United States Patent

Surerus

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[54] THERMOFORMED PLASTIC CONTAINER

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[52] **U.S. Cl.** **229/7,** 220/315, 220/54, 222/517, 222/541, 229/2.5

[51] **Int. Cl.** **B65d 1/26,** B65d 17/24

[58] **Field of Search** .....229/7 R, 2.5; 220/315 R, 60 R, 220/54; 222/536, 527, 574, 517

[56] **References Cited**

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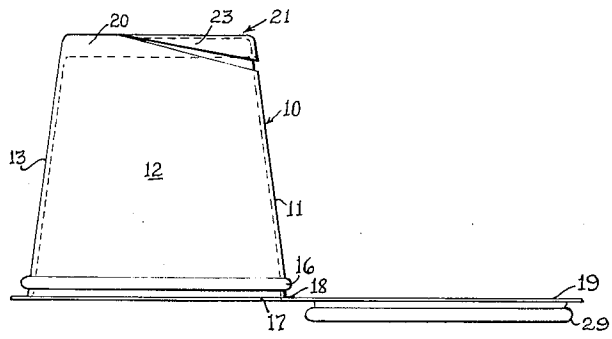
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[57] **ABSTRACT**

A bottom-filled, top-dispensing container formed from a single sheet of plastic, such as styrene or the like. The container is so formed that, prior to being filled, it provides an open bottom so that like containers may be vertically stacked one upon the other. The container comprises a hollow substantially square body having an integral top wall, a corner of which provides a pouring spout and a removable cover heat-sealed thereon. The container closure or bottom wall is initially formed as an integral part of the body extending laterally therefrom and being adapted to be folded back upon the container when the latter is filled so as to seal the same.

