United States Patent

[11] **3,567,104**

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[45] Patented **Mar. 2, 1971**
[73] Assignee **Phillips Petroleum Company**

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[54] **COMPOSITE CONTAINERS**
5 Claims, 3 Drawing Figs.

[52] **U.S. Cl.** **229/14,** 150/.5, 229/5.5
[51] **Int. Cl.** **B65d 5/58**
[50] **Field of Search** 229/14, 5.5, 5.6, 5.8; 150/.5

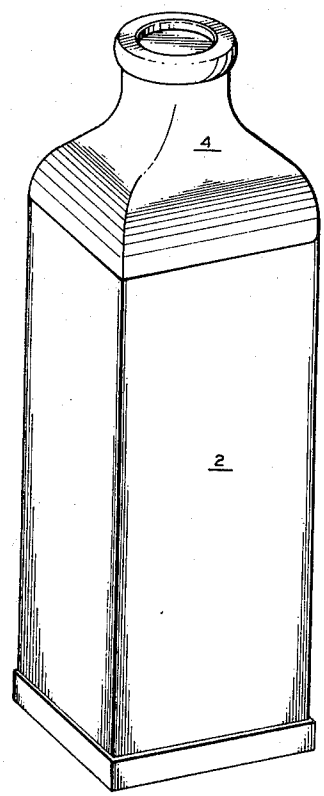
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Primary Examiner—David M. Bockenek
Attorney—Young and Quigg

ABSTRACT: Molded plastic and paperboard container parts rigidly, fixedly attached together to form a composite container.



