Sept. 27, 1949. G. S. VIVIAN 2,483,162

CONTAINER

Filed Oct. 9, 1945

Fig. 1

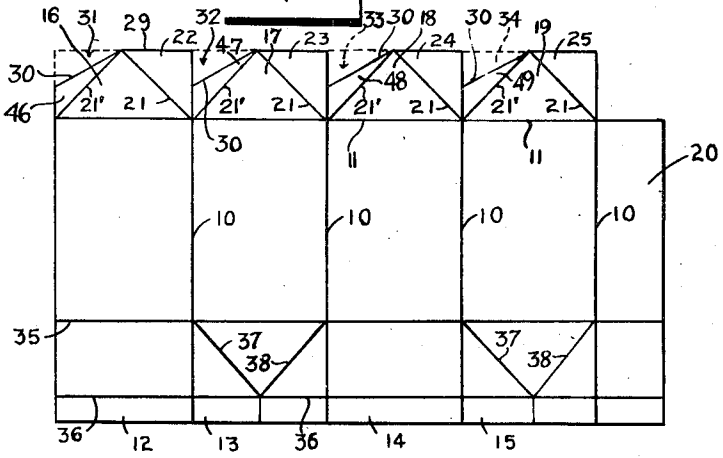


Fig. 2

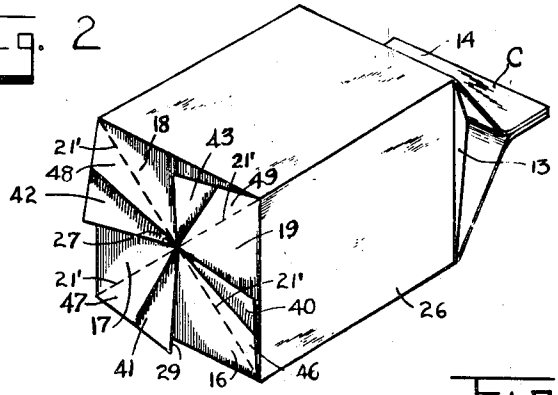


Fig. 4

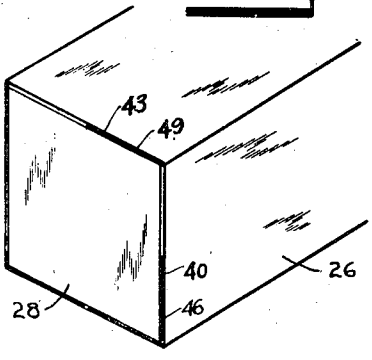
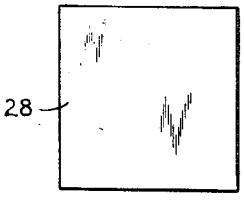


Fig. 3



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2,483,162

CONTAINER

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2 Claims. (Cl. 229—57)

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This invention relates to improvements in containers and particularly to a closure for the bottom of a polygonal container manufactured from cardboard or other suitable sheet material by a folding operation.

It has been proposed heretofore to provide polygonal containers made of cardboard and the like with bottom closures formed by folding the bottom portions of the container walls into an overlapping arrangement called a "cloverleaf" bottom. There is then glued over the folded "cloverleaf" bottom a sheet of cardboard or the like to hold the folded portions in position. Such "cloverleaf" closures have a very great disadvantage in that the covering sheet material does not contact all of the folded-over layers but only the surfaces which are exposed. It would be desirable to have the cover sheet contact all of the folder surfaces to increase the strength of the seal.

Further, such prior "cloverleaf" closures are characterized by having a very great unevenness in thickness—that is, as one rotates the closure the thickness is one layer, then three layers, then one layer, then three layers, and so forth. Where the two layers terminate there is always a very pronounced non-uniformity, which makes it difficult to obtain proper adhesion to the covering sheet material. This results in a relatively irregular and uneven bottom.

The main object of the present invention is to provide for a container with a rigid and closed bottom.

Another object of the invention is to provide a bottom closure container by bending or folding cardboard or other suitable sheet material which will be leakproof and strong.

Still another object of the invention is to provide a container of cardboard or other suitable sheet material for liquids, semi-liquids and powdered or granulated materials.

According to the present invention, there is provided a polygonal container formed of cardboard or the like having a bottom closure formed by folding over the lower portions of the walls of the container, the folded over portions being so arranged that the bottom comprises alternating sections of three, two and one layers and a separate piece of sheet material secured to the outer side of the bottom and adapted to hold the folded parts in a folded position and to seal the bottom.

In the drawing forming part of this application:

Figure 1 represents in a reduced scale a plan

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view of a piece of sheet material disclosing the container in unfolded position.

Figure 2 is a perspective view of the bottom part of the container with the folded bottom.

Figure 3 is a plan view of the bottom closing piece of sheet material.

Figure 4 is a perspective view of the finished bottom with the bottom closing piece in place.

The container forming the present invention is made from two pieces of cardboard or similar sheet material as disclosed in Figure 1 and Figure 3.

