

Sept. 19, 1961

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3,000,496

RECESSED BOTTOM CONTAINER

Filed Oct. 29, 1958

2 Sheets-Sheet 1

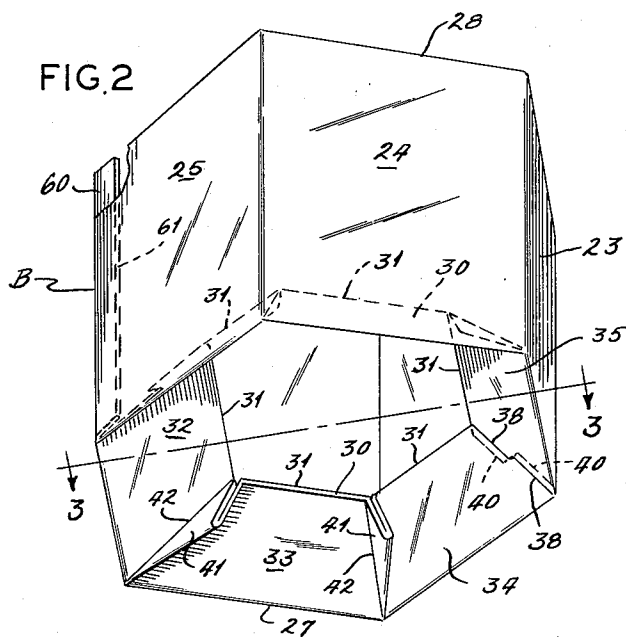
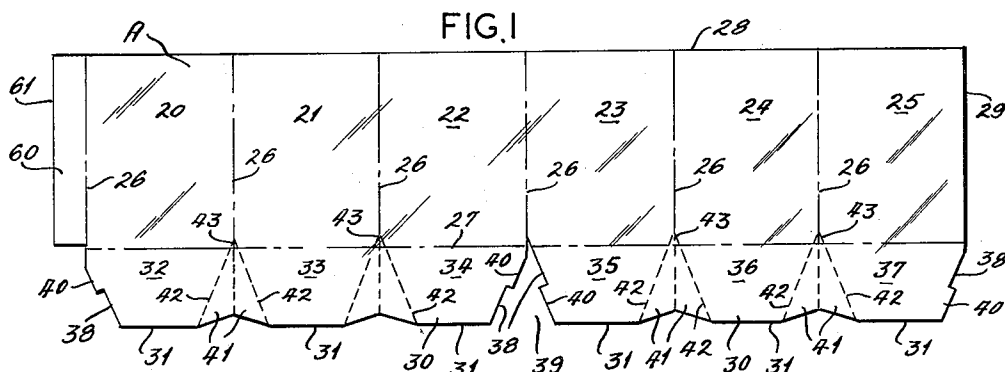


FIG. 5

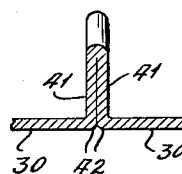
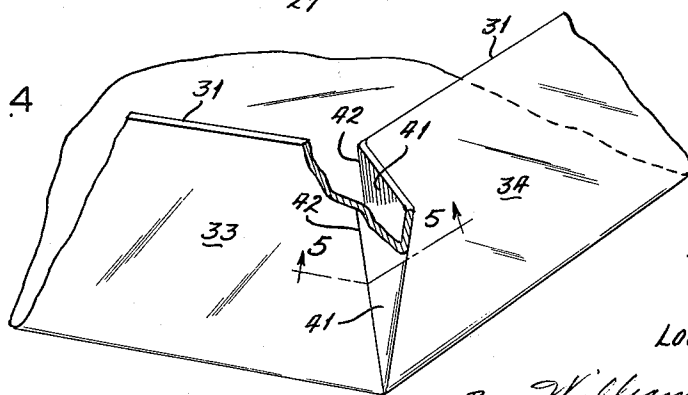


