Sept. 22, 1970 F. J. WAGNER 3,529,763

SELF-LOCKING CANISTER OR BOX

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FIG. 1

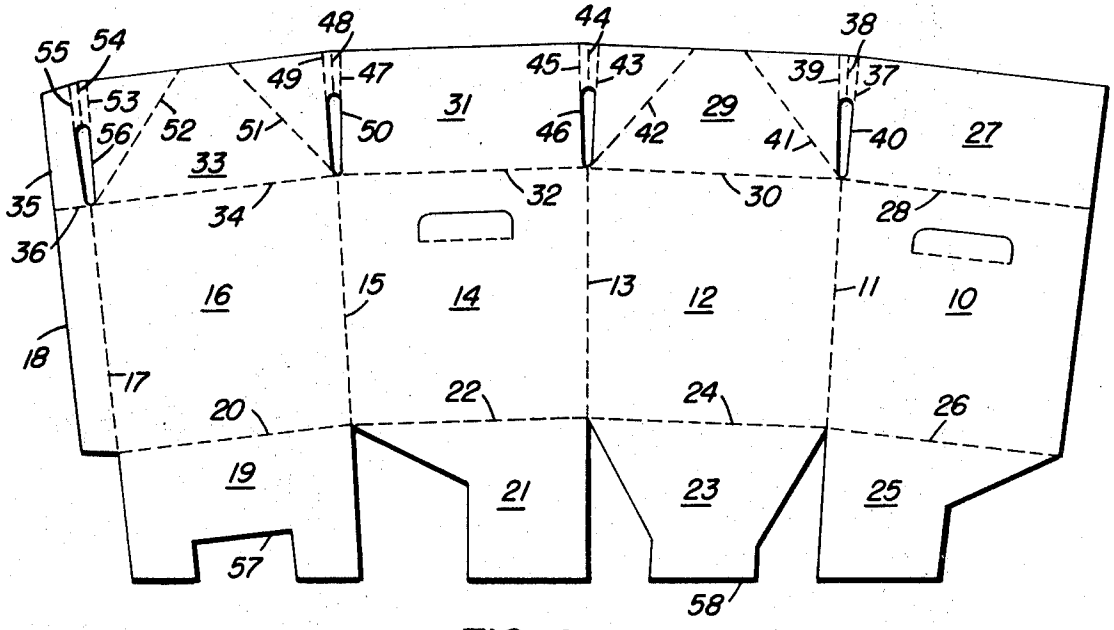

FIG. 2

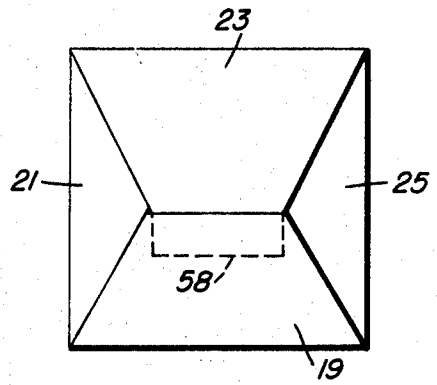

FIG. 3

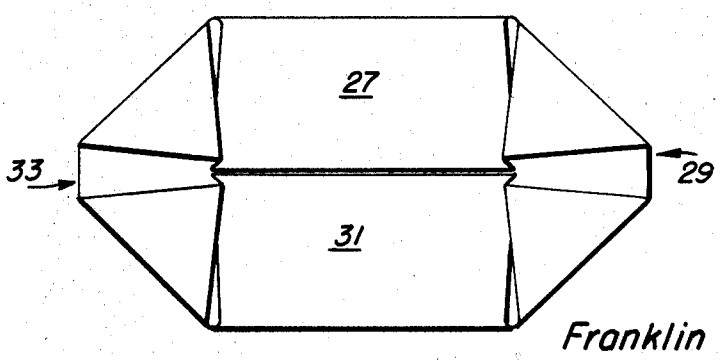

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FIG. 4

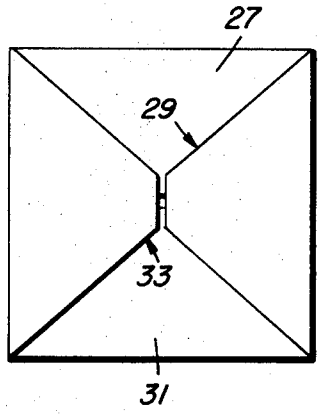


FIG. 5

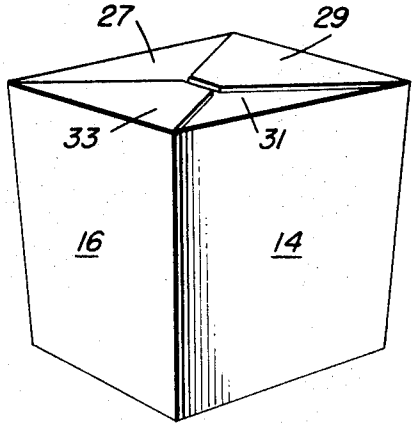
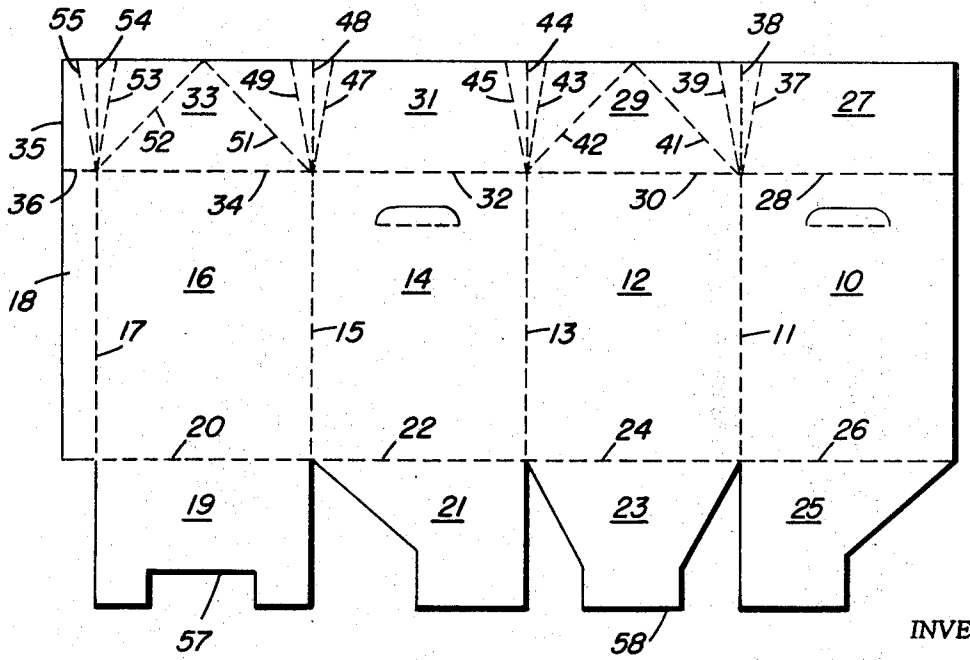


FIG. 6



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3,529,763

SELF-LOCKING CANISTER OR BOX

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U.S. Cl. 229—37 2 Claims

ABSTRACT OF THE DISCLOSURE

The canister or box-like container of this invention is formed from a one-piece blank of corrugated paperboard having a novel self-locking top closure. The top closure comprises a pair of straight cover flaps and a pair of oppositely disposed spout shaped flaps which operate to form a self-locking top when one or the other of the spout shaped flaps is pushed to closed position. Similarly the container may be opened by manipulating only one of the spout shaped flaps.

SUMMARY OF INVENTION

This invention relates to a container formed of foldable sheet material, such as paperboard, for holding and displaying a plurality of different kinds of articles. The articles stored at any one time may either be all of one kind or mixed, an may be arranged haphazardly or carefully packed.

As examples of what may be packed, the container is useful for produce, fruits, hardware, toys, ice and bulk materials. The container is preferably coated with a wax or plastic coating to achieve an impervious surface. Further the container is designed to have exposed peripheral surfaces for display and printing material.

An object of the present invention is to provide a container that may be collapsed for shipment in a flattened condition, yet is easy to set up for use. The container requires only a minimum amount of paperboard material for its construction and it offers more protection to the contents than a paper or cloth mesh bag. In particular, the design of the container of the present invention may be made eye catching and visually appealing.

It is contemplated that the container may have either straight or tapered sides depending upon the application intended. In either instance, the important and novel feature is the self-locking or snap closure top that constitutes the inventive concept. By properly cutting and scoring the four top closure flaps, it is possible to produce an over-center self-locking top which will operate to either open or close the container top by manipulation of one or the other top closure flaps.

In the preferred embodiment, the bottom closure flaps comprise a conventional self locking bottom closure which may be set up either by hand or on suitable machinery. The remainder of the container consists simply of the normal side walls which, as stated hereinbefore, may be either straight or tapered.

