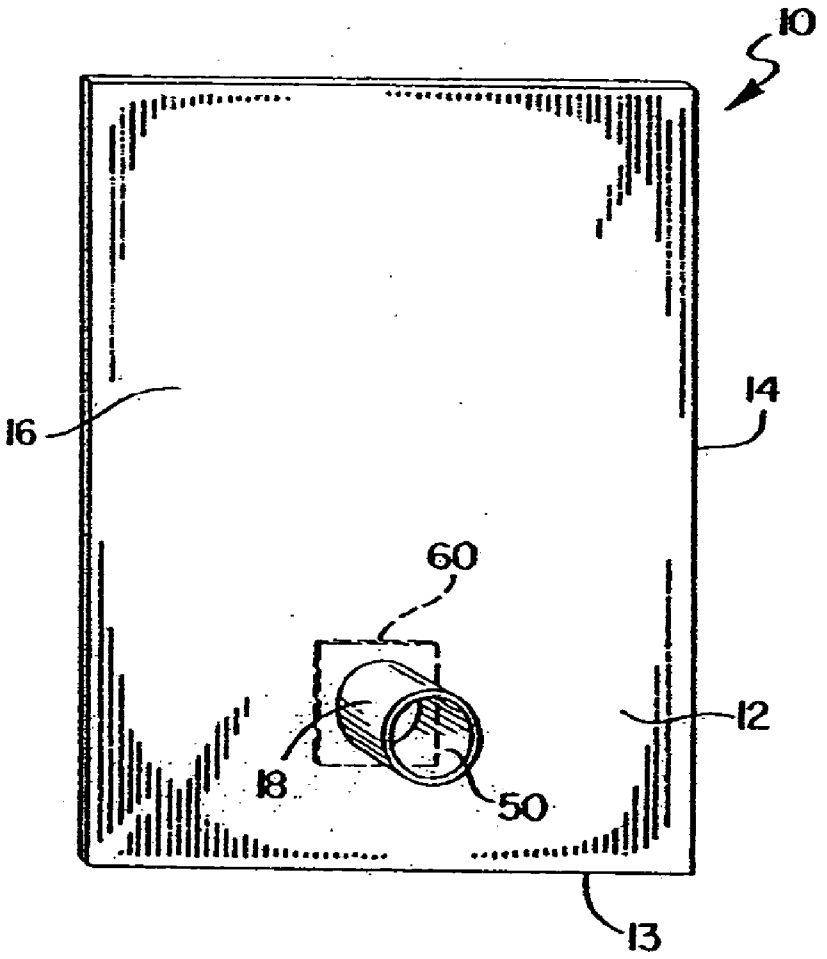


FIG. 7



FLEXIBLE PLASTIC CONTAINER

TECHNICAL FIELD

[0001] The present invention relates generally to a flexible plastic container and more particularly to a flexible container for directing a flowable material contained therein to a fitment of the container and dispensing the flowable material therefrom.

BACKGROUND OF THE INVENTION

[0002] Collapsible plastic bags are often used to store liquid products such as chemicals, soft drink syrups, fruit juices and food condiments. The plastic bags are typically housed in a corrugated paperboard box to aid in the transporting, handling and dispensing of the product. Such packaging systems are commonly referred to as "bag-in-box" packaging systems.

[0003] The plastic bags typically have sidewalls sealed along a peripheral seam to define a fluid containing chamber. A spout or a fitment provides access to the fluid chamber for filling and dispensing the product within the bag. Vacuum pump systems are sometimes connected to the container to assist in draining fluid from the container. Both gravity dispensing bags and vacuum pump systems suffer from the common drawback that fluid may become trapped within the folds of the bag during draining. Because of this, evacuation channels are often placed within the bag.