FIG. 4



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FIG.3

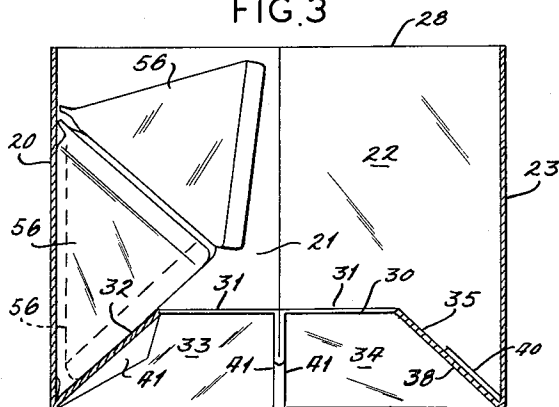


FIG. 6

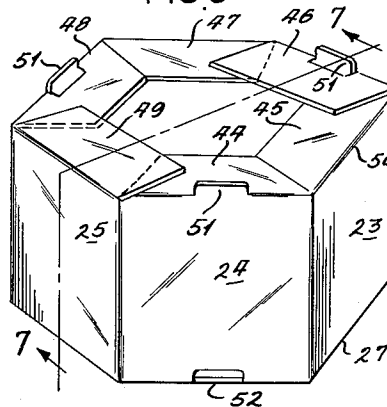


FIG. 7

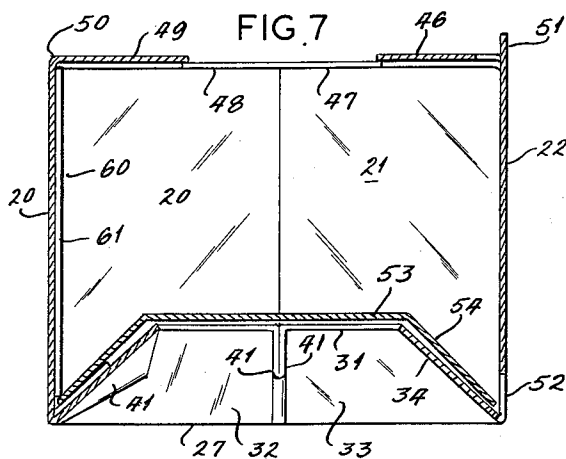


FIG. 8

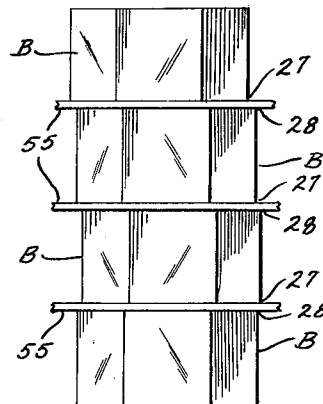


FIG.9

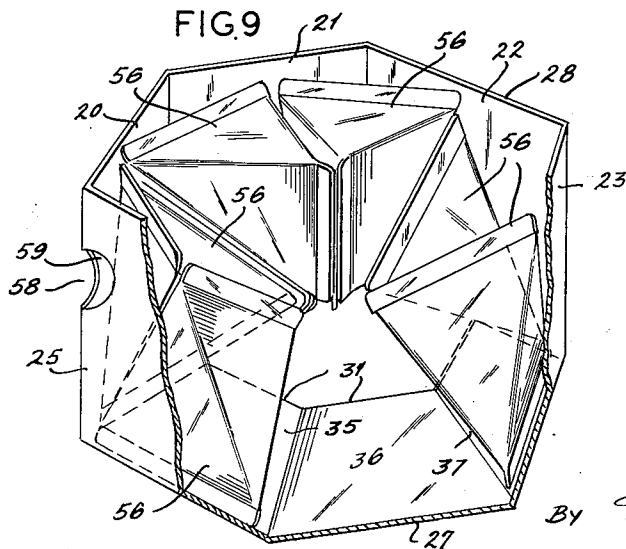
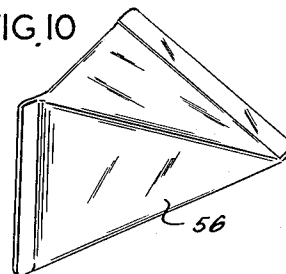


FIG. 10



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RECESSED BOTTOM CONTAINER

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Filed Oct. 29, 1958, Ser. No. 770,360

1 Claim. (Cl. 206—65)

The invention pertains broadly to an improvement in a container constructed of solid fibreboard, corrugated fibreboard or any other suitable bendable material and in particular to a container adapted to receive basically tetrahedral articles having a recessed self-locking bottom construction.

Containers heretofore known in the art are not readily adaptable to receiving and retaining a plurality of tetrahedral articles in an orderly compact relationship. It has been determined that relatively fragile tetrahedral articles must be retained in an orderly compact relationship in a container as the multiplicity of sharp corners and edges of the articles tend to cause punctures or otherwise damage and deface said articles.

The invention resides in a container which utilizes a minimum amount of fibreboard commensurate with known strength and utility requirements. This economy of container forming materials is made possible by utilizing the self supporting internal structure of an orderly arrangement of the tetrahedral articles whereby only a partial bottom closure is needed. The self-supporting arrangement of the tetrahedral articles bridges over a void in the container bottom, requiring the support means for the articles only at the outer margin of the container bottom.

The container is necessarily adapted to economical automatic packing of the tetrahedral articles in a specific orderly arrangement and also may be readily packed in a like arrangement by manual means. A mandrel is temporarily positioned in the void in the container bottom to deflect and retain the tetrahedral articles in position during the duration of the packing operation, whether it be automatic or manual.