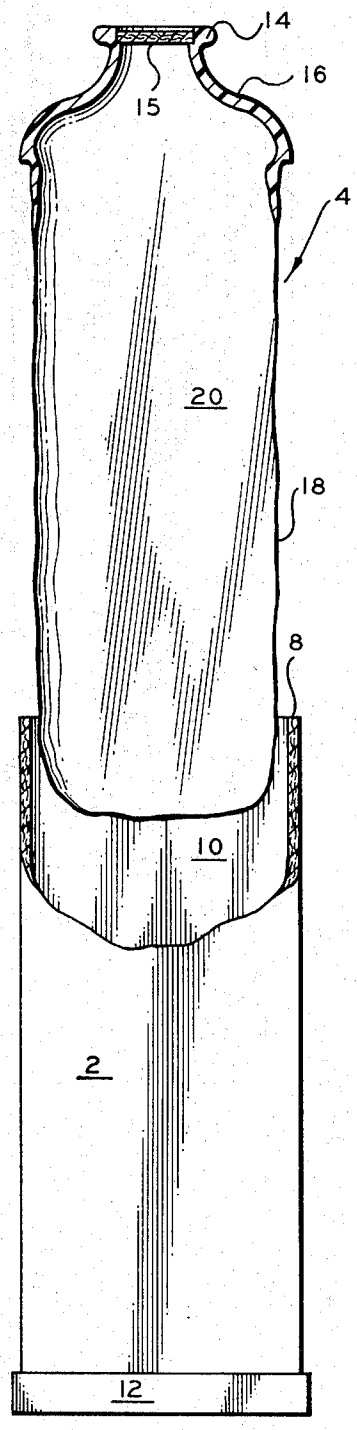


FIG. 2

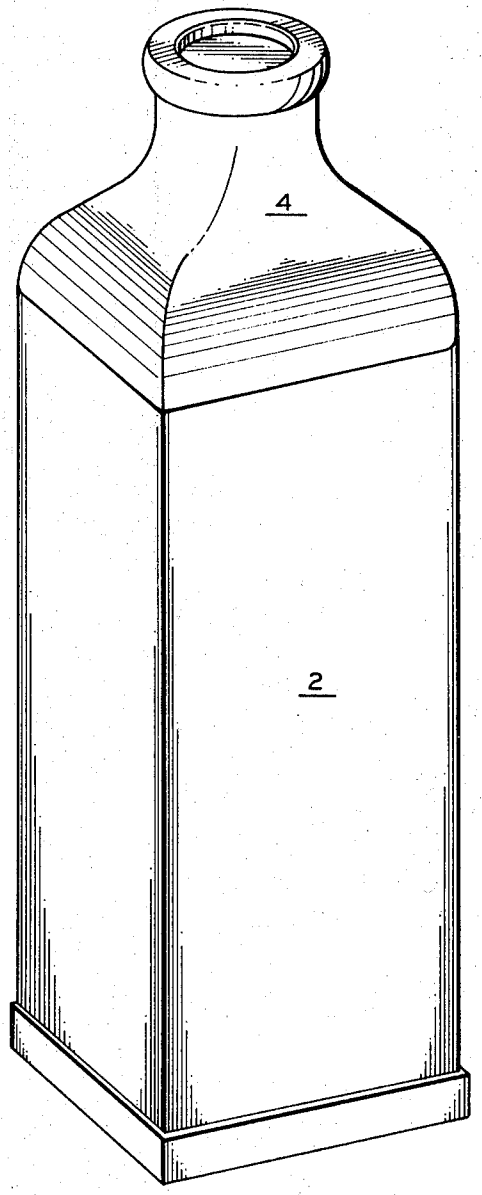


FIG. 1

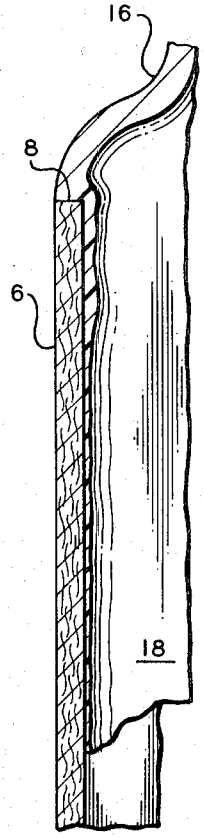


FIG. 3

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COMPOSITE CONTAINERS

This invention relates to a composite container. In another aspect, this invention relates to a molded container having a supporting structure.

It has previously been discovered that containers formed of plastic are ideally suited for packaging liquids and powdered products. Such containers are relatively leakproof, do not absorb liquids, do not retain odors, and are inexpensive and easy to manufacture. In order to form such a plastic container that will withstand the impacts received during shipping and handling and support the weight of the material contained therein, it is necessary for said container to be relatively thick and rigid. The plastic containers of this construction are costly to ship, owing to their bulk, are difficult to dispose of after the contents have been removed, owing to their bulk and rigidity, and are difficult and expensive to decorate, owing to the material from which they are constructed.

In order to alleviate these difficulties, yet retain the desirable characteristics of the plastic, plastic coated paperboard containers have been constructed. These coated paperboard containers may often absorb liquids, owing to inadequate edge sealing, are often difficult to open, and may absorb and retain odors, owing to inadequate sealing of the paperboard.

Further efforts to alleviate these problems resulted in the construction of a composite container having a thin plastic bag contained within a cardboard or paperboard protective shell. These thin plastic bag-box containers required opening the often difficult to open outer box to gain access to the opening of the thin film bag. Screw-type closures were attached to the plastic bag, but this construction was costly, required a great amount of machinery and supervision. Owing to the fragile construction of the bag, the opening of the bag often could not be repeatedly manipulated without damaging the film bag. The bag also was often damaged owing to the fact that said bag was not fixedly attached and could move relative to the protecting shell.

It is, therefore, an object of this invention to provide an improved composite container comprising a flexible plastic bag in a protective sleeve. Another aspect of the invention of the above-described type is to provide means whereby portions of the plastic bag are fixedly attached to the protective sleeve to facilitate opening of the container and stabilize movement of the bag relative to the sleeve. Yet another aspect of the invention of the above-described type is to provide an opening on said container that will not be damaged by the manipulatings of repeatedly opening and closing said container. A still further object of the invention of the above-described type is to provide a composite container that can be economically shipped and easily assembled. Other aspects, objects, and advantages of the present invention will become apparent from a study of the disclosure, the appended claims, and the drawing.

In the drawing, FIG. 1 is an isometric view of an embodiment of the composite container of this invention. FIG. 2 is a longitudinal section of the container of this invention with the bag and sleeve in a separated position. FIG. 3 is a view in cross section of portions of the sleeve and the bag with the bag fixedly attached to the sleeve.

Referring to FIG. 1, a sleeve 2 encompasses a lower portion of a molded bag 4 to form the composite container of this invention.

Referring to FIG. 2, the sleeve 2 has sidewalls 6, an upper end 8, a chamber 10 opening on said upper end, and a closed lower end portion 12. The sleeve 2 is formed of plastic-coated paperboard and has a thickness in the range of between 0.005 to 0.050 inches, preferably in the range of between 0.010 to 0.020 inches. Although the sleeve is here shown as a four-sided rectangular column, it should be understood that the sleeve container of this invention can be formed into any desired shape.

Although the sleeve can be formed without a closed lower end, it is preferred that said lower end be rigidly closed with a second cardboard sheet and that said closure function to support the materials contained therein (later more fully described).

The bag 4 has an upper end 14, upper and lower end portions 16, 18, and a chamber 20. The chamber 20 opens on the upper end portion and is closed on the lower end portion of the bag 4. In the assembled condition, better seen in FIG. 1, the lower end portion 18 of the bag 4 is contained within the chamber 10 of the sleeve 2. The lower end portion 12 of the sleeve preferably is closed and supporting the lower end portion 18 of the bag. By so supporting the bag 4, the lower end portion 18 of said bag can be constructed of a thin film having a thickness in a range between 0.5 and 10 mils. With an open-ended construction of the sleeve 2, it is necessary to form the lower end portion 18 of the bag 4 of thicker material in order that the bag 4 has sufficient strength to support the materials contained therein.