[0004] Evacuation channels are typically elongate cylindrical tubes, called dip tubes, or flat strips with protruding ribs defining grooves, called a dipstrip. Typically, one end of the evacuation channel is disposed transverse to, or connected to, the spout, and the other end of the evacuation channel extends into the fluid containing chamber of the bag. As the bag is emptied by the force of the vacuum pump, or by the force of gravity, portions of the bag collapse unevenly, tending to leave pockets of product, typically liquid, which may become isolated from the rest of the liquid in the container. The evacuation channel, however, forms a conduit which cannot be closed off by the folds created in the bag. In this manner the entire chamber of the flexible bag remains in communication with the spout at all times during the dispensing such that all product within the bag can be removed.

[0005] Prior attempts to provide such bags are disclosed in U.S. Pat. Nos. 4,601,410; 5,647,511 and 5,749,493. U.S. Pat. Nos. 4,601,410 and 5,647,511 disclose a liquid container with an evacuation unit. In both the '410 and '511 patents, the evacuation unit such as a dipstrip is shown attached directly to the spout by a mounting ring. Several problems have been encountered with these types of evacuation units. For example, during the filling process, typically done in a high speed and high pressure process, the evacuation unit is susceptible of being dislodged from the spout thereby rendering the evacuation unit inoperative. Also, the attaching ring can impede the flow of liquid during the filling process thereby slowing the filling process.

[0006] U.S. Pat. No. 5,749,493 discloses an evacuation unit positioned within a bag and transverse and perpendicular to a spout in the bag. Because the evacuation unit is positioned in a location that is in line with the incoming fluid during the filling process, it is susceptible of being dislodged from its mounting to the container thereby rendering it ineffective. The '493 patent also discloses extruding a pair of ribs or a single rib or protuberance extending the length of the container.

[0007] U.S. Pat. No. Re. 34,929 discloses a plastic bag having interconnected air channels on its inner surface for the vacuum packaging of perishable items. The air channels are formed by the spaces between a plurality of raised protuberances having uniform thickness and formed in a generally regular and waffle-like pattern. The protuberances prevent the total collapse of the bag during air evacuation.

[0008] U.S. Pat. No. 2,778,171 discloses the production of airtight packages for packaging perishable items such as food. Projections are provided near an opening of the airtight package for keeping sidewalls of the container from fully collapsing against one another while air is being evacuated from the container.

[0009] U.S. Pat. No. 5,728,086 discloses a flexible container having multiple access ports and particularly discloses a container for storing fluids for parenteral administration to a patient. An inner surface of a sidewall of the container can have various patterns embossed thereon to assist in draining the contents of the container.

[0010] In U.S. Pat. No. 6,715,644 there is described an entirely different approach to collapsible bags in which it is unnecessary to insert an evacuation member such as a dipstrip or a dip tube. The bag described in the foregoing patent, now known in the art as the Evacufilm® bag, has enjoyed substantial commercial success. It includes on the interior surfaces of the bag walls, a patterns of shapes which facilitate evacuation of a flowable material from the Evacufilm® bag. While it is not fully understood how the pattern of shapes on opposing walls function to facilitate withdrawal of a flowable material from the bag, it is believed, without limiting the present invention as to theory, that the pattern of shapes facilitate removal of liquid from the bag by creating tiny passages which, while insufficient to provide enough flow for evacuation of liquid from the bag, nonetheless permits liquid present in the bag to disperse whereby liquid is directed to creases formed in the bag. The creases, in turn, thus serve to evacuate liquid from the bag.

[0011] The pattern of shapes on opposing side walls are not without disadvantages. Experience has shown that the pattern of shapes on opposing side walls have a tendency, during the dispensation of liquid from a container, to interlock each with the other. That, in turn, serves to inhibit or at least substantially reduce the flow of liquid from the container.

SUMMARY OF THE INVENTION

[0012] The concepts of the present invention relate to a flexible polymeric container for storing and dispensing liquids and a method for manufacturing the same. Such a flexible polymeric container usually has two sidewalls connected together to define a fluid chamber therebetween where the sidewalls are made up of a plurality of layers which have been coextruded together. Without limiting the present invention as to theory, the use of sidewalls which are multi-layered and coextruded together provides a polymeric film in which the physical properties of the film can be controlled to provide the desired physical properties such as

stiffness, heat sealability, permeability and puncture resistance which can be carefully controlled by controlling the polyermic films use in the coextrusion.

