Dec. 17, 1963 P. E. GROOMS 3,114,495

CONTAINER

Filed April 27, 1961

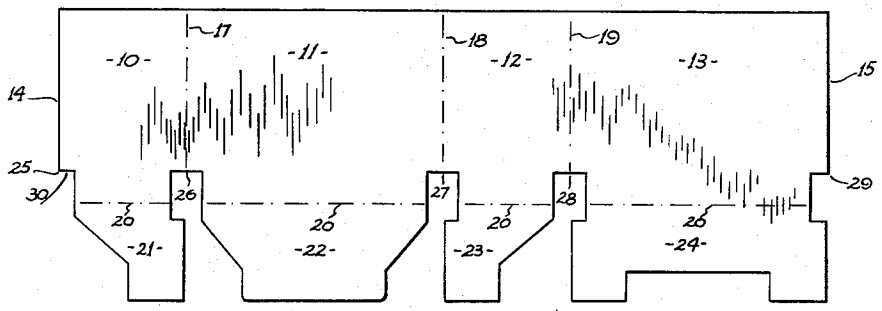


FIG. 1

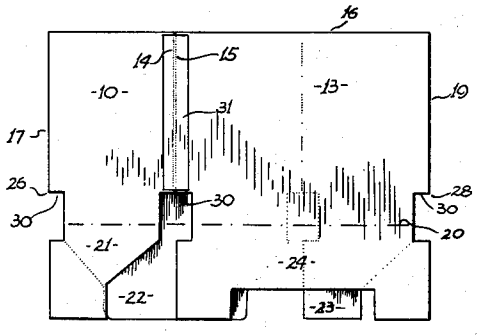


FIG. 2

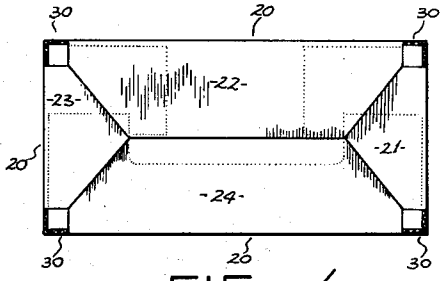


FIG. 4

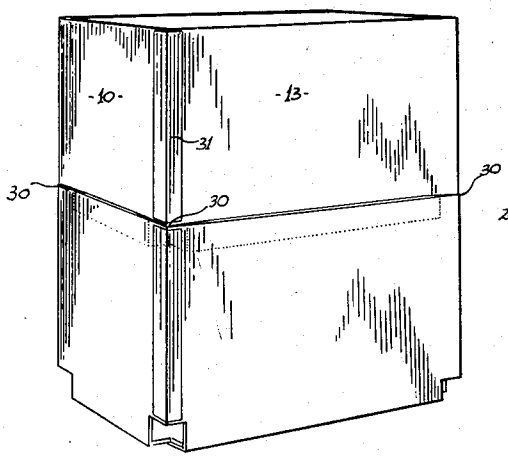


FIG. 5

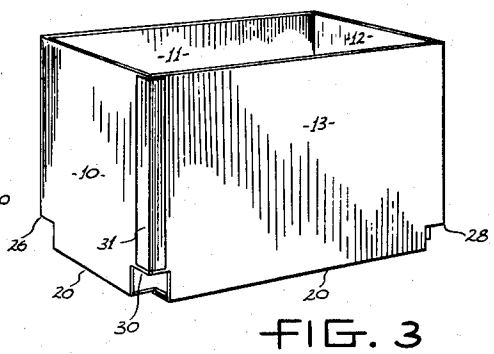


FIG. 3

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CONTAINER

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The present invention relates broadly to one piece, open top containers of paperboard or similar flexible sheet material for use in shipping relatively light weight articles such as bags of potato chips and bakery goods, that are capable of being stacked upon one another in an interlocking relationship, when filled, in such a fashion, that the weight of the upper filled container will not bear upon the contents of the lower container.

More specifically the present invention relates to a container with opposed pairs of vertical side walls and interengaged bottom closure flaps, known as a "quick" or "snap" lock closure that requires no glue, tape or stitching to secure it in a closed position. Portions of each side wall, narrower in width than the main portions of the side walls, extend below the lower terminals of the corners of the container and are hingedly attached to the bottom closure flaps along hinge lines that are parallel to, but not as wide as, the upper marginal edges of the respective side walls. When the container is erected into tubular form and the bottom closure flaps are "locked" in place, straight edge openings are formed below the lower terminals of the corners of the container. A slight inward pressure on the hinge lines, connecting the lower side wall portions and the closure flaps, will deflect the bottom portion inwardly, because of the type of closure, and allow the lower portions to be inserted within the upper marginal edges of a similar open top container. When containers are thus vertically stacked, upper marginal edges of each corner opening in the upper container abut against the upper marginal edge of the lower container, preventing any further vertical or lateral movement.