DESCRIPTION OF DRAWING

FIG. 1 is a plan view of the blank from which one embodiment of the container is formed;

FIG. 2 is a bottom view showing the bottom closure secured;

FIG. 3 is a top view of the self locking top closure showing the flaps in opened condition;

FIG. 4 is a top view of the self locking top closure showing the flaps in closed condition;

FIG. 5 is a perspective view of the closed container; and

FIG. 6 is a plan view of the blank from which a second embodiment of the container is formed.

DETAILED DESCRIPTION

Referring particularly to FIG. 1, a blank is shown from which a tapered container of the present invention may be formed. The blank contains the conventional four side panels **10**, **12**, **14** and **16** which are separated from one another by suitable fold lines **11**, **13** and **15**. Each of these panels are slightly tapered along their length to achieve the desired container shape. A flap extension **18** is attached along fold line **17** of panel **16** to secure the container together in its erected condition. Generally the container is glued together, however one may just as readily use stitches or tape along flap **18** when it is desired to attach it to panel **10**. After flap **18** is secured, the container may be shipped to the user in the collapsed condition where it is then set up and filled.

FIG. 1 shows a preferred embodiment of a locking bottom closure of conventional design. Any other similar design could be used to satisfy the same purpose without the exercise of invention. Bottom closure flaps **19**, **21**, **23** and **25** are illustrated as being hingedly attached along fold lines **20**, **22**, **24** and **26** to the side wall panels **16**, **14**, **12** and **10** respectively. In order to set up the bottom closure, the proper sequence would be initially to square the container which has been previously taped, glued or stitched. Secondly, flap **19** is folded about fold line **20** to a position perpendicular to the side wall **16**. Thirdly, the two bottom panels **21** and **25** are folded along fold lines **22** and **26** into an overlapping relationship with flap **19**. Fourth, the bottom closure flap **23** is folded along line **24** so that tab **58** on the extreme end of flap **23** can be inserted in the cut out **57** of panel **19**. In order to carry out these different steps, it is necessary to initially force all of the flaps into the interior of the container so that the tab **58** can be inserted in cut out **57** without bending or otherwise mutilating the tab. Once the bottom closure is thus set up, the natural tendency for the corrugated paperboard is to spring back to its original position so that a strong and integrated bottom is formed.

The novel top closure for the container of the present invention is made up of four top closure flaps **27**, **29**, **31** and **33**. The two side top closure flaps **27** and **31** are straight cut and are articulated to their respective side walls **10** and **14** along fold lines **28** and **32**. These two flaps are of approximately the same size and when folded to the closed position, meet one another along their respective free edges substantially at the center of the top opening. The remaining top closure flaps **29** and **33** are attached to their respective side panels **12** and **16** along fold lines **30** and **34**. Each of these latter two flaps are scored long diagonal score lines so as to form a pair of oppositely disposed spout-like closure flaps when folded in the operative position. Flap **29** has a pair of fold lines

41 and 42 which extend from the corners along fold line 30 toward the opposite free edge in a substantially intersecting direction. The preferred embodiment, illustrated in FIG. 1 shows fold lines 41 and 42 in flaps 29 as non-intersecting at the free edge of flap 29, however the fold lines could intersect without impairing the operation of the container. Flap 33 which is of the same form as flap 29 has a similar pair of fold lines 51, 52 which extend from its opposite corners along fold line 34 toward the free edges as in flap 29.

The respective top closure flaps 27, 29, 31 and 33 are each connected to one another along fold lines 38, 44 and 48. Connected to the opposite edges of flap 33 along fold line 54 is an additional flap extension 35. The flap extension 35 as shown in FIG. 1, is a continuation of flap extension 18 along side panel 16 and connects to flap 18 along fold line 36. When the flap 18 is initially secured by either gluing, taping or stitching to side wall panel 10 in the formation of the container, the flap 35 is similarly secured to the opposite top closure flap 27.

As thus far described, the invention consists of a conventional container having four sides with a locking bottom closure and a self locking top closure consisting of equally sized top flaps 27 and 31, and spout-like top flaps 29, 33. In order that the invention is able to function by snapping open or closed, triple scores are applied at each corner of the top closure to allow the spout-like top flaps 29, 33 to close by depressing the opposite flaps 27, 31. Score lines 37, 38, 39 between flap 27 and flap 29 in combination with the score lines 43, 44, 45 and 47, 48, 49, and 53, 54, 55 are necessary to provide the snap down feature. FIG. 3 shows in plan how the triple scores form gussets at each corner of the top to allow the top of the carton to function. In operation, the respective triple folds collapse to form triangular shaped gussets wherein the fold lines 38, 44, 48 and 54 become the apexes of each triangle. Each apex is directed outwardly toward the interior of the container in the erected condition.