[0013] The ability to carefully control those physical properties provides substantial improvements over the Evacufilm® bag previously utilized and described in U.S. Pat. No. 6,715,644. The control of stiffness or rigidity, while maintaining flexibility, provides creases which serve to evacuate liquid from the bag while controlling and preventing excess interlocking that would otherwise inhibit liquid flow from the container.

[0014] In the preferred practice of the invention, the container includes first and second sidewalls, each having an inner surface facing the fluid chamber and an opposed outer surface. A fitment is attached to a surface of one of the first sidewall or the second sidewall, the fitment having an opening therethrough having an axis substantially perpendicular to the outer surface. A pattern comprising protuberances is provided on the inner surface of at least one of the first sidewall or the second sidewall to define a plurality of pathways having at least a first pathway and a second pathway intersecting one another. The protuberances facilitate evacuation of liquid when portions of the first sidewall and the second sidewall interlock during evacuation.

[0015] The present invention further provides a flexible polymeric container for storing and dispensing liquids. The container has a first sidewall and a second sidewall connected together to define a fluid chamber therebetween, the first sidewall and the second sidewall each having an inner surface facing the fluid chamber and an opposed outer surface and an access member for accessing the fluid chamber. The first sidewall and the second sidewall are constructed of a coextruded structure. A pattern of protuberances are positioned on the inner surface of at least one of the first sidewall or the second sidewall. The pattern is formed on the inner surface of one of the first sidewall or the second sidewall either after fabrication of the coextruded material or after fabrication of the sidewall.

[0016] The concepts of the present invention also include a method for evacuating a fluid from the flexible container of the invention. That method includes the steps of (1) providing a liquid filled container having one or more sidewalls with an inner surface and an outer surface, with the inner surface having a pattern of protuberances defining a plurality of pathways to facilitate the dispersion of liquid among the protuberances, the container also having a fitment with an opening therethrough and (2) permitting fluid to flow from the container through the fitment to thereby evacuate the liquid from the container through creases formed in the sidewalls thereof. In the preferred practice of the method of the invention, the sidewalls are formed of multiple layers which have been coextruded together to provide a polymeric film in which each of the layers is bonded to the others.

[0017] Other features and advantages of the invention will be apparent from the following specification taken in conjunction with the following drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0018] To understand the present invention, it will now be described by way of example, with reference to the accompanying drawings in which:

[0019] FIG. **1** is a perspective view of a container having a fitment;

[0020] FIG. **2** is a side view of the container of FIG. **1**;

[0021] FIG. **3** is a sidewall of the container of FIG. **1** having objects having varying shapes;

[0022] FIG. **4** is a sidewall of the container of FIG. **1** having a plurality of regularly spaced rectangular protuberances to define a checkerboard pattern;

[0023] FIG. **5** is a sidewall of the container of FIG. **1** having circular protuberances together forming a circular pattern with a series of X-shaped protuberances forming S-shaped lines and further forms a trademark owned by the Pepsi-Cola Company;

[0024] FIG. **6** is a sidewall of the container of FIG. **1** having teardrop protuberances together with circular protuberances; and

[0025] FIG. **7** is a sidewall of the container of FIG. **1** having a separate piece of material secured to the sidewall in the area opposite the opening of the fitment.

DETAILED DESCRIPTION

[0026] While this invention is susceptible of various embodiments, herein will be described in detail with the accompanying figures preferred embodiments of the invention. The present disclosure is to be considered as an exemplification of the principles of the invention and is not intended to limit the broad aspect of the invention to the embodiments illustrated and described.