In the past, filled containers that were to be stacked vertically upon one another usually required top closures to support the weight of the upper container or containers in order to protect the contents of the lower container. This not only required additional material that added to the expense of the container, but did not provide for any interlocking arrangement that would prevent any lateral movement of the containers in relation to each other. If the containers were of an open top design, a stacking method frequently used was to partially rotate the upper container with respect to the lower container so that parts of the upper container extended beyond the upper marginal edges of the lower container. While this method did provide the necessary stacking support, it also wasted storage and shipping space, since the side walls of the containers were not in uniform alignment. Another method used for stacking open top containers was to provide the containers with tapered sides and step or shelf portions that supported the vertically stacked containers, and locked them into place. This method held the container sides in alignment and gave stacking support, but here too additional material and folding was required increasing the expense.

It is the purpose and object of my invention to dispense with the need for top covers, tapered sides, rotating upper containers in relation to the lower containers, and additional constructural features for the purpose of obtaining stacking support, by providing a one piece, open top, polygonal container, with vertical sides that will securely nest within the upper marginal edges of a similar container, at a predetermined depth, with the vertical sides of both containers in substantial alignment, to economize shipping and storage space.

Another object of my invention is to provide a container, capable of being stacked upon a similar container in interlocked relation which will prevent lateral movement of the containers in relation to each other as well as a downward movement of the upper container within the lower container.

It is a further object of my invention to provide a container as above which can be erected from the flat without additional gluing, taping or stitching for use and then collapsed for storage or shipping, to await further use.

Still another object is to provide an interlocking stacking feature for containers formed as an integral part of such containers and without the addition of any container forming materials or extraneous items.

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 and operation of this container.

The invenion altso consists in parts, arrangements and combinations hereinafter described and claimed. The accompanying drawings form a part of this specification and like numerals and symbols therein appearing refer to like parts, wherever they occur.

In the drawings:

FIG. 1 is a plan view of a one piece blank embodying the present invention.

FIG. 2 is a plan view of the container in knocked down form, after the manufacturer's joint has been made.

FIG. 3 is a perspective view of the container in erected form.

FIG. 4 is a bottom view of the container showing a preferred form of an interengaged bottom closure flap.

FIG. 5 is a perspective view of two similar containers, one container stacked upon a subjacent container, in interlocked relation.

The blank for a preferred form of the invention, as illustrated in FIG. 1, is comprised of wall panel sections **10**, **11**, **12**, and **13** with side marginal edges **14** and **15** and an upper marginal edge **16**, hingedly connected in side by side relation by vertical score lines **17**, **18** and **19**. A score line **20** forms the lower marginal edge of the side wall panels to which a form of bottom closure flaps **21**, **22**, **23** and **24** are respectively attached to wall panels **10**, **11**, **12** and **13**. The side marginal edges **14** and **15** of the blank and the vertical score lines **17**, **18** and **19** are terminated at **25**, **26**, **27**, **28** and **29** by terminal edge **30**. Such terminals being spaced equally above the score line **20**. Lower portions of the wall panels **10**, **11**, **12** and **13** that extend below the horizontal plane of the terminals of the side edges and vertical score lines, are of lesser widths than the main portions of their corresponding wall panels whereby openings are formed with vertical side edges extending above and below the horizontal closure flap score line and lower marginal edge of the wall panels **20**.

To form the container from the blank shown in FIG. 1, wall panel **13** and its hingedly connected closure flap **24** are folded in face to face relation with wall panel **12** and a portion of wall panel **11** along score line **19** and wall panel **11** and its attached closure flap **21** are folded into face to face relation with a portion of wall panel **11**, the two side marginal edges **14** and **15** of the blank are then in substantial abutment and the manufacturing joint is made by sealing with a strip of tape **31**, running from the top marginal edge **16** of the blank to lower terminal edge **30**, as shown in FIG. 2.