In some instances a dust protective means may be used to prevent contamination of the contents of the container through the void in the bottom closure. This dust protective means may also contribute to the support of the articles. For these purposes a bottom insert constructed of fibreboard or flexible material such as plastic film or paper may be positioned overlying the void in the bottom of the container prior to placing the articles therein.

There has been a continuing need for a fibreboard container that could reasonably be disposed of after the initial usage as a master container for an orderly arrangement of tetrahedral articles. It is therefore, an object of this invention to provide an economical fibreboard container having a recessed bottom adapted to accommodate an orderly arrangement of tetrahedral articles.

An important object is to provide a container with an internal flange support means upwardly and inwardly disposed from the bottom margins of the container.

Another important object is to provide a container having an internal flange partial bottom closure angularly disposed upwardly with respect to the side walls and having a free end edge defining a void in the bottom closure of the container.

Another object is to provide a polygonal container having an internal flange partial bottom closure angularly disposed upwardly from the bottom marginal edge of the side walls, with means for closure of the top and bottom of the container independently.

Another object is to provide a container with an angu-

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larly disposed partial bottom closure that may be set up without the use of extraneous materials and collapsed for storage or transportation purposes.

Other objects and advantages of this invention will be apparent to those skilled in the art upon a full and complete understanding of the construction of the container. The accompanying drawings illustrate certain embodiments of the invention and form a part of the specification. Like numerals and symbols therein appearing refer to like parts wherever they occur.

FIG. 1 is a plan view illustrating a preferred form of the container blank;

FIG. 2 is a perspective view of an erected container showing the internal flange bottom closure;

FIG. 3 is a cross sectional view through line 3—3 of FIG. 2 showing the nested relation of tetrahedral articles hereinafter described.

FIG. 4 is a sectional view cut away to show the abutting relation of the interior flange panels;

FIG. 5 is a cross sectional view through fanfolded line 5—5 of FIG. 4 showing the abutting relation of flange panels triangular sections;

FIG. 6 is a perspective view of an erected container showing top flaps and alignment means for stacking;

FIG. 7 is a cross sectional view through line 7—7 of FIG. 6 showing bottom closure insert in place;

FIG. 8 is a view of stacked containers in vertical series with top closure means therebetween;

FIG. 9 is a perspective view partially cut away of the container with a portion of the arrangement of tetrahedral articles in place to show the interlocking arrangement thereof;

FIG. 10 is a perspective view of the basically tetrahedral articles referred to herein.

The blank A for the principal embodiment of the container, illustrated in FIG. 1, comprises a plurality of side wall panels 20 through 25 inclusive, hingedly connected in side by side relation and defined by essentially vertical scores 26, horizontal score 27, top edges 28, and side edge 29. The horizontal score 27 also provides the hinge line of the internal flange partial bottom closure 30 which has free end edges 31. The internal flange is divided into bottom panels 32 through 37 in part by the included portions of the vertical scores 26. The bottom panels free side edges 38 define an acute angular cutout 39 and have protruding portions 40 permitting locking engagement of the panel edges as hereinafter described. The paired angular scores 42 converge and form equal acute angles with vertical scores 26 and intersect at 43 on scores 26, slightly above horizontal score 27. Counterpart triangular sections 41 thus formed of the bottom panels 32 to 37 inclusive are defined by converging angular scores 42. In the preferred form, angular scores 42 are perforated, in particular at the apices 43. The joining flap 60 is hingedly connected to an exterior side panel by vertical score 26 and is terminated at the blank A side edge 61.

The container B shown in FIG. 2 is formed from the blank A in FIG. 1. In the erected condition the side wall panels 20 to 25 are in an essentially vertical tubular relation with the opposed panel side edges 29 and 61 overlapped and the joining flap 60 fixedly connected to the opposed side wall panel by well known means. If preferred, the joining flap 60 may be eliminated and opposed side edges of the blank adhesively secured together by tape in accordance with conventional practice. The internal flange 30 is positioned inwardly and upwardly within the container. The flange panels 32 to 37 inclusive are in an engaged and abutting relation. The abutting relation fixes the internal flange 30 in an inward and upward relation within the container with the flange panels in an acute angular relation to their respective side wall

panels 20 to 25 inclusive. This angular relation of the internal flange to the side wall is illustrated in the cross sectional view in FIG. 3. This figure also illustrates the position of the tetrahedral articles 56 with respect to the angular relation of the side wall panels 20 to 25 inclusive and the internal flange 30.