[0027] FIGS. **1** and **2** show a flexible container assembly **10** having a first sidewall **12** and a second sidewall **13** attached at peripheral edges **14** to define a fluid tight chamber **16**. A fitment in the form of a spout **18** is attached to a surface of one of the sidewalls **12** and **13** and provides fluid flow access to the chamber **16**. In a preferred form of the invention, the first and second sidewalls **12** and **13** are a flexible polymeric material having a modulus of elasticity of less than 50,000 psi. The sidewalls preferably are made from materials such as homopolymers and copolymers of polyolefins, polyamides, polyesters or other materials that are capable of being sealed using standard conduction sealing techniques

[0028] In a preferred embodiment of the invention, the sidewalls are multi-layered and are fabricated using a coextrusion process. As used herein, coextrusion refers to a process which extrudes several layers of polymers into a substrate. One of the advantages of using a coextrusion process is that each layer of material has a desired physical property, such as stiffness, heat sealability, permeability or puncture resistance, all of which properties would be difficult to attain with any single material. However, using a combination of the physical properties of the different layers, a structure can be achieved that meets the requirements of the industry. In particular, it is of importance to the present invention that the sidewalls **12** and **13** have a certain amount of rigidity or stiffness, while maintaining ample flexibility in order to create defined creases to facilitate evacuation, as will be discussed in greater detail below.

[0029] To achieve the optimal balance between stiffness and flexibility, container **10** comprises multiple layers of

polymers, each layer having a desired physical property. In one preferred embodiment, the coextrusion structure **20** is constructed from polymers comprising polyethylene, a tying agent and nylon. It is possible to use any number of tying agents known in the art in order to achieve a suitable level of adhesion between the layers of polymers.

[0030] In yet another preferred embodiment, at least 13 layers of polymeric materials are used in order to achieve the desired level of stiffness while maintaining an adequate amount of flexibility. It is within the scope of this invention for the number of layers of polymer to vary according to the desired physical properties. Furthermore, because coextrusion allows the processing of multiple layers, there is a potential savings on premium resins by using lower cost material. Another advantage is that coextrusion minimizes manufacturing costs by making a multi-layered, multi-functional structure using a fewer number of steps.

[0031] As will be appreciated by those skilled in the art, it is possible to make the container **10** from individual sheets positioned in registration relative to each other and sealed about the periphery. However, it is preferred that the individual sidewalls be produced by a blown film process in which multiple layers are coextruded as a blown film in accordance with well understood techniques. Such blown film processes are well known to those skilled in the art and typically involve the extrusion of multiple layers of plastic films through a circular die which is then subjected to a bubble-like expansion process. Equipment for such blown film production is commercially available, including blown film equipment supplied by Windmoeller & Hoelscher Corporation.

[0032] In the practice of such equipment, multiple layers of a molten plastic are extruded through annular slits, usually in the vertical direction, to form a thin-walled tube made up of the multiple layers. Air is introduced by a hole in the center of the tube which is then blown up like a balloon. A high-speed air ring blows onto the thin-walled tube to cool the plastic material. Such techniques are conventional and well understood by those skilled in the art.

[0033] As noted, the sidewalls are made from a number of plastics in the form of homopolymers and copolymers of polyolefins, polyamides, polyesters and other polymeric plastics, either alone or in combination with each other. As already noted, in a preferred embodiment, the coextrusion is constructed from polymers of polyethylene as the layer forming the surface inside the bag and nylon as the strength-imparting layer on the exterior with multiple alternating layers of both polymers in between. As noted, a tying agent is used to promote adhesion between the polyethylene and nylon layers. As the tying agent, use is preferably made of an adhesive polymer layer which can be blow molded and extruded in combination with the polyethylene and nylon whereby the tying agent serves to create adhesion between the polyethylene and the nylon.