From the knocked down or flat form, as shown in FIG. 2, in which it can be easily stored or shipped to its point of use, the container can be easily erected for filling, as shown in FIG. 3, without any further taping, gluing or stitching, through the use of a well known "quick" or "snap" lock bottom closure. A preferred form of a

"quick" lock bottom closure, as shown in blank form in FIG. 1, comprises flaps 21, 22, 23 and 24 hingedly connected along score line 20 to side wall panels 10, 11, 12 and 13, respectively. Flaps 21 and 23 are similarly formed with extreme diagonal marginal edge portions and reduced end portions. Flap 22 has diagonal side edges converging equally toward and terminating at a reduced end portion. Flap 24 has two projecting portions defining a recessed portion, therebetween. As shown in FIG. 4, the bottom flaps may be locked in a closed position by first folding flap 24 inwardly along score line 20 to substantially a right angle to the side walls. Next flaps 21 and 23 are folded inwardly against flap 24. Flap 22 is then inwardly folded against the other three flaps and by further inward pressure on flap 22, its reduced end portion will be forced inwardly between the projecting portions of flap 24, until it has cleared the inner edge of the recessed portion of flap 24. The end portion of flap 22 will then "snap" behind the recessed portion of flap 24 and will maintain the flaps in closed position and the container in an erected tubular form. To release the bottom closure lock, all flaps are pushed inwardly to a point where the reduced end portion of flap 22 is no longer held behind the recessed portion of flap 24. All flaps may then be folded outwardly into the plane of the respective wall panels and the container returned into its flat knocked down form as shown in FIG. 2.

The primary purpose for using a "quick" or "snap" bottom lock closure is to provide a bottom closure that is capable of being deflected slightly inwardly, which will allow the bottom of an erected container, as shown in FIG. 3, to be inserted in the top of a similar container, as shown in FIG. 5. In the container, as shown in FIG. 3, the inner dimensions of the bottom area are the same as the inner dimensions of the top area. When a slight inward pressure is placed on the bottom of the container at the score line 20, as shown in FIG. 3, the "quick" lock bottom closure will be slightly deflected inwardly, which will make the dimensions of the bottom portion of the container smaller than the dimensions of the upper portion, while the corners of the container remain vertical from the upper marginal edge 16 to their lower terminal edges 30. When the deflected lower portion of one container is placed within the top marginal edges of a second similar container, as shown in FIG. 5, the outer faces of the lower portions of the side walls of the upper container are forced into face to face relation with the inner faces of the upper marginal portions of the lower container's wall panels. This outward thrust of the bottom portion of the upper container against the upper marginal edges of the lower container will slightly round the upper marginal edges of the lower container. In this position, the edges 30 of the upper container will then abut with the corner portions of the upper marginal edge of the lower container, since the dimensions of the upper container through the points 25, 26, 27, 28 and 29 will not have been affected by the deflection of the lower portions of the side walls. The upper container will then be securely held in place and be prevented from vertical and lateral movement in relation to the lower container.

The area where the two containers abut will be substantially in the same plane with no portions of the lower container projecting within the walls of the upper container, which could possibly damage the contents of the upper container.

The full weight of the upper container and its contents is borne by the areas of the corners of the upper edge of the lower container which abut against the lower corner portions of the upper container, thereby protecting the contents of the lower container from being crushed.

It is to be noted that the bottom closure is described herein as a "snap" or "quick" lock for ease of description but other equivalent locking closures may be employed or even conventional slotted flaps. This is possible so long as the flap closure is so proportioned or designed that the downwardly projecting lower wall portions may be slightly deflected inwardly to permit telescoping vertically stacked containers to the predetermined degree. In the case of the conventional slotted flap closures the flaps must necessarily be deflected inwardly in their horizontal plane prior to being secured together by adhesive, staples or tape in the conventional manner.

It is to be understood that the embodiments herein described are illustrative and not restrictive, and it is also to be understood that the invention may be susceptible of embodiments in other modified forms and that all such modifications which are similar or equivalent hereto come equally within the scope of the claims next appearing.

Having thus described my invention, I claim:

1. A tubular open top container adapted for stacking, comprising at least two pairs of vertical opposed wall panels with upper and lower marginal edges, said wall panels hingedly connected by vertical score lines to form corners and having the lower marginal edge defined by a flap score line, bottom closure flaps hinged to said vertical wall panels by said flap score lines, the wall panels including lower marginal edge portions, said lower marginal portions having free side edges spaced laterally inwardly from the vertical scores and extending upwardly from the flap score a uniform distance comprising a minor portion of the vertical height of said wall panels, horizontal stacking edges connecting the adjacent lower wall portions free side edges at each corner, the vertical corner scores each terminating at the respective stacking edge, the free side edges with the stacking edges defining voids in the container walls adjacent the bottom corners thereof, the wall panel lower marginal edge portions being inwardly deflectable from the vertical disposition of the remaining wall portions and thereby adapted to insertion within the confines of the upper marginal edges of a like container in vertical stacking and the said stacking edges in abutting relation to the upper marginal edges of a like container adjacent the vertical corner scores thereof.

2. A container as claimed in claim 1 in which the bottom closure flaps are in overlapping frictional engagement and adapted to be deflected inwardly with the respective connected wall panel lower marginal edge portions.

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