For the container with tapered side walls formed from the blank shown in FIG. 1, additional means are required in order to render the container easier to close and open. To accomplish this purpose, cut-outs are applied at 40, 46, 50 and 56 located along the triple scored gussets at each corner. These cut-outs are only necessary when the side walls of the container are tapered since the top closure can easily be manipulated when the container has straight sides without the cut-outs.

Hence with the container in the condition shown in FIG. 3, with the top closure partially closed, one need only operate one or the other of spout-like panels 29 or 33 toward the closed position and the opposite side not operated will automatically snap closed. Similarly to open the completely closed container of FIG. 4, it is only necessary to pull open one or the other of spout-like closures 29, 33 in order to spring open the entire container. The reason for this unique operation is, of course, the stressed or unstressed condition of the gusseted corners of the top closure. When the container is completely closed, as in FIG. 4, the gussets are stressed in such a manner that the top flaps 27, 31 are forced down inside the container and in order to open the container one of the flaps 29, 33 must be pulled up to unstress the gussets. This operation on one side affects the closed condition of the other side for the reason that when the flaps 27, 31 move from the depressed condition to the open condition, they force the same movement on the other side. Similarly when one side, i.e., flap 29 or 33 is operated toward the closed condition, the gussets, being unstressed initially, become stressed and the interconnection of the flaps 27, 31 causes the side opposite to snap closed.

The perspective view of a tapered container of the present invention illustrated in FIG. 5 shows that there is adequate space on the peripheral side walls for any appropriate legends or graphic display. It will be noted that the top flaps 29 and 33 in FIG. 5 assume a closed condition

substantially level with one another and in abutting relationship. The opposite top flaps 27, 31 are shown as being depressed toward the inside of the container. The amount that the flaps 27, 31 become depressed is a function of the size and shape of the corner gussets, and the relative stiffness of the corrugated paperboard from which it is fabricated. FIGS. 4 and 5 also clearly show the usefulness provided by making the fold lines in top flaps 29 and 33 non-intersecting. It is possible in this manner to leave a blunt free edge on one of the flaps 29, 33 to get a better grip on the one flap for opening or closing.

As pointed out hereinbefore, the container blank is preferably coated with a wax or plastic coating before the container is formed. For the particular container herein described it has been found that the curtain coating process is satisfactory although other different coating processes could be used just as well. In the curtain coating process, the wax coating is applied in measured quantities to the blank as the blank passes through the wall of liquid coating. The coating is applied after the container is printed with the appropriate graphic display.

FIG. 6 shows a blank from which a second embodiment of the container may be constructed. Similar reference numerals are used in FIG. 6 to identify similar elements described above in FIG. 1. The difference between the FIG. 1 embodiment and the FIG. 6 embodiment and the FIG. 6 embodiment is the tapered versus untapered, or, straight side walls. Further, because the container with straight walls functions adequately without the cut-outs along the gusseted corners, they have been omitted from FIG. 6. Also, the diagonal fold lines in top closure flaps 29 and 33 are shown as intersecting in the FIG. 6 embodiment.

From the above description it is believed that the construction and advantages of the container hereinabove described will be readily apparent to those skilled in the art. It is also believed to be obvious that various modifications as to details of construction may be made without departing from the scope of the invention.

I claim:

1. In a container formed from a single blank of paperboard or the like and having a plurality of adjacent body forming panels foldably attached to one another along fold lines, a plurality of bottom closure flaps foldably attached to the lower edges of said body forming panels along fold lines, and an extension flap foldably attached along the free edge of one of said body forming panels and secured to another body forming panel to form the side walls of the container, the improvement comprising:

(a) a plurality of self locking top closure flaps foldably attached to the upper edges of said body forming panels along fold lines and foldably attached to one another along fold lines and further comprising;

(1) unscored flaps foldably attached to alternate pairs of opposed body forming panels;

(2) scored flaps foldably attached to intermediate pairs of opposed body forming panels;

(3) gusset panels located between the top closure flaps and defined by the fold lines connecting said top closure flaps to one another, said gusset panels being formed by triple score lines, said score lines consisting of an extension of the fold line joining the body forming panels to one another and a pair of fold lines extending divergently from the corner where each flap is attached to its respective body forming panel toward the free edge thereof; and,

(4) said scored flaps including pairs of substantially intersecting fold lines extending to the free edge thereof to divide said flaps into triangular segments that are folded over in face-to-face relation to form spout shaped closure flaps which operate when any one of said scored flaps is manipulated to automatically open or close

the container by stressing and unstressing the gusset panels of said top closure.

2. The container of claim 1 wherein the adjacent body forming panels are trapezoidal in shape and;

(5) each of the gusset forming triple scores includes a longitudinal cut-out portion forming a slot which extends along the triple score.

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