6 Claims, 4 Drawing Figures



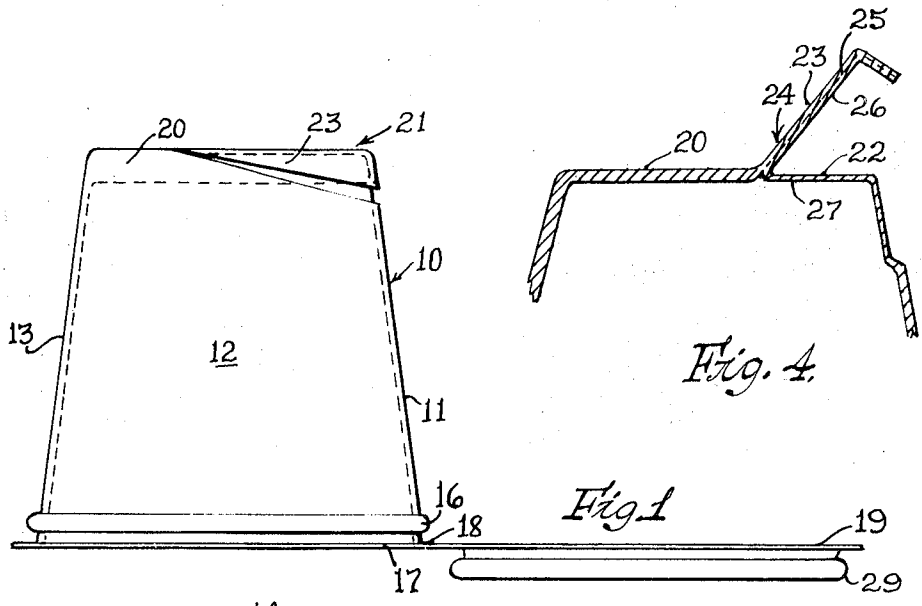


Fig. 1

Fig. 4

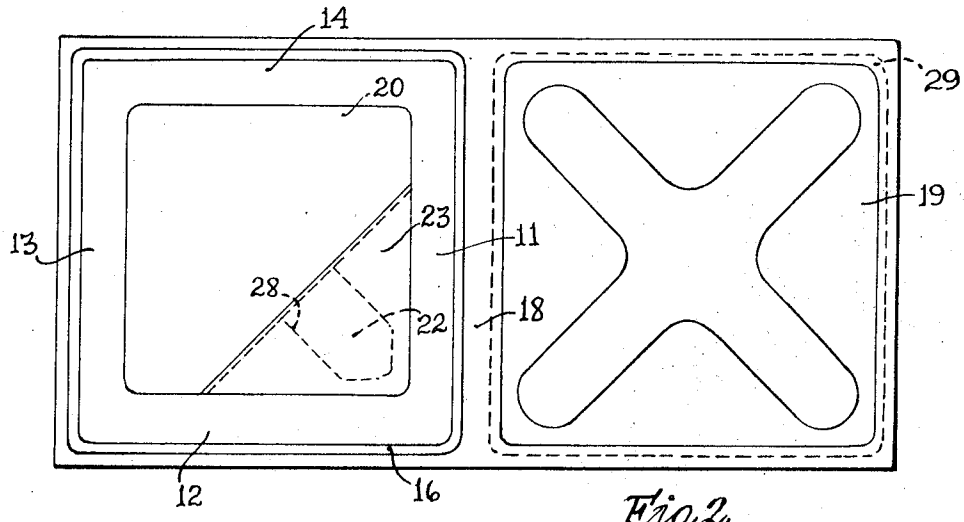


Fig. 2

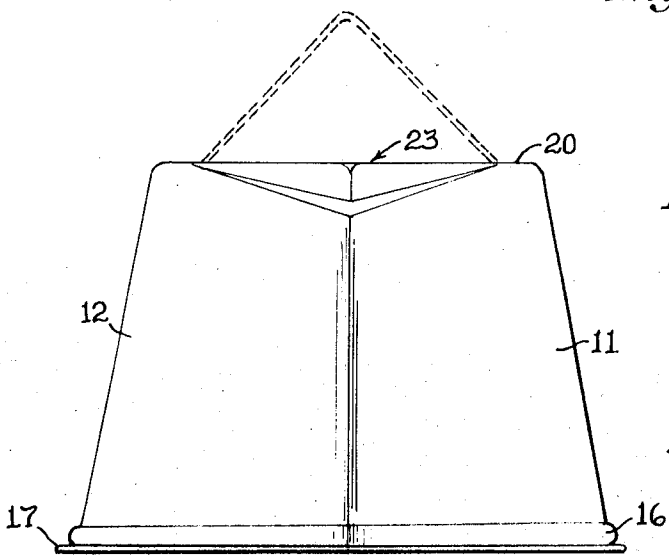


Fig. 3

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THERMOFORMED PLASTIC CONTAINER

SUMMARY OF THE INVENTION

A container for liquid or semi-liquid material thermoformed from a single sheet of plastic, such as styrene, the construction of the container being such as to permit convenient filling through a normally open bottom and for dispensing of the material through a pre-formed spout formed in the top wall, the latter provided with a readily removable cover. The container is best suited for commodities, such as milk, that require a large accessible opening for rapid mechanical filling operation, thereby reducing the degree of foaming of the material and the loss of capacity of the container during the filling operation. The container is so designed that it may be vertically stacked prior to filling and stored thereafter within the least amount of area. Being substantially square in cross section, the container when formed will utilize a greater proportion of the sheet of plastic from which it is constructed, than normal and therefore necessitate a lesser amount of trimming and waste.

GENERAL DESCRIPTION

The container and its construction will be best understood by reference to the accompanying drawing, in which there is disclosed the preferred form and construction, and in which:

FIG. **1** is a side elevational view of the container as formed from a single sheet of plastic material; and ready for filling;

FIG. **2** is a top plan view of the container illustrated in FIG. **1**;

FIG. **3** is a side elevational view of the container after it has been filled and showing in dotted lines the cover portion which is readily removable; and

FIG. **4** is a fragmentary detailed sectional view of a portion of the container.

The container **10** as depicted in FIG. **1** is constructed to utilize the most material from a single sheet of plastic, such as styrene, from which it is thermo-formed in a mold.

The container **10** when thermo-formed provides a substantially square shaped body consisting of equally sized and shaped side walls **11**, **12**, **13** and **14**. These side walls will be constructed so as to have substantially uniform thickness.

The formed container **10** has a normally open bottom defined by a raised bead **16** extending about the peripheral edges of the side walls. A short peripheral skirt **17** which extends beneath the bead **16** provides at one edge **18** a pliable connection between the bottom wall or closure **19** which, during the thermo-forming of the container **10**, is constructed from the sheet of plastic material in a manner whereby it extends laterally and to one side of the side wall **11** of the container **10**.

It is desirable that the thickness of the bottom wall or closure **10** be greater than the thickness of the side walls of the container so as to add the necessary rigidity to the container when filled and sealed.

As the container is so designed to be bottom-filled and top-dispensing, it is necessary that a suitable top wall **20** be provided which is formed integral with the side walls **11**, **12**, **13** and **14** so as to form a closed open-bottom container.