The bottom panel free side edges 38 are engaged in a locked abutting relation by means of the complementary bottom panel side edge protruding portions 40. The bottom panel triangular sections 41 are fanfolded in a vertically disposed plane about the included portion of score 26 and the adjacent margins of the bottom panels, defined by angular scores 42, are in abutted relation as illustrated in FIGS. 2, 4 and 5.

FIG. 5 is a cross sectional view through the bottom panel triangular sections 41, further illustrating the abutting relation of the components of the internal flange 30 which tends to fix the internal flange in the upwardly and inwardly acute angular relation to the container side walls.

In another embodiment of the invention, illustrated in FIG. 6, top flaps 44 through 49 are provided and are foldably connected by a top flap score line 50 to the top edge of the container B illustrated in FIG. 2. The provision of top flaps aids in stacking the containers and tends to retain the contents in the orderly arrangement when the container is subjected to severe rough handling.

In a further embodiment, a stacking stud 51, FIG. 6, is formed from an extension above the top edge of one or more side wall panels of the container. A recessed portion 52 in the bottom margin of the side wall panel, vertically aligned with the stacking stud 51 and essentially corresponding in shape to the stacking stud, permits the engagement of two or more containers in a vertically aligned relation. In the stacked aligned relation, the stacking stud of one container engages the recessed portion of the superimposed container.

A further embodiment of the invention is illustrated in FIG. 7 wherein a bottom closure insert 53 is positioned in the container. The bottom closure insert 53 overlies the void in the container bottom defined by bottom flange free end edge 31 and effectively seals the container from contamination, dust or other foreign matter. The insert may be flexible plastic film, paper, fibreboard or other suitable material, scored or slotted if necessary. A relatively rigid fibreboard construction is preferred in those instances where the article or articles being packed in the container are such that additional bottom support is desirable. At least the marginal portions 54 of the insert 53 are downwardly deflected and abut in part the intersection of the internal flange 30 and the container side wall panels 20 to 25 inclusive.

In utilizing the preferred embodiment of the invention, container B, FIG. 2, a top closure pad 55, FIG. 8, may be positioned in an overlying and contacting relation with the top edges, 28, of the side wall panels of the container, thereby permitting the stacking of additional containers in vertical relation with successive pads therebetween. It is evident that the pads 55 may have a substantially greater area than the cross section of a single container, the single pad serving as a top closure member for two or more containers in side by side relation.

The package comprising an orderly arrangement of the tetrahedral articles 56 positioned in the container is illustrated in FIG. 9. FIG. 10 is a perspective view of a typical tetrahedral article referred to herein. The container may be loaded manually but preferably is loaded by automatic means. An article guiding and retaining means or platen may be positioned in the void defined by the free end edges 31 of the internal flange in the bottom closure of the container.

The tetrahedral articles are dropped into the container in a manner whereby at least some of the articles are deflected into position and retained by the platen until the packing arrangement is completed and the articles 56 in combination then become self-supporting in an arched effect, spanning the void in the bottom of the container. The underface of the articles have an essentially pyramidal conformation. The assembly or group of articles are effectively supported and retained by the side wall panels 20 to 25 inclusive of the container and the partial bottom closure comprised of the internal flange 30.

One or more handholes 58 defined by internal edge 59 may be provided in the container as illustrated in FIG. 9. The handhole or handholes are preferably positioned on one or more of the vertical scores 26, defining the side edges of the wall panels 20 to 25 inclusive, and are vertically so arranged in respect to the arrangement of tetrahedral articles within the container, that a void between the articles and the adjacent side wall panels is exposed, permitting the fingers to be inserted readily through the handhole and into the container.

It is to be understood that the particular embodiments of the invention described is illustrative and not restrictive. The invention may be susceptible of embodiment in other modified forms. All modifications which are similar or equivalent hereto come equally within the scope of the claim next appearing.

What I claim is:

A package comprising a combination of a hexagonal container having a partial bottom closure and a plurality of tetrahedral articles arranged in a bridged self-supporting relation over a void in said bottom closure, the container having six foldably connected together upstanding side walls, the partial bottom closure comprising an internal flange with the upper face thereof upwardly and uniformly angularly disposed from the lower marginal portions of the side walls, the flanges having an inner free end edge defining an opening in the bottom closure, said flange comprised of bottom panels, said bottom panels in side marginal edgewise abutting relationship with at least one pair of abutting panel edges connected together by a vertically disposed bellows fold and at least one pair of disconnected panel side edges having alternating protruding portions, said disconnected panel edges being in locking engagement, the tetrahedral articles being positioned in the container in a cooperative self-supporting arrangement, the arrangement having an underface substantially pyramidal in conformation and supported solely at the perimeter portions thereof adjacent the side walls by the angularly disposed upper face of the internal flange, the apical portions of the underface of the arrangement bridged over the opening in the partial bottom closure.

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