[0034] As the tying agent, use can be made of any of a variety of adhesive, film-forming polymers having the capability to promote adhesion between the distinct polymer layers forming the remainder of the sidewall. When using polyethylene and nylon as two of the multiple layers, use can be made of polyolefin adhesives to promote adhesion between the polyolefin and the nylon layers. Such adhesives are conventional and include, among other resins, the Bynel adhesive resins which are anhydride-modified linear low density polyethylenes commercially available from Dupont. Those resins have conventionally been used to promote adhesion to polyvinyl alcohol, polyamides, polyethylene and a variety of ionomers. Such resins may be used alone or in combination with other adhesives. Resins frequently used with the anhydride-modified polyethylenes include hexane and octane resins likewise commercially available from Exxon-Global and others.

[0035] The pattern of protuberances may form on at least one layer of the sidewalls by an embossing technique. For example, it is frequently desirable to emboss the film to generate the protuberances needed to facilitate evacuation of bags formed by a post-embossing technique, that is embossing the film after it is formed by coextrusion.

[0036] The function of the protuberances is not fully understood. Without limiting the invention as to theory, it is believed that the protuberances form very small pathways around the protuberances through which liquid may flow. Testing has demonstrated that the flow permitted around such protuberances, because of their size, is not sufficient to permit evacuation of the container. Quite the contrary, it is believed that the tiny pathways permit dispersion of the liquid, permitting it to flow short distances in the interior of the bag to reach creases formed when the bag is positioned in a corrugated box. The creases, rather than the tiny pathways around and between protuberances, permit evacuation of the bag. Indeed, it can be demonstrated that the protuberances in the bag have a pronounced tendency to interlock and thereby inhibit the flow of liquid in many areas of the bag. However, since the mechanism involves the flow of liquid around and between the tiny protuberances in the bag, interlocking of some of the protuberances still does not inhibit evacuation of the bag.

[0037] FIG. **3** shows a pattern **20** on the sidewall **12**. The pattern **20** can be positioned on a single sidewall or both. The pattern **20**, in a preferred form of the invention, is provided over an entire surface of the sidewall but could be provided only in select areas of the surface. The pattern **20** can be of any shape including regular shapes such as circular, polygonal, straight or curved lines, symbols or the like. The pattern **20** can also be irregularly shaped. In one preferred embodiment, the pattern **20** comprises an array of protuberances **30**. The pattern **20** can be raised protuberances **30** or indentations in these shapes. The pattern **20** can be all of the same shapes or be of a combination of shapes. In one embodiment, the pattern **20** comprises an array of randomly positioned protuberances **30** which resemble peaks and valleys having peaks of varying heights. This pattern **20** assists in draining fluid from the chamber **16** as is discussed in more detail below. The pattern **20** can be of varying sizes provided the protuberances **30** are effective to provide miniature fluid pathways through the container **10** when the fluid or particulate contents of container **10** is being evacuated. Thus, the miniature fluid pathways permit dispersion of liquid therethrough whereby liquid so dispersed can flow to creases formed in the bag walls, the creases functioning to permit evacuation of the container.

[0038] In a preferred form of the invention as shown in FIG. **4**, the pattern **20** includes a series of protuberances **30** having pathways **32** defined therebetween. This array of

protuberances **30** has at least a first pathway **33** intersecting a second pathway **34**. The intersection of the pathways **32** can form various angles.

[**0039**] While an irregular pattern is discussed above, it is further contemplated that the pattern **20** can also have a regular pattern. The regular pattern includes protuberances being placed at the same or essentially the same spacing or a repeating sequence of spacings. For example, as shown in FIG. **4**, the pattern provided may include a regularly spaced pattern of rectangular-shaped protuberances having pathways **32** defined therebetween. This checkerboard pattern has at least a first pathway **33** intersecting a second pathway **34**. In one preferred form of the invention, the pathways **33** intersect pathways **34** substantially perpendicular to one another.