In order to provide a top-dispensing container, the top wall **20** has a portion **21** thereof, adjacent to its junction with the corner line defined between the side walls **11** and **12**, thermoformed to provide a pouring spout **22** and removable cover **23** therefor.

To form the pouring spout **22**, the material in the portion **21** of the top wall **20** is normally stretched to a length and thickness such as is indicated at **24**, so that a layer **25** thereof may be folded back upon a second layer **26** while an equal length of the material **27** extends through the continuing normal plane of the top wall **20** and merges into the upper corner-forming portions of the side walls **11** and **12**. The first and second layers **25** and **26** so formed provide the removable cover for the pouring spout defined by the merging portion of the material **27**. During forming and extension of the layers **25**, **26** and **27**, the latter will be scored as at **28** to define a pouring spout through which the material in the container can be dispensed.

It is desirable in the construction of this container that the combined thicknesses of the layers **25** and **26**, when folded upon themselves and then bent over the equal remaining portion **27**, will be equal to the thickness of the top wall **20**, providing thereby a unified rigid top wall for the container.

After the closure has been formed out of the layers **25** and **26**, it may be heat-sealed upon the remaining portion **27**, so that it assumes the condition as shown in FIG. **1**.

After the container **10** is filled, the bottom wall or closure **19** which is also provided with a peripheral bead **29**, is folded and snapped into sealing contact with the bead **16** formed in the side walls of the container and, it, too, can then be sealed by a heat seal or hot melt operation.

The advantages of a container formed in the manner hereinbefore described are that in an empty condition they can be readily stacked one upon another with the body portions nested by reason of the fact that the side walls are provided with a slight taper from the bottom to the top, as illustrated in FIG. **1**. A container made in the foregoing manner utilizes the maximum of the sheet of plastic from which it is molded without the necessity of trimming or grinding and, when filled, because of the substantially square shape, a plurality of the containers may be packed in a compact area for ready transportation and use.

While I have illustrated and described the preferred form of construction for carrying my invention into effect, this is capable of variation and modification without departing from the spirit of the invention. I, therefore, do not wish to be limited to the precise details of construction set forth, but desire to avail myself of such variations and modifications as come within the scope of the appended claims.

Having thus described my invention, what I claim as new and desire to protect by Letters Patent is:

1. A bottom-filled top-dispensing plastic container thermoformed from a single sheet of plastic comprising

a. a hollow substantially square open-bottom body including substantially identically shaped side walls,

b. a top wall integral with said side walls and of a thickness greater than the thickness of said side walls,

c. a closure for the open bottom of said body connected to and extending laterally from one edge of one of said side walls,

d. means for connecting said closure to said one edge of one of said side walls and about which said closure is bent into closing position upon the bottom edges of said side walls of said body,

e. a section of the plastic forming said top wall adjacent one corner line between juxtaposed side walls as well as a part of said corner line, formed to provide a length and thickness so as to have a portion thereof bent back upon itself to form a cover,

f. a remaining section of said length of plastic formed to complete said top wall and said side walls defining said corner line and provided with a score line defining a removable spout opening disposed beneath said cover when the same is connected to said remaining section of said portion of said top wall.

2. a container as defined in claim **1** wherein said cover has a length equal to said remaining section forming the complete top wall of said container, as well as that part of the corner lines formed by said side walls so as to completely cover the same, said cover being removably attached by a heat seal to said remaining portion of said top wall and said corner line formed by said side walls.

3. A container as defined by claim **1** wherein said section of said plastic that is bent back upon itself to form said cover and said remaining portion forming the complete top wall of said container, have a combined thickness equal to the thickness of said top wall of said container.

4. A container as defined by claim 1 wherein said side walls adjacent the open bottom of said body provide a peripheral hollow bead and said closure is formed to provide a like bead about its periphery adapted to be inserted into said hollow bead of said side walls when said closure is mounted on said body to seal the open end thereof.

5. A container as defined by claim 4 wherein said cover has a length equal to said remaining section forming the complete top wall of said container, as well as that part of the corner lines formed by said side walls so as to completely cover the same, said cover being removably attached by a heat seal to said remaining portion of said top wall and said corner line formed by said side walls.

6. A container as defined by claim 4 wherein said section of said plastic that is bent back upon itself to form said cover and said remaining portion forming the complete top wall of said container, have a combined thickness equal to the thickness of said top wall of said container.

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