The main rectangular piece according to Figure 1 is provided with vertical weakening lines 10 and a horizontal weakening line 11, subdividing the piece into container side portions 12, 13, 14, and 15, bottom forming portions 16, 17, 18, 19, and an extension 20. The breadth of the bottom forming portions 16, 17, 18, and 19 is not greater than one-half of the distance between two vertical weakening lines 10. The bottom-forming portions 16, 17, 18, and 19 are precreased along lines 21 subdividing them into triangles 22, 23, 24 and 25.

The bottom-forming portions may also be precreased along lines 21', which meet the lines 21 at the middle of the outer edge 29 of the bottom portion (though this precreasing along the lines 21' is not strictly necessary). The bottom-forming portions are also cut away along the lines 30 and 10, the line 30 beginning at a point between, preferably half-way between lines 11 and the outer edge 29 and terminating at the apex of the triangle formed by lines 21 and 21'. Thus, triangular sections 31, 32, 33, and 34 are cut completely away from the bottom-forming sections. Thus, each bottom-forming portion of each panel can be considered as comprising three triangles; for example, the triangles 16, 22 and 46, which are integral with the sidewall 12. The triangle 22 is integral with the adjacent triangle 47.

The other end of the carton blank may be pre-creased as desired to form any desired type of top closure. Merely by way of illustration but not by way of limiting the invention, the blank may be pre-creased along the transverse lines 35 and 36 and the panels 13 and 15 may be precreased along the lines 37 and 38 so that the top may be formed by inwardly depressing the top portions of the panels 13 and 15 and folding down and flattening the top portions of panels 12 and 14 on the inwardly folded panels to form a closure of the pitched roof type, all of the

flattened sections being sealed at the top to form an upstanding ridge C as shown in Figure 2.

The piece of cardboard or similar sheet material according to Figure 1 is folded along the pre-creased lines 10 to form a rectangular hollow body 26 (Figure 2) and the extension 20 is united with the adjacent side portion 12 by gluing or otherwise. When the rectangular hollow body 26 is formed, the bottom-forming sections 16, 17, 18, and 19 are folded into bottom-forming position along the pre-creased line 11, and at the same time the triangles 22, 23, 24, and 25 are folded along the pre-creased lines 21, thus covering a part of their respective bottom-forming portions 16, 17, 18, and 19.

When the bottom-forming portions have been folded as shown in Figure 2, it will be noted that the triangular sections 46, 47, 48, and 49 therefor, respectively do not fully cover the underlying folded section so that triangular sections 40, 41, 42, and 43 are left exposed. These exposed surfaces (which form part of triangles 22, 23, 24, and 25 respectively) can therefore make direct contact with the superimposed sealing sheet 28 shown in Figure 3.

It will thus be apparent that traversing the bottom in clockwise direction that the bottom comprises alternate sections consisting of, first, a single layer, then two superimposed layers, and then three superimposed layers. For example, the single layer comprises the single thickness of the bottom section comprising the triangle 19; the double layer consists of the triangle 40 which is superimposed upon the triangle 19, while the third layer comprises the section 46. Thus it will be apparent that traversing the bottom in clockwise direction that at no place on the bottom is there any discontinuity comprising more than a single edge of sheet material. This greatly facilitates sealing of the overlying sheet 28 and provides a more uniform bottom structure. In view of the radiating triangles forming the bottom closure of the present invention it may be called a "rosette" closure because the bottom comprises eight, instead of four, substantially equal triangles radiating from the center and four other triangles of equal size.

In order to obtain a rigid bottom and to keep the bottom-forming parts in folded position and to close the opening 27 in the bottom, a bottom-closing piece 28 as shown in Figure 3 is secured to the outer side of the bottom by means of glue, wax, resin, or suitable adhesive as shown in Figure 4. It is preferable to provide the bottom-closing piece 28 with adhesive and to press the piece 28 against the bottom.

Paraffin wax may be used as adhesive when the container is made of cardboard or fibrous sheet material which is impregnated with this wax. The impregnation of the container and the securing of the bottom-closing piece to the bottom may be carried out in one operation.

The shape of the bottom-closing piece 28 need not be rectangular. It can be circular or oval, thus covering only a part of the bottom.

The container may be made of cardboard, paper, metal foil or a foldable plastic sheet material such as a resin or an organic cellulose derivative. If the materials are heat-sealable, the sealing of the bottom closure may be effected by heat and pressure.

Having described my invention, what I claim as new and desire to secure by United States Letters Patent is:

1. A container blank comprising a sheet of foldable material comprising four rectangular substantially equal-sized panels adapted to form the sidewalls, all of said panels being provided at the same end with integral bottom-forming extensions, said extensions having a length substantially equal to one-half the width of said sidewall panels, each of said bottom-forming extensions having a triangular section cut away, said cut-away section being defined by a line drawn from a point positioned half-way up the side of said extension and terminating at a point in the middle of the outer edge of said extension whereby the said extensions are folded in overlapping relation to form a bottom closure.

2. A container according to claim 1 in which the bottom closure comprises extensions of the side walls disposed in overlapping relation, and a separate piece of sheet material secured to the outer side of the bottom closure thus formed.

GEORGE STEWART VIVIAN.

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