[**0040**] FIG. **5** shows another preferred form of the invention having a series of circular protuberances **40** together with S-shaped protuberances **44**. The circular protuberances **40** define a circular shape **42**. The S-shaped protuberances **44** define a S-shaped pattern **46**. FIG. **6** shows yet another preferred form of the invention wherein the pattern **20** has a generally teardrop shape **48** interspersed with other shapes, such as circular shapes **50**. Of course it is contemplated that any combination of shapes of protuberances can be used and that more than two different shapes can be used. The present invention further contemplates that the individual protuberances can form varying indicia such as a trademark, tradename, logo, instructions for use or other identifying or useful information or advertising that can be viewed through the sidewall **12** or **14** or both.

[**0041**] The pattern **20** can be formed on the inner surface of sidewall **12** or sidewall **13** or both by techniques well known in the art including embossing during the fabrication of the sidewall, or embossing afterwards. An advantage of the sidewalls **12** and **13** being constructed of a coextruded structure is that it allows for embossing after the fabrication process, allowing embossing without the use of a chill roll. Chill rolls are often more expensive and not readily accessible. The pattern **20** can also be applied by an extrusion coating process or similar process. The pattern **20** can be pressed into the sidewalls with a shaped die. Numerous other mechanisms and processes for forming the patterns are well known in the art. Thus, the present invention should not be limited to the processes recited above. The pathways **32** formed by the protuberances **30** of the pattern **20** can have a plurality of different depths. Since the protuberances **30** can be of an irregular shape of peaks and valley, the depth of the pathway will vary depending on the size of the peaks.

[**0042**] As mentioned above, several factors are involved in assisting in the evacuation of fluid from the container. In general, the combination of the collapsing of the sidewalls **12** and **13**, and the pathways **32** created by the protuberances **30**, work together to facilitate the evacuation of liquid from the container **10**. The pathways **32** are, by themselves, too small to provide sufficient fluid flow for nearly complete evacuation of the container **10**. Fluid flow through the pathways **32** is minimal. However, because of the vacuum and/or pressure exerted during evacuation and the flexible nature of the container **10**, the protuberances **30** on the surfaces of the sidewalls **12** and **13** can interlock not only with other protuberances **30**, but also with the pathways **32** between those protuberances **30** located on opposite sidewalls **12** and **13** of the container **10**. Although fluid flow to the spout can be inhibited because of the interlocking that occurs, once the interlocking occurs in portions of the container **10**, the pathways **32** actually assist in dispersing fluid through the pathways **32** into creases **28** formed within the container during evacuation. One way to ensure that creases are formed in the container **10** is by preferably placing the container **10** into a box that is slightly smaller than the container **10**. The predominate fluid flow occurs through the creases **28** of the container **10**, and that flow evacuates fluid from the container **10**. As discussed above, the coextruded structure enables the container **10** to have the physical properties of being rigid while maintaining an optimal amount of flexibility. These properties allow the container **10** to readily collapse during evacuation, while maintaining defined creases **28** to enable liquid flow through the creases **28**. This is particularly true when the container is placed in a corrugated box which is typically used in bag-in-box applications.

[**0043**] The fitment **18** has an opening **50** having an axis essentially perpendicular to the sidewall **12** of the container. It is contemplated the fitment **18** can be mounted at various angles to the sidewall without departing from the present invention. The fitment **18** provides fluid access to the contents of the chamber **16**. FIG. **7** shows another preferred form of the invention where a separate piece of material **60** may be placed on sidewall **13** in the area opposite the opening **50**. The separate piece of material **60** can be formed from a variety of polymeric materials discussed above and can be secured to the container wall by heat sealing, adhesives or other conventional methods. The separate piece of material **60** acts to reinforce the sidewall **13** so that more creases can be formed in the container **10** during evacuation. As discussed above, the creases assist in evacuating fluid from the container.

[**0044**] Typically, container **10** is used for housing liquids such as soft drink syrup which are withdrawn from the container under pressure with a hose and mixed at a fountain with a diluent such as soda water. The hose (not shown) has an attachment for connecting to the fitment in a fluid and airtight arrangement. A vacuum pressure is applied to the fitment **18** through the hose to withdraw fluid under pressure from the container. Of course, the fitment **18** may be attached to the first or second sidewall **12**, **13** or both and may be located anywhere thereon.