Referring to FIG. 3, the upper end portion 16 of the bag 4 is constructed having dimensions relative to the upper end 8 of the sleeve 2 whereby at least a portion of said upper end portion overhangs and is supported by the upper end of the sleeve. The upper end portion 16 of the bag 4 is sealed to the sleeve 2 to prevent movement of said bag 4 relative to sleeve 2. Although the upper end 14 of the bag 4 can be sealed to the sleeve and not be constructed so that portions of the bag 4 overhangs the sleeve, it is preferred that the entire upper end 8 of the sleeve 2 be overhung and in contact with the upper end portion 16 of the bag 4 with the bag fixedly attached to the upper end 8 of the sleeve. The bag 4 is preferably rigidly attached to the sleeve 2 by heating the upper end portion 8 of the sleeve 2 including a portion of the plastic-coated inside wall and thereafter contacting the bag with the heated end and wall portion of the sleeve. The temperature of the sleeve must be sufficiently high to heat the upper end portion 16 of the bag 4 to a temperature at which the material of the bag will adhere to the sleeve. The joinder of these two elements can also be accomplished by gluing or other like means. For instance, a hot melt adhesive may be placed on end 8 and the shoulder of upper end portion 16 joined to it.

In order to produce a container of sufficiently rigid construction while utilizing a reduced amount of material, it is necessary that the upper end portion 16 of the bag 4 be of greater rigidity than the lower end portion 18 of said bag. It is therefore preferred that the bag of this invention be thermoformed or blow-molded or formed by other methods known in the art from a thermoplastic material such as polyethylene, polypropylene, polystyrene, polyvinyl chloride, polyvinylidene chloride, and the like. The upper end portion 16 of the bag 4 has a thickness at least in excess of 0.010 inches in order to provide sufficient rigidity and prevent damage to the container caused by manipulation of the container during repeated opening and closing of the closure means (not shown) which is removably attached to the upper end 14 of the bag 4. The closure means 15 can be constructed of cardboard, metal foil, or other conventionally used materials.

Owing to the fact that the lower end portion 18 of the bag 4 is of significantly less rigidity than the upper end portion 16 of said bag 4, the elements forming the container of this invention can be compactly packaged for shipping. The lower end portion 18 of the bag 4 can be folded into the upper end portion 16 with said upper end portions nestled one in another and the sleeves 2 and the lower end portions 12 of said sleeves maintained in a flat, separated condition. The container of this invention can thereafter be easily constructed, filled, and sealed at the destination. Other modifications and alterations of this invention will become apparent to those skilled in the art from the foregoing discussion and accompanying drawing, and it should be understood that this invention is not to be unduly limited thereto.

We claim:

1. A container, comprising:

a sleeve having sidewalls, an upper end, a chamber opening on said upper end, and a lower end portion;

a molded bag having an upper end, upper and lower end portions, a chamber opening on said upper end, and, closed on said lower end portion, said lower end portion being inserted within the chamber of the sleeve and portions of the upper portion of said bag overhanging and extending upwardly from the sidewalls and upper end of the sleeve and being fixedly attached at the upper end portion to the upper end of the sleeve; and

means for closing the upper end of the molded bag.

2. A container, as set forth in claim 1, wherein the sidewalls of the sleeve are formed from a first paperboard sheet and the lower end portion of the sleeve is closed with a second paperboard sheet rigidly attached to the first.

3. A container, as set forth in claim 1, wherein the bag is formed by blow molding a thermoplastic material.

4. A container, as set forth in claim 1, wherein the upper end portion of the bag has a thickness in excess of 0.01 inch and the lower end portion has a thickness in the range of about 0.5 to 10 mils.

5. A container, as set forth in claim 2, wherein the sleeve has a thickness in the range of about 0.01—0.2 inch.

UNITED STATES PATENT OFFICE

CERTIFICATE OF CORRECTION

Patent No. 3,567,104 — Vincent Arslanian; Stafford D. Collie — Dated Mar. 2

It is certified that error appears in the above-identified patent and that sa Letters Patent are hereby corrected as shown below:

Column 4, line 11, add claims as presented in original application as fol

[5.] -- 6. A container, as set forth in claim 1, wherein the upper portion of the bag is of greater rigidity than the lower end portion of said bag. --.

[6.] -- 7. A container, as set forth in claim 1, wherein the upper portion of the bag is fixedly attached to the upper end of t sleeve by heating said upper end portion of the sleeve. --.

In the title page, under [54] "5 Claims" should read -- 7 Claims --.

Signed and sealed this 31st day of August 1971.

(SEAL)
Attest:

EDWARD M.FLETCHER,JR.
Attesting Officer

ROBERT GOTTSCHALK
Acting Commissioner of Patent