[**0045**] The present invention further provides a process for evacuating the container shown in FIG. **1**. The method for evacuating a fluid from a container comprises the steps of: (1) providing a liquid filled container having sidewalls including an inner surface and an outer surface, (2) providing a pattern comprising protuberances on the inner surface of at least one of the sidewalls to define a plurality of pathways having at least a first channel and a second channel intersecting one another; (3) providing protuberances that facilitate evacuation of liquid when portions of the sidewalls interlock; (4) providing a fitment attached to the outer surface, the fitment having an opening therethrough having an axis substantially perpendicular to the outer surface; and (5) applying a suction to the fitment to draw fluid from the container.

[**0046**] In a preferred example of the process for evacuating the container, the container is first placed inside of a box

before suction is applied to withdraw the fluid from the container. The box can be formed from any material and can be any shape or size. Preferably, the box will be fabricated from a corrugated material that is typically used in standard bag-in-box applications. Moreover, the box will be sized so that it is slightly smaller than the flexible container. As a result, the container **10** will be slightly compressed when placed in the box further ensuring that creases will be formed during evacuation.

[**0047**] While the specific embodiments have been described, numerous modifications may be made without significantly departing from the spirit of the invention and the scope of protection is only limited by the scope of the accompanying claims. This design is just one example of a pattern design having these favorable characteristics, and disclosure of it is merely one example of a design having its favorable characteristics, others of which are not significant departures from the spirit of the invention.

What is claimed is:

1. A flexible polymeric container comprising:

(a) a first and second sidewall connected together to define a fluid chamber therebetween, with each sidewall having multiple layers having been coextruded with each other and having a series of protuberances on the sidewall in the fluid chamber to facilitate evacuation of liquids from the chamber; and

(b) a fitment attached to one of the sidewalls and having an opening therethrough through which liquid can be discharged from the fluid chamber.

2. A container as defined in claim 1 wherein the sidewalls are multiple layers which have been blown to form multilayer films.

3. A container as defined in claim 2 wherein at least one of the layers is formed of polyethylene.

4. A container as defined in claim 2 wherein at least one of the layers is formed of nylon.

5. A container as defined in claim 2 wherein the fitment includes two or more layers containing an adhesive layer therebetween.

6. A container as defined in claim 1 wherein at least one of the first and second sidewalls form creases as the container collapses during evacuation whereby liquid is evacuated from the container through such creases.

7. A container as defined in claim 1 wherein the series of protuberances extends over at least one of the sidewalls as a pattern of such protuberances.

8. A container as defined in claim 7 wherein the pattern extends over the entire surface of both the first and second sidewalls.

9. A container as defined in claim 1 wherein the protuberances are randomly positioned on at least one of the first and second sidewalls.

10. A container as defined in claim 1 wherein the protuberances have an irregular shape.

11. A container as defined in claim 1 wherein the protuberances are embossed after fabrication of the first and second sidewalls.

12. A container as defined in claim 1 wherein the protuberances define a pathway therebetween and the depth of said protuberances varies over the pattern of protuberances.

13. A container as defined in claim 1 wherein the first and second sidewalls have no protuberances around their peripheral edges.

14. A method for evacuating a fluid from a container comprising the steps of:

(a) providing a liquid-filled container having one or more sidewalls with an inner surface and an outer surface, with the inner surface having a pattern of protuberances defining a plurality of miniature pathways to facilitate dispersion of liquid among the protuberances, said container also having a fitment with an opening therethrough; and

(b) permitting liquid to flow from the container through the fitment.

15. A method as defined in claim 13 wherein the liquid is pumped from the fitment.

16. A method as defined in claim 13 wherein the liquid is a soft drink syrup.

17. A method as defined in claim 13 wherein the liquid is substantially completely withdrawn from the container.

18. A method as defined in claim 13 wherein the container is positioned inside a corrugated box when liquid is drained from the container.